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As filed with the Securities and Exchange Commission on April 28, 2023

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 20-F

☐ **REGISTRATION STATEMENT PURSUANT TO SECTION 12(b) OR 12(g) OF THE SECURITIES EXCHANGE ACT OF 1934**

OR

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2022

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

OR

☐ **SHELL COMPANY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

Date of event requiring this shell company report: _____

For the transition period from _____ to _____

Commission File Number 0-99

PETRÓLEOS MEXICANOS

(Exact name of registrant as specified in its charter)

Mexican Petroleum	**United Mexican States**
(Translation of registrant's name into English)	**(Jurisdiction of incorporation or organization)**

Avenida Marina Nacional No. 329
Colonia Verónica Anzures
11300 Ciudad de México, México
(Address of principal executive offices)

Delia Cristina Arista Hernández
(5255) 9126-2940
ri@pemex.com
Avenida Marina Nacional No. 329
Torre Ejecutiva, Piso 38 Colonia Verónica Anzures

11300 Ciudad de México, México
(Name, telephone, e-mail and/or facsimile number and address of company contact person)

Securities registered or to be registered pursuant to Section 12(b) of the Act. None

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
None	N/A	N/A

Securities registered or to be registered pursuant to Section 12(g) of the Act. None

Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act.

Title of Each Class

4.625% Notes due 2023	**8.625% Guaranteed Bonds due 2023**
4.875% Notes due 2024	**4.250% Notes due 2025**
6.875% Notes due 2025	**6.875% Notes due 2026**
4.500% Notes due 2026	**6.500% Notes due 2027**
6.490% Notes due 2027	**5.350% Notes due 2028**
9.500% Guaranteed Bonds due 2027	**8.750% Notes due 2029**
6.500% Notes due 2029	**6.840% Notes due 2030**
5.950% Notes due 2031	**6.625% Guaranteed Bonds due 2035**
6.700% Notes due 2032	**6.500% Bonds due 2041**
6.625% Guaranteed Bonds due 2038	**6.375% Bonds due 2045**
5.500% Bonds due 2044	**6.750% Bonds due 2047**
5.625% Bonds due 2046	**7.690% Bonds due 2050**
6.350% Bonds due 2048	
6.950% Bonds due 2060	

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes ☐ No ☒

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.

Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days.

Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or an emerging growth company. See definitions of "large accelerated filer," "accelerated filer," and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer ☐ **Accelerated filer** ☐ **Non-accelerated filer** ☒ **Emerging growth company** ☐

If an emerging growth company that prepares its financial statements in accordance with U.S. GAAP, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

†The term "new or revised financial accounting standard" refers to any update issued by the Financial Accounting Standards Board to its Accounting Standards Codification after April 5, 2012.

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

Yes ☐ **No** ☒

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

U.S. GAAP ☐ IFRS **as issued by the IASB** ☒ **Other** ☐

If "Other" has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow.

Item 17 ☐ **Item 18** ☐

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes ☐ **No** ☒

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EXPLANATORY NOTE

Petróleos Mexicanos and its three subsidiary entities, which we refer to as the subsidiary entities, *Pemex Exploración y Producción* (Pemex Exploration and Production), *Pemex Transformación Industrial* (Pemex Industrial Transformation) and *Pemex Logística* (Pemex Logistics), comprise the state oil and gas company of the United Mexican States, which we refer to as Mexico. Petróleos Mexicanos is a productive state-owned company of the Federal Government of Mexico, which we refer to as the Mexican Government, and each of the subsidiary entities is a productive state-owned subsidiary of Mexico. Each of Petróleos Mexicanos and the subsidiary entities is a legal entity empowered to own property and carry on business in its own name. In addition, a number of subsidiary companies that are defined in Note 1 and listed in Note 5 to our consolidated financial statements incorporated in Item 18, which we refer to as our subsidiary companies, are incorporated into the consolidated financial statements; these subsidiary companies are also identified with their corresponding ownership percentages in "—Consolidated Structure of PEMEX" on page 4. Petróleos Mexicanos, the subsidiary entities and the subsidiary companies are collectively referred to as "PEMEX" or "we." See "*Item 4—Information on the Company—History and Development—Corporate Structure*" for more details.

References herein to "U.S. $," "$," "U.S. dollars" or "dollars" refers to dollars of the United States of America. References herein to "pesos" or "Ps." are to the legal currency of Mexico. References herein to "euros" or "€" are to the legal currency of the European Economic and Monetary Union. References herein to "pounds sterling" or "£" are to the legal currency of the United Kingdom. References herein to "Swiss francs" are to the legal currency of the Swiss Confederation. References herein to "Japanese yen" or "¥" are to the legal currency of Japan. References herein to "Australian dollars" are to the legal currency of Australia. The term "billion" as used herein means one thousand million. Amounts in this annual report are rounded, and the totals may therefore not precisely equal the sum of the numbers presented.

Our consolidated financial statements included in this annual report were prepared in accordance with International Financial Reporting Standards as issued by the International Accounting Standards Board. We refer in this report to "International Financial Reporting Standards as issued by the International Accounting Standards Board" as IFRS. In addition, these consolidated financial statements were audited in accordance with the International Standards on Auditing, as required by the *Ley del Mercado de Valores* (Securities Market Law) and the *Disposiciones de carácter general aplicables a las emisoras de valores y a otros participantes del mercado de valores* (General Provisions applicable to issuers of securities and other participants in the securities market) in each case, of Mexico, for purposes of filing with the *Comisión Nacional Bancaria y de Valores* (National Banking and Securities Commission, or the CNBV) and the *Bolsa Mexicana de Valores, S.A.B. de C.V.* (Mexican Stock Exchange), and in accordance with the standards of the Public Company Accounting Oversight Board (United States), or PCAOB, for purposes of filings with the U.S. Securities and Exchange Commission, or the SEC.

The regulations of the SEC do not require foreign private issuers that prepare their financial statements on the basis of IFRS to reconcile such financial statements to United States Generally Accepted Accounting Principles, which we refer to as U.S. GAAP. Accordingly, while we have in the past reconciled our consolidated financial statements prepared in accordance with *Normas de Información Financiera Mexicanas* (Mexican Financial Reporting Standards) to U.S. GAAP, those reconciliations are no longer presented in our filings with the SEC. We do, however, continue to provide the disclosure required under the U.S. Financial Accounting Standards Board Accounting Standards Codification (ASC) Topic 932 "Extractive Activities—Oil and Gas" (which we refer to as ASC Topic 932), as this is required regardless of the basis of accounting on which we prepare our consolidated financial statements.

We maintain our consolidated financial statements and accounting records in pesos. Unless otherwise indicated, we have translated all peso amounts to U.S. dollars in this Form 20-F, including all convenience translations of our consolidated financial statements included herein, at an exchange rate of Ps. 19.4143 = U.S. $1.00, which is the exchange rate that the *Secretaría de Hacienda y Crédito Público* (Ministry of Finance and Public Credit) instructed us to use on December 31, 2022. You should not construe these translations from pesos into dollars as actually representing such U.S. dollar amounts or meaning that you could convert such amounts into U.S. dollars at the rates indicated. Mexico has a free market for foreign exchange, and the Mexican Government allows the peso to float freely against the U.S. dollar. There can be no assurance that the Mexican Government will maintain its current policies with regard to the peso or that the peso will not depreciate or appreciate significantly in the future. Due to the volatility of the peso/U.S. dollar exchange rate, the exchange rate on any date subsequent to the date hereof could be materially different from the rate indicated above.

PRESENTATION OF INFORMATION CONCERNING RESERVES

The proved hydrocarbon reserves included in this report for the year ended December 31, 2022, are those that we have the right to extract and sell based on assignments granted to us by the Mexican Government.

The estimates of our proved reserves of crude oil and natural gas for the five years ended December 31, 2022 included in this report have been calculated according to the technical definitions required by the SEC. DeGolyer and MacNaughton Corp. (which we refer to as "DeGolyer and MacNaughton"), GLJ Ltd. (which we refer to as "GLJ"), Ryder Scott Company L.P. (which we refer to as "Ryder Scott") and Sproule International Limited and Sproule México, S.A. de C.V. (which we refer to as "Sproule") conducted reserves audits of our estimates of our proved hydrocarbon reserves as of December 31, 2022 or January 1, 2023, as applicable. All reserves estimates involve some degree of uncertainty. For a description of the risks relating to reserves and reserves estimates, see “Item 3—Key Information—Risk Factors—Risk Factors Related to our Relationship with the Mexican Government—Hydrocarbon reserves are based on estimates, which are uncertain and subject to revisions,” “—We must make significant capital expenditures to maintain our current production levels, and to maintain, as well as increase, the proved hydrocarbon reserves assigned to us by the Mexican Government. Reductions in our income, adjustments to our capital expenditures budget or an inability to obtain financing may limit our ability to make capital investments” and “—The Mexican nation, not us, owns the hydrocarbon reserves located in Mexico and our right to continue to extract these reserves is subject to the approval of the *Secretaría de Energía* (Ministry of Energy or "SENER").”

FORWARD-LOOKING STATEMENTS

This annual report on Form 20-F contains words, such as “believe,” “expect,” “anticipate” and similar expressions that identify forward-looking statements, which reflect our views about future events and financial performance. We have made forward-looking statements that address, among other things, our:

- exploration and production activities, including drilling;
- activities relating to import, export, refining, transportation, storage and distribution of petrochemicals, petroleum, natural gas and oil products;
- activities relating to our lines of business;
- projected and targeted capital expenditures and other costs;
- trends in international and Mexican crude oil and natural gas prices;
- liquidity and sources of funding, including our ability to continue operating as a going concern;
- farm-outs, joint ventures and strategic alliances with other companies; and
- the monetization of certain of our assets.

Actual results could differ materially from those projected in such forward-looking statements as a result of various factors that may be beyond our control. These factors include, but are not limited to:

- general economic and business conditions, including changes in international and Mexican crude oil and natural gas prices, refining margins and prevailing exchange rates;
- credit ratings and limitations on our access to sources of financing on competitive terms;
- our ability to find, acquire or gain access to additional reserves and to develop, either on our own or with our strategic partners, the reserves that we obtain successfully;
- the level of financial and other support we receive from the Mexican Government;
- national or international public health events, including the outbreak of pandemic or contagious disease, such as the COVID-19 pandemic;
- the outbreak of military hostilities, including an escalation of Russia's invasion of Ukraine and the potential destabilizing effect of such conflict;
- effects on us from competition, including on our ability to hire and retain skilled personnel;

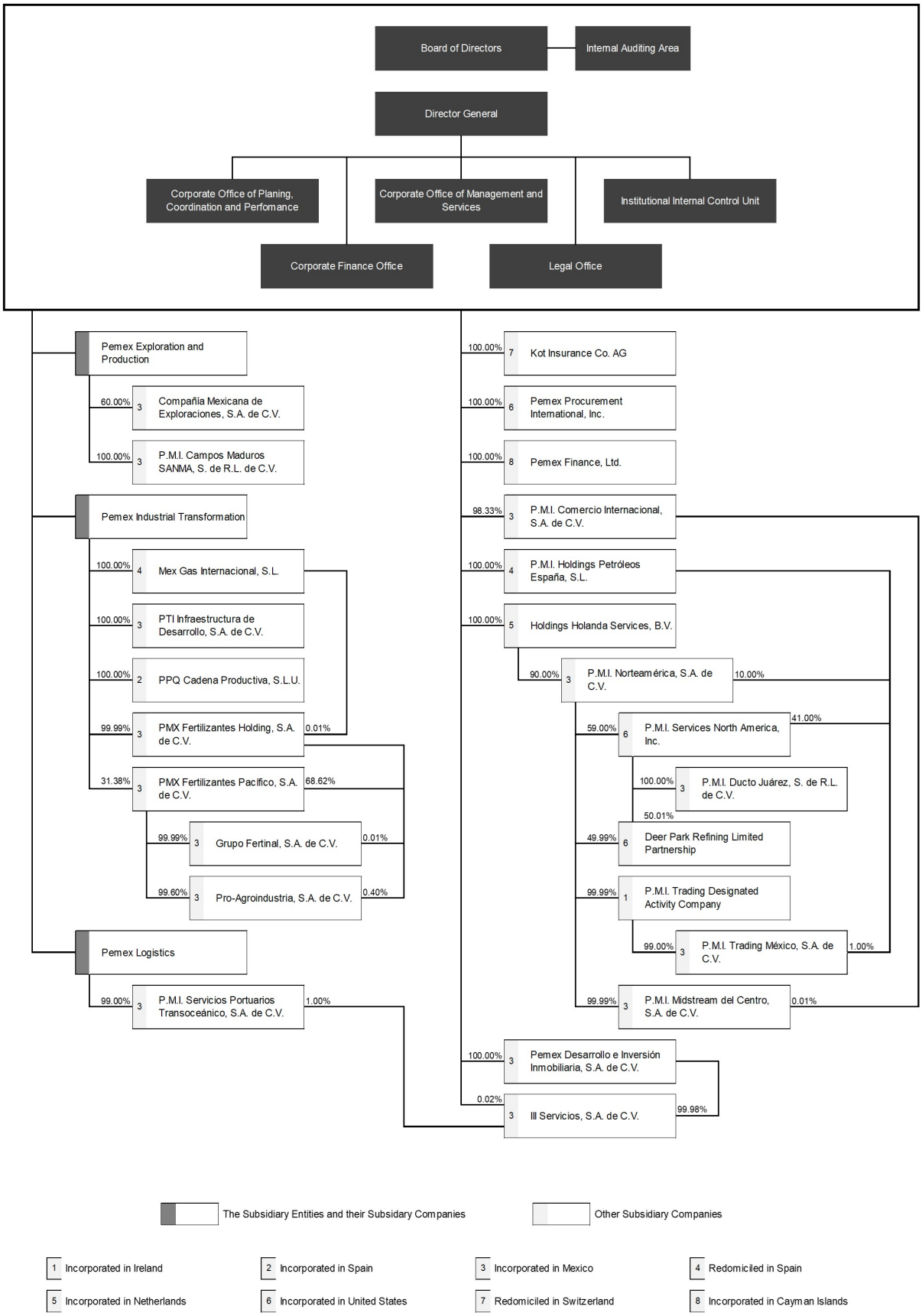
- uncertainties inherent in making estimates of oil and gas reserves, including recently discovered oil and gas reserves;
- technical difficulties;
- significant developments in the global economy;
- significant economic or political developments in Mexico and the United States;
- developments affecting the energy sector;
- changes in, or failure to comply with, our legal regime or regulatory environment, including with respect to tax, environmental regulations, fraudulent activity, corruption and bribery;
- receipt of governmental approvals, permits and licenses;
- natural disasters, accidents, blockades and acts of sabotage or terrorism;
- the cost and availability of adequate insurance coverage; and
- the effectiveness of our risk management policies and procedures.

Accordingly, you should not place undue reliance on these forward-looking statements. In any event, these statements speak only as of their dates, and we undertake no obligation to update or revise any of them, whether as a result of new information, future events or otherwise.

For a discussion of important factors that could cause actual results to differ materially from those contained in any forward-looking statement, see "Item 3—Key Information—Risk Factors."

CONSOLIDATED STRUCTURE OF PEMEX

The following chart presents the consolidated structure of PEMEX as of December 31, 2022.


Board of Directors
Internal Auditing Area
Director General
Corporate Office of Planing, Coordination and Perfomance
Corporate Office of Management and Services
Institutional Internal Control Unit
Corporate Finance Office
Legal Office
Pemex Exploration and Production
60.00% 3 Compañía Mexicana de Exploraciones, S.A. de C.V.
100.00% 3 P.M.I. Campos Maduros SANMA, S. de R.L. de C.V.
Pemex Industrial Transformation
100.00% 4 Mex Gas Internacional, S.L.
100.00% 3 PTI Infraestructura de Desarrollo, S.A. de C.V.
100.00% 2 PPQ Cadena Productiva, S.L.U.
99.99% 3 PMX Fertilizantes Holding, S.A. de C.V. 0.01%
31.38% 3 PMX Fertilizantes Pacífico, S.A. de C.V. 68.62%
99.99% 3 Grupo Fertinal, S.A. de C.V. 0.01%
99.60% 3 Pro-Agroindustria, S.A. de C.V. 0.40%
Pemex Logistics
99.00% 3 P.M.I. Servicios Portuarios Transoceánico, S.A. de C.V. 1.00%
100.00% 7 Kot Insurance Co. AG
100.00% 6 Pemex Procurement International, Inc.
100.00% 8 Pemex Finance, Ltd.
98.33% 3 P.M.I. Comercio Internacional, S.A. de C.V.
100.00% 4 P.M.I. Holdings Petróleos España, S.L.
100.00% 5 Holdings Holanda Services, B.V.
90.00% 3 P.M.I. Norteamérica, S.A. de C.V. 10.00%
59.00% 6 P.M.I. Services North America, Inc. 41.00%
100.00% 3 P.M.I. Ducto Juárez, S. de R.L. de C.V.
50.01%
49.99% 6 Deer Park Refining Limited Partnership
99.99% 1 P.M.I. Trading Designated Activity Company
99.00% 3 P.M.I. Trading México, S.A. de C.V. 1.00%
99.99% 3 P.M.I. Midstream del Centro, S.A. de C.V. 0.01%
100.00% 3 Pemex Desarrollo e Inversión Inmobiliaria, S.A. de C.V.
0.02% 3 III Servicios, S.A. de C.V. 99.98%
The Subsidiary Entities and their Subsidary Companies
Other Subsidiary Companies
1 Incorporated in Ireland
2 Incorporated in Spain
3 Incorporated in Mexico
4 Redomiciled in Spain
5 Incorporated in Netherlands
6 Incorporated in United States
7 Redomiciled in Switzerland
8 Incorporated in Cayman Islands

PART I

Item 1. Identity of Directors, Senior Management and Advisers

Not applicable.

Item 2. Offer Statistics and Expected Timetable

Not applicable.

Item 3. Key Information

A. Selected Financial Data

Not applicable.

B. Capitalization and Indebtedness

Not applicable.

C. Reasons for the Offer and Use of Proceeds

Not applicable.

D. Risk Factors

Risk Factors Related to Our Operations

We have a substantial amount of indebtedness and other liabilities and are exposed to significant liquidity constraints, which could make it difficult for us to obtain financing on favorable terms and could adversely affect our financial condition, results of operations and ability to repay our debt and, ultimately, our ability to operate as a going concern without additional support from the Mexican Government, which we may not receive.

We have a substantial amount of debt, which we have incurred primarily to finance our capital investment projects. Due to our heavy tax burden, our cash flow from operations in recent years has not been sufficient to fund our capital expenditures and other expenses and, accordingly, showed a significant increase in our indebtedness. Therefore, in order to develop our assigned hydrocarbon reserves, service our indebtedness and amortize scheduled debt maturities, we will need to obtain funds from a broad range of sources, in addition to continuing efficiency and cost-cutting initiatives. There can be no assurances that we will continue to have access to capital on favorable terms or any terms at all. During 2022, we received support from the Mexican Government for debt repayments, and such additional support may not be available in upcoming years.

As of December 31, 2022, our total indebtedness, including accrued interest, was Ps. 2,091.5 billion (U.S. $107.7 billion), in nominal terms, which represented a 7.0% decrease in peso terms compared to our total indebtedness, including accrued interest, of Ps. 2,249.7 billion (U.S. $115.9 billion) as of December 31, 2021. As of December 31, 2022, 38.7% of our existing debt, or Ps. 808.8 billion (U.S. $41.7 billion), including accrued interest, is scheduled to mature in the next three years, including Ps. 465.9 billion (U.S. $24.0 billion) scheduled to mature in 2023. Our working capital improved from a negative working capital of Ps. 464.3 billion (U.S. $23.9 billion) as of December 31, 2021 to a negative working capital of Ps. 401.8 billion (U.S. $20.7 billion) as of December 31, 2022. Our level of debt may increase further in the short or medium term as a result of new financing activities or future depreciation of the peso as compared to the U.S. dollar, and may have an adverse effect on our financial condition, results of operations and liquidity position. To service our debt, we have relied and may continue to rely on a combination of cash flows from our operations, drawdowns under our available credit facilities, capital contributions from the Mexican Government and the incurrence of additional indebtedness (including refinancing of existing indebtedness). During 2022, we received Ps. 45.4 billion from the Mexican Government in the form of equity contributions to support our debt repayments. These contributions represented an important source for the payment of our debt during 2021 and 2022. See "*Item 5—Operating and Financial Review and Prospects—Liquidity and Capital Resources—Overview—Changes to Our Business Plan*" for more information.

If we were unable to obtain financing on favorable terms or any terms at all, this could hamper our ability to invest in projects, exploit hydrocarbon reserves, and meet our principal and interest payment obligations with our creditors. This risk would be further magnified if we also were unable to receive support from the Mexican Government. As a result, we may be exposed to significant liquidity constraints and may not be able to service our debt or make the capital expenditures required to maintain our current production levels and to maintain, and increase, the proved hydrocarbon reserves assigned to us by the Mexican Government, which may adversely affect our financial condition and results of operations. See "*—Risk Factors Related to our Relationship with the Mexican Government—We must make significant capital expenditures to maintain our current production levels, and to maintain, as well as increase, the proved hydrocarbon reserves assigned to us by the Mexican Government. Reductions in our income, adjustments to our capital expenditures budget or an inability to obtain financing may limit our ability to make capital investments*" below.

If such constraints occur at a time when our cash flow from operations is less than the resources necessary to meet our debt service obligations, which was the case for the year ended December 31, 2022, we could be forced to further reduce our planned capital expenditures and implement further austerity measures in order to provide additional liquidity to our operations. A reduction in our capital expenditure program could adversely affect our financial condition and results of operations. Additionally, such measures may not be sufficient for us to meet our obligations.

Our consolidated financial statements have been prepared on the assumption that we will continue as a going concern.

Our consolidated financial statements have been prepared under the assumption that we will continue as a going concern. However, there is material uncertainty that raises significant doubt about our ability to continue operating as a going concern. Our consolidated financial statements do not include any adjustments that might result from the outcome of that uncertainty. If the actions we are taking to improve our financial condition, which are described in detail under "*Item 5—Operating and Financial Review and Prospects—Liquidity and Capital Resources—Overview—Changes to Our Business Plan*" are not successful, we may not be able to continue operating as a going concern.

Downgrades in our credit ratings could negatively impact our access to the financial markets and cost of financing.

We rely on access to the financial markets to fund our operations and finance the capital expenditures needed to carry out our capital investment projects. Accordingly, credit ratings are important to our business and financial condition, as credit ratings affect the cost and other terms upon which we are able to obtain funding.

Ratings address our creditworthiness and the likelihood of timely payment of our long-term debt securities. Ratings are not a recommendation to purchase, hold or sell securities and may be changed, suspended or withdrawn at any time. Our current credit ratings and the rating outlooks depend, in part, on economic conditions and other factors that affect credit risk and are outside our control, as well as assessments of the creditworthiness of Mexico.

Partially as a result of their assessment of the creditworthiness of Mexico, various rating agencies revised our ratings during July 2022, including one downgrade. See "*Item 5—Liquidity and Capital Resources—Overview*" below for some of the concerns expressed by certain ratings agencies.

We currently have a "split rating" among the rating agencies that formally rate our credit profile. Two of such rating agencies have assigned us a non-investment grade rating and the other two have assigned us an investment grade rating. For information regarding our current credit ratings, please see "*Item 5—Liquidity and Capital Resources—Overview*." While these downgrades do not constitute a default or an event of default under our debt instruments, they have increased our cost of financing. Further downgrades may have material adverse consequences on our ability to access the financial markets and the terms on which we may obtain financing, including our cost of financing. In turn, this could significantly harm our financial condition, results of operations and ability to meet existing obligations. In addition, in connection with the entry into new financings or amendments to existing financing arrangements, our financial and operational flexibility may be impaired as a result of more restrictive covenants, requirements for security and other terms that may be imposed on split-rated entities. Our split rating and any further credit rating downgrades could also negatively impact the prices of our debt securities, reduce our potential pool of investors and limit our funding sources, among other consequences. There can be no assurance that we will be able to maintain or improve our current credit ratings or outlook.

Crude oil, natural gas and petroleum products prices are volatile, and low crude oil and natural gas prices adversely affect our income and cash flows and the value of the hydrocarbon reserves that we have the right to extract and sell.

Most of our cash flow derives from sales of crude oil, petroleum products and natural gas. International prices of crude oil, petroleum products and natural gas are subject to global supply and demand and fluctuate due to many factors

beyond our control. These factors include (i) competition within the oil and natural gas industry, (ii) the existence and development of alternative sources of energy, (iii) prices of alternative sources of energy, (iv) the cost of exploration and exploitation of oil fields, (v) international economic trends, (vi) exchange rate fluctuations, (vii) expectations of inflation, (viii) domestic and foreign laws and government regulations, (ix) political, social and other events (including public health events) in major oil- and natural gas-producing and consuming nations, (x) actions taken by Organization of the Petroleum Exporting Countries ("OPEC") members and other oil exporting countries, (xi) trading activity in oil and natural gas and (xii) transactions in derivative financial instruments ("DFIs") related to oil and gas.

When international prices of crude oil, petroleum products and/or natural gas are low, we earn less revenue and, therefore, generate lower cash flows and earn less income before taxes and duties because our costs remain roughly constant. Conversely, when prices of crude oil, petroleum products and/or natural gas are high, we earn more revenue and our income before taxes and duties increases. The Mexican crude oil export price has been extremely volatile in recent years, reaching an unprecedented low of negative U.S. $7.33 per barrel on April 28, 2020 in reaction to the COVID-19 pandemic and actions taken by other oil-producing countries. During 2022, the weighted average Mexican crude oil price remained volatile, averaging U.S. $89.35 per barrel, as compared to U.S. $65.78 per barrel during 2021.

Any future decline in international crude oil and natural gas prices will have a negative impact on our results of operations and financial condition. Price fluctuations may also affect estimates of the amount and value of Mexico's hydrocarbon reserves that we have the right to extract and sell, which could affect our future production levels. See "*—Risk Factors Related to our Relationship with the Mexican Government—Information on Mexico's hydrocarbon reserves is based on estimates, which are uncertain and subject to revisions*" below and "*Item 11—Quantitative and Qualitative Disclosures About Market Risk—Changes in Exposure to Main Risks—Market Risk—Hydrocarbon Price Risk.*"

Our business may be materially and adversely affected by the emergence of epidemics or pandemics, such as COVID-19.

Public health events, including epidemics and pandemics caused by infectious agents and diseases, such as the COVID-19 pandemic, may adversely impact the health of our workforce, the operations of our partners and suppliers and demand the redesign of routines and procedures. Public health events can also significantly affect the operation of our facilities, including our oil platforms, refineries and terminals, as well as adversely impact the proper functioning of our supply chain. In addition, public health events may impact Mexico, the Mexican and/or the global economy and the international prices of crude oil, petroleum products and/or natural gas, which may in turn affect our business, results of operations and financial condition. See "*—Risk Factors Related to our Operations—Crude oil, natural gas and petroleum products prices are volatile, and low crude oil and natural gas prices adversely affect our income and cash flows and the value of the hydrocarbon reserves that we have the right to extract and sell*" below for further information.

The impact of current or future public health events is highly uncertain and will depend on numerous evolving factors that we cannot predict, including, but not limited to:

- the duration, scope, and severity of any such public health event;
- volatility in oil demand and oil prices;
- the impact of travel bans, shelter-in-place orders, or work-from-home policies;
- staffing shortages;
- interest rate and inflation rate volatility;
- general economic, financial, and industry conditions, particularly relating to liquidity and financial performance, which may be amplified by the effects of public health events; and
- the long-term effects of any such public health event on the Mexican and global economies, including on global supply chains, consumer confidence and spending, financial markets and the availability of credit for us, our suppliers and our customers, among others.

Our business could be negatively impacted by hydrocarbon price volatility as the result of, or as a result of the threat of, global military or paramilitary activity and any related destabilization of the world energy markets.

Our revenues and profitability depend on the prices of crude oil, petroleum products and natural gas. Oil prices are highly sensitive to actual and perceived threats to global geopolitical stability and to changes in production from OPEC and

OPEC+ member states and other oil-producing nations. An increase, or the threat of an increase, in military or paramilitary activities, including Russian military activities in Ukraine, could lead to increased volatility in global oil and natural gas prices. The destabilization of or increased volatility in global oil and gas prices could reduce the price we receive from our sales of oil and natural gas and adversely affect our profitability. Increases in oil and gas prices may not persist and could be followed by price decreases based on factors beyond our control, including geopolitical events.

We are an integrated oil and gas company and are exposed to production, equipment and transportation risks, criminal acts, blockades to our facilities and deliberate acts of terror that could adversely affect our business, results of operations and financial condition.

We are subject to several risks that are common among oil and gas companies. These risks include (i) production risks, including fluctuations in production due to operational hazards, accidents at our facilities and effects of natural disasters or weather, (ii) equipment risks, including those relating to the adequacy, condition and maintenance of our facilities and equipment and (iii) transportation risks, including those relating to the condition, availability and vulnerability of pipelines and other modes of transportation. Our business is subject to risks of explosions in pipelines, refineries, plants, drilling wells and other facilities, as well as oil spills, hurricanes in the Gulf of Mexico and other natural or geological disasters and accidents, fires and mechanical failures. For further information related to environmental liabilities, see "*Item 4—Information on the Company—Environmental Regulation—Environmental Liabilities.*"

Our operations are also exposed to risks arising from criminal acts to steal, divert or tamper with our crude oil, natural gas or refined products from our pipeline network. In recent years, we have experienced an increase in the illegal "tapping" of our pipelines and the illegal trade in the fuels that we produce. Such criminal activity has led to explosions, property and environmental damage, injuries and loss of life, as well as loss of revenue from the stolen products.

The actions we have taken in conjunction with the Mexican Government since 2019 to reduce the illicit market of fuels have not produced sustained improvement. In 2022 and 2021, we discovered 13,946 and 11,037 illegal pipeline taps, respectively. We are also subject to the risk that some of our employees may, or may be perceived to, be participating in the illicit market in fuels. In addition, our facilities are exposed to intentional acts of sabotage, terrorism, blockades, theft and piracy. The occurrence of incidents such as these related to the production, processing and transportation of oil and gas products could result in personal injuries, loss of life, environmental damage from the subsequent containment, clean up and repair expenses, equipment damage and damage to our facilities, which in turn could adversely affect our business, results of operations and financial condition.

We are exposed to cybersecurity incidents, failures and attacks that could adversely affect our business, results of operations and financial condition.

Our operations are highly dependent on information technology systems and services. Cyber-threats and cyber-attacks are becoming increasingly sophisticated, coordinated and costly, and could and have been targeted at our operations or information technology systems. If the integrity of our information technology systems were to be compromised due to cyber-attacks, or due to the negligence or misconduct of our employees, our business operations could be disrupted or even paralyzed, and our proprietary information could be stolen or lost. If such information security failures occur, we could face, among other things, (i) regulatory action, (ii) legal liability, (iii) damage to our reputation, (iv) a significant reduction in revenues, (v) an increase in costs (including costs associated with the recovery of information and assets), (vi) a shutdown of our operations and (vii) a loss of our investments in areas affected by such cyber-attacks, which in turn could have a material adverse effect on our reputation, results of operations and financial condition.

A continued decline in our proved hydrocarbon reserves and production could adversely affect our operating results and financial condition.

Some of our existing oil and gas-producing fields are mature and, as a result, our reserves and production may decline as reserves are depleted. In 2022, our total proven reserves had a small increase of 24.3 million barrels of crude oil equivalent, or 0.3%, after accounting for discoveries, extensions, revisions, and delimitations, from 7,426.5 million barrels of crude oil equivalent as of December 31, 2021 to 7,450.8 million barrels of crude oil equivalent as of December 31, 2022. See "*Item 4—Information on the Company—Business Overview—Exploration and Production—Reserves*" for more information about the factors leading to this increase.

Based on these numbers, our reserve replacement ratio ("RRR") in 2022 was 102.8%, a decrease as compared to a RRR of 105.1% in 2021. Our proven reserves increased from 7,426.5 million barrels of crude oil equivalent as of

December 31, 2021 to 7,450.8 million barrels of crude oil equivalent as of December 31, 2022, due to discoveries, developments, delineations and revisions of our proved reserves, in particular to the recategorization of reserves due to drilling of development wells. Our crude oil production increased by 1.6% in 2022, primarily as a result of the increase in production in our new offshore field projects Esah, Itta, Koban, Mulach, Pokche, Teca, Teekit Profundo, Uchbal, Xanab, Yaxché and onshore field projects Quesqui, Tupilco Profundo, Cibix, Teotleco and Ixachi. There can be no assurance, however, that we will be able to continue to increase, or otherwise stop or reverse the trend of decline in, our proved reserves and production, which at any time could have an adverse effect on our business, results of operations and financial condition.

Developments in the oil and gas industry and other factors may result in substantial write-downs of the carrying amount of certain of our assets, which could adversely affect our operating results and financial condition.

We evaluate on an annual basis, or more frequently where the circumstances require, the carrying amount of our assets for possible impairment. Our impairment tests are performed by a comparison of the carrying amount of an individual asset or a cash-generating unit with its recoverable amount. Whenever the recoverable amount of an individual asset or cash-generating unit is less than its carrying amount, an impairment loss is recognized to reduce the carrying amount to the recoverable amount.

Changes in the economic, regulatory, business or political environment in Mexico or other markets where we operate, such as the liberalization of fuel prices or a significant decline in international crude oil and gas prices, among other factors, may result in the recognition of impairment charges in certain of our assets. Due to the decline in oil prices and increases in the discount rates, among others, we have performed impairment tests of our non-financial assets (other than inventories and deferred taxes) at the end of each quarter. As of December 31, 2022, 2021 and 2020 we recognized an impairment charge in the amount of Ps. 83.5 billion, Ps. 1.2 billion and Ps. 36.4 billion, respectively. See Note 13 to our consolidated financial statements for further information about the impairment of certain of our assets. Future developments in the economic environment, in the oil and gas industry and other factors could result in further substantial impairment charges, adversely affecting our operating results and financial condition.

Increased competition in the energy sector could adversely affect our business and financial performance.

The Mexican Constitution and the *Ley de Hidrocarburos* (the "Hydrocarbons Law") allow other oil and gas companies, in addition to us, to carry out certain activities related to the energy sector in Mexico, including exploration and production activities, and the import and sale of gasoline. As a result, we face competition for the right to explore and develop new oil and gas reserves in Mexico. We also face competition in connection with certain refining, transportation and processing activities, as well as the distribution and sale of gasoline and other fuels. Increased competition could make it difficult for us to hire and retain skilled personnel, especially for the sale of gasoline. If we are unable to compete successfully with other oil and gas companies in the energy sector in Mexico, our results of operations and financial condition may be adversely affected.

We are subject to Mexican and international anti-corruption, anti-bribery and anti-money laundering laws. Our failure to comply with these laws could result in penalties, which could harm our reputation and have an adverse effect on our business, results of operations and financial condition.

We are subject to Mexican and international anti-corruption, anti-bribery and anti-money laundering laws. See "*Item 4—Information on the Company—General Regulatory Framework*." We maintain a corporate compliance program that includes policies and processes intended to monitor compliance with these laws, such as our internal control system. Our internal control system aims to prevent risks, anticipate any weaknesses arising from our operations or internal control over financial reporting and promote information exchange and communication. However, we are subject to the risk that our management, employees, contractors or any person doing business with us may (i) engage in fraudulent activity, corruption or bribery, (ii) circumvent or override our internal controls and procedures or (iii) misappropriate or manipulate our assets to our detriment. This risk is heightened because we have a large number of complex and significant contracts with local and foreign third parties. Although we have systems and internal policies in place for identifying, monitoring and mitigating these risks, such systems and policies have failed in the past and may not be effective in the future. Further, we cannot ensure that these compliance policies and processes will prevent intentional, reckless or negligent acts committed by our management, employees, contractors or anyone doing business with us. Any failure—real or perceived—to comply with applicable governance or regulatory obligations by our management, employees, contractors or any person doing

business could harm our reputation, limit our ability to obtain financing and otherwise have a material adverse effect on our business, financial condition and results of operations.

If we fail to comply with any applicable anti-corruption, anti-bribery or anti-money laundering laws, we and our management, employees, contractors or any person doing business with us may be subject to criminal, administrative or civil penalties and other measures, which could in turn have material adverse effects on our reputation, business, financial condition and results of operations. Any investigation of potential violations of anti-corruption, anti-bribery or anti-money laundering laws by governmental authorities in Mexico or other jurisdictions could result in an inability to prepare our consolidated financial statements in a timely manner and could adversely impact our reputation, limit our ability to access financial markets and adversely affect our ability to obtain contracts, assignments, permits and other government authorizations necessary to participate in our industry, which, in turn, could have adverse effects on our business, results of operations and financial condition.

Our management has identified material weaknesses in our internal control over financial reporting for six of the last eight years.

Our management identified material weaknesses in our internal control over financial reporting in connection with the preparation of our consolidated financial statements as of and for each of the years ended December 31, 2015, 2016, 2017, 2018, 2020 and 2021. In light of the identified material weaknesses, our management concluded that our internal control over financial reporting was not effective at December 31 of each of those years. We disclosed the circumstances giving rise to these material weaknesses—which were generally different from one year to the next—in our annual reports on Form 20-F corresponding to each of those years. As of the date of this annual report, we believe that each of these material weaknesses has been remediated. For more information, see "*Item 15—Controls and Procedures—Management's Annual Report on Internal Control over Financial Reporting*."

We cannot be certain that additional material weaknesses will not develop or be discovered in the future. There is also a risk that there could be accounting errors in our financial reporting. If our efforts to remediate any material weakness are unsuccessful, we may be unable to report our results of operations for future periods accurately and in a timely manner and make our required filings with government authorities, including the SEC. Any of these occurrences could adversely affect our results of operation and financial condition.

We participate in strategic alliances, joint ventures and other joint arrangements, which may not perform as expected, could harm our reputation and could have an adverse effect on our business, results of operations and financial condition.

We have not entered into any strategic alliances, joint ventures or other joint arrangements since 2018. However, we continue to participate in arrangements entered into before 2018 and currently enter into *contratos de servicios integrales de exploración y extracción* (long-term service contracts for oil production, or "CSIEEs"). CSIEEs are intended to reduce or reallocate risks in oil and gas exploration and production, refining, transportation and processing activities. Our partners in such arrangements may, as a result of financial or other difficulties, be unable or unwilling to fulfill their financial or other obligations under our agreements, threatening the viability of the relevant project. In addition, our partners may have inconsistent or opposing interests and may act contrary to our policies or objectives, which could be to our overall detriment. If our strategic alliances, joint ventures or other joint arrangements do not perform as expected, our reputation may be harmed and our business, financial condition and results of operations could be adversely affected.

The impending replacement of the London Interbank Offered Rate and uncertainty related to the foregoing may impact our business.

As of December 31, 2021 and 2022, we had Ps. 199.3 billion (U.S. $10.2 billion) and Ps. 145.7 billion (U.S. $7.5 billion), respectively, of variable rate indebtedness linked to the London Inter-bank Offered Rate ("LIBOR") and other benchmark rates. The Financial Conduct Authority, (the "FCA") in the United Kingdom ceased compelling banks to submit rates for the calculation of LIBOR in 2021. In response, the Federal Reserve Board and the Federal Reserve Bank of New York organized the Alternative Reference Rates Committee which identified the Secured Overnight Financing Rate ("SOFR") as its preferred alternative to LIBOR in financial contracts. In November 2020, the ICE Benchmark Administration Limited, the benchmark administrator for USD-LIBOR rates, proposed extending the publication of certain commonly-used USD-LIBOR settings until June 30, 2023 and the FCA issued a statement supporting such proposal. It is not possible to predict the effect of these changes, including when LIBOR will cease to be available or when there will be sufficient liquidity in the SOFR markets. Given that we have outstanding debt with variable rates that are indexed to

LIBOR, the transition of our existing LIBOR financing agreements to alternative benchmarks may result in unanticipated changes to the overall interest rate paid on our liabilities, which may in turn have an adverse effect on our results of operations and financial condition.

Risk Factors Related to our Relationship with the Mexican Government

The Mexican Government controls us, could transfer or reorganize our assets, or may otherwise limit our ability to satisfy our external debt obligations.

We are controlled by the Mexican Government and our annual budget may be adjusted by the Mexican Government in certain respects. Pursuant to the Petróleos Mexicanos Law, Petróleos Mexicanos was transformed from a decentralized public entity to a productive state-owned company on October 7, 2014. The Petróleos Mexicanos Law establishes a special regime governing, among other things, our budget, debt levels, administrative liabilities, acquisitions, leases, services and public works. This special regime provides Petróleos Mexicanos with additional technical and managerial autonomy and, subject to certain restrictions, with additional autonomy with respect to our budget. Notwithstanding this increased autonomy, the Mexican Government still controls us and, subject to the approval of the Chamber of Deputies, has the power to adjust our targeted net cash flow for the fiscal year based on our projected revenues and expenses, as well as our annual wage and salary expenditures.

Adjustments to our annual budget may compromise our ability to develop the reserves assigned to us by the Mexican Government and to successfully compete with other oil and gas companies that may enter the Mexican energy sector. See "*Item 4—General Regulatory Framework*" for more information about the Mexican Government's authority with respect to our budget. In addition, the Mexican Government's control over us could adversely affect our ability to make payments on our outstanding securities. Although we are wholly owned by the Mexican Government, our financial obligations do not constitute obligations of, and are not guaranteed by, the Mexican Government. See "*—Risk Factors Related to our Relationship with the Mexican Government—Our financial obligations are not guaranteed by the Mexican Government*."

The Mexican Government's agreements with international creditors may affect our external debt obligations. In certain past debt restructurings of the Mexican Government, our external indebtedness was treated on the same terms as the debt of the Mexican Government and other public-sector entities, and it may be treated on similar terms in any future debt restructuring. In addition, Mexico has entered into agreements with official bilateral creditors to reschedule public-sector external debt. The Mexican Government has not requested restructuring of bonds or debt owed to multilateral agencies.

If the Mexican Constitution and federal law were amended, the Mexican Government would have the power to reorganize our corporate structure, including a transfer of all, or a portion of, our assets to an entity not controlled, directly or indirectly, by the Mexican Government. See "*—Risk Factors Related to Mexico*" below.

Our financial obligations are not guaranteed by the Mexican Government.

Although we are wholly owned by the Mexican Government, our financial obligations do not constitute obligations of, and are not guaranteed by, the Mexican Government. Accordingly, the Mexican Government has no legal obligation to make principal or interest payments on our debt, nor would any such obligation arise if we were unable to service our financial obligations.

The Mexican Government may cease to support our debt service obligations.

The Mexican Government made equity contributions to us of Ps.45.4 billion in 2022 to support our debt service obligations. Given that the Mexican Government is not legally or contractually obligated to make such capital contributions to us, or assist us in repaying our debt, it may cease to provide such support at any time. Any change in the Mexican Government's support of our debt service obligations, including as a result of liquidity constraints or a change in policy objectives, would likely have a material adverse effect on our financial condition and ability to repay our indebtedness, as well as on the market value of our debt securities.

We pay significant taxes and duties to the Mexican Government, and, if certain conditions are met, we may be required to pay a state dividend, which may limit our capacity to expand our investment program or negatively impact our financial condition generally.

We are required to make significant payments to the Mexican Government, including in the form of taxes and duties, which may limit our ability to make capital investments. For the year ended December 31, 2022, our total taxes and duties were Ps. 457.0 billion, or 19.2% of our sales revenues in the form of taxes and duties, which constituted a substantial portion of the Mexican Government's revenues. Although in the past the Mexican Government has from time to time granted us a reduction in our tax burden via a tax credit applicable to the *Derecho por la Utilidad Compartida* (Profit-Sharing Duty or "DUC"), there can be no assurance that it will do so in the future. For more information, see "*Item 4—Information on the Company—Taxes, Duties and Other Payments to the Mexican Government—Fiscal Regime.*" As of January 1, 2023, and 2022, the applicable rate of the DUC was 40%, which represents a decrease from the rate of 54% as of December 31, 2021.

In addition, we are generally required, subject to the conditions set forth in the Petróleos Mexicanos Law, to pay a state dividend to the Mexican Government. We were not required to pay a state dividend from 2016 through 2022, and we will not be required to pay a state dividend in 2023. See "*Item 8—Financial Information—Dividends*" for more information. Although the Mexican Government has on occasion indicated a willingness to reduce its reliance on payments made by us, and recent changes to the fiscal regime applicable to us are designed in part to reduce such reliance by the Mexican Government, we cannot provide any assurances that we will not be required to continue to pay a large proportion of our sales revenue to the Mexican Government. See "*Item 4—Information on the Company—Taxes, Duties and Other Payments to the Mexican Government—Fiscal Regime*." In addition, the Mexican Government may change the applicable rules in the future.

The Mexican Government could enter into agreements with other nations to limit production.

Although Mexico is not a member of OPEC, it from time to time enters into agreements with OPEC and non-OPEC countries to reduce the global supply of crude oil. We do not control the Mexican Government's international affairs and the Mexican Government could enter into further agreements with OPEC, OPEC+ or other countries to reduce our crude oil production or exports in the future. A reduction in our oil production or exports may have an adverse effect on our business, results of operations and financial condition. For more information, see "*Item 4—Trade Regulation, Export Agreements and Production Agreements*."

The Mexican nation, not us, owns the hydrocarbon reserves located in Mexico and our right to continue to extract these reserves is subject to the approval of the Ministry of Energy.

The Mexican Constitution provides that the Mexican nation, not us, owns all petroleum and other hydrocarbon reserves located in Mexican territory. Article 27 of the Mexican Constitution provides that the Mexican Government will carry out exploration and production activities through agreements with third parties and through assignments to and agreements with us. We and other oil and gas companies are allowed to explore and extract the petroleum and other hydrocarbon reserves located in Mexico, subject to assignment of rights by the Ministry of Energy and entry into agreements pursuant to a competitive bidding process.

Access to crude oil and natural gas reserves is essential to an oil and gas company's sustained production and generation of income, and our ability to generate income would be materially and adversely affected if the Mexican Government were to restrict or prevent us from exploring or extracting any of the crude oil and natural gas reserves that it has assigned to us, or if we are unable to compete effectively with other oil and gas companies in future bidding rounds for additional exploration and production rights in Mexico. For more information, see "*—Risk Factors Related to our Relationship with the Mexican Government—We must make significant capital expenditures to maintain our current production levels, and to maintain, as well as increase, the proved hydrocarbon reserves assigned to us by the Mexican Government. Reductions in our income, adjustments to our capital expenditures budget or an inability to obtain financing may limit our ability to make capital investments*" below.

Hydrocarbon reserves are based on estimates, which are uncertain and subject to revisions.

The information on oil, gas and other reserves set forth in this annual report is based on estimates. Reserves valuation is a subjective process of estimating underground accumulations of crude oil and natural gas that cannot be measured in an exact manner; the accuracy of any reserves depends on the quality and reliability of available data, engineering and geological interpretation and subjective judgment.

Additionally, estimates may be revised based on subsequent results of drilling, testing and production. These estimates are also subject to certain adjustments based on changes in variables, including crude oil prices. Therefore, proved reserves estimates may differ materially from the ultimately recoverable quantities of crude oil and natural gas. Downward revisions in our reserve estimates could lead to lower future production, which could have an adverse effect on our results of operations and financial condition. See "*—Risk Factors Related to our Operations—Crude oil, natural gas and petroleum products prices are volatile, and low crude oil and natural gas prices adversely affect our income and cash flows and the value of the hydrocarbon reserves that we have the right to extract and sell*" above. We revise our hydrocarbon reserve estimates annually, which may result in material revisions to estimates contained in this annual report. Our ability to maintain our long-term growth objectives for oil production depends on our ability to successfully develop our reserves, and failure to do so could prevent us from achieving our long-term goals for growth in production.

The *Comisión Nacional de Hidrocarburos* (National Hydrocarbons Commission, or "CNH") has the authority to review and approve our hydrocarbon reserves estimates and may require us to adjust these estimates. A request to adjust these hydrocarbon reserves estimates could result in our inability to prepare our consolidated financial statements in a timely manner. This could adversely impact our ability to access financial markets and obtain contracts, assignments, permits and other government authorizations necessary to participate in the crude oil and natural gas industry, which, in turn, could have an adverse effect on our business, results of operations and financial condition.

We must make significant capital expenditures to maintain our current production levels, and to maintain, as well as increase, the proved hydrocarbon reserves assigned to us by the Mexican Government. Reductions in our income, adjustments to our capital expenditures budget or an inability to obtain financing may limit our ability to make capital investments.

Because our ability to maintain, as well as increase, our oil production levels is highly dependent on our ability to successfully develop existing hydrocarbon reserves and, in the long term, on our ability to obtain the right to develop additional reserves, we continually invest capital to enhance our hydrocarbon recovery factor and improve the reliability and productivity of our infrastructure. The development of the reserves assigned to us by the Mexican Government demands significant capital investments and poses significant operational challenges. Our right to develop such reserves is conditioned upon our ability to develop such reserves in accordance with our development plans, which were based on our technical, financial and operational capabilities at the time such reserves were assigned. We cannot provide assurances that we will have, or will be able to obtain, in the time frame that we expect or at all, sufficient resources or the technical capacity necessary to explore and extract the reserves that the Mexican Government assigned to us or the reserves that the Mexican Government may assign to us in the future. In the past, we have reduced our capital expenditures in response to declining oil prices, and unless we are able to increase our capital expenditures, we may not be able to develop the reserves assigned to us in accordance with our development plans. If we fail to develop the reserves assigned to us in accordance with our development plans, we could lose the right to continue to extract such reserves, which could in turn adversely affect our operating results and financial condition.

Our ability to make capital expenditures is limited by the substantial taxes and duties that we pay to the Mexican Government, the ability of the Mexican Government to adjust certain aspects of our annual budget, cyclical decreases in our revenues related to lower oil prices and any constraints on our liquidity. Our ability to make the capital investments that are necessary to maintain current production levels depends on the availability of financing. While competitive bidding rounds for exploration and extraction of hydrocarbons through the bidding process known as *Rondas* are currently suspended, this risk may be exacerbated if there is increased competition in the oil and gas sector in Mexico, as this may increase the cost of obtaining additional acreage in potential future bidding rounds for the rights to new reserves. For more information on the liquidity constraints we are exposed to, see "*—Risk Factors Related to our Operations—We have a substantial amount of indebtedness and other liabilities and are exposed to significant liquidity constraints, which could make it difficult for us to obtain financing on favorable terms and could adversely affect our financial condition, results of operations and ability to repay our debt and, ultimately, our ability to operate as a going concern without additional support from the Mexican Government, which we may not receive*" above.

In addition, we have entered into strategic alliances, joint ventures and other joint arrangements with third parties in order to develop our reserves. If our partners were to significantly default on their obligations to us, we may be unable to maintain production levels or extract from our reserves. Moreover, we cannot assure you that these strategic alliances, joint ventures and other joint arrangements will be successful or reduce our capital commitments. For more information, see "*—Risk Factors Related to Our Operations—We participate in strategic alliances, joint ventures and other joint arrangements, which may not perform as expected, could harm our reputation and could have an adverse effect on our*

business, results of operations and financial condition" above and "*Item 4—Information on the Company—History and Development—Capital Expenditures*."

The Mexican Government has historically imposed price controls in the domestic market on our products.

The Mexican Government has from time to time imposed price controls on the sales of natural gas, liquefied petroleum gas, gasoline, diesel, gas oil intended for domestic use, fuel oil and other products. As a result of these price controls, we have not been able to pass on all of the increases in the prices of our product purchases to our customers in the domestic market when the peso depreciates in relation to the U.S. dollar. A depreciation of the peso increases our cost of imported oil and gas products, without a corresponding increase in our revenues unless we are able to increase the price at which we sell products in Mexico.

In accordance with the *Ley de Ingresos de la Federación para el Ejercicio Fiscal de 2017* (2017 Federal Revenue Law), during 2017, the Mexican Government gradually removed price controls on gasoline and diesel as part of the liberalization of fuel prices in Mexico. As of the date of this annual report, sales prices of gasoline and diesel remain fully liberalized and are determined by the free market. For more information, see "*Item 4—Information on the Company—Business Overview—Industrial Transformation*." However, we do not control the Mexican Government's domestic policies and the Mexican Government could impose additional price controls on the domestic market in the future. The imposition of such price controls would adversely affect our results of operations. For more information, see "*Item 4—Information on the Company—Business Overview—Refining—Pricing Regulations*."

We may claim some immunities under the Foreign Sovereign Immunities Act and Mexican law, and your ability to sue or recover may be limited.

We are public-sector entities of the Mexican Government. Accordingly, you may not be able to obtain a judgment in a U.S. court against us unless such U.S. court determines that we are not entitled to sovereign immunity with respect to that action. Under certain circumstances, Mexican law may limit your ability to enforce judgments against us in Mexican courts. We do not know whether Mexican courts would enforce judgments of U.S. courts based on the civil liability provisions of U.S. federal securities laws. Therefore, even if you were able to obtain a U.S. judgment against us, you might not be able to obtain a judgment in Mexico that is based on such U.S. judgment. Moreover, you may not be able to enforce a judgment against our property in the United States except under the limited circumstances specified in the Foreign Sovereign Immunities Act of 1976, as amended. Finally, if you were to bring an action in Mexico seeking to enforce our obligations under any securities issued by us, satisfaction of such obligations may be made in pesos, pursuant to the laws of Mexico.

Our directors and officers, as well as some of the experts named in this annual report, reside outside the United States. Substantially all of our assets and those of most of our directors, officers and experts are located outside the United States. As a result, investors may not be able to effect service of process on our directors or officers or those experts within the United States.

Risk Factors Related to Mexico

Economic conditions and government policies in Mexico and elsewhere may have a material impact on our operations.

A deterioration in Mexico's economic condition, social instability, political unrest or other adverse social developments in Mexico could adversely affect our business and financial condition. Such events could also lead to increased volatility in the foreign exchange and financial markets, thereby affecting our ability to obtain new financing on favorable terms or at all and service our debt. In the past, the Mexican Government has implemented budget cuts in response to declines in international crude oil prices and global economic conditions and it may reduce our budget in the future. Any new budget cuts could adversely affect the Mexican economy and, consequently, our business, results of operations and financial condition. See "*Risk Factors—Risk Factors Related to our Relationship with the Mexican Government—The Mexican Government controls us, could transfer or reorganize our assets, or may otherwise limit our ability to satisfy our external debt obligations*" above.

Mexico has experienced periods of slow or negative economic growth, high inflation, high interest rates, currency devaluation and other economic problems. These problems may worsen and could adversely affect our financial condition, as well as our ability to service our debt in the absence of additional support from the Mexican Government. A deterioration in international financial or economic conditions, such as a slowdown in growth or recessionary conditions in Mexico's trading partners, including the United States, or the emergence of a new financial crisis, could have adverse

effects on the Mexican economy, our financial condition and our ability to service our debt, including by adversely affecting the Mexican Government's ability to support us.

Mexico has experienced a period of heightened criminal activity, which could affect our operations.

In recent years, Mexico has experienced a period of heightened criminal activity, primarily due to the activities of drug cartels and related criminal organizations. In addition, the development of the illicit market in fuels in Mexico has led to heightened theft and illegal trade in the fuels that we produce. In response, the Mexican Government has implemented various security measures and has strengthened its military and police forces, and we have established various strategic measures aimed at decreasing incidents of theft and other criminal activity directed at our facilities and products. See "*Item 8—Financial Information—Legal Proceedings—Actions Against the Illicit Market in Fuels*." Despite these efforts, criminal activity continues to exist in Mexico and is likely to continue. Criminal activities and the damage to human life and property associated with them may negatively impact our business continuity, financial condition and results of operations.

Economic and political developments in Mexico may adversely affect Mexican economic policy and, in turn, our operations.

Political events in Mexico may significantly affect Mexican economic policy and, consequently, our operations. The current administration and the Mexican Congress have the power to revise the legal framework that governs us. We cannot predict how any future policies could impact our results of operations and financial position, nor can we provide any assurances that political developments in Mexico will not have an adverse effect on the Mexican economy, the Mexican oil and gas industry or on our business, results of operations, financial condition and ability to repay our debt.

Economic and political developments in the United States may adversely affect Mexican economic policy and, in turn, our operations.

Economic conditions in Mexico are highly correlated with economic conditions in the United States due to the physical proximity and the high degree of economic activity between the two countries. As a result, political developments in the United States, including changes in the American administration and governmental policies, can also have an impact on the exchange rate between the U.S. dollar and the Mexican peso, economic conditions in Mexico and the global capital markets. In addition, because the Mexican economy is heavily influenced by the U.S. economy, policies that may be adopted by the U.S. government that are unfavorable to Mexico may adversely affect economic conditions in Mexico.

During 2022, our export sales to the United States amounted to Ps. 847,736 million, representing 35.6% of total sales and 79.0% of export sales for the year. Beginning in 2003 under the North American Free Trade Agreement ("NAFTA"), exports of petrochemical products from Mexico to the United States have enjoyed a zero-tariff and, subject to limited exceptions, exports of crude oil and petroleum products have also been free or exempt from tariffs. On November 30, 2018, the Presidents of Mexico and the United States and the Prime Minister of Canada signed the United States-Mexico-Canada Agreement (the "USMCA"). The USMCA came into force on July 1, 2020 and replaced NAFTA. While the USMCA provides that exports of petrochemical products from Mexico to the United States will continue to enjoy a zero-tariff rate, any future shift in the trade relationships between Mexico, the United States and Canada could require us to renegotiate our contracts or lose business, resulting in a material adverse impact on our business and results of operations.

The macroeconomic environment in which we operate is beyond our control and the future economic environment may be less favorable than in recent years. The risks associated with current and potential changes in the Mexican and United States political environment and economies are significant and could have an adverse effect on our financial condition, results of operations and ability to repay our debt.

Changes in Mexico's exchange control laws may hamper our ability to service our foreign currency debt.

The Mexican Government does not currently restrict the ability of Mexican companies or individuals to convert pesos into other currencies. However, we cannot provide assurances that the Mexican Government will maintain its current policies regarding the peso. The Mexican Government has imposed foreign exchange controls in the past and could do so again in the future. If imposed, Mexican Government policies preventing us from exchanging pesos into U.S. dollars could hamper our ability to service our debt, the majority of which is denominated in currencies other than pesos, and other foreign currency obligations.

Risk Factors Related to Climate Issues

Environmental regulations, including in connection with efforts to address climate change, could result in material adverse effects on our results of operations.

A wide range of general and industry-specific Mexican, and, in relation to certain of our assets, United States, federal and state environmental laws and regulations apply to our operations. These laws and regulations are often difficult and costly to comply with and carry substantial penalties in case of noncompliance and may therefore result in adverse operational and financial impacts. This regulatory burden increases our costs because it requires us to make significant capital expenditures and limits our ability to extract hydrocarbons, resulting in lower revenues. For an estimate of our accrued environmental liabilities, see "*Item 4—Information on the Company—Environmental Regulation—Environmental Liabilities*." In addition, noncompliance with applicable regulatory requirements may damage our reputation and limit our ability to access financing on favorable terms or at all.

In addition, global efforts to address climate change have promoted the adoption of stricter laws and regulations regarding greenhouse gas emissions in an effort to decarbonize the economy and limit global warming. This could result in additional capital requirements in a medium- to long-term horizon to execute projects included in transition plans, in economic losses due to legal liabilities or, ultimately, potential mandatory shutdown of our facilities.

Growing international concern over climate change could adversely impact our assets, strategies and results of operations.

Climate change exposes our facilities to physical risk from natural catastrophes such as floods, hurricanes, wildfires and droughts, as well as long-term hazards, such as sea level rise and increases in average temperatures. These risks could increase physical damages to our facilities and, in turn, generate economic losses and business interruption.

As a result of a transition to a decarbonized economy, we may become subject to climate change mitigation policies, such as carbon taxes and cap-and-trade schemes, which may increase our costs and expenses associated with mitigation strategy implementation and, in turn, adversely affect our financial condition.

International agreements, such as the Paris Agreement adopted by the Mexican Government, include commitments to combat climate change and adapt to its effects. Measures taken in response to these commitments could increase our costs and expenses. Additionally, such measures may boost a shift in consumer demand from petroleum-based fuel to lower-carbon alternatives, adversely affecting our operations and financial results. See "*Item 4—Environmental Regulation—Climate Change*" for more information on the Mexican Government's current legal and regulatory framework to combat climate change.

Our failure to implement a successful transition plan may have several negative impacts, including damage to our reputation and a reduction in our ability to contract with third parties and access to capital on favorable terms or at all. In addition, the path to addressing climate change involves global decarbonization, which could impact our business due to technological changes, such as cheaper renewables making oil-based energy less economical in comparison, reputational risk from bottom-up consumer pressure for sustainable products and market disruptions, such as sharp drops in hydrocarbon product prices. All of these factors may have an adverse effect on our business, results of operations and financial condition.

Deficient performance related to environmental, social and governance (ESG) criteria may adversely impact our reputation and could make it difficult for us to access financing, increase the cost of financing, reduce insurance options or increase the cost of insurance.

Recently, our financial counterparties, including investors, lenders and insurance companies, have expressed interest in our performance regarding ESG criteria.

ESG considerations encompass social challenges such as improving our practices regarding human rights, worker health and protection, fair employment practices and culture of gender equality. ESG also encompasses environmental challenges such as reduction of our emissions of pollutants and enhancement of effluent treatment, hazardous waste management and compliance with admissible water discharge parameters. Finally, in relation to governance, ESG best practices seek to integrate decision-making, risk management and internal control processes.

Our failure or inability to meet evolving stakeholder expectations for ESG practices, or the perception of such failure or inability, may harm our reputation and adversely affect our access to financing and insurance on favorable terms or at all.

Item 4. Information on the Company

HISTORY AND DEVELOPMENT

We are the largest company in Mexico by revenue according to the June 2022 edition of *Expansión* magazine. According to the November 17, 2022 issue of *Petroleum Intelligence Weekly,* we were the eleventh largest crude oil producer and the twentieth largest oil and gas company in the world based on data from the year 2021.

Our executive offices are located at Avenida Marina Nacional No. 329, Colonia Verónica Anzures, 11300, Alcaldía Miguel Hildalgo, Ciudad de México, México. Our telephone number is (52-55) 9126-8700.

In March 1938, President Lázaro Cárdenas del Río nationalized the foreign-owned oil companies that were then operating in Mexico, and the Mexican Congress established Petróleos Mexicanos through the *Decreto que crea la Institución Petróleos Mexicanos* (Decree that creates the entity Petróleos Mexicanos), which was published in the Official Gazette of the Federation and took effect on July 20, 1938.

Legal Regime

On December 21, 2013, amendments to Articles 25, 27 and 28 of the Mexican Constitution took effect, including transitional articles setting forth the general framework and timeline for implementing legislation relating to the energy sector.

On August 11, 2014, this implementing legislation was published in the Official Gazette of the Federation. The implementing legislation includes nine new laws, of which the following are most relevant to our operations:

- *Ley de Petróleos Mexicanos* (Petróleos Mexicanos Law), which took effect, with the exception of certain provisions, on October 7, 2014;
- *Ley de Hidrocarburos* (Hydrocarbons Law), which took effect on August 12, 2014; and
- *Ley de Ingresos sobre Hidrocarburos* (Hydrocarbons Revenue Law).

Together, the Hydrocarbons Law and the Hydrocarbons Revenue Law establish the legal framework for the exploration and production of oil and gas through assignments and contracts, as well as the fiscal regime through which the Mexican Government collects revenues from participants in the Mexican oil and gas industry. The Hydrocarbons Law empowers the Ministry of Energy to determine the appropriate contract model for each area that is subject to a competitive bidding process, while the Ministry of Finance and Public Credit is responsible for determining the economic and fiscal terms of each contract. See "*—Taxes, Duties and Other Payments to the Mexican Government—Fiscal Regime*" below in this Item 4. The following arrangements comprise the contractual regime established by the current legal framework for upstream activities:

- licenses, pursuant to which a license holder is entitled to the oil and gas that are extracted from the subsoil;
- production-sharing contracts, pursuant to which a contractor is entitled to receive a percentage of production;
- profit-sharing contracts, pursuant to which a contractor is entitled to receive a percentage of the profit from the sale of the extracted oil and gas;
- service contracts, pursuant to which a contractor would receive cash payments for services performed; and
- service contracts, together with licenses, production-sharing contracts and profit-sharing contracts are known as the contracts for the exploration and production of oil and gas, collectively referred to as contracts for exploration and production.

For midstream and downstream activities, including oil refining and natural gas processing, the Hydrocarbons Law establishes a permit regime that is granted by the Ministry of Energy and the *Comisión Reguladora de Energía* (Energy Regulatory Commission, or "CRE"), as applicable. The Hydrocarbons Law also sets forth the process by which entities may apply for these permits. The CRE has issued permits for the retail sale of gasoline and diesel fuel since 2016.

Under the Petróleos Mexicanos Law, Petróleos Mexicanos is a productive state-owned company, wholly owned by the Mexican Government, and has the corporate purpose of generating economic value and increasing the income of the Mexican nation while adhering to principles of equity, as well as social and environmental responsibility.

On December 2, 2014, the special regime provided for in the Petróleos Mexicanos Law, which governs Petróleos Mexicanos' activities relating to productive state-owned subsidiaries, affiliates, compensation, assets, administrative liabilities, budget, debt levels and the state dividend, took effect. On June 10, 2015, the *Disposiciones Generales de Contratación para Petróleos Mexicanos y Sus Empresas Productivas Subsidiarias* (General Provisions for Contracting for Petróleos Mexicanos and its Productive State-Owned Subsidiaries) were published in the Official Gazette of the Federation and, on June 11, 2015, the special regime for acquisitions, leases, services and public works became effective.

Corporate Structure

As of December 31, 2022, the principal lines of business of the subsidiary entities are as follows:

- Pemex Exploration and Production, formed on June 1, 2015 as a successor to *Pemex-Exploración y Producción* (Pemex-Exploration and Production), explores for, extracts, transports, stores and markets crude oil and natural gas, as well as performs well drilling, termination and repair and related services;
- Pemex Logistics, formed on October 1, 2015, provides transportation, storage and related services for crude oil, petroleum products and petrochemicals to us and other companies, through pipelines and maritime and terrestrial means, and provides guard and management services; and
- Pemex Industrial Transformation, formed on November 1, 2015 as a successor of *Pemex-Refinación* (Pemex-Refining), *Pemex-Gas y Petroquímica Básica* (Pemex-Gas and Basic Petrochemicals) and *Pemex-Petroquímica* (Pemex-Petrochemicals), refines petroleum products and derivatives; processes natural gas, natural gas liquids, artificial gas and derivatives; engages in industrial petrochemical processes; generates, supplies and trades electric and thermal energy; and commercializes, distributes and trades in methane, ethane and propylene. Pemex Industrial Transformation also commercializes, distributes and trades methane, ethane and propylene, directly or through others and also produces, distributes and trades ammonia and its derivatives and fertilizers.

Each of these subsidiary entities is a legal entity empowered to own property and carry on business in its own name and has technical and operational autonomy, subject to the central coordination and strategic direction of Petróleos Mexicanos.

Prior to July 27, 2018, *Pemex Cogeneración y Servicios* (Pemex Cogeneration and Services) operated as an additional productive state-owned subsidiary. On July 13, 2018, the Board of Directors of Petróleos Mexicanos issued the *Declaratoria de Liquidación y Extinción de Pemex Cogeneración y Servicios* (Declaration of Liquidation and Extinction of Pemex Cogeneration and Services), which was published in the Official Gazette of the Federation and became effective on July 27, 2018. As of July 27, 2018, all of the assets, liabilities, rights and obligations of Pemex Cogeneration and Services were automatically assumed by, and transferred to, Pemex Industrial Transformation, and Pemex Industrial Transformation became, as a matter of Mexican law, the successor to Pemex Cogeneration and Services. Pemex Cogeneration and Services was in turn dissolved effective as of July 27, 2018.

Prior to July 1, 2019, *Pemex Perforación y Servicios* (Pemex Drilling and Services) and *Pemex Etileno* (Pemex Ethylene) operated as an additional productive state-owned subsidiaries. On July 25, 2019, the Board of Directors of Petróleos Mexicanos issued the *Declaratoria de Extinción de Pemex Perforación y Servicios* (Declaration of Extinction of Pemex Drilling and Services) and the *Declaratoria de Extinción de Pemex Etileno* (Declaration of Extinction of Pemex Ethylene), both of which were published in the Official Gazette of the Federation on July 30, 2019 and became effective on July 1, 2019. As of July 1, 2019, all of the assets, liabilities, rights and obligations of Pemex Drilling and Services were assumed by, and transferred to, Pemex Exploration and Production, and Pemex Exploration and Production became, as a matter of Mexican law, the successor to Pemex Drilling and Services. As of July 1, 2019, all of the assets, liabilities, rights and obligations of Pemex Ethylene were assumed by, and transferred to, Pemex Industrial Transformation, and Pemex

Industrial Transformation became, as a matter of Mexican law, the successor to Pemex Ethylene. Pemex Drilling and Services and Pemex Ethylene were in turn dissolved effective as of July 1, 2019.

Prior to January 1, 2021, *Pemex Fertilizantes* (Pemex Fertilizers) operated as an additional productive state-owned subsidiary. On January 12, 2021, the Board of Directors of Petróleos Mexicanos issued the *Declaratoria de Extinción de Pemex Fertilizantes* (Declaration of Extinction of Pemex Fertilizers), which was published in the Official Gazette of the Federation on January 27, 2021 and became effective on January 1, 2021. As of January 1, 2021, all of the assets, liabilities, rights and obligations of Pemex Fertilizers were assumed by, and transferred to, Pemex Industrial Transformation, and Pemex Industrial Transformation became, as a matter of Mexican law, the successor to Pemex Fertilizers. Pemex Fertilizers was in turn dissolved effective as of January 1, 2021.

Capital Expenditures

The following table shows our capital expenditures made by each productive state-owned subsidiary, excluding non-capitalizable maintenance, for each of the three years ended December 31, 2022, 2021 and 2020 as well as the budget for these expenditures for 2023. Capital expenditure amounts are derived from our budgetary records, which are prepared on a cash basis. Accordingly, these capital expenditure amounts do not correspond to capital expenditure amounts included in our consolidated financial statements prepared in accordance with IFRS.

Capital Expenditures and Budget by Subsidiary

	Year ended December 31,			Budget
	2022	2021	2020	2023[1]
	(millions of pesos)[2]			
Pemex Exploration and Production	Ps. 161,838	Ps. 134,369	Ps. 107,149	Ps. 239,928
Pemex Industrial Transformation[3] [5]	37,813	22,416	11,991	29,881
Pemex Logistics	6,274	4,468	2,955	7,517
Pemex Fertilizers[4]	n.a.	n.a.	175	n.a.
Petróleos Mexicanos[3]	885	239	205	1,477
Total capital expenditures	**Ps. 206,811**	**Ps. 161,492**	**Ps. 122,475**	**Ps. 278,804**

Note: Numbers may not total due to rounding.
n.a.: Not applicable.

(1) Amended budget was authorized on January 31, 2023. The original budget was published in the Official Gazette of the Federation on November 28, 2022.

(2) Figures are stated in nominal pesos.

(3) Does not include financial investments in the form of equity contributions of (i) Pemex Industrial Transformation to PTI Infraestructura de Desarrollo, S.A. de C.V., for construction of the Olmeca refinery in Dos Bocas, Paraíso, Tabasco (2020 to 2023); (ii) Pemex Fertilizers (2020) and Pemex Industrial Transformation (2021 to 2023) to Pemex Fertilizantes Pacífico, S.A. de C.V., Pro-Agroindustria, S.A. de C.V., and Grupo Fertinal, S.A. de C.V., intended to support and strengthen the fertilizers business; and (iii) Petróleos Mexicanos to Holdings Holanda Services, B.V., and P.M.I. Holdings Petróleos España, S.L., for the acquisition of the Deer Park refinery in 2022.

(4) Prior to January 1, 2021, Pemex Fertilizers operated as an additional productive state-owned subsidiary. As of January 1, 2021, Pemex Fertilizers was merged into Pemex Industrial Transformation.

(5) Figures do not include capital expenditures of Deer Park for Ps. 6,050 million (US$ 312 million) in 2022, nor an estimated capital expenditure for 2023 of Ps. 3,970 million (US$ 205 million).

Source: Petróleos Mexicanos

The following table shows our capital expenditures, excluding non-capitalizable maintenance, by segment for the years ended December 31, 2022 and 2021 and the budget for these expenditures in 2023.

Capital Expenditures by Segment

	Year ended December 31,		Budget
	2022	2021	2023[1]
	(millions of pesos)[2]		
Exploration and Production	Ps. 161,838	Ps. 134,369	Ps. 239,928
Industrial Transformation			
Refining[3][4]	35,672	20,594	21,438
Gas and Aromatics	1,607	1,228	3,643
Ethylene	460	498	1,653
Fertilizers	75	96	3,148
Total	37,813	22,416	29,881
Logistics	6,274	4,468	7,517
Petróleos Mexicanos [3]	885	239	1,477
Total Capital Expenditures	**Ps. 206,811**	**Ps. 161,492**	**Ps. 278,804**

Note: Numbers may not total due to rounding.

(1) Amended budget was authorized on January 31, 2023. The original budget was published in the Official Gazette of the Federation on November 28, 2022.

(2) Figures are stated in nominal pesos.

(3) Does not include financial investments in the form of equity contributions of (i) Pemex Industrial Transformation to PTI Infraestructura de Desarrollo, S.A. de C.V., for construction of the Olmeca refinery in Dos Bocas, Paraíso, Tabasco (2020 to 2023); (ii) Pemex Fertilizers (2020) and Pemex Industrial Transformation (2021 to 2023) to Pemex Fertilizantes Pacífico, S.A. de C.V., Pro-Agroindustria, S.A. de C.V., and Grupo Fertinal, S.A. de C.V., intended to support and strengthen the fertilizers business; and (iii) Petróleos Mexicanos to Holdings Holanda Services, B.V., and P.M.I. Holdings Petróleos España, S.L, for the acquisition of the Deer Park refinery in 2022.

(4) Figures do not include capital expenditures of Deer Park for Ps. 6,050 million (U.S.$ 312 million) in 2022, nor an estimated capital expenditure for 2023 of Ps. 3,970 million (U.S.$ 205 million).

Source: Petróleos Mexicanos.

In addition to the capital expenditures budget, the financial investment budget includes equity contributions from the Mexican Government, which are used for the construction of the Olmeca refinery in Dos Bocas, Paraíso, Tabasco by our subsidiary company PTI Infraestructura de Desarrollo, S.A. de C.V. Equity contributions from the Mexican Government for the construction of the Olmeca refinery reached Ps. 129,018 million during 2022. The budget allocated to PTI Infraestructura de Desarrollo, S.A. de C.V. for the construction of the Olmeca refinery during 2023 may be subject to further equity contributions from the Mexican Government.

Capital Expenditures Budget

Capital expenditures and budget by project, excluding non-capitalized maintenance are described under each segment below in this Item 4.

The weighted average Mexican crude oil export price for 2022 was U.S.$ 89.35 per barrel. Based on its estimate that the weighted average Mexican crude oil export price would be U.S.$ 68.70 per barrel, the Mexican Congress approved a 2023 budget of Ps. 678.4 billion, including operational expenses, with the aim of achieving a zero financial balance. Our management expects that we will be able to maintain our medium- and long-term growth plans without the need to incur indebtedness beyond the amount included in our approved financing program for 2023 of Ps. 30.0 billion because our financial balance projections consider additional actions, such as implementation of optimization measures and further investment in projects that we expect will contribute to the generation of increased revenues. Our budget was based on the guiding principles of (i) maintaining the industrial safety and reliability of our facilities; (ii) consolidating the stabilization of crude oil and gas production levels, increasing these production levels towards the end of the year and sustaining such growth in the medium and long term; (iii) increasing the crude processing capacity in the National Refining System; and (iv) meeting our labor and financial obligations.

On January 31, 2023, our Board of Directors authorized an amendment to our original 2023 budget, which considers a total investment budget of Ps. 446.8 billion for capital expenditures. Our amended budget for 2023 includes Ps. 161.9 billion for non-capitalizable maintenance and Ps. 6.1 billion for financial investment of which Ps. 2.1 billion corresponds to capital contributions to our subsidiary company PTI Infraestructura de Desarrollo, S.A. de C.V. for the construction of the Olmeca refinery located in Dos Bocas, Paraíso, Tabasco, and Ps. 4.0 billion corresponds to capital contributions to our fertilizers line of business. The net capital investment in the amended budget for 2023 is Ps. 278.8 billion. We expect to allocate Ps. 239.9 billion (or 86.1%) of such budget to exploration and production programs and Ps. 29.9 billion (or 10.7%) to our industrial transformation segment. We continuously review our capital expenditures portfolio in accordance with our current and future business plans, as well as business opportunities.

Our main objectives for upstream investment are to maximize our long-term economic value, increase and improve the quality of the oil and gas reserves assigned to us, enhance Pemex Exploration and Production's reserves recovery ratio, improve the reliability of its production and transportation infrastructure for crude oil and natural gas operations and continue emphasizing industrial safety and compliance with environmental regulations. Our amended 2023 budget objectives include maintaining crude oil production at levels sufficient to satisfy domestic demand and have a surplus available for export and maintaining natural gas production levels.

Our downstream investment program seeks to increase our refining capacity, improve the quality of our product selection and the reliability of our logistics and distribution services, achieve a level of efficiency comparable to that of our international competitors and continue emphasizing industrial safety and environmental compliance.

BUSINESS OVERVIEW

Overview by Business Segment

Exploration and Production

Our exploration and production segment operates through the productive state-owned subsidiary Pemex Exploration and Production and explores for and produces crude oil and natural gas, primarily in the northeastern and southeastern regions of Mexico and offshore in the Gulf of Mexico. In nominal peso terms, our capital expenditures in exploration and production activities increased by 20.4 % in 2022. As a result of these investments, our total hydrocarbon production reached a level of approximately 926.1 million barrels of oil equivalent in 2022. Further, our crude oil production increased by 1.6% from 2021 to 2022, averaging 1,764.2 thousand barrels per day in 2022, primarily as a result of the development of our offshore fields Esah, Itta, Koban, Mulach, Pokche, Teca, Teekit Profundo, Uchbal, Xanab, Yaxche and onshore field projects Quesqui, Tupilco Profundo, Cibix, Teotleco and Ixachi and workovers, improvements and diversification of artificial systems at our other onshore fields that helped maintain production levels.

Our natural gas production (excluding natural gas liquids) increased 0.5% from 2021 to 2022, averaging 4,692.8 million cubic feet per day in 2022. This increase in natural gas production is primarily due to the development of our new offshore fields Koban, Pokche and onshore field projects Quesqui, Tupilco Profundo, Teotleco and Ixachi. Exploration drilling activity increased by 21.9% from 2021 to 2022, from 32 exploratory wells completed in 2021 to 39 exploratory wells completed in 2022. Development drilling activity increased by 27.6% from 2021 to 2022, from 127 development wells completed in 2021 to 162 development wells completed in 2022. In 2022, we completed the drilling of 201 wells in total. In 2022, our exploration drilling activity was focused on the shallow waters of the Gulf of Mexico and onshore regions and the development drilling activity was focused on increasing the production of crude oil and associated gas at new offshore fields Esah, Itta, Koban, Mulach, Pokche, Teca, Teekit Profundo, Uchbal, Xanab, Yaxche and onshore field projects Quesqui, Tupilco Profundo, Cibix, Teotleco and Ixachi.

In advance of 2022, we planned to invest in three new developments, all of them in shallow water. We will continue with the development of the other 27 of the 29 fields we have been developing during 2020, 2021 and 2022, since Jaatsul and Hok are no longer included in our development plan. In 2022, we incorporated Tlalkivak, Camatl, and Akal-NW shallow water fields into our development plan, bringing our total investment in new developments to 30 fields, 24 in shallow water, and six onshore fields. As of December 31, 2022, we had begun production in 27 of these 30 fields. These 27 fields had an average production of 387.9 thousand barrels per day of crude oil and 1,121.3 million cubic feet per day of natural gas in 2022.

Our primary objectives for 2023 include: (i) to have hydrocarbon reserves incorporation rates aligned with the production targets; (ii) optimize the portfolio of exploration and production and (iii) increase the reliability and operational efficiency of the facilities through efficient use of resources and development of productive projects. We aim to meet these objectives through the following strategies: (1) increase and accelerate the incorporation of hydrocarbon reserves by

prioritizing our exploration activities onshore, in conventional shallow waters and in adjacent blocks; (2) accelerating secondary and enhanced recovery processes to increase the recovery factor for hydrocarbon reserves in our mature and new fields; (3) expediting the development of newly discovered fields; (4) prioritizing and developing activities that improve the restitution rate of proved reserves and strengthen the hydrocarbon exploitation portfolio; (5) mitigate the production decline of the oil and gas fields and (6) reduce costs and increase the efficiency of operations in exploration, production and industrial transformation.

Entering 2023, our production goals include producing crude oil at a level of approximately 1,930.2 thousand barrels per day and maintaining natural gas production above 4,940.7 million cubic feet per day. We aim to meet these production goals through (a) exploration and development activities, (b) increasing inventory reserves through new discoveries and reclassifications and (c) managing the decline in field production by focusing our exploration and production activities in areas where we have greater experience and higher historical success rates, such as secondary and tertiary recovery systems. In addition, we intend to reallocate resources away from deep-water projects, which tend to be expensive and long-term activities, and towards shallow water and onshore projects, which have the potential for near-term results. We plan to continue the development of 35 fields in 2023; (i) 21 of which, are the fields in shallow waters we began to develop in 2019-2021; (ii) three fields in shallow water we began to develop in 2022; (iii) four fields onshore have been in development since 2019; (iv) two fields onshore we began to develop in 2021, and (v) five onshore fields that we added to our master plan for 2023. We expect that these 35 fields will be able to produce an aggregate of up to 594 thousand barrels of crude oil per day during 2023.

Industrial Transformation

Our industrial transformation segment is comprised of four principal activities: (i) refining, (ii) gas and aromatics, (iii) ethylene and derivatives and (iv) fertilizers, since January 1, 2021.

Refining

Pemex Industrial Transformation converts crude oil into gasoline, jet fuel, diesel, fuel oil, asphalts and lubricants. We also distribute and market most of these products throughout Mexico. During 2022, atmospheric distillation refining capacity remained stable at 1,640.0 thousand barrels per day.

In 2022, crude oil processing by the National Refining System registered an increase of 14.6%, from 711.6 thousand barrels per day in 2021 to 815.8 thousand barrels per day in 2022. Pemex Industrial Transformation produced 833.5 thousand barrels per day of refined products in 2022, a 15.4% increase as compared to 722.5 thousand barrels per day in 2021. This performance results from the execution of the National Refining System rehabilitation program.

Our primary goals for 2023 include: (i) continue to strengthen the refinery operation performance through our National Refining System rehabilitation program, (ii) increasing processing and production levels of gasoline, diesel and jet fuel, and (iii) progressing our residual use projects.

In addition, in January 2022, we purchased the 50.005% share in Deer Park owned by the Shell Oil Company which, in addition to the 49.995% therefore becoming owner of Deer Park. The purchase of Deer Park is intended to support our goal of strengthening our petroleum products production in order to decrease imports and become self-sufficient in fuels. Deer Park is considered an operating segment (see Notes 6 and 12 to the Consolidated Financial Statements included in this annual report).

Gas and Aromatics

Pemex Industrial Transformation processes wet natural gas to produce dry natural gas, ethane, liquefied petroleum gas (LPG) and other natural gas liquids, along with aromatic derivatives chain products such as toluene, benzene and xylene. In 2022, our total sour natural gas processing capacity remained at 4,523.0 million cubic feet per day.

In 2022, we processed 2,770.2 million cubic feet per day of wet natural gas of which 2,392.0 million cubic feet per day were sour wet gas and 378.2 million cubic feet per day were sweet wet gas. This is 5.4% higher than the 2,628.2 million cubic feet per day we processed in 2021, due to greater availability of sour wet gas in the southeast region from Pemex Exploration and Production, which resulted from a higher gas production from the Quesqui Field of approximately 500 million cubic feet per day.

In 2022, we produced 160.8 thousand barrels per day of natural gas liquids, a 6.0% decrease as compared to 171.1 thousand barrels per day in 2021. In 2022, we also produced 2,279.8 million cubic feet per day of dry gas (which is natural gas with a methane content of more than 90.0%), an increase of 9.6% compared to the 2,080.3 million cubic feet per day

produced in 2021. This increase is primarily due to higher gas production in Cactus, Nuevo Pemex and Arenque gas processing complexes by 159.4 million cubic feet per day, 72.6 million cubic feet per day and 5.5 million cubic feet per day, respectively, as a result of a higher supply of sour wet gas by Pemex Exploration and Production.

In 2022, we produced 446.3 thousand tons of aromatics and derivatives, a decrease of 6.0% compared to 474.6 thousand tons in 2021, due to operational problems in the Catalytic Reforming Cycle (CCR) Plant at La Cangrejera petrochemical complex, which resulted in intermittent operations, maintenance work and problems in the supply of auxiliary services.

Our primary goal for 2023 for this business line will be to address critical risks in the production stages of the gas processing complexes, including the maintenance and rehabilitation of the production stages to recover dry gas production and increase the recovery of liquefiable products that will allow greater production of LPG, ethane and natural gasoline.

Ethylene and Derivatives

Pemex Industrial Transformation produces, distributes and markets ethane and propylene derivatives. In 2022, we produced a total of 655.7 thousand tons of petrochemical products, a 26.2% decrease from the 888.6 thousand tons of petrochemical products produced in 2021, mainly due to major maintenance work at the ethylene unit of La Cangrejera petrochemical complex, which took place from November 2021 to August 2022. This affected the availability of raw materials for the derivatives plants, resulting in problems within the operation and the supply of auxiliary services. Another factor was the decrease in supply of ethane from the gas processing complexes.

Our ethylene segment leverages the integration of the ethane production chain to manufacture several petrochemical products, including:

- ethane derivatives, such as ethylene, polyethylene, ethylene oxide and glycols;
- propylene and derivatives; and
- other products, including, but not limited to, oxygen, nitrogen, hydrogen and butadiene.

The primary goal for our ethylene and derivatives segment in 2023 is to continue to take advantage of the installed capacity of its secondary petrochemical units, ensuring their operational reliability to capture the value generated by these chains.

Fertilizers

As of January 1, 2021, Pemex Fertilizers merged into Pemex Industrial Transformation. Therefore, our fertilizers segment operated through the productive state-owned subsidiary Pemex Fertilizers until December 31, 2020, and operates through the productive state-owned subsidiary Pemex Industrial Transformation as of January 1, 2021 as a line of business.

Our fertilizers business integrates the ammonia production chain. In 2022, the ammonia VI unit in the Cosoleacaque petrochemical complex, reached a production of 745.1 thousand tons, of which 277.8 thousand tons were ammonia, which represents an increase of 33.9 thousand tons compared to 2021, as a result of the continuous operation of the unit since February 2022. Carbon dioxide production was 467.3 thousand tons, which represents an increase of 64.7 thousand tons as compared to 2021.

For the fertilizer business line in 2023, we will continue to take advantage of the installed capacity of the secondary petrochemical units, focusing on their operational reliability to capture the value generated by these chains.

Logistics

Our logistics segment operates through the productive state-owned subsidiary Pemex Logistics and provides land, maritime and pipeline transportation, storage and distribution services to some of our subsidiaries and other companies, including Tesoro México Supply & Marketing, S. de R.L. de C.V. (a subsidiary of Marathon Petroleum Corporation), which we refer to as Tesoro, local gas stations and distributors.

During 2022, we injected 1,472.2 thousand barrels per day of crude oil and petroleum products into our pipelines, representing a 15.7% increase as compared to 2021 when we injected 1,272.9 thousand barrels per day, mainly due to higher fuel sales and an increase in crude process in refineries.

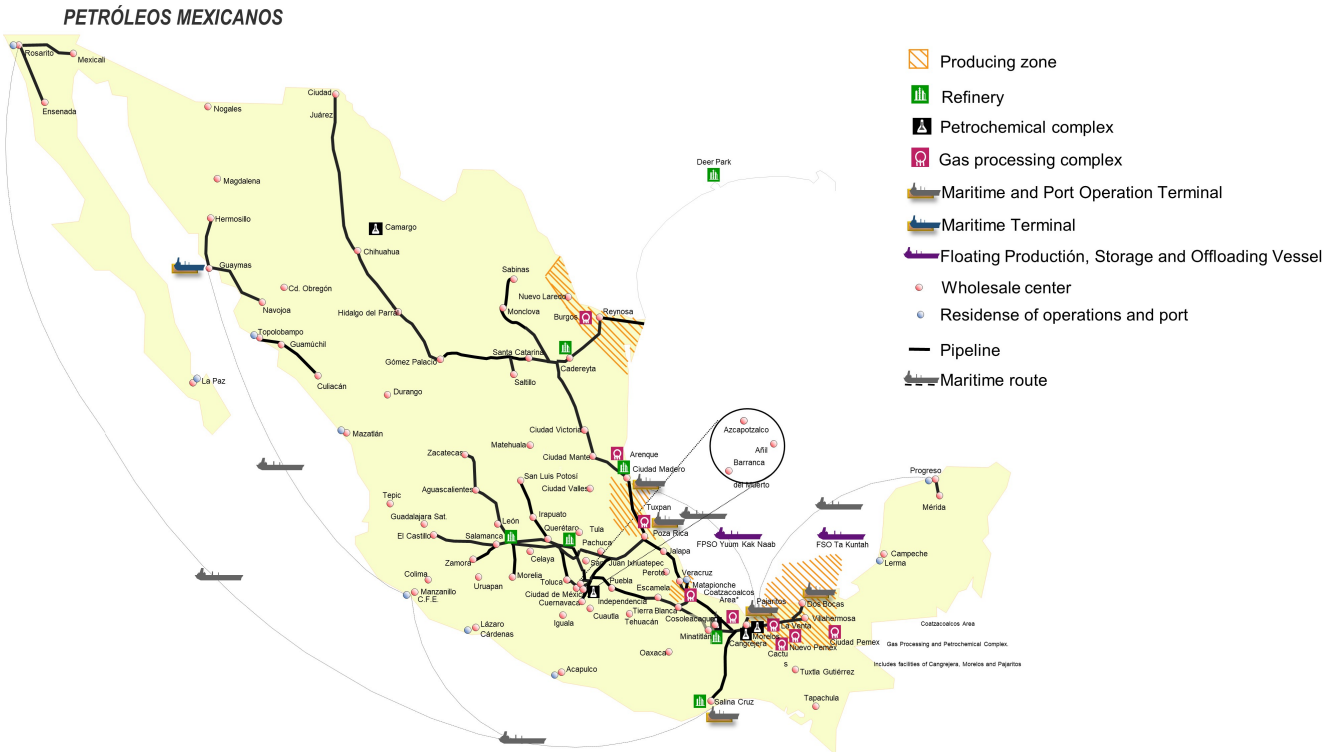
During 2022, we injected 116.0 thousand barrels per day of LPG, representing a 7.2% decrease as compared to the 125.0 thousand barrels per day of LPG injected in 2021, due to a decrease in the requirements of Pemex Industrial Transformation in the terminals and interconnections associated with the pipeline transport system for liquefied petroleum gas. Additionally, we injected 5.3 thousand barrels per day of petrochemicals in 2022, an increase of 70.9% as compared to the 3.1 thousand barrels per day we injected in 2021. This increase was mainly due to increased demand for isobutane at the Minatitlán and Salina Cruz refineries.

In 2022, we transported a total of 2,205.5 thousand barrels per day of petroleum products: 1,593.5 thousand barrels per day (72.3%) were injected by pipeline systems, 454.0 thousand barrels per day (20.6%) were transported by land and the remaining 158.0 thousand barrels per day (7.2%) were transported by tankers.

International Trading

The international trading segment provides us with international trading, distribution, risk management, insurance and transportation services. This segment operates through P.M.I. Comercio Internacional, S.A. de C.V. (which we refer to as PMI), P.M.I. Trading DAC, (which we refer to as P.M.I. Trading), P.M.I. Norteamérica, S.A. de C.V., (which we refer to as PMI-NASA, and, together with PMI and P.M.I. Trading, we collectively refer to as the PMI Subsidiaries) and Mex Gas International, S.L. (which, together with the PMI Subsidiaries, we collectively refer to as the Trading Companies). Certain of the Trading Companies sell, buy and transport crude oil, refined products and petrochemicals in world markets, and provide related risk management, insurance, transportation and storage services. The Trading Companies have offices in Mexico City, Houston and Singapore. Export sales are made through PMI to major customers in various foreign markets.

In 2022, our crude oil exports decreased in volume by 6.4%, from 1,018.3 thousand barrels per day in 2021 to 953.2 thousand barrels per day in 2022. Natural gas imports decreased by 41.2% in 2022, from 904.6 million cubic feet per day in 2021 to 532.1 million cubic feet per day in 2022. In 2022, our exports of petrochemical products decreased by 83.4%, from 110.5 thousand metric tons in 2021 to 18.3 thousand metric tons in 2022, and our imports of petrochemical products increased by 7.1%, from 349.2 thousand metric tons in 2021 to 373.9 thousand metric tons in 2022. In 2022, our exports of other petroleum products and liquefied petroleum gas increased by 18.3%, from 160.3 thousand barrels per day in 2021 to 189.7 thousand barrels per day in 2022, and our imports of other petroleum products and liquefied petroleum gas increased by 49.7%, from 208.0 thousand barrels per day in 2021 to 311.4 thousand barrels per day in 2022. As a major supplier of crude oil to the United States, our international trading segment's crude oil exports to the United States amounted to U.S.$ 20.8 billion in 2022, an increase of U.S. $7.2 billion with respect to 2021.



Exploration and Production

Exploration and Drilling

We seek to identify new oil reservoirs through our exploration program in order to increase the future replacement rate of proved reserves. From 1990 to 2022, we completed 14,335 exploration and development wells. During 2022, our average success rate for exploratory wells was 51.3%, a 3.4% decrease as compared to 2021 and our average success rate for development wells was 99.4%, a 0.2% increase as compared to 99.2% for 2021. We discovered eleven new fields during 2022 bringing the total number of our producing fields to 326.

Our 2022 exploration program was comprised of exploration in both the onshore and the offshore regions of the Gulf of Mexico. Our exploratory activities yielded 89.1 million barrels of oil equivalent of proved reserves resulting from the discovery of eleven oil-producing fields, one new reservoir in an existing field (Niquita) and an extension from the drilling of one appraisal well in an existing field (Valeriana).

The following table summarizes our drilling activity for the five years ended December 31, 2022, all of which occurred in Mexican territory.

	Year ended December 31,				
	2022	2021	2020	2019	2018
Wells initiated[1]	201	159	157	182	166
Exploratory wells initiated[1]	39	32	28	32	28
Development wells initiated[1]	162	127	129	150	138
Wells drilled[2]	201	159	183	221	162
Exploratory wells	39	32	17	23	19
Productive exploratory wells[3]	20	17	6	12	5
Dry exploratory wells	19	15	11	11	14
Success rate %	51	53	35	52	26
Development wells	162	127	166	198	143
Productive development wells	161	126	158	186	137
Dry development wells	1	1	8	12	6
Success rate %[4]	99	99	95	94	96
Producing wells (annual averages)	6,501	7,767	6,326	7,400	7,671
Marine region	575	647	517	520	519
Southern region	760	1,150	855	1,012	1,029
Northern region	5,166	5,970	4,954	5,868	6,123
Producing wells (at year end)[5]	6,501	6,515	6,303	6,945	6,946
Crude oil	4,039	3,977	3,949	4,323	4,321
Natural gas	2,462	2,538	2,354	2,622	2,625
Producing fields	326	323	313	319	356
Marine region	61	58	49	43	43
Southern region	74	74	76	76	83
Northern region	191	191	188	200	230
Drilling rigs	82	80	84	84	84
Kilometers drilled	730	503	638	646	455
Average depth by well (meters)	3,535	3,525	3,486	2,870	2,808
Discovered fields[6]	11	7	2	3	4
Crude oil	11	6	2	—	4
Natural gas	—	—	—	—	—
Gas and condensate	—	1	—	3	
Average crude oil and natural gas output by well (barrels of oil equivalent per day)	386	379	382	327	329
Total developed acreage (km^2)[7] [8]	**7,616**	**7,391**	**7,419**	**7,077**	**6,923**
Total undeveloped acreage (km^2)[7] [8]	**518**	**695**	**616**	**603**	**607**

Note: Numbers may not total due to rounding.

(1) "Wells initiated" refers to the number of wells the drilling of which commenced in a given year, regardless of when the well was or will be completed.

(2) "Wells drilled" refers to the number of wells the drilling of which was completed in a given year, regardless of when the drilling of the well commenced.

(3) Excludes wells abandoned due to mechanical failure.

(4) Excludes injector wells.

(5) Figures include fractional interests obtained pursuant to joint ventures and associations.

(6) Includes: (i) new fields with proved reserves (Actul, Akal NW, Atoyatl, Chucox, Chucox NW, Pokche-NE, Tentok, Tlalkivak, Xanab-SE, Xinich and Zama).

(7) Figures include fractional interests obtained pursuant to joint ventures and associations.

(8) These values relate only to our current assignments.

Source: Pemex Exploration and Production.

Extensions and Discoveries

During 2022, our exploration activity in the shallow waters of the Gulf of Mexico and onshore regions resulted in the discovery of 11 new crude oil fields (Actul, Akal NW, Atoyatl, Chucox, Chucox NW, Pokche-NE, Tentok, Tlalkivak, Xanab-SE, Xinich and Zama), one new reservoir in existing field (Niquita), and an extension from the drilling of one appraisal well in existing field (Valeriana). Together, these discoveries and extension amounted to 89.1 million barrels of oil equivalent of proved reserves.

Reserves

Under the Mexican Constitution, all oil and other hydrocarbon reserves located in Mexican territory are owned by the Mexican nation and not by us. Pemex Exploration and Production has the right to extract, but does not own, the reserves granted to us by the Mexican Government and to sell the resulting production. As of the date of this annual report, the exploration and development activities of Petróleos Mexicanos and its subsidiary entities are limited to reserves located in Mexico.

Proved oil and natural gas reserves are those estimated quantities of crude oil, natural gas and natural gas liquids which geological and engineering data demonstrate with reasonable certainty to be economically producible from a given date forward, from known reservoirs and under existing economic conditions, operating methods and government regulations.

Proved reserves estimates as of December 31, 2022 were prepared by our exploration and production segment and were reviewed by the Independent Engineering Firms (as defined below), which audit the estimates of our oil and gas reserves. Pursuant to the *Lineamientos que Regulan los Procedimientos de Cuantificación y Certificación de Reservas de la Nación* (Guidelines for Regulating the Nation's Reserves Quantification and Certification Procedures), the National Hydrocarbons Commission must review the proved reserves reports estimates every year and issue a resolution no later than the second week of April of the following year. However, as of the date of this annual report, the National Hydrocarbons Commission has not yet issued a resolution with respect to the reserves report as of December 31, 2022. See "*Item 3—Key Information—Risk Factors—Risk Factors Related to our Relationship with the Mexican Government—Hydrocarbon reserves are based on estimates, which are uncertain and subject to revisions.*"

We estimate reserves based on generally accepted petroleum engineering and evaluation methods and procedures, which are based primarily on applicable SEC regulations and, as necessary, the Society of Petroleum Engineers' (which we refer to as the SPE) publication entitled Standards Pertaining to the Estimating and Auditing of Oil and Gas Reserves Information, dated June 25, 2019 and other SPE publications, as amended, including the SPE's publication entitled Petroleum Resources Management System, as well as other technical sources, including Estimation and Classification of Reserves of Crude Oil, Natural Gas, and Condensate, by Chapman Cronquist, and Determination of Oil and Gas Reserves, Petroleum Society Monograph Number 1, published by the Canadian Institute of Mining and Metallurgy & Petroleum. The choice of method or combination of methods employed in the analysis of each reservoir is determined by:

- experience in the area;
- stage of development;
- quality and completeness of basic data; and
- production and pressure histories.

Reserves data set forth herein represent only estimates. Reserves valuation is a subjective process of estimating underground accumulations of crude oil and natural gas that cannot be measured in an exact manner. The accuracy of any reserves estimate depends on the quality of available data, engineering and geological interpretation and professional judgment. As a result, estimates of different engineers may vary. In addition, the results of drilling, testing and producing subsequent to the date of an estimate may lead to the revision of an estimate. See "*Item 3—Key Information—Risk Factors—Risk Factors Related to our Relationship with the Mexican Government— Hydrocarbon reserves are based on estimates, which are uncertain and subject to revisions*."

During 2022, we did not record any material increase in our proved oil and gas reserves as a result of the use of new technologies.

In order to ensure the reliability of our reserves estimation efforts, we have undertaken the internal certification of our estimates of reserves since 1996. We have established certain internal controls in connection with the preparation of our proved reserves estimates. Initially, teams of geoscientists from our exploration and production business units (with each of these units covering several projects) prepare the reserves estimates, using distinct estimation processes for valuations relating to new discoveries and developed fields, respectively. Subsequently, the regional reserves offices collect these reserves estimates from the units and request that the *Gerencia de Certificación de Reservas de Hidrocarburos* (Office of Certification of Hydrocarbon Reserves), the central hydrocarbon reserves management body of Pemex Exploration and Production, review and certify such valuations and the booking of the related reserves. This internal certification process is undertaken in accordance with internal guidelines for estimating and classifying proved reserves, which are based on the SEC's rules and definitions. The Office of Certification of Hydrocarbon Reserves, which also oversees and conducts an internal audit of the process described above, consists entirely of professionals with geological, geophysical, petrophysical and reservoir engineering backgrounds. Additionally, the engineers who participate in our reserves estimation process are experienced in: reservoir numerical simulation; well drilling and completion; pressure, volume and temperature (PVT) and analytical tools used in forecasting the performance of the various elements comprising the production system; and design strategies in petroleum field development. Furthermore, all of our personnel have been certified by the *Secretaría de Educación Pública* (Ministry of Public Education), most have earned master's degrees in areas of study such as petroleum engineering, geology and geophysical engineering and they possess an average of over 15 years of professional experience.

In addition to this internal review process, our exploration and production segment's final reserves estimates are audited by independent engineering firms. Four independent engineering firms audited our estimates of proved reserves as of December 31, 2022, or January 1, 2023, as applicable. DeGolyer and MacNaughton, GLJ, Ryder Scott and Sproule (we refer to these firms together as the "Independent Engineering Firms"). The reserves estimates reviewed by the Independent Engineering Firms represented 83.7% of our estimated proved reserves. The remaining 16.3% of our estimated proved reserves consisted mainly of reserves located in certain areas that have been shared with third parties. DeGolyer and MacNaughton audited the reserves in the Cantarell, Ku-Maloob-Zaap, Bellota-Jujo and Samaria-Luna business units, GLJ audited the reserves in the Poza Rica-Altamira, Abkatún-Pol-Chuc and Litoral de Tabasco business units, Sproule audited the reserves in the Cinco Presidentes and Macuspana-Muspac business units and Ryder Scott audited the reserves in the Reynosa, Veracruz business units and fields recently added to our inventory registry. The audits conducted by the Independent Engineering Firms consisted primarily of: (1) analysis of historical static and dynamic reservoir data that we have provided; (2) construction or updating of the Independent Engineering Firms' own static and dynamic reservoir characterization models of some of our fields; (3) economic analysis of fields; and (4) review of our production forecasts and reserves estimates.

Since reserves estimates are, by definition, only estimates, they cannot be reviewed for the purpose of verifying exactness. Instead, the Independent Engineering Firms conducted a detailed review of our reserves estimates so that they could express an opinion as to whether, in the aggregate, the reserves estimates we furnished were reasonable and had been estimated and presented in conformity with generally accepted petroleum engineering and evaluation methods and procedures.

All questions, including any suggested modifications to prove reserves estimates, that arose during the Independent Engineering Firms' review process were resolved by our exploration and production segment to the satisfaction of the Independent Engineering Firms. The Independent Engineering Firms concluded that our estimated total proved oil and natural gas reserve volumes set forth in this report are, in the aggregate, reasonable and have been prepared in accordance with Rule 4-10(a) of Regulation S-X of the SEC, as amended (which we refer to as Rule 4-10(a)), are consistent with international reserves reporting practice and are in accordance with the revised oil and gas reserves disclosure provisions of ASC Topic 932.

Our total proved developed and undeveloped reserves of crude oil, condensates and liquefiable hydrocarbons recoverable from field processing plants increased by 0.3% in 2022, from 6,073.0 million barrels in 2021 to 6,089.6 million barrels in 2022. This small increase was due to discoveries, developments, delineations and revisions of our proved reserves, in particular to the recategorization due to drilling of development wells in the Ayatsil, Teca, Balam, Pokche, Itta, Ek and Maloob fields, as well as variations due to revisions in the Yaxché, Quesqui, Mulach, Tupilco Profundo and Lakach fields and the discovery of the Actul, Akal NW, Atoyatl, Chucox, Chucox NW, Pokche-NE, Tentok, Tlalkivak, Xanab-SE, Xinich and Zama oil fields and one new reservoir in the existing field Niquita. Our proved developed reserves of crude oil, condensates and liquefiable hydrocarbons recoverable from processing plants increased by 1.4% in 2022, from 3,648.9 million barrels in 2021 to 3,698.3 million barrels in 2022. The amount of our proved reserves of crude oil, condensate and

liquefiable hydrocarbon reserves added in 2022 was sufficient to offset the level of production in 2022, which amounted to 710.2 million barrels of crude oil, condensates and liquefiable hydrocarbons.

Our total proved developed and undeveloped dry gas reserves increased by 0.6% in 2022, from 7,039.5 billion cubic feet at December 31, 2021 to 7,079.6 billion cubic feet at December 31, 2022. Our proved developed dry gas reserves increased by 11.1% in 2022, from 3,933.7 billion cubic feet at December 31, 2021 to 4,368.5 billion cubic feet at December 31, 2022. This increase was principally due to an increase in proved developed dry gas reserves of the Quesqui, Lakach, Onel, Gasífero, Ku and Tupilco Profundo fields. The amount of dry gas reserves added in 2022 was sufficient to offset the level of production in 2022, which amounted to 854.0 billion cubic feet of dry gas. Our proved undeveloped dry gas reserves decreased by 12.7% in 2022, from 3,105.8 billion cubic feet at December 31, 2021 to 2,711.1 billion cubic feet at December 31, 2022. This decrease in proved undeveloped reserves was due to the development of the Quesqui, Ixachi, Gasífero, Ku, Onel and Tupilco Profundo fields, mainly due to the drilling of development wells and revisions, which allowed these reserves to be classified as proven developed reserves.

During 2022, our exploratory activity in the shallow waters of the Gulf of Mexico and onshore regions resulted in the discovery of 11 new crude oil fields: Actul, Akal NW, Atoyatl, Chucox, Chucox NW, Pokche-NE, Tentok, Tlalkivak, Xanab-SE, Xinich and Zama, one new reservoir in existing field Niquita and an extension from the drilling of one appraisal well in existing field Valeriana. Together, these discoveries and extension led to the incorporation of 89.1 million barrels of oil equivalent of proved reserves.

In 2022, our proved reserves increased by 24.3 million barrels of oil equivalent due to reclassifications, development, revisions and discoveries.

The following three tables of crude oil and dry gas reserves set forth our estimates of our proved reserves determined in accordance with Rule 4-10(a).

Summary of Oil and Gas[(1)] Proved Reserves as of December 31, 2022
Based on Average Fiscal Year Prices

	Crude Oil and Condensates[(2)] (in millions of barrels)	Dry Gas[(3)] (in billions of cubic feet)
Proved developed and undeveloped reserves		
Proved developed reserves	3,698.3	4,368.5
Proved undeveloped reserves	2,391.3	2,711.1
Total proved reserves	**6,089.6**	**7,079.6**

Note: Numbers may not total due to rounding

(1) We do not currently produce synthetic oil or synthetic gas, or other natural resources from which synthetic oil or synthetic gas can be produced.

(2) Crude oil and condensate reserves include the fraction of liquefiable hydrocarbons recoverable in natural gas processing plants located at fields.

(3) Reserve volumes reported in this table are volumes of dry gas, although natural gas production reported in other tables refers to sour wet gas. There is a shrinkage in volume when natural gas liquids and impurities are extracted to obtain dry gas. Therefore, reported natural gas volumes are greater than dry gas volumes.

Source: Pemex Exploration and Production.

Crude Oil and Condensate Reserves
(including natural gas liquids)[1]

Proved developed and undeveloped reserves	2022	2021	2020	2019	2018
	(in millions of barrels)				
At January 1	6,073	6,041	5,961	5,787	6,427
Revisions[2]	647	565	651	784	22
Extensions and discoveries	78	115	97	78	140
Production	(710)	(697)	(695)	(688)	(743)
Farm-outs and transfer of E&P contracts and fields due to CNH bidding process	1	49	27	—	(59)
At December 31	**6,089**	**6,073**	**6,041**	**5,961**	**5,787**
Proved developed reserves at December 31	**3,698**	**3,649**	**3,603**	**3,585**	**3,588**
Proved undeveloped reserves at December 31	**2,391**	**2,424**	**2,438**	**2,376**	**2,198**

Note: Numbers may not total due to rounding.
(1) Crude oil and condensate reserves include the fraction of liquefiable hydrocarbons recoverable in natural gas processing plants located at fields.
(2) Revisions include positive and negative changes due to new data from well drilling, revisions made when actual reservoir performance differs from expected performance and the effect of changes in hydrocarbon prices.

Source: Pemex Exploration and Production.

Dry Gas Reserves

Proved developed and undeveloped reserves	2022	2021	2020	2019	2018
	(in billions of cubic feet)				
At January 1	7,040	6,984	6,352	6,370	6,593
Revisions[1]	847	195	1,240	656	3
Extensions and discoveries	43	590	176	196	809
Production[2]	(854)	(751)	(819)	(870)	(887)
Farm-outs and transfer of E&P contracts and fields due to CNH bidding process	3	22	35	—	(148)
At December 31	**7,079**	**7,040**	**6,984**	**6,352**	**6,370**
Proved developed reserves at Proved developed and undeveloped reserves December 31	**4,368**	**3,934**	**3,922**	**3,609**	**3,380**
Proved undeveloped reserves at December 31	**2,711**	**3,106**	**3,062**	**2,743**	**2,990**

Note: Numbers may not total due to rounding.
(1) Revisions include positive and negative changes due to new data from well drilling, revisions made when actual reservoir performance differs from expected performance and the effect of changes in hydrocarbon prices.
(2) Production refers here to dry gas, although natural gas production reported in other tables refers to sour wet gas. There is a shrinkage in volume when natural gas liquids and impurities are extracted to obtain dry gas. Therefore, reported natural gas volumes are greater than dry gas volumes.

Source: Pemex Exploration and Production.

The following table sets forth, as of December 31, 2022, the volumes of proved developed and undeveloped reserves, the number of producing wells and the number of proved undeveloped locations for the fields that contained 96.7% of our proved reserves.

Field	Reserves			Number of Producing Wells	Number of Undeveloped Locations[2]
	Proved[1]	Developed[1]	Undeveloped[1]		
	(in millions of barrels of oil equivalent)				
Ayatsil	952.7	730.6	222.1	28	6
Ku-Maloob-Zaap	886.2	711.8	174.4	186	13
Quesqui	671.3	368.5	302.8	20	14
Aceite Terciario del Golfo[3]	629.4	114.9	514.5	1,304	3,126
Ixachi	598.6	361.9	236.6	13	12
Akal	385.4	385.4	—	57	—
Yaxché	230.7	92.3	138.4	24	—
Kayab	209.0	—	209.0	—	26
Balam [4]	171.4	162.7	8.8	7	2
Pit	151.4	—	151.4	—	13
Tupilco Profundo	144.1	97.5	46.7	2	5
Mulach	139.7	14.0	125.7	11	5
Lakach	102.0	—	102.0	—	5
Antonio J. Bermudez[5]	87.3	60.5	26.8	206	15
Ek[4]	84.3	84.3	—	23	—
Onel	73.1	60.7	12.4	18	—
Tamaulipas Constituciones	67.9	46.7	21.2	234	87
Tekel	60.5	—	60.5	—	8
CNH-M4-ÉBANO/2018	56.3	11.9	44.4	167	n.a.
Santuario-El Golpe-Caracolillo	50.1	40.6	9.6	94	n.a.
Madrefil	47.3	43.6	3.7	6	—
Utsil	41.7	—	41.7	—	8
Tlamatini	39.2	7.2	32.0	4	—
Teotleco	38.8	37.5	1.3	18	—
Xanab	38.4	37.0	1.4	9	—
Arenque	38.4	29.8	8.6	13	2
Xux	36.8	36.8	—	8	—
Sihil	35.7	35.7	—	19	—
Tlacame	33.5	2.8	30.8	5	—
Poza Rica	31.9	23.5	8.5	190	23
Valeriana	31.0	0.5	30.5	2	6
Cuitláhuac	29.5	20.3	9.2	195	45
Ayín	28.4	—	28.4	—	3
Etkal	27.7	10.8	17.0	2	2
Sini	26.0	23.1	2.9	10	1
Suuk	25.8	1.2	24.6	1	4
Cheek	24.6	24.6	—	4	—
Itta	24.1	21.1	3.0	5	—
Tizón	23.7	23.7	—	8	—
Gasífero	23.4	21.5	1.8	25	4
Cárdenas-Mora	23.1	16.7	6.5	11	n.a.
Teca	22.8	16.0	6.8	5	1
Giraldas	21.3	21.3	—	8	—
Och	21.1	21.1	—	5	—
Eltreinta	20.5	18.9	1.6	15	2
Jujo-Tecominoacán	20.2	19.2	1.0	10	—
Costero	19.3	19.3	—	—	—

Ixtal	18.7	18.7	—	15	—
Homol	18.4	11.0	7.4	7	1
Zama	18.4	—	18.4	—	4
Nejo	18.4	5.7	12.6	122	67
Tlalkivak	17.5	—	17.5	—	2
Teekit Profundo	17.2	2.6	14.6	2	—
May	16.9	16.9	—	—	—
Takín	16.8	16.8	—	4	—
Rabasa	16.7	14.3	2.4	45	5
Akal NW	16.2	—	16.2	—	5
Tsimín	15.6	15.6	—	6	—
Ogarrio	15.5	13.9	1.7	94	n.a.
Bedel	15.5	14.2	1.3	20	4
Lum	15.3	10.8	4.5	2	3
Ixtoc	14.9	14.9	—	8	—
Abkatún	14.6	14.6	—	13	—
Tetl	14.6	0.7	13.9	2	—
Puerto Ceiba	14.5	13.2	1.3	23	1
Xikin	14.3	10.1	4.2	2	2
Castarrical	13.3	8.3	5.0	3	2
Bolontikú	13.2	13.2	—	2	—
Cibix	12.0	12.0	—	8	—
Pokche	11.9	9.6	2.4	5	1
Cuervito	11.9	4.5	7.4	98	45
San Ramón	10.8	9.4	1.4	34	4
Caparroso-Pijije-Escuintle	10.7	10.7	—	13	—
Pánuco	10.0	2.8	7.2	52	120
Chuc	10.0	10.0	—	9	—
Racemosa	10.0	4.3	5.7	—	2
Kambesah	9.9	9.9	—	4	—
Bellota	9.9	5.6	4.3	6	2
Sen	9.8	9.8	—	14	—
Cacalilao	9.7	2.4	7.3	74	97
Terra	9.6	8.6	1.0	11	2
Taratunich	9.5	9.5	—	3	—
Chinchorro	9.3	7.3	2.0	3	1
Tupilco	9.3	9.3	—	17	—
Niquita	9.1	—	9.1	—	5
Culebra	9.0	9.0	—	310	—
Uech	8.7	8.7	—	2	—
Cactus	8.4	8.4	—	15	—
Tum	8.4	2.1	6.3	1	—
Paredón	7.8	5.1	2.7	1	—
CNH-M3-MISIÓN/2018	7.7	7.3	0.4	6	n.a.
Manik NW	7.7	7.7	—	3	—
Tentok	7.6	—	7.6	—	3
Tintal	7.5	7.5	—	9	—
Sunuapa	7.4	7.4	—	12	—
Chucox NW	7.4	2.9	4.5	2	3
Camatl	7.4	0.6	6.7	1	2
Batsil	7.2	—	7.2	—	—
Nohoch	7.2	7.2	—	7	—
Batab	6.9	6.9	—	—	—
Velero	6.8	6.0	0.7	—	7
Bagre	6.4	6.4	—	—	—
Cinco Presidentes	6.2	5.7	0.5	37	—
Jacinto	6.2	6.2	—	4	—
Edén-Jolote	5.8	5.8	—	—	—

Total	**7,203.1**	**4,329.1**	**2,874.0**	**4,103**	**3,828**
Our proved reserves	**7,450.8**	**4,538.2**	**2,912.6**		
Percentage	**96.7 %**	**95.4 %**	**98.7 %**		

Note: Numbers may not total due to rounding.
n.a.: No data available as undeveloped reserves are located in areas shared with third-parties.
(1) Proved reserves, developed reserves and undeveloped reserves are expressed in millions of barrels of oil equivalent. To convert dry gas to barrels of oil equivalent, a factor of 5.201 thousand cubic feet of dry gas per barrel of oil equivalent is used.
(2) Undeveloped Locations refers to the number of geographic sites or locations where a well will be drilled to produce undeveloped proved reserves.
(3) Includes extraction assignments and temporary assignments.
(4) These fields are part of Pemex Exploration and Production's first exploitation contract without partner, Ek-Balam.
(5) Includes the Cunduacán, Iride, Oxiacaque, Platanal and Samaria fields.

Source: Pemex Exploration and Production.

Our RRR, for a given period is calculated by dividing the sum of proved reserves additions due to discoveries, developments, delineations and revisions by that period's total production. During 2022, we obtained 898.7 million barrels of oil equivalent of proved reserves, which represents an RRR of 102.8%, as compared to our RRR of 105.1% in 2021. While our RRR has trended downwards in recent years, we expect to continue obtaining an RRR of around 100%, as in recent years.

Our reserves production ratio, which is presented in terms of years, is calculated by dividing the estimated remaining reserves at the end of the relevant year by the total production of hydrocarbons for that year. As of December 31, 2022, this ratio was 8.5 years for proved reserves.

For more information, see Note 31 to our consolidated financial statements included herein.

Sales Prices and Production Costs

The following table sets forth our average sales price per unit of oil and gas produced and our average production cost per unit of production, in the aggregate and for each field containing 10% or more of our proved reserves.

Unit Sales Prices and Production Costs[1]

	Ku-Maloob-Zaap	Ayatsil[2]	Other Fields	All Fields
	(in U.S. dollars)			
Year ended December 31, 2022				
Average sales prices				
Crude oil, per barrel	$ 75.09	$ 62.78	$ 100.99	$ 89.84
Natural gas, per thousand cubic feet	$ 7.36	$ 6.17	$ 7.17	$ 7.17
Average production costs, per barrel of oil equivalent	$ 21.19	$ 20.13	$ 16.48	$ 17.80
Year ended December 31, 2021				
Average sales prices				
Crude oil, per barrel	$ 61.06	$ 54.60	$ 71.37	$ 66.06
Natural gas, per thousand cubic feet	$ 4.74	$ 4.03	$ 5.19	$ 5.16
Average production costs, per barrel of oil equivalent	$ 16.16	$ 16.33	$ 15.67	$ 15.84
Year ended December 31, 2020				
Average sales prices				
Crude oil, per barrel	$ 31.58	$ 29.53	$ 40.09	$ 35.47
Natural gas, per thousand cubic feet	$ 2.92	$ 2.50	$ 2.50	$ 2.54
Average production costs, per barrel of oil equivalent	$ 9.38	$ 6.28	$ 12.39	$ 11.15

(1) Average of sales prices as of the last day of each month of the year.
(2) Derived from the breakdown of the Ayatsil field, which was reported within Ku-Maloob-Zaap, the price vectors of the Ku-Maloob-Zaap column and other fields were updated in 2020.

Source: Pemex Exploration and Production

In 2022, our average production cost was U.S. $17.80 per barrel of oil equivalent, which represented an increase of 12.4%, as compared to our average production cost of U.S. $15.84 per barrel of oil equivalent in 2021. This increase resulted primarily from increase of royalties payments for the price of crude oil, and the higher expenses in operation of related equipment, wells costs, and gas used for gas lifting, maintenance and operation of wells and related equipment.

We calculate and disclose our production costs pursuant to international practices, which are based on U.S. GAAP under ASC Topic 932. In accordance with ASC Topic 932, the production cost per barrel of oil equivalent is calculated by dividing total production expenses (in U.S. dollars) by total production of oil and gas (in barrels of oil equivalent) for the relevant period.

Our total production cost consists of all direct and indirect costs incurred to produce crude oil and gas, including costs associated with the operation and maintenance of wells and related equipment and facilities. In addition, it includes costs of labor to operate the wells and facilities, the costs of materials, supplies and fuel consumed, including gas used for gas lifting, nitrogen and other chemicals, repair and non-capitalized maintenance costs, and other costs, such as fees for general services, a labor fund for active personnel, corporate services, indirect overhead and applicable taxes and duties. However, it excludes non-cash expenses such as amortization of capitalized well expenses, the depreciation of fixed assets, expenses associated with the distribution and handling of oil and gas and other expenses that are related to exploration, development and drilling activities.

Crude Oil and Natural Gas Production

In 2022, we produced an average of 1,764.2 thousand barrels per day of crude oil, an increase of 1.6% as compared to our average production of 1,735.7 thousand barrels per day of crude oil in 2021. The increase in 2022 is mainly due to new fields Esah, Itta, Koban, Mulach, Pokche, Teca, Teekit Profundo, Uchbal, Xanab, Yaxche, Quesqui, Tupilco Profundo, Cibix, Teotleco and Ixachi. Our average production of heavy crude oil decreased by 76.9 thousand barrels per day, or 7.6% less than the average daily production in 2021, mainly due to a decrease in our drilling and maintenance activities and a decline in production at our fields, primarily at the Ku-Maloob-Zaap field. In 2022, the average production of light crude oil increased by 105.4 thousand barrels per day, or 14.5 %, as compared to 2021. The increase in light crude oil production was mainly due to an increase in production at new offshore field projects Esah, Itta,

Koban, Mulach, Pokche, Teca, Teekit Profundo, Uchbal, Xanab, Yaxche, and onshore field projects Quesqui, Tupilco Profundo, Cibix, Teotleco and Ixachi.

Crude oil can be classified by its sulfur content. “Sour” or heavy crude oil contains 3.4% or greater sulfur content by weight and “sweet” or light crude oil contains less than 1.0% sulfur content by weight. Most of our production is classified as sour or heavy crude oil.

Our exploration and production segment primarily produces four types of crude oil:

- Altamira, a heavy crude oil;
- Maya, a heavy crude oil;
- Istmo, a light crude oil; and
- Olmeca, an extra-light crude oil.

Most of our production consists of Istmo and Maya crude oil. In 2022, 52.7% of our total production of crude oil consisted of heavy crude oil and 47.3% consisted of light and extra-light crude oil. The Marine regions yield mostly heavy crude oil (67.9% of these regions’ production in 2022), although significant volumes of light and extra light crude oil are also produced there (32.1% of these regions’ production in 2022). The Southern region yields mainly light and extra-light crude oil (together, 98.0% of this region’s production in 2022, as well as lesser amounts of heavy crude oil (2.0% of this region’s production in 2022) and the Northern region yields both light and extra-light crude oil (49.8% of this region’s production in 2022) and heavy crude oil (50.2% of this region’s production in 2022).

The most productive crude oil and natural gas fields in the Gulf of Mexico are located in the Ku-Maloob-Zaap, Litoral de Tabasco, Abkatún-Pol-Chuc and Cantarell business units in the Marine regions and the Samaria Luna and Bellota-Jujo business units in the Southern region. In particular, the Ku-Maloob-Zaap business unit remained our most important crude oil producer in 2022, producing an average of 639.3 thousand barrels per day of crude oil in 2022, or 36.2% of our total crude oil production for the year, and 788.6 million cubic feet per day of natural gas, or 16.8% of our total natural gas production for the year. Our second most important crude oil producer was Litoral de Tabasco which produced an average of 349.4 thousand barrels per day of crude oil in 2022, or 19.8% of our total crude oil production for the year, and an average of 576.5 million cubic feet per day of natural gas, or 12.3% of our total natural gas production for the year.

The following table sets forth our annual crude oil production rates by type of oil for the five years ended December 31, 2022.

Crude Oil Production

	Year ended December 31,					
	2022	2021	2020	2019	2018	2022 vs. 2021
	(in thousands of barrels per day)					(%)
Marine regions						
Heavy crude oil	873.1	937.2	976.1	982.7	996.1	(6.8)
Light crude oil[(1)]	412.2	431.8	397.1	402.2	514.8	(4.5)
Total	**1,285.3**	**1,369.0**	**1,373.2**	**1,384.8**	**1,510.9**	**(6.1)**
Southern region						
Heavy crude oil	7.5	19.5	32.8	36.2	25.8	(61.5)
Light crude oil[(1)]	372.0	251.3	194.9	172.2	193.6	48.0
Total	**379.4**	**270.8**	**227.8**	**208.4**	**219.4**	**40.1**
Northern region						
Heavy crude oil	49.9	50.7	65.5	55.6	49.3	(1.6)
Light crude oil[(1)]	49.5	45.2	19.8	34.9	43.0	9.5
Total	**99.4**	**95.9**	**85.3**	**90.6**	**92.3**	**3.6**
Total heavy crude oil	930.5	1,007.3	1,074.5	1,074.5	1,071.2	(7.6)
Total light crude oil[(1)]	833.7	728.3	611.8	609.3	751.4	14.5
Total crude oil	**1,764.2**	**1,735.7**	**1,686.3**	**1,683.8**	**1,822.5**	**1.6**

Note: Numbers may not total due to rounding.
(1) Includes extra-light crude oil.|

Source: Pemex Exploration and Production.

The following table sets forth our annual crude oil production by region and business unit for the five years ended December 31, 2022.

Crude Oil Production

	Year ended December 31,					
	2022	2021	2020	2019	2018	2022 vs. 2021
	(in thousands of barrels per day)					(%)
Marine regions						
Ku-Maloob-Zaap	639.3	718.1	784.3	842.7	874.7	(11.0)
Litoral de Tabasco	349.4	325.4	258.2	198.8	291.1	7.4
Cantarell	158.3	160.9	161.2	159.3	161.2	(1.6)
Abkatún-Pol-Chuc	138.3	164.6	169.4	184.0	183.8	(16.0)
Total	**1,285.3**	**1,369.0**	**1,373.2**	**1,384.8**	**1,510.9**	**(6.1)**
Southern region						
Bellota-Jujo	221.5	114.0	71.8	58.2	58.6	94.3
Samaria-Luna	85.8	87.5	86.3	82.1	86.5	(1.9)
Macuspana-Muspac	39.6	36.3	33.2	26.4	23.6	9.1
Cinco Presidentes	32.5	33.1	36.5	41.5	50.7	(1.8)
Total	**379.4**	**270.8**	**227.8**	**208.3**	**219.4**	**40.1**
Northern region						
Poza Rica-Altamira	49.9	53.0	55.5	41.0	43.7	(5.8)
Aceite Terciario del Golfo[(1)]	n.a.	n.a.	n.a.	24.3	28.4	n.a.
Veracruz	48.4	41.9	28.4	22.3	17.6	15.5
Burgos	1.1	1.0	1.6	3.0	2.6	10.0
Total	**99.4**	**95.9**	**85.4**	**90.6**	**92.3**	**3.6**
Total crude oil	**1,764.2**	**1,735.7**	**1,686.3**	**1,683.8**	**1,822.5**	**1.6**

Note: Numbers may not total due to rounding.

n.a. No data available due to the merger of the Aceite Terciario del Golfo business unit with the Poza Rica-Altamira business unit in 2019.

(1) Prior to July 1, 2019, Pemex Exploration and Production, as a result of organizational changes, merged the Aceite Terciario del Golfo business unit into the Poza Rica-Altamira business unit.

Source: Pemex Exploration and Production.

The Marine regions, which are comprised of the Northeastern Marine region and the Southwestern Marine region, are located on the continental shelf and its slope in the Gulf of Mexico. They cover a surface area of approximately 550,000 square kilometers, located entirely within Mexican territorial waters, along the coast of the states of Tabasco, Campeche, Yucatán, Quintana Roo and the southern coast of the state of Veracruz. In 2022, the average crude oil production from the 61 fields located in these regions was 1,285.3 thousand barrels per day.

The Southern region covers an area of approximately 392,000 square kilometers, including the states of Guerrero, Oaxaca, Chiapas, Tabasco, Yucatán, Quintana Roo, Campeche and Veracruz. In 2022, the average crude oil production from the 74 fields located in this region was 379.4 thousand barrels per day.

The Northern region, including its offshore area, is located on the continental shelf in the Gulf of Mexico along the coast of the state of Tamaulipas and the northern coast of the state of Veracruz. It covers an area of approximately 1.8 million square kilometers. Our production area in the onshore portion of this region is located in, among others, the states of Veracruz, Tamaulipas, Nuevo León, Coahuila, San Luis Potosí and Puebla; we also produce offshore on the continental

shelf in the Gulf of Mexico. In 2022, the average crude oil production in the Northern region totaled 99.4 thousand barrels per day of crude oil, from the 191 oil fields in this region.

The following table sets forth our annual natural gas production by region and business unit for the five years ended December 31, 2022.

Natural Gas Production

	Year ended December 31,					
	2022	2021	2020	2019	2018	2022 vs. 2021
	(in millions of cubic feet per day)					(%)
Marine regions						
Cantarell	860.4	1,055.0	1,163.6	1,245.7	1,151.1	(18.4)
Ku-Maloob-Zaap	788.6	834.9	871.4	785.8	693.5	(5.5)
Litoral de Tabasco	576.5	555.8	626.4	713.1	798.0	3.7
Abkatún-Pol-Chuc	375.6	402.5	362.3	300.5	288.2	(6.7)
Total	**2,601.1**	**2,848.2**	**3,023.7**	**3,045.2**	**2,930.8**	**(8.7)**
Southern region						
Bellota-Jujo	645.2	325.1	162.9	128.1	147.4	98.5
Samaria-Luna	283.5	298.7	331.6	371.7	381.0	(5.1)
Macuspana-Muspac	198.2	268.9	309.6	269.3	249.2	(26.3)
Cinco Presidentes	47.3	43.9	59.6	74.3	90.9	7.7
Total	**1,174.3**	**936.6**	**863.7**	**843.4**	**868.5**	**25.4**
Northern region						
Burgos	419.3	445.2	522.2	567.6	603.9	(5.8)
Veracruz	398.7	332.2	224.4	208.1	217.3	20.0
Aceite Terciario del Golfo [(1)]	n.a.	n.a.	n.a.	69.4	92.2	n.a.
Poza Rica-Altamira	99.4	108.2	127.6	82.5	90.3	(8.2)
Total	**917.4**	**885.7**	**874.1**	**927.6**	**1,003.7**	**3.6**
Total natural gas	**4,692.8**	**4,670.5**	**4,761.6**	**4,816.2**	**4,803.0**	**0.5**

Note: Numbers may not total due to rounding.
n.a. No data available due to the merger of the Aceite Terciario del Golfo business unit with the Poza Rica-Altamira business unit in 2019.
(1) Prior to July 1, 2019, Pemex Exploration and Production, as a result of organizational changes, merged the Aceite Terciario del Golfo business unit into the Poza Rica-Altamira business unit.

Source: Pemex Exploration and Production.

In 2022, the Marine regions produced 2,601.1 million cubic feet per day of natural gas, or 55.4% of our total natural gas production, a decrease of 8.7% as compared to the regions' 2021 production of 2,848.2 million cubic feet per day. In 2022, the Southern region produced 1,174.3 million cubic feet per day of natural gas, or 25.0% of our total natural gas production, an increase of 25.4% as compared to the region's 2021 production of 936.6 million cubic feet per day. In 2022, the Northern region produced 917.4 million cubic feet per day of natural gas, or 19.5% of our total natural gas production, an increase of 3.6% as compared to the region's 2021 production of 885.7 million cubic feet per day.

Our average natural gas production increased by 0.5% in 2022, from 4,670.5 million cubic feet per day in 2021 to 4,692.8 million cubic feet per day in 2022. Natural gas production associated with crude oil production accounted for 75.3% of total natural gas production in 2022, with the remainder of natural gas production consisting of extraction from

fields holding natural gas reserves. As of December 31, 2022, 197 of our 326 gas producing fields, or 57.6%, produced non-associated gas. These non-associated gas fields accounted for 24.7% of all of our natural gas production in 2022.

Investments in Exploration and Production

In nominal peso terms, our capital expenditures for exploration and production were Ps. 161,838 million in 2022, as compared to Ps. 134,369 million in 2021, representing an increase of 20.4%. Of our total capital expenditures, (i) Ps. 24,238 million was allocated to Ku-Maloob-Zaap fields, (ii) Ps. 7,509 million was allocated to Ek-Balam, (iii) Ps. 5,691 million was allocated to Cuenca de Veracruz, (iv) Ps. 4,692 million was allocated to Integral Yaxché, (v) Ps. 3,239 million was allocated to Cantarell, (vi) Ps. 2,772 million was allocated to Jujo-Tecominoacán, (vii) Ps. 2,156 million was allocated to Antonio J. Bermúdez, (viii) Ps. 2,155 million was allocated to Chuc, (ix) Ps. 1,983 million was allocated to Cactus-Sitio Grande and (x) Ps.1,854 million was allocated to Crudo Ligero Marino. The expenditures for these ten projects amounted Ps. 56,289 million, which represented 34.8% of our capital expenditures in exploration and production. In addition, we invested Ps 57,405 million in new fields under construction and development (35.5% of the total). The remaining 29.7% amounted to Ps. 48,142 million in nominal terms, which was directed to the 13 remaining projects, as well as to other exploration, drilling and services projects.

Exploration and Production Capital Expenditures and Budget

For 2023, our total capital expenditures budget is Ps. 239,928 million, as compared to Ps. 161,838 million of capital expenditures made in 2022, representing an increase of 48.3%. This increase reflects our commitment to stop and reverse the decline in our reserves and production, as well as to accelerate development of new fields. Our 2023 budget includes Ps. 108,580 allocated to all 23 ongoing strategic exploration and production projects, Ps. 87,184 million allocated to new fields under development, Ps. 42,947 million allocated to other exploration projects, and Ps. 1,218 million allocated to drilling activities and services. Of our total exploration and production investment budget for 2023, Ps. 191,935 million, approximately 80% of the total, is allocated to investments in fields and development projects. The remaining Ps. 47,993 million, or approximately 20% of the total, is allocated to exploration activities.

The 2023 exploration and production budget includes (i) Ps. 44,399 million for investments in Ku-Maloob-Zaap, (ii) Ps. 14,011 million for investments in Ek-Balam, (iii) Ps. 9,250 million for investments in Integral Yaxché, (iv) Ps. 6,901 million for investments in Cuenca de Veracruz, (v) Ps. 4,330 million for investments in Jujo-Tecominoacán, (vi) Ps. 3,696 million for investments in Chuc, (vii) Ps. 3,281 million for investments in Cantarell (viii) Ps. 2,936 million for investments in Ogarrio-Sanchez Magallanes, (ix) Ps. 2,867 million for investments in Antonio J. Bermúdez and (x) Ps. 2,741 million for investments in Bellota-Chinchorro. These 10 projects totaled Ps. 94,412 million, Ps. 87,184 million of which were allocated to development of new fields and Ps. 58,332 million were allocated to the remaining projects, including other strategic and exploration projects and those with drilling and services purposes for development activities.

Exploration and Production Investment Trends

In nominal terms, we invested Ps. 43,028 million in exploration activities during 2022, which represented 26.6% of the total capital expenditures of our exploration and production business segment. This represented a 33.5% increase from the Ps. 32,241 million invested in exploration activities in 2021. In 2022, we invested Ps. 118,810 million in nominal terms, or 73.4% of our total capital expenditures in development activities. This represented a 16.3% increase from the Ps. 102,128 million invested in development activities in 2021.

For 2023, we have budgeted Ps. 47,993 million, or 20.0% of our total capital expenditures budget, for exploration activities of our exploration and production segment. This represents a 11.5% increase from the amount we invested in exploration activities in 2022. For development activities in 2023, we have budgeted Ps. 191,935 million, or 80.0% of total capital expenditures. This represents a 61.5% increase compared to the amount that we invested in development activities in 2022.

Our projected exploration and development capital expenditures correspond to the areas assigned to us through bidding rounds, which represent the areas in which we are exploring, operating or have an interest in developing based on our operational capabilities. The Ministry of Energy granted us the right to explore and develop these areas with the objective of maintaining our production levels in the short term, while providing us with sufficient exploration opportunities to increase our production in the future. Given that a significant number of exploration areas are reserved by

the Mexican Government for potential future competitive bidding rounds, we intend to carry out our strategy of increasing production and improving our RRR over time by entering into strategic joint ventures with other oil and gas companies During 2022, we evaluated the use of CSIEEs as a replacement for farm-outs to foster private sector participation in our operations. The CSIEE model seeks to increase production by offering an incentive based on the production received and sharing the risk involved in operations according to the terms of each contract. Each CSIEE contract has a term of between 15 and 25 years. CSIEE contracts are expected to replace farm-outs as a vehicle for private sector participation, although existing farm-outs will remain for the duration of their respective terms. Therefore, as of December 31, 2022, one CSIEE has been signed. The CSIEE Lakach was executed by Pemex Exploration and Production, as client and the company New Fortress Energy Upstream CO, S. de R.L. de C.V., as contractor on November 21, 2022 and provides the terms for the development, extraction and production of hydrocarbons in the contractual area. Exploration works may also be included, subject to governmental approval.

Over time, the allocation of our capital expenditures budget may change due to several factors, including the results of potential subsequent bidding rounds in which we participate. For more information regarding CSIEEs, see "*Item 4—Exploration and Production—Crude Oil Distribution—Farm-outs and CSIEEs*."

The capital expenditures of our exploration and production segment have comprised 78.3% or more of our total capital expenditures in each of the last three years. In 2023, the capital expenditures budget for our exploration and production segment comprised 86.1% of our total capital expenditures.

The following tables sets forth our capital expenditures, excluding non-capitalizable maintenance, related to exploration and development for each of the three years ended December 31, 2022, and the budget for 2023. Capital expenditure amounts derive from our budgetary records, which are prepared on a cash basis. Accordingly, these capital expenditure amounts do not correspond to capital expenditure amounts included in our consolidated financial statements prepared in accordance with IFRS.

Exploration and Development Capital Expenditures

	Year ended December 31,[1]			Budget
	2022	2021	2020	2023[2]
	(in millions of pesos) [3]			
Exploration	Ps. 43,028	Ps. 32,241	Ps. 22,298	Ps. 47,993
Development	118,810	102,128	84,851	191,935
Total	**Ps. 161,838**	**Ps. 134,369**	**Ps. 107,149**	**Ps. 239,928**

Note: Numbers may not total due to rounding.

(1) Amounts based on cash basis method of accounting.

(2) Amended budget was authorized on January 31, 2023. The original budget was published in the Official Gazette of the Federation on November 28, 2022.

(3) Figures are stated in nominal pesos.

Source: Pemex Exploration and Production

Investments and Production by Project

We conduct exploration, production and development activities in fields throughout Mexico. Our ten projects of 2022 with the most capital expenditures were: Ku-Maloob-Zaap, Ek-Balam, Cuenca de Veracruz, Integral Yaxché, Cantarell, Jujo-Tecominoacán, Antonio J. Bermúdez, Chuc, Cactus-Sitio Grande and Crudo Ligero Marino. Our investments in these projects are described below.

Exploration and Production's Capital Expenditures

	Year ended December 31,[1]			Budget 2023[2]
	2022	2021	2020	
	(in millions of pesos)[3]			
Exploration and Production				
Ku-Maloob-Zaap	24,238	17,753	18,541	44,399
Ek-Balam	7,509	8,498	8,045	14,011
Cuenca de Veracruz	5,691	3,882	3,112	6,901
Integral Yaxché	4,692	10,595	6,239	9,250
Cantarell	3,239	4,866	2,637	3,281
Jujo-Tecominoacán	2,772	776	241	4,330
Antonio J. Bermúdez	2,156	1,267	2,434	2,867
Chuc	2,155	5,316	5,833	3,696
Cactus-Sitio Grande	1,983	1,606	1,605	2,067
Crudo Ligero Marino	1,854	387	1,002	2,216
Ogarrio-Sánchez Magallanes	1,741	1,887	1,235	2,936
El Golpe-Puerto Ceiba	1,277	1,550	1,661	1,379
Delta del Grijalva	1,148	1,310	1,235	741
Aceite Terciario del Golfo	1,140	780	681	2,513
Bellota-Chinchorro	1,134	1,186	918	2,741
Lakach	664	347	51	689
Ixtal-Manik	471	988	730	913
Tsimin-Xux	465	707	1,352	639
Burgos	435	587	535	1,503
Integral Poza Rica	255	723	437	1,010
Tamaulipas-Constituciones	170	692	2,600	330
Cuenca de Macuspana	16	51	93	116
Costero Terrestre	3	13	57	52
Arenque	—	1	2	—
Other Exploratory Projects	38,005	28,652	19,777	42,946
Other Development Projects	57,405	38,729	24,826	87,184
Quesqui	12,907	4,138	229	11,491
Pokche	9,895	245	—	7,855
Teca	5,124	1,140	—	7,922
Ixachi	5,017	5,379	1,592	19,002
Mulach	3,379	1,937	2,952	9,343
Teekit Profundo	3,173	1,165	245	2,577
Koban	2,615	3,361	1,208	954
Uchbal	2,550	1,471	90	1,315
Suuk	2,519	831	808	1,999
Tupilco Profundo	1,991			7,848
Itta	1,833	2,219	127	5,571
Tlamatini	1,706	2,433	260	1,778
Tetl	1,129	2,590	1,206	1,102
Tlacame	918	2,259	2,736	1,809
Cibix	745	458	38	1,279
Esah	610	233	591	2,064
Manik NW	696	2,384	932	—
Octli	404	2,384	1,763	39
Cahua	50	974	3,447	13
Cheek	48	1,242	2,182	255
Xikin	48	534	2,857	310
Hok	28	1,351	1,563	93
Racemosa	20	—	—	1,395

	Year ended December 31,[1]			Budget
	2022	2021	2020	2023[2]
	(in millions of pesos)[3]			
Chocol	—	1	—	—
Paki	—	—	—	589
Kayab	—	—	—	268
Pit	—	—	—	230
Tlalkivak	—	—	—	83
Drilling and Services	1,220	1,220	1,270	1,218
Total	**Ps. 161,838**	**Ps. 134,369**	**Ps. 107,149**	**Ps. 239,928**

Notes: Numbers may not total due to rounding.
(1) Amounts based on cash basis method of accounting.
(2) Amended budget was authorized on January 31, 2023. The original budget was published in the Official Gazette of the Federation on November 28, 2022.
(3) Figures are stated in nominal pesos.

Source: Petróleos Mexicanos.

Ku-Maloob-Zaap Project. Project Ku-Maloob-Zaap was our most important producer of heavy crude oil and plays an important part in the production of the Maya crude oil mix. It is the most important project in Mexico in terms of total proved hydrocarbon reserves and crude oil production. It is composed of the Ayatsil, Bacab, Lum, Ku, Maloob, Tekel, Utsil and Zaap fields, and extends over an area of 305.7 square kilometers. As of December 31, 2022, a total of 331 wells were completed, 221 of which were producing. The project produced an average of 639.3 thousand barrels per day of crude oil, which represented 36.2% of our total production, and 788.6 million cubic feet per day of natural gas in 2022. As of December 31, 2022, cumulative production amounted to 6.8 billion barrels of crude oil and 4.1 trillion cubic feet of natural gas. As of December 31, 2022, proved hydrocarbon reserves totaled 1.8 billion barrels of crude oil and 0.781 trillion cubic feet of natural gas. Total proved reserves were 2.0 billion barrels of oil equivalent, of which 1.5 billion barrels of oil equivalent were proved developed reserves.

In nominal peso terms, our exploration and production segment's capital expenditures for this project amounted to Ps. 17,753 million in 2021 and Ps. 24,238 million in 2022. Our total accumulated capital expenditures for this project were U.S. $29.7 billion as of December 31, 2022. We expect that our capital expenditures for this project will total Ps. 44,399 million in 2023.

In 2022, we paid U.S. $44.1 million to acquire 102.4 billion cubic feet of nitrogen for the pressure maintenance project in the fifth module of the Cantarell nitrogen cryogenic plant. For 2023, we expect to spend U.S. $42.3 million to acquire 110.9 billion cubic feet of nitrogen for injection into the Ku-Maloob-Zaap fields.

Tsimín-Xux Project. This project consists of the Tsimín and Xux fields, which include volatile oil and gas condensate reservoirs in the shallow waters of the Gulf of Mexico. The Tsimín field is located 62 kilometers from the Dos Bocas Marine Terminal in Paraíso, Tabasco, while the Xux field is located on the continental shelf of the Gulf of Mexico, approximately ten kilometers off the coast of Tabasco. During 2022, no new wells were completed at the Xux or Tsimín fields. During 2022, average daily production at TsimínXux totaled 31.0 thousand barrels of crude oil and 154.1 million cubic feet of natural gas. During 2022, the sales prices of the light and extra-light crude oil produced at these fields averaged U.S. $112.13 per barrel, making this one of our most important projects in terms of revenue generation.

As of December 31, 2022, cumulative production totaled 0.2 billion barrels of crude oil and 1.3 trillion cubic feet of natural gas. Total proved reserves amounted to 52.4 million barrels of oil equivalent, all of which were proved developed reserves.

In nominal peso terms, our exploration and production segment's capital expenditures for this project were Ps. 707 million in 2021 and Ps. 465 million in 2022. Our total accumulated capital expenditures for this project were U.S. $347.6 million as of December 31, 2022. We expect that our capital expenditures for this project will total Ps. 639 million in 2023.

Chuc Project. Project Chuc is the third largest producer of light crude oil in the Southwestern Marine region, and includes the operation and maintenance of the PolA facility and water injection complexes. This project covers an area of 213 square kilometers. The fields of this project are located on the continental shelf of the Gulf of Mexico, off the coast of the states of Tabasco and Campeche, at a depth of between the 20 and 100 meter isobaths, approximately 132 kilometers from the Dos Bocas Marine Terminal in Paraíso, Tabasco, and 79 kilometers northeast of Ciudad del Carmen, Campeche. The fields in the project include Abkatún, Batab, Caan, Ché, Chuc, Chuhuk, Etkal, Homol, Kanaab, Kuil, Onel, Pol, Taratunich and Tumut. As of December 31, 2022, 130 wells were completed, of which 71 were producing. During 2022, average production totaled 88.6 thousand barrels per day of crude oil and 324.7 million cubic feet per day of natural gas. As of December 31, 2022, cumulative production totaled 6.1 billion barrels of crude oil and 7.3 trillion cubic feet of natural gas. As of December 31, 2022, proved hydrocarbon reserves totaled 95.5 million barrels of oil and 466.7 billion cubic feet of natural gas, or 173.3 million barrels of oil equivalent. As of December 31, 2022, total proved developed reserves amounted to 136.5 million barrels of oil equivalent.

In nominal peso terms, our exploration and production segment's capital expenditures for this project amounted to Ps. 5,316 million in 2021 and Ps. 2,155 million in 2022. Our total accumulated capital expenditures for this project were U.S. $8.4 billion as of December 31, 2022. We expect that our capital expenditures for this project will total Ps. 3,696 million in 2023.

Cantarell Project. Project Cantarell is located on the continental shelf of the Gulf of Mexico. It consists of the Akal, Chac, Ixtoc, Kambesah, Kutz, Nohoch, Sihil and Takin fields, which extend over an area of 294.4 square kilometers. As of December 31, 2022, there were a total of 571 wells drilled in the Cantarell project, 105 of which were producing. During 2022, Cantarell was the fourth most important producer of crude oil in Mexico, averaging 77.8 thousand barrels per day of crude oil. This represented a decrease of 11.6% from 2021 due to the decline of the remaining crude oil reserves in these fields. Natural gas production from Cantarell during 2022 averaged 841.7 million cubic feet per day. This was 18.9% less than the 2021 average natural gas production.

As of December 31, 2022, the cumulative production of Cantarell amounted to 14.4 billion barrels of crude oil and 11.7 trillion cubic feet of natural gas. As of December 31, 2022, Cantarell's proved oil and gas reserves amounted to 403.3 million barrels of crude oil and 477.1 billion cubic feet of natural gas. As of December 31, 2022, total proved reserves amounted to 475.0 million barrels of oil equivalent, all of which were proved developed reserves.

The Akal field, which is the most important field in Cantarell, averaged 29.3 thousand barrels per day of crude oil production during 2022. This was 19.9% less than the average production in 2021, which amounted to 36.6 thousand barrels per day.

In nominal peso terms, our exploration and production segment's capital expenditures for Cantarell amounted to Ps. 4,866 million in 2021 and Ps. 3,239 million in 2022. Our total accumulated capital expenditures for this project were U.S. $42.1 billion as of December 31, 2022. We expect that our capital expenditures for this project will total Ps. 3,281 million in 2023.

On October 10, 1997, we awarded a build-own-operate contract for a nitrogen cryogenic plant at Cantarell to a consortium formed by BOC Holdings, Linde, Marubeni, West Coast Energy and ICA Fluor Daniel. Under this contract, the consortium is responsible for the financing, design, construction and operation of the plant. The plant began operations in 2000 and cost Ps. 10,131 million. Pursuant to the terms of the agreement, Pemex Exploration and Production has the right to acquire the nitrogen plant in the case of a default by the consortium. Pemex Exploration and Production has the obligation to acquire the nitrogen plant if it defaults under the contract. Under the terms of the contract, Pemex Exploration and Production committed to purchasing 1.2 billion cubic feet per day of nitrogen from the consortium and to continue to supply service through June 2027.

During 2022, we paid U.S. $194.3 million under this contract for an approximate total volume of 402.2 billion cubic feet of nitrogen, which was injected into the Cantarell fields. In 2023, our exploration and production segment expects to pay U.S. $195.8 million under this contract for an approximate total volume of 429.7 billion cubic feet of nitrogen to be injected into the fields.

Crudo Ligero Marino Project. Project Crudo Ligero Marino is located on the continental shelf in the Gulf of Mexico, across the coasts of the states of Tabasco and Campeche, about 75 kilometers from the Dos Bocas Marine Terminal in Paraíso and 89 kilometers northwest from Ciudad del Carmen, Campeche. The project's main objectives through 2035 are to construct one marine structure, drill additional wells and implement secondary recovery, intervention, optimization and maintenance techniques to its facilities, particularly in the Sinan, Kab and Kax fields. As of December 31,

2022, a total of 102 wells had been completed at this project, of which 27 were producing. During 2022, average daily production amounted to 36.2 thousand barrels of crude oil and 112.0 million cubic feet of natural gas. As of December 31, 2022, cumulative production amounted to 968.7 million barrels of crude oil and 2,806.2 billion cubic feet of natural gas. Proved oil and gas reserves amounted to 47.4 million barrels of crude oil and 131.8 billion cubic feet of natural gas. Total proved reserves amounted to 69.8 million barrels of oil equivalent, all of which were proved developed reserves.

In nominal peso terms, our exploration and production segment's capital expenditures for Crudo Ligero Marino amounted to Ps. 387 million in 2021 and Ps. 1,854 million in 2022. As of December 31, 2022, our total accumulated capital expenditures for this project were U.S. $813.8 million. We expect our capital expenditures for this project will total Ps. 2,216 million in 2023.

Integral Yaxché Project. Project Integral Yaxché is located in shallow waters over the continental shelf in the Gulf of Mexico, off the coasts of the states of Tabasco and Campeche. The project is at a depth between 10- and 50-meter isobaths, approximately 14 kilometers from the Dos Bocas Maritime Terminal in Paraíso, Tabasco and 154 kilometers to the southwest of Ciudad del Carmen, Campeche. During 2022, average daily production at Integral Yaxché amounted to 129.8 thousand barrels per day of crude oil and 90.2 million cubic feet per day of natural gas.

As of December 31, 2022, cumulative production totaled 550.7 million barrels of crude oil and 376.7 billion cubic feet of natural gas. Proved oil and gas reserves totaled 256.0 million barrels of crude oil and 114.3 billion cubic feet of natural gas. Total proved reserves amounted to 269.1 million barrels of oil equivalent, of which 129.3 million barrels of oil equivalent were proved developed reserves.

In nominal peso terms, our capital expenditures for Integral Yaxché amounted to Ps. 10,595 million in 2021 and Ps. 4,692 million in 2022. As of December 31, 2022, our total accumulated capital expenditures for this project were U.S. $5.7 billion. We expect that our capital expenditures for this project will total Ps. 9,250 million in 2023.

Ogarrio-Sánchez Magallanes Project. Project Ogarrio-Sánchez Magallanes comprises 16 crude oil and natural gas producing fields and forms part of the Cinco Presidentes business unit. This project is located between the state borders of Veracruz and Tabasco and covers an area of 10,820 square kilometers. From a geological standpoint, this project pertains to the Isthmus Saline basin, specifically the southeastern basins at the Tertiary level. Ogarrio-Sánchez Magallanes is geographically bounded by the Gulf of Mexico to the north, the geological folds of the Sierra Madre of Chiapas to the south, the Tertiary basin of Veracruz to the west and the Comalcalco Tertiary basin to the east. The primary objective of this project is to increase production levels through the drilling of development wells and infill wells, which are drilled between producing wells to recover oil and gas reserves more efficiently, the execution of workovers of wells and the implementation of secondary and enhanced oil recovery processes. In addition, we aim to optimize the infrastructure of this project in order to counteract the decreases in production levels that result from the natural depletion of its reservoirs.

As of December 31, 2022, Ogarrio-Sánchez Magallanes had 257 producing wells, with five new wells completed during 2022. Average daily production amounted to 28.3 thousand barrels of crude oil and 40.3 million cubic feet of natural gas during 2022. As of December 31, 2022, cumulative production amounted to 1.3 billion barrels of crude oil and 2.0 trillion cubic feet of natural gas. Proved hydrocarbon reserves amounted to 60.4 million barrels of crude oil and 117.9 billion cubic feet of natural gas. Total proved reserves amounted to 75.2 million barrels of oil equivalent, of which 63.6 million barrels were proved developed reserves.

In nominal peso terms, our capital expenditures for Ogarrio-Sánchez Magallanes amounted to Ps. 1,887 million in 2021 and Ps. 1,741 million in 2022. As of December 31, 2022, our total accumulated capital expenditures for this project were U.S. $438.5 million. We expect that our capital expenditures for this project will total Ps. 2,936 million in 2023.

Antonio J. Bermúdez Project. Project Antonio J. Bermúdez is designed to accelerate reserves recovery, as well as increase the recovery factor, by drilling additional wells and implementing a system of pressure maintenance through nitrogen injection. It consists of the Samaria, Cunduacán, Oxiacaque, Iride and Platanal fields, and covers an area of 163 square kilometers. As of December 31, 2022, a total of 897 wells had been completed, of which 200 were producing. During 2022, the project produced an average of 30.0 thousand barrels per day of crude oil and 71.1 million cubic feet per day of natural gas. As of December 31, 2022, cumulative production was 3.0 billion barrels of crude oil and 5.0 trillion cubic feet of natural gas. As of December 31, 2022, proved hydrocarbon reserves in these fields amounted to 73.3 million barrels of crude oil and 65.7 billion cubic feet of natural gas. As of December 31, 2022, total proved reserves amounted to 87.3 million barrels of oil equivalent, of which 60.5 million were proved developed reserves.

In nominal peso terms, our exploration and production segment's capital expenditures for Antonio J. Bermúdez amounted to Ps 1,267 million in 2021 and Ps. 2,156 million in 2022. As of December 31, 2022, our total accumulated capital expenditures for this project were U.S. $9.7 billion. We expect that our capital expenditures for this project will total Ps. 2,867 million in 2023.

Burgos Project. Project Burgos is the largest producer of non-associated gas in Mexico. The purpose of this project is to enable us to meet increasing domestic demand for natural gas. The fields in Burgos accounted for 8.8% of our total natural gas production in 2022. The project is located in northeastern Mexico.

During 2022, Burgos produced an average of 414.8 million cubic feet per day of natural gas. In 2022, 21 new wells were completed at this project, bringing our total completed wells drilled to 8,035, 2,312 of which were producing. The most important fields are Nejo, Arcabuz, Culebra, Cuitláhuac, Cuervito, Velero and Santa Anita, which together produced 47.7% of the total production of Burgos in 2022.

Main Fields of Project Burgos[(1)]
(as of December 31, 2022)

	Nejo	Arcabuz-Culebra	Cuitláhuac	Velero	Cuervito	Santa Anita
Wells completed	439	982	448	221	148	86
Producing wells	125	464	195	129	108	53
2022 production of natural gas (million cubic feet per day)	31.7	60.3	51.3	23.7	26.0	4.9
Cumulative production of natural gas (billion cubic feet)	671.3	2,202.5	896.1	397.5	242.3	296.1
Proved reserves of natural gas (billion cubic feet)	93.8	65.7	172.6	39.5	84.4	7.9
Proved developed reserves	30.8	65.7	118.5	32.7	31.7	7.9
Proved undeveloped reserves	63.0	—	54.1	6.8	52.6	—

(1) This table considers natural gas production and reserves corresponding exclusively to Pemex Exploration and Production.

Source: Pemex Exploration and Production.

During 2022, proved reserves increased by 6.3 million barrels of oil equivalent, from 118.5 million barrels of oil equivalent in 2021 to 124.8 million barrels of oil equivalent in 2022. This increase was primarily due to the increase in production of certain fields in project Burgos.

In nominal peso terms, our exploration and production segment's capital expenditures (including capital expenditures made pursuant to Financed Public Works Contracts, or FPWCs) for Burgos amounted to Ps. 587 million in 2021 and Ps. 435 million in 2022. As of December 31, 2022, our total accumulated capital expenditures for this project were U.S. $20.6 billion. We expect that our capital expenditures for this project will total Ps. 1,503 million in 2023.

Aceite Terciario del Golfo Project (Project ATG, formerly Paleocanal de Chicontepec). Project ATG is located in the Northern region and covers an area of 4,243 square kilometers. This project comprises 29 fields, which are divided among eight sectors. As of December 31, 2022, there was a total of 4,731 wells completed, of which 1,304 were producing. The project produced an average of 16.9 thousand barrels per day of crude oil in 2022 as compared to 19.1 thousand barrels per day of crude oil in 2021, which represents a 11.8% decrease. Additionally, Project ATG produced an average of 37.3 million cubic feet per day of natural gas in 2022, as compared to 50.6 million cubic feet of natural gas per day in 2021, which represents a 26.2% decrease. The decrease in crude oil and natural gas production was primarily due to the decline in pressure in certain reservoirs. As of December 31, 2022, cumulative production was 354.4 million barrels of crude oil and 780.1 billion cubic feet of natural gas. As of December 31, 2022, proved reserves totaled 511.0 million barrels of crude oil and 889.3 billion cubic feet of natural gas. Total proved hydrocarbon reserves were 629.4 million barrels of oil equivalent, of which 114.9 million barrels of oil equivalent were proved developed reserves.

During 2022, field development activities at the project included drilling 24 new wells and the completion of 24 wells, all of which were classified as producing. As of December 31, 2022, 92.7% of the total producing wells were operating with artificial systems such as mechanical, pneumatic, hydraulic and electric pumping, while the remaining 7.3% were "flowing wells" that are classified accordingly because they did not require any means of artificial lift.

In nominal peso terms, our exploration and production segment's capital expenditures for Project ATG amounted to Ps. 780 million in 2021 and Ps. 1,140 million in 2022. As of December 31, 2022, our total accumulated capital expenditures for this project were U.S. $13.4 billion. We expect that our capital expenditures for this project will total Ps. 2,513 million in 2023.

Crude Oil Sales

During 2022, domestic consumption of crude oil amounted to 826.8 thousand barrels per day, which represented 46.9% of our total crude oil production. Through PMI's activities, we sold the remainder of our crude oil production abroad. Maya crude oil accounted for 67.1% of exported crude oil volume sold by PMI in 2022. See "*—Business Overview —International Trading*" in this Item 4.

The following table sets forth crude oil distribution for the past five years.

Crude Oil Distribution

	At December 31,					
	2022	2021	2020	2019	2018	2022 vs. 2021
	(in thousands of barrels per day)					(%)
Production	1,764.2	1,735.7	1,686.3	1,683.8	1,822.5	1.6
Distribution						
Refineries	826.8	716.9	601.7	576.8	606.4	15.3
Export terminals	953.1	1,017.0	1,124.4	1,102.5	1,186.9	(6.3)
Total	1,779.9	1,733.9	1,726.1	1,679.3	1,793.3	2.7
Statistical differences in stock measurements[(1)]	(15.7)	1.8	(39.8)	4.5	29.2	(972.2)

Note: Numbers may not total due to rounding.

(1) Includes measurement inconsistencies, shrinkage and leakage, naphthas and condensates added to crude oil.

Source: Pemex Exploration and Production.

The differences between the volume of crude oil measured at the wellhead and the volume distributed reflect customary adjustments due to, among other things, the stabilization process of the crude oil and decreases caused by evaporation and conditioning. In the past, we identified increases in the difference between oil production and crude oil distribution volumes that have remained within established limits. Therefore, based on an analysis carried out in coordination with the National Hydrocarbons Commission, we have implemented corrective actions to improve our measurement methodology, balance sheets and measurement management system; including permanent monitoring of wells, periodic verifications of measurement systems with maintenance and improvement programs, calibration of measurement equipment, and installation of additional dehydration systems, to increase the reliability of volume measurement. Additionally, the volume of crude oil measured in barrels goes through a stabilization process in preparation for export, which involves a triple certification by us, the buyer and a third party to verify that the content meets international standards, ensuring that the volume of crude oil measured in barrels does not contain more than 0.5% of water and 50 lbs/1,000 barrels of salt.

Gas Flaring

Gas flaring, which consists of the burning of gas not used in production facilities, usually occurs due to operational adjustments required for maintenance purposes, as well as limitations in the processing and transportation of natural gas. In

addition, the burning of gases is also used as a safety measure, releasing high pressures caused by interruptions in the conditioning, handling and transportation processes.

The burning of gases is considered the most significant atmospheric emission from offshore oil and gas facilities into the atmosphere. In 2022 this represented 7.8% of total gas production, up from 12.1% of gas production in 2021. The decrease was mainly due to the execution of 64 actions, intended to significantly reduce gas flaring, including maintenance of compression equipment and infrastructure construction.

Pipelines

The crude oil and natural gas pipeline network owned by our exploration and production segment connects crude oil and natural gas producing centers with refineries and petrochemical plants. At the end of 2022, this pipeline network consisted of approximately 36,223 kilometers of pipelines, of which 2,060 kilometers were located in the Northeast Marine region, 1,508 kilometers were located in the Southeast Marine region, 8,118 kilometers were located in the Southern region, 24,537 kilometers were located in the Northern region. For a description of products transported by the pipeline network, see "*—Business Overview—Logistics*" in this Item 4.

Integrated Exploration and Production Contracts, Financed Public Works Contracts (FPWCs) and Integrated Exploration and Extraction Services Contracts (CSIEEs)

Our FPWC program, previously known as the Multiple Services Contracts program, was first announced in December 2001. The objective of the program was to provide a contractual framework that promotes efficient execution of public works in order to increase Mexico's oil and gas production. These were contracts based on unit prices that aggregate a number of different services into a single contract. Under the FPWC framework, Pemex Exploration and Production retains entitlements for all oil and gas produced as well as works performed under each FPWC.

Our Integrated E&P Contracts program was established as part of reforms to the Mexican energy sector enacted in 2008. The objective of these contracts was to increase our execution and production capabilities. The oil and gas reserves located in and extracted from the areas to which we have a legal right, continue to be owned exclusively by the Mexican Government. Under this program, payments to the contractors were made on a per-barrel basis, plus recovery costs, not exceeding our cash flow from the block.

We may amend our Integrated E&P Contracts and FPWCs in order to align these contracts with the contractual framework established under the Hydrocarbons Law. As part of this reform, existing Integrated E&P Contracts or FPWCs may be migrated into a contract for exploration and extraction upon agreement by the contract parties to the technical guidelines established by the Ministry of Energy (after seeking our favorable opinion) and the financial terms determined by the Ministry of Finance and Public Credit. Upon approval by the contract parties, the existing Integrated E&P Contract or FPWC will be terminated and be replaced by the new contract for exploration and extraction without the need for a bidding process. If the contract parties do not agree to the proposed technical guidelines and contractual and financial terms, the original Integrated E&P Contract or FPWC remains in effect.

As of the date of this annual report, we have migrated three Integrated E&P Contracts to contracts for exploration and extraction:

- On December 18, 2017, the Integrated E&P Contract governing the Santuario and El Golpe blocks was migrated;
- On August 3, 2018, the Integrated E&P Contract governing the Ebano block was migrated; and
- On November 21, 2018, the Integrated E&P Contract governing the Miquetla block was migrated.

In addition, we migrated the FPWCs governing Misión and Olmos blocks on March 2, 2018 and February 22, 2018, respectively, to different contractual frameworks allowed under the Petróleos Mexicanos Law. For more information on the migration of these Integrated E&P Contracts and FPWCs, see "*—Other Exploration and Production Contracts*" below.

As of the date of this annual report, we are pursuing integration of the technical and economic components of our Integrated E&P Contracts and FPWCs in order to execute extraction activities under the CSIEEs. All of these contracts are relatively low risk for proven and probable reserves, and some also have an exploration component.

Additionally, we are negotiating with third-party contractors potential changes from our current contracts to contracts conforming to CSIEE-type terms.

The goal of these contract amending agreements strategy is to increase our hydrocarbon production and to meet our reserve replacement objectives at competitive costs. As of the date of this annual report, we have not amended any agreement for existing FPWCs or Integrated E&P Contracts to CSIEEs or similar contracts.

In 2022, natural gas production in the current FPWC blocks reached 32.4 million cubic feet per day and condensate production reached 1.0 thousand barrels per day, for a total of 7.6 thousand barrels of oil equivalent per day.

During 2022, contractors expended U.S. $125.9 million in connection with Integrated E&P Contracts. In 2022, production in the existing Integrated E&P blocks reached 8.9 thousand barrels per day of crude oil and 22.1 million cubic feet per day of natural gas, for a total of 13.4 thousand barrels of oil equivalent per day.

Farm-outs and CSIEEs

Through farm-outs, we sell a partial interest in fields that have been granted to us and enter into agreements for the joint operation of such fields. This requires third parties to make financial contributions to the partnership and to provide field services, allowing us to recoup some of our previous investments in the fields and to share some of the risk associated with the further development of the fields, while maintaining an interest in the future profits.

On December 11, 2018, the Mexican Government announced the suspension of bidding rounds for exploration and extraction of hydrocarbons contracts for a three-year period in order to evaluate the results and progress of the existing contracts. On June 13, 2019, the Mexican Government announced the suspension of bidding rounds for new farm-outs to provide an opportunity to evaluate the performance of existing farm-outs. The existing farm-outs will continue to operate in accordance with the terms and conditions of their respective contracts. We understand the Mexican Government will use the results of such evaluation to determine whether to pursue farm-outs in the future.

We have been evaluating the use of CSIEEs as a replacement for farm-outs to encourage the participation of the private sector in our operations. The CSIEE model seeks to increase production by providing for incentive based remuneration dependent on the production received and sharing the operating risks according to the terms of each contract. Each CSIEE contract has a term between 15 and 25 years. It is expected that CSIEEs will replace farm-outs as a vehicle for private sector participation, although existing farm-out arrangements will be maintained for the duration of their respective terms. On November 21, 2022, we executed our first CSIEE (Lakach). The CSIEE Lakach was executed by Pemex Exploration and Production, as client and the company New Fortress Energy Upstream CO, S. de R.L. de C.V., as contractor, and provides the terms for the development, extraction and production of hydrocarbons in the contractual area.

Trión Farm-out

On July 28, 2016, the National Hydrocarbons Commission published the tender offer and bidding package to select a partner for Pemex Exploration and Production to carry out exploration and production activities in the Trión block, which is located in the Perdido Fold Belt in the Gulf of Mexico. Considering that Trión block has a depth greater than 2,500 meters, it requires a high level of technical expertise and financial investment to develop the block.

On December 5, 2016, the National Hydrocarbons Commission announced that BHP Billiton Petróleo Operaciones de México, S. de R.L. de C.V., or BHP Billiton Mexico, an affiliate of BHP Group Limited and BHP Group Plc, had been selected as the partner for Pemex Exploration and Production in the Trión block farm-out. Pursuant to the terms of its bid, BHP Billiton Mexico made a U.S. $789.6 million contribution to the partnership in exchange for a 60% participating interest in the Trión Block. BHP Billiton Mexico is the actual operator of the Trión block and must invest U.S. $1.9 billion in the Trión farm-out before we are required to invest in the project, which will likely not occur until 2023. The corresponding exploration and extraction contract, joint operating agreement and other relevant agreements were executed on March 3, 2017, and the National Hydrocarbons Commission approved both the exploration and evaluation plans in February 2018. As of December 31, 2022, this farm-out is in the evaluation stage.

The final evaluation report was delivered to the National Hydrocarbons Commission on January 20, 2022. On March 8, 2022, the National Hydrocarbons Commission approved the Declaration of Commerciality of the Trion Field, granting two years to file the Development Plan for Extraction. On June 1, 2022, BHP's oil and gas portfolio merged with Woodside to create a global top 10 independent energy company by production, the merged business was owned approximately 52% by existing Woodside shareholders and 48% by existing BHP shareholders.

The first exploration period ended on September 29, 2022. On December 16, 2022, the National Hydrocarbons Commission accredited 176,339 work units carried out by the contractor of the 186,150 work units of the evaluation program and the exploration plan. This farm-out is preparing the development plan, which is expected to be delivered to the National Hydrocarbons Commission in July 2023.

Ogarrio, Cárdenas-Mora and Ayin-Batsil Farm-outs

In addition to the Trión farm-out, on October 4, 2017, the National Hydrocarbons Commission held a bidding round for farm-outs of the Ogarrio, Cárdenas-Mora and Ayin-Batsil blocks. No bids were received for the Ayin-Batsil block, which is located in the shallow waters of the Gulf of Mexico. However, multiple bids were received for the Ogarrio block. The Ogarrio and Cárdenas-Mora blocks, both onshore fields located in the state of Tabasco, were awarded to the German company Deutsche Erdoel AG (DEA), which later formally changed its name to Wintershall México DEA, S. de R.L. de C.V. (WSDM), and the Egyptian company Cheiron Holdings Limited (Cheiron), respectively. DEA's bid consisted of an initial cash payment of U.S. $190.0 million, a royalty rate of 13% and an additional cash payment of U.S. $213.9 million, which is the highest sign-up bonus submitted in a National Hydrocarbons Commission bidding round as of the date of this annual report. Cheiron's bid consisted of an initial cash payment of U.S. $125.0 million, a royalty rate of 13% and an additional cash payment of U.S. $41.5 million. The contracts were signed on March 6, 2018 and have a term of 25 years. We retained a 50% interest in both blocks. The Ogarrio and Cárdenas-Mora fields are currently in the development stage following the approval of the development plan by the National Hydrocarbons Commission. In 2022, the Ogarrio field produced 5.4 thousand barrels of crude oil per day and 12.5 million cubic feet per day of natural gas. In 2022, the Cárdenas-Mora block produced 5.3 thousand barrels per day of crude oil and 11.2 million cubic feet per day of natural gas.

Other Exploration and Extraction Contracts

In addition to the farm-outs described above, we have also pursued other types of partnerships for the exploration and production of fields that were not granted to us.

On December 5, 2016, we participated in the bidding process referred to as Round 1.4, through which we, as part of a consortium consisting of Pemex Exploration and Production, Chevron Energía de Mexico, S. de R.L. de C.V., or Chevron Energía, a subsidiary of Chevron Corporation, and INPEX Corporation, were awarded an exploration contract for block 3 located in the Perdido Fold Belt in the Gulf of Mexico. The block covers an area of approximately 1,686.9 square kilometers and is located approximately 117 kilometers off the coast of Mexico in water depths ranging between 500 meters and 1,700 meters. Chevron Energía is the operator and holds a 33.334% interest in the consortium, while Pemex Exploration and Production and INPEX Corporation each hold a 33.333% interest. The corresponding exploration and extraction contract, joint operating agreement and other relevant agreements were executed on February 28, 2017. This project is currently in the final stage of its exploration phase. The exploration plan was approved by the National Hydrocarbons Commission in March of 2018.

The Ek-Balam project area is in the Campeche Basin. Its production comes from Ek and Balam fields, specifically from the Upper Oxfordian sands and the Upper Cretaceous fractured carbonates.

On May 2, 2017, Pemex Exploration and Production entered into a production-sharing contract with the National Hydrocarbons Commission to upgrade the assignments under the shared shallow water production concession structure for the Ek and Balam project area located in Campeche Basin. Within the framework of the contract, which has a term of 22 years with two possible five-year extensions, the Mexican Government will retain 70.5% of the operating profits and Pemex Exploration and Production will retain 29.5% of the operating profits, as long as there is a cost recovery carry forward. Pemex Exploration and Production provided a guarantee of U.S. $5.0 billion in connection with this contract. During 2022, we produced an average of 80.3 thousand barrels per day of crude oil and 18.5 million cubic feet per day of natural gas pursuant to such contract.

On June 19, 2017, we participated in another bidding round conducted by the National Hydrocarbons Commission, referred to as Round 2.1. As a result of this bidding process, we won two blocks. We were awarded Block 2, which covers an area of 549 square kilometers and is located on the continental shelf of the Tampico-Misantla basin, to the west of the Gulf of Mexico, in partnership with WSDM (f/k/a DEA). We are the operating partner in this block and own a 70% interest. Additionally, we were awarded Block 8, which is in the Southeastern Basins and covers an area of 586 square kilometers, in partnership with Colombia's Ecopetrol. In Block 8, we are also the operating partner and own a 50% interest. As part of its strategy to optimize its portfolio of exploration projects, Ecopetrol assigned its participation interest to us and on November 22, 2022, the National Hydrocarbons Commission approved the exit of Ecopetrol in this project. The corresponding contracts for the exploration and extraction of hydrocarbons with WSDM and Ecopetrol were signed on

September 25, 2017. The documentation reflecting Ecopetrol's exit from Block 8 is currently being finalized with the National Hydrocarbons Commission. Both blocks are in the exploration phase following approval of the exploration plans by the National Hydrocarbons Commission in November and October of 2018, respectively.

On December 18, 2017, we executed contracts in association with Petrofac México, S.A. de C.V., or Petrofac, under which we assigned to Petrofac the rights to certain fields that were part of the El Golpe-Puerto Ceiba project, including the onshore fields of Santuario and El Golpe located in the state of Tabasco. We have a 64% interest in this project. During 2022 we had an average production of 17.3 thousand barrels per day of crude oil and 14.0 million cubic feet per day of gas. These fields are currently in the development stage following approval of the development plan by the National Hydrocarbons Commission in March 2022.

On March 2, 2018, we completed the first migration of an FPWC. The FPWC governing the Misión block was migrated to a shared production contract with Servicios Múltiples de Burgos, S.A. de C.V. and the National Hydrocarbons Commission. The Misión block is in the states of Nuevo León and Tamaulipas. We have a 51% interest in the contractual area and the average production under this contract in 2022 amounted to 85.2 million cubic feet per day of natural gas. The FPWC governing the Misión block allows exploration and extraction activities. The National Hydrocarbons Commission approved the development plan in January 2019 and the exploration plan in April 2019. The Misión block is currently in both the exploration and extraction phases.

On March 27, 2018, we successfully participated in the first call of bidding Round 3 of the National Hydrocarbons Commission, and were awarded seven contractual areas in shallow waters, six of them as part of a consortium and one on an individual basis. Pemex Exploration and Production won four blocks in the Southeast Basins: two in consortium with Total S.A., one with Shell Oil Company and one individually, as well as three blocks corresponding to the province of Tampico-Misantla-Veracruz: two in partnership with Compañía Española de Petróleos and one in partnership with WSDM (f/k/a DEA).

We participated in another bidding round conducted by the National Hydrocarbons Commission, referred to as Round 2.4, obtaining four exploration blocks. On May 7, 2018, we signed four exploration and extraction contracts covering several deep-water blocks in the Gulf of Mexico, the rights to which were auctioned off pursuant to the bidding process:

- Block 2 with Shell Exploración y Extracción de México, S.A. de C.V., as operator. We have a 50% interest in the contractual area, which spans 2,146 square kilometers and is in the Plegado Perdido Belt.
- Block 5. We are the operator of and have a 100% interest in the contractual area, which spans 2,733 square kilometers and is in the Perdido Foldbelt.
- Block 18. We are the operator of and have a 100% interest in the contractual area, which spans 2,917 square kilometers and is in the Mexican Ridges Foldbelt region.
- Block 22 with Chevron Energía de Mexico, S. de R.L. de C.V., as operator, and Inpex E&P México, S.A. de C.V. We have a 27.5% interest in the contractual area, which spans 2,879 square kilometers and is in the Cuenca Salina region.

The National Hydrocarbons Commission approved the exploration plans for Blocks 5 and 22 in June and May 2019, respectively. Exploration plans were also approved by National Hydrocarbons Commission for Block 2 in June 2019 and Block 18 in August 2019. As of the date of this annual report, these blocks are currently in the exploration phase.

On June 27, 2018, we signed seven exploration and extraction contracts covering shallow water blocks in the Gulf of Mexico, the rights to which were auctioned off pursuant to the bidding round referred to as Round 3.1:

- Block 16 with WSDM (f/k/a DEA) as operator, and Cepsa E.P. Mexico, S. de R.L. de C.V. We have a 40% interest in the contractual area, which spans 785 square kilometers and is in the Tampico-Misantla-Veracruz area.
- Block 17 with WSDM (f/k/a DEA) as operator, and Cepsa E.P. Mexico, S. de R.L. de C.V. We have a 40% interest in the contractual area, which spans 842 square kilometers and is in the Tampico-Misantla-Veracruz area.
- Block 18 with Cepsa E.P. Mexico, S. de R.L. de C.V. We operate the block with an 80% interest in the contractual area, which spans 813 square kilometers and is in the Tampico-Misantla-Veracruz area.

- Block 29. We are the operator of and have a 100% interest in the contractual area, which spans 471 square kilometers and is in the Cuencas del Sureste area.
- Block 32 with Total E&P México, S. A. de C.V. We operate the block with a 50% interest in the contractual area, which spans 1,027 square kilometers and is in the Cuencas del Sureste area.
- Block 33 with Total E&P Mexico, S. de R.L. de C.V. as operator. We have a 50% interest in the contractual area, which spans 581 square kilometers and is in the Cuencas del Sureste area.
- Block 35 with Shell Exploración y Extracción de México, S.A. de C.V. as operator. We have a 50% interest in the contractual area, which spans 798 square kilometers and is in the Cuencas del Sureste area.

The National Hydrocarbons Commission approved the exploration plans for Block 18 in August 2019, for Blocks 16 and 17 in September 2019 and for Blocks 29, 32, 33, 35 in October 2019. As of the date of this annual report these blocks are currently in the exploration phase.

On August 3, 2018, we migrated the Integrated E&P Contract for the Ébano block to a shared production contract with DS Servicios Petroleros, S.A. de C.V. (DIAVAZ), as operator, and D&S Petroleum, S.A. de C.V. The Ébano block spans an area of 1,569.1 square kilometers and is located in the states of Veracruz, San Luis Potosí and Tamaulipas. In 2022, average production under this contract amounted to 5.9 thousand barrels per day of crude oil and 1.3 million cubic feet per day of gas. We and DIAVAZ contributed to a corporate guarantee delivered to the Mexican Government in accordance with our respective interests in the partnership. The corporate guarantee amounted to U.S. $500 million, 45% of which was contributed by us and 55% of which was contributed by DIAVAZ.

Our shared production contract for the Ébano block allows for exploration and extraction activities. The National Hydrocarbons Commission approved the development plan in May 2019 and the exploration plan in October 2019. As of the date of this annual report, Ébano block is currently in both the exploration and extraction phases.

On September 18, 2018, we signed a pre-unitization agreement related to certain tracts of the Yaxché fields and the shared production contract for Block 7 with a consortium of Talos Energy, Offshore Mexico, as operator, Sierra Oil & Gas and Premier Oil. Both areas are located in the offshore regions of Mexico's Southeast basin. This pre-unitization agreement was a two-year contract that enabled information-sharing relating to the discovery of the Zama field, which spans Block 7 and a neighboring block assigned to us.

On November 21, 2018, we migrated the Integrated E&P Contract for the Miquetla block to a license contract with Operadora de Campos DWF, S.A. de C.V., as operator. The Miquetla block spans 139.7 square kilometers and is located in the states of Puebla and Veracruz. In 2022, average production under this contract was 1.1 thousand barrels per day of crude oil and 4.4 million cubic feet per day of natural gas. We have a 49% interest in the contractual area and the contract has a term of 30 years. Our license contract for the Miquetla block allows for exploration and extraction activities. The National Hydrocarbons Commission approved the development and exploration plans in November 2019. As of the date of this annual report, Miquetla block is currently in both the exploration and extraction phases.

On December 9, 2019, the Talos-led consortium submitted to Ministry of Energy a shared reservoir notice for the Zama field. On March 5, 2020, Ministry of Energy resolved to continue with the unitization process.

On May 21, 2020, based on the technical opinion of the CNH, the Ministry of Energy determined that Zama is a shared field. Therefore, in accordance with current legislation, in July 2020, the Ministry of Energy instructed us and the "Block 7 Consortium" (Talos Energy Offshore Mexico 7, S. de R.L. de C.V., Sierra O&G Exploración y Producción, S. de R.L. de C.V. (now a Wintershall DEA company) and Premier Oil Exploration and Production Mexico, S.A. de C.V.) to carry out the unification of the Zama field, with the aim of maximizing the exploitation of this field for the benefit of Mexico. In response, we and the Block 7 Consortium continued with our discussions in order to jointly submit a proposed unitization agreement to the Ministry of Energy. In September 2020, we and the Block 7 Consortium decided to activate the expert's procedure outlined in the preliminary unitization agreement. On April 22, 2021, we and the Block 7 Consortium received the final expert report that defined the initial tract participation in the Zama reservoir. The final expert report determined that we hold 50.43% of the Zama reservoir whereas the Block 7 Consortium holds the other 49.57%.

We and the Block 7 Consortium were unable to reach an agreement with respect to the unitization of the Zama field. Therefore and in accordance with current legislation, Ministry of Energy determined the terms and conditions of the unitization in March 2022.

On July 22, 2021, Ministry of Energy appointed Pemex Exploration and Production as the operator of Zama. On September 3, 2021, Talos submitted a dispute notification to the Ministry of Economy regarding the designation of Pemex Exploration and Production as the operator of Zama. As of the date of this annual report, this dispute is still pending.

On March 23, 2022, Pemex Exploration and Production received the Unitization Resolution of Zama field issued by the Ministry of Energy. Pursuant to the resolution, Pemex Exploration and Production, as the unit operator, submitted to the National Hydrocarbons Commission the field development plan of Zama Unit on March 23, 2023. On this regard, the operating committee of Zama comprised of Pemex Exploration and Production and the Block 7 Consortium Firms held three meetings to discuss and define relevant aspects of the field development plan of the unit. In addition Pemex Exploration and Production and the Consortium undertook meetings to address technical issues related to field development, infrastructure, detailed engineering, industrial safety, among others. Thus, the plan was approved by the operating committee of the Zama Unit.

In accordance with the Unitization Resolution, on May 4, 2022, PEP submitted to the CNH the Evaluation Report and the Declaration of Commercial Discovery for the Zama Field

Expediting the development of newly discovered fields

In 2022, we worked to develop 30 fields, 24 in shallow water and six onshore. We started to work on 27 of these fields during 2019, 2020 and 2021. We designed a strategy for these developments, considering integrated services contract schemes and a simplified contract process.

To improve the contracting process, we established the following four strategies:

- regulatory, contractual and constructive simplification;
- establishing reference engineering;
- homologation of technical bases for design; and
- encouraging the formation of companies' consortiums with major financial and technical capacity to develop the required infrastructure for the production and transportation of hydrocarbons, such as platforms, pipelines, process plant and equipment.

Further, we established two policies for the execution of our new developments:

- leverage already installed infrastructure and equipment to interconnect to new facilities and handle new field production; and
- adopt an early production philosophy with respect to exploration and infrastructure teams, and work to produce exploratory wells for a double purpose: obtaining cash flow as soon as possible and obtaining data from the well and reservoir.

In 2022, we engaged in seven offshore infrastructure contracts, which entailed the construction and installation of pipelines and platforms, and eight onshore infrastructure contracts to build roads, well locations, install pipelines, process facilities and auxiliary services.

In 2022, we engaged in four drilling services contracts to continue drilling new wells and supply the necessary services for wells already in production. As of December 31, 2022, we started production in 27 of these 30 fields. In 2022, these fields had an average production of 387.9 thousand barrels per day of liquid hydrocarbon and 1,121.3 million cubic feet per day of natural gas.

Industrial Transformation

Our industrial transformation segment is comprised of four principal activities: (i) refining, (ii) gas and aromatics (iii) ethylene and derivatives and (iv) fertilizers.

Refining

Refining Processes and Capacity

Our refining production processes include the following:

- *Atmospheric distillation*. This process heats crude oil in a tube furnace at atmospheric pressure to distill refined products. The primary products produced are gasoline, jet fuel, diesel, atmospheric gas oil and atmospheric residual crude oil.
- *Vacuum distillation*. This process heats crude oil or other feedstock in a vacuum distillation column, which is operated at low pressures. The objective of this process is to maximize production of heavy vacuum gas oil, which is produced by boiling crude oil.
- *Cracking*. This process uses either heat and pressure or a catalytic agent to increase gasoline yields from crude oil.
- *Visbreaking*. This is a thermal cracking process, which uses a horizontal-tube heater brought to a high temperature. Visbreaking reduces flasher bottom viscosity and produces some heavy gas oil.
- *Reforming processes*. These processes use heat and catalysts to transform smaller or unstable hydrocarbon molecules into larger, more useful refining or blending products. For example, we use reforming processes to convert low octane gasoline into higher octane stocks that are suitable for blending into finished gasoline and to convert naphthas into more volatile, higher octane products.
- *Hydrotreatment or residual hydrocracking*. This process uses a catalyst and hydrogen at high temperature and pressure to remove sulfur, nitrogen and some aromatic compounds. Hydrotreatment also processes some lighter liquid product off-take. The new processes also include the saturation of aromatic compounds.
- *Alkylation and isomerization*. This polymerization process unites olefins and isoparaffins. Butylenes and isobutanes are combined with sulfuric acid or hydrofluoric acid to rearrange straight-chain hydrocarbon molecules into branched-chain products. Pentanes and hexanes, which are difficult to reform, are isomerized through the use of aluminum chloride and other precious-metal catalysts. Normal butane may be isomerized to provide a portion of the isobutene feed needed for the alkylation process. The process produces a high octane, low sensitivity blending agent for gasoline.
- *Coking*. This process is a severe method of thermal cracking used to upgrade heavy residuals into lighter products or distillates. Coking produces straight-run gasoline (coker naphtha) and various middle-distillate fractions used as catalytic feedstock, thus generating a concentrated solid material.

These production processes together constitute our production capacity as set forth in the table below.

Refining Capacity by Production Process

	At December 31,				
	2022	2021	2020	2019	2018
	(in thousands of barrels per day)				
Production Process					
Atmospheric distillation	1,640.0	1,640.0	1,640.0	1,640.0	1,640.0
Vacuum distillation	772.2	772.2	772.2	772.2	772.2
Cracking	422.5	422.5	422.5	422.5	422.5
Visbreaking	91.0	91.0	91.0	91.0	91.0
Reforming	279.3	279.3	279.3	279.3	279.3
Hydrotreatment	1,230.0	1,230.0	1,230.0	1,230.0	1,230.0
Alkylation and isomerization	154.3	154.3	154.3	154.3	154.3
Coking	155.8	155.8	155.8	155.8	155.8

Source: Base de Datos Institucional (Pemex Institutional Database, or "Pemex BDI").

As of December 31, 2022, we owned and operated six refineries in Mexico: Cadereyta, Madero, Minatitlán, Salamanca, Salina Cruz and Tula. As of December 31, 2022, P.M.I. Services North America, Inc. owned and operated one refinery in the United States: Deer Park. Our refineries consist of atmospheric and vacuum distillation units, where the bulk of crude oil input is processed. Secondary processing facilities include desulfurization units and facilities for catalytic cracking, reforming and hydrotreating.

During 2022 the National Refining System, which includes the six refineries located in Mexico, processed an average of 815.8 thousand barrels of crude oil per day, 104.2 thousand barrels per day higher than in 2021. This increase is explained by better operating performance in the following refineries: Tula with a processing of 179.7 thousand barrels per day, Salina Cruz with 177.9 thousand barrels per day, Salamanca with 129.6 thousand barrels per day, Cadereyta with 118.8 thousand barrels per day, Minatitlán with 111.8 thousand barrels per day and Madero with 98.0 thousand barrels per day. Of the total crude oil processed, 402.6 thousand barrels per day were Olmeca and Isthmus crude oil and 413.2 thousand barrels per day were Maya crude oil.

We are working on the rehabilitation of the six National Refining System refineries. The National Refining System rehabilitation program emphasizes addressing critical risks to our facilities, restoring reliability of assets, improving efficiency and stabilizing our crude oil processing. To this end, from September 2019 to December 2022, major and minor repairs were carried out at various facilities of the National Refining System. Most repairs were made to our crude oil distilling units, combines, viscosity reducers, coker unit, catalytic reformers, solvent desalphalting units, catalytic reformers, methyl tert-butyl ether (MTBE) units, alkylation units, isomerization units, naphta and middle distillates hydrotreaters and sulfur recovery units, as well as facilities at the main service area and storage tanks. The National Refining System rehabilitation program will continue throughout 2023.

Production

We produce a wide range of products derived from crude oil and natural gas, including LPG, gasoline, jet fuel, diesel, fuel oil, asphalts, lubricants and other refined products. In 2022, we produced 833.5 thousand barrels per day of refined products (including dry gas by-products of the refining process), an increase of 15.4% as compared to 722.5 thousand barrels per day in 2021.

The following table sets forth, by category, our production of petroleum products for the five years ended December 31, 2022.

Refining Production

	Year ended December 31,					
	2022	2021	2020	2019	2018	2022 vs. 2021
	(in thousands of barrels per day)					
Refinery Crude Oil Runs	**815.8**	**711.6**	**590.6**	**592.0**	**611.9**	**14.6**
Refined Products						
Liquefied petroleum gas	10.6	8.5	5.5	7.2	10.1	24.7
Gasoline						
Pemex Magna	9.5	7.3	5.0	13.9	8.8	30.1
Ultra-Low Sulfur Magna	249.6	216.9	177.2	187.1	196.4	15.1
Pemex Premium[(1)]	7.7	5.2	2.7	1.7	1.9	48.1
Base	4.2	3.4	0.6	0.8	—	23.5
Total	**271.0**	**232.8**	**185.5**	**203.5**	**207.1**	**16.4**
Kerosene (Jet fuel)	**33.1**	**28.4**	**17.5**	**29.0**	**34.7**	**16.5**
Diesel						
Pemex Diesel[(2)]	50.3	50.5	55.6	54.8	67.8	(0.4)
Ultra-Low Sulfur Diesel	96.1	67.2	57.2	74.1	48.9	43.0
Others	—	—	0.8	1.3	0.1	—
Total	**146.4**	**117.7**	**113.6**	**130.2**	**116.8**	**24.4**
Fuel oil[(3)]	**258.3**	**244.3**	**176.0**	**149.8**	**185.1**	**5.7**
Other refined products						
Asphalts	11.4	10.0	8.9	10.0	13.8	14.0
Lubricants	0.2	0.1	0.2	0.9	1.9	100.0
Paraffins	0.1	—	—	0.2	0.5	—
Still gas	57.8	53.0	41.9	45.4	34.8	9.1
Other products[(4)]	44.6	27.7	47.1	49.3	23.7	61.0
Total	**114.1**	**90.8**	**98.1**	**105.8**	**74.7**	**25.7**
Total refined products	**833.5**	**722.5**	**596.2**	**625.5**	**628.5**	**15.4**

Note: Numbers may not total due to rounding.
(1) Pemex Premium is an ultra-low sulfur gasoline with 0.003% sulfur content.
(2) Pemex Diesel is sold in the northern border market with 0.003% sulfur content.
(3) Includes heavy fuel oil and intermediate 15.
(4) Includes coke, light cyclic oil and aeroflex.

Source: Pemex BDI.

Our refining production mostly consists of gasoline, diesel and fuel oil. In 2022, gasoline represented 32.5%, diesel fuel represented 17.6%, jet fuel represented 4.0%, LPG represented 1.3% and fuel oil represented 31.0% of total petroleum products production. The remainder, 13.7% of our production consisted of a variety of other refined products.

Variable Refining Margin

During 2022, the National Refining System recorded a variable refining margin of U.S. $7.34 per barrel, an increase of U.S. $4.42 per barrel as compared to U.S. $2.92 in 2021, mainly due to higher prices of refined products in the Northern Gulf Coast of Mexico and improved operating performance at the National Refining System due to higher distillate yields.

The following table sets forth the variable refining margin for the five years ended December 31, 2022.

Variable Refining Margin (National Refining System)

	Year ended December 31,					
	2022	2021	2020	2019	2018	2022 vs. 2021 (%)
	(U.S. dollars per barrel)					
Variable margin	7.34	2.92	0.76	0.80	0.96	151.4

Domestic Sales

We market a full range of refined products, including gasoline, jet fuel, diesel, fuel oil and petrochemicals. We are one of a few major producers of crude oil worldwide that experiences significant domestic demand for our refined products.

For the five years ended December 31, 2022, the value of our domestic sales of refined products and petrochemicals was as follows.

Value of Refining's Domestic Sales[1]

	Year ended December 31,					
	2022	2021	2020	2019	2018	2022 vs. 2021
	(in millions of pesos)[2]					(%)
Refined Products						
Gasoline						
Pemex Magna	Ps. 488,685.1	Ps. 319,238.9	Ps. 212,256.8	Ps. 374,020.2	Ps. 428,838.0	53.1
Pemex Premium	116,923.0	91,758.1	72,658.1	75,538.0	83,837.1	27.4
Aviation fuels (Others)	577.1	453.8	312.9	404.7	433.1	27.2
Total	606,185.2	411,450.8	285,227.8	449,962.9	513,108.2	47.3
Kerosene (Jet fuel)	96,985.2	41,478.4	20,156.5	55,716.4	56,793.9	133.8
Diesel						
Pemex Diesel	263,616.5	121,604.6	98,160.8	171,405.9	207,499.4	116.8
Others	37,655.8	18,797.9	12,455.1	23,659.7	26,669.3	100.3
Total	301,272.3	140,402.5	110,615.9	195,065.6	234,168.7	114.6
Fuel oil	21,207.7	19,348.2	9,139.5	28,789.8	43,779.1	9.6
Other refined products						
Asphalts	7,949.6	5,447.6	4,569.9	6,058.3	7,062.0	45.9
Lubricants	124.1	120.0	186.8	673.3	1,277.4	3.4
Paraffins	36.3	15.0 [4]	—	135.8	291.4	142.0
Coke	1,390.2	813.7	440.4	666.0	200.5	70.8
Total	9,500.2	6,396.3 [4]	5,197.1	7,533.4	8,831.3	48.5
Total Refined Products	**Ps. 1,035,150.6**	**Ps. 619,076.2** [4]	**Ps. 430,336.8**	**Ps. 737,068.1**	**Ps. 856,681.2**	**67.2**
Petrochemicals[3]	**Ps. 3,739.3**	**Ps. 3,692.6**	**Ps. 1,432.2**	**Ps. 2,422.4**	**Ps. 3,795.9**	**1.3**

Note: Numbers may not total due to rounding.
(1) Excludes *Impuesto Especial sobre Producción y Servicios,* (Special Taxes over Production and Services "IEPS tax") and value added tax. See "*—Taxes, Duties and Other Payments to the Mexican Government*" in this Item 4.
(2) Figures are stated in nominal pesos.
(3) Petrochemical products produced at refineries (carbon black feedstocks and propylene).
(4) Reflects adjustments made to Pemex BDI.

Source: *Pemex BDI.*

In 2022, our domestic sales of refined products increased by Ps. 416,074.4 million, or 67.2% in value as compared to 2021 levels (excluding IEPS tax and value added tax). This was primarily due to a 47.3% or Ps. 194,734.4 million increase in the value of our gasolines sales, an increase of 114.6% or Ps. 160,869.8 million in the value of our diesel sales and an increase of 133.8% or Ps. 55,506.8 million in the value of our jet fuel sales, due to the price effect of these fuels.

The volume of our domestic sales of refined products for the five-year period ended December 31, 2022 was distributed as follows.

Volume of Refining's Domestic Sales

	Year ended December 31,					
	2022	2021	2020	2019	2018	2022 vs. 2021
	(in thousands of barrels per day, except where otherwise indicated)					(%)
Refined Products						
Gasoline						
Pemex Magna	549.5	451.6	435.0	607.5	646.2	21.7
Pemex Premium	121.0	123.3	136.2	112.7	117.5	(1.9)
Aviation fuels (Others)	0.4	0.5	0.4	0.5	0.5	(20.0)
Total	**670.9**	**575.4**	**571.6**	**720.7** (2)	**764.2**	16.6
Kerosenes (jet fuel)	87.6	62.0	39.4	83.3	85.6	41.3
Diesel						
Pemex Diesel	266.2	178.3	192.7	256.9	292.8	49.3
Others	38.0	27.8	24.8	36.3	38.5	36.7
Total	**304.2**	**206.1**	**217.5**	**293.2**	**331.3**	47.6
Fuel oil	**68.3**	**78.1**	**55.2**	**76.5**	**105.1**	(12.5)
Other refined products						
Asphalts	10.7	9.6	8.5	9.5	12.9	11.5
Lubricants	0.2	0.2	0.3	1.0	2.0	—
Paraffins	0.1	—	—	0.2	0.5	—
Coke	21.3	21.3	26.2	27.4	13.2	—
Total	**32.3**	**31.1**	**35.0**	**38.1**	**28.6** (2)	3.9
Total refined products	**1,163.3**	**952.7**	**918.7** (2)	**1,211.8** (2)	**1,314.8**	**22.1**
Petrochemicals[1]	**283.4**	**289.4**	**302.4**	**363.2**	**411.1**	**(2.1)**

Note: Numbers may not total due to rounding.
(1) In thousands of metric tons. These are petrochemical products produced in our refineries (raw material for black carbon and propylene).
(2) Reflects adjustments made to Pemex BDI.

Source: *Pemex BDI.*

The volume of our domestic gasoline sales increased by 16.6% in 2022, from 575.4 thousand barrels per day in 2021 to 670.9 thousand barrels per day in 2022. The volume of domestic diesel sales increased by 47.6%, from 206.1 thousand barrels per day in 2021 to 304.2 thousand barrels per day in 2022. These increases resulted primarily from an increase in industrial and commercial activities and population mobility in Mexico as compared to 2021.

The volume of our domestic sales of fuel oil decreased by 12.5%, from 78.1 thousand barrels per day in 2021 to 68.3 thousand barrels per day in 2022, primarily due to a decrease in the *Comisión Federal de Electricidad*'s (Federal Electricity Commission, or "CFE") sales for fuel oil.

In the case of gasoline, sales of Pemex Premium were 121.0 thousand barrels per day in 2022, a reduction of 1.9% compared to 123.3 thousand barrels per day in 2021, while sales of Pemex Magna were 549.5 thousand barrels per day, an increase of 21.7% compared to 451.6 thousand barrels per day in 2021. This is the result of the consumption preferences of Pemex's customers.

During 2022, the following actions were carried out to recover the volume of petroleum product sales: competitive terminal prices, strengthening Pemex’s commercial presence through branded commercial schemes suitable for customers, product availability throughout the national territory, market contractual relationships (unregulated contract with and without brand), attractive discounts, bonuses and incentives, creation of value for customers and establishing loyalty programs.

These efforts, coupled with increased mobility as pandemic restrictions loosened during the last quarter of 2022, resulted in a recovery of sales due to greater demand for fuels.

During the last quarter of 2019, we began the development of the eighth generation of the performance additive for Pemex gasolines in conjunction with the *Instituto Mexicano del Petróleo* (Mexican Petroleum Institute or "IMP"). The development of this additive includes innovations such as a molecular tracer, new high-spectrum detergent molecules and corrosion and oxidation inhibition. We expect to launch the 7S generation of the performance additive, which will include the molecular tracer, by the end of 2023. We expect to launch the eighth generation of our additive by the end of 2024.

To reinforce the value of the Pemex brand and the Pemex Franchise, during the second half of 2020, we launched two new formats of service stations: nano stations and low consumption stations. Nano stations have innovative and differentiated designs, capable of adapting to reduced land surfaces in urban areas with high traffic concentration. Low consumption stations leverage low-cost technologies and quick installation to meet the demands of rural populations.

As part of our commercial strategy, we operate wholesale and retail service stations, some of which are Pemex-branded and others that are unbranded. The unbranded stations buy products through marketing contracts and, when appropriate, have access to discounts and credit. In the case of our Pemex-branded stations, both Pemex marketers and associate distributors can sell products with the Pemex brand. Retailers to the public may only buy products through marketing contracts, just as they may only sell Pemex brand products through a franchise agreement or a Pemex brand sublicensing agreement. As of December 31, 2022, 2,903 redesigned service stations were operating and 847 additional services stations have requested redesigns.

As of December 31, 2022, there were 6,987 Pemex retail service stations associated with Pemex in Mexico, of which 6,942 were privately owned and operated as franchises, while the remaining 45 were owned by Pemex Industrial Transformation. This total number of retail service stations represents a decrease of 0.2% from the 6,999 service stations as of December 31, 2021. This decrease was mainly due to increased competition in the open market. As of December 31, 2022, we had 825 marketing contracts, a decrease of 649 marketing contracts, or 44%, as compared to 1,474 marketing contracts as of December 31, 2021. The decrease in the number of marketing contracts was mainly due to the higher concentration of customer volume in each contract as a result of new commercial contract models. From the 825 contracts signed at the end of 2022, we have 410 contracts signed under the new contract model, which include 90% of the most important marketing customers and distributors in terms of volume at the national level. In addition, Pemex Industrial Transformation supplies oil products to 4,758 service stations outside the Pemex Franchise. Of these service stations, 1,084 operate under a sublicense of Pemex brands and 3,674 use third-party brands.

In order to gain market presence, competitors often transfer well-established Pemex gas stations to third-party brands. As a result, we are working to counteract this by opening new gas stations under our franchise model and strengthening the Pemex brand among our existing gas stations.

Despite the aggressive competitive environment and our limited marketing investment, we maintained approximately 59.1% of market share with our franchised and sub-licensed Pemex gas stations by the end of December 2022.

Pricing Regulations

On December 31, 2017, fuel prices in Mexico were liberalized. However, the CRE has the authority to intervene within the regulated markets. Therefore, our retail sales prices (final consumer prices) can be subject to potential future regulations by the CRE, such as the case of the retail sales prices (final user's price) of LPG, whose maximum prices are regulated, pursuant to the *Directriz de emergencia para el bienestar del consumidor de gas licuado de petróleo* (Emergency directive for the welfare of the liquified petroleum gas consumer), issued by the Ministry of Energy, with the purpose of protecting the end users until the *Comisión Federal de Competencia Económica* (Federal Economic Competition Commission) determines that there is effective competition in that activity.

Through agreements A/030/2018 and A/022/2019, the CRE abrogated the asymmetric regulation of Pemex Industrial Transformation with respect to the commercialization of natural gas.

Both the first-hand sale and the full market price are determined by the full marketing price.

Gasoline and Diesel

On November 30, 2017, sale prices of gasoline and diesel were liberalized and are determined by the free market. For more information, see "*Item 5—Operating and Financial Review and Prospects—IEPS Tax, Hydrocarbon Duties and Other Taxes*."

On January 1, 2022, in accordance with reports issued by the CRE, average national regular retail gasoline prices increased by Ps. 0.37 per liter, as compared to December 2021. Similarly, average national retail diesel prices increased by Ps. 0.34 per liter on January 1, 2022, as compared to December 2021.

Fuel Oil

On November 3, 2017, the CRE authorized new formulas to determine the price of fuel oil. Currently, there are first-hand sale prices for sales at refineries and market prices for sales at storage terminals. These prices are calculated weekly and apply to all customers, including the CFE.

We withhold IEPS tax. While it is included in the price to our customers, we pay this tax to the authorities upon collection of the sale of our products and it is not included in our revenues. For more information, see "*—Taxes, Duties and Other Payments to the Mexican Government—Fiscal Regime for PEMEX*."

As of January 1, 2022, the *IEPS a los Combustibles Fósiles* (IEPS Tax on Fossil Fuels) was 18.85 Mexican cents per liter and as of January 1, 2023, the IEPS Tax on Fossil Fuels was 20.32 Mexican cents per liter.

Natural Gas

Since July 1, 2017, the CRE permits third-party participants to enter the gasoline and diesel market and has authorized the permanent regime of first-hand sales of natural gas. This permanent regime allows us to sell natural gas under two separate pricing mechanism and all end user prices are freely determined by the market:

(1) the first-hand sale price, whereby we sell natural gas directly to customers at injection points, without the use of transportation or additional services; and

(2) the full marketing price, whereby we sell natural gas at customer plants. Under this scheme, the price of the molecule includes transportation and services costs associated with the commercialization of natural gas.

Liquefied Petroleum Gas

Since December 16, 2019, we have determined market list prices according to the pricing mechanisms approved by the *Comité de Precios y Aspectos Económicos de la Política Comercial de Petróleos Mexicanos y Empresas Productivas*

Subsidiarias (Committee on Prices and Economic Aspects of the Commercial Policy of Petróleos Mexicanos and its Productive Subsidiary Entities). This change is in compliance with Resolution RES/1008/2019 of the CRE, which considers our participation in first-hand sales and the marketing of LPG within a free market. Additionally, on December 16, 2019, the CRE issued Resolution RES/1755/2019, in which it approved the commercialization contract agreement model.

As of January 1, 2022 the IEPS Tax on Fossil Fuels was 17.00 Mexican cents per kilogram. As of January 1, 2023, the IEPS Tax on Fossil Fuels was 18.34 Mexican cents per kilogram.

We withhold IEPS tax. For more information, see "*—Taxes, Duties and Other Payments to the Mexican Government—Fiscal Regime for PEMEX*."

The Mexican Government could modify these price controls or impose additional price controls in the future. See "*Item 3—Key Information—Risk Factors—Risk Factors Related to our Relationship with the Mexican Government—The Mexican Government has historically imposed price controls in the domestic market on our products*."

Since August 1, 2012, the LPG retail sales price (final user's price) is regulated by the CRE, pursuant to the *Directriz de emergencia para el bienestar del consumidor de gas licuado de petróleo* (Emergency directive for the welfare of the liquified petroleum gas consumer) issued by the Ministry of Energy, with the purpose of protecting the end users.

Refining's Capital Expenditures and Budget

Investments

Over the past several years, we have focused our investment program on enhancing the quality of the gasoline and diesel we produce to meet Mexico's environmental standards. Also, we shifted our focus to the maintenance of our existing refineries and the expansion of the National Refining System to increase our hydrocarbon production. We continue to aim to stabilize and improve our ability to process heavy crude oil in order to optimize our refinery production and increase our production of other hydrocarbons in order to supply the growing national demand.

Our refining business invested Ps. 35,672 million in capital expenditures in 2022 and has budgeted Ps. 21,438 million in capital expenditures for 2023.

A focus of our refining capital expenditures program is the rehabilitation of the National Refining System. Pursuant to the rehabilitation program, we have evaluated each of our six existing Mexican refineries and have identified specific maintenance requirements for each unit. Our rehabilitation program focuses on addressing critical risks to the facilities such as mechanical integrity and safety and improving the efficiency and the stabilization of our crude oil processing.

The following table sets forth the capital expenditures of our refining business, excluding non-capitalizable maintenance, for each of the three years ended December 31, 2022, and the budget for 2023. Capital expenditure amounts are derived from our budgetary records, which are prepared on a cash basis. Accordingly, these capital expenditure amounts do not correspond to the capital expenditure amounts in our consolidated financial statements prepared in accordance with IFRS.

Refining's Capital Expenditures

Refining	Year ended December 31,[1]			Budget 2023[2]
	2022	2021	2020	
	(in millions of pesos)[3]			
National Refining System Rehabilitation Program	Ps. 12,232	Ps. 15,591	Ps. 10,638	Ps. 15,949
Minatitlán	3,069	2,525	1,300	2,496
Cadereyta	2,562	2,723	1,897	2,793
Madero	1,831	2,278	1,770	2,660
Tula	1,776	3,282	2,144	2,670
Salina Cruz	1,685	2,232	2,192	2,670
Salamanca	1,307	2,552	1,336	2,660
Residual Use at the Miguel Hidalgo Refinery in Tula (Formerly Reconfiguration of Miguel Hidalgo Refinery in Tula)	21,539	4,400	48	4,753
Purchase of the U-801 Hydrogen Generating Plant in Madero Refinery	770	—	—	—
Fuel Quality Investments (4)	390	5	66	—
Maintenance of the Minatitlán Refinery 2019-2023	253	497	—	—
Maintenance of the Production Capacity of the Miguel Hidalgo Refinery 2013-2017 (5)	245	—	1	—
Maintenance of the Production Capacity of the Minatitlán Refinery 2013-2017	155	—	42	607
Maintenance of the Production Capacity of the Salamanca Refinery 2014-2018	17	38	—	—
Cadereyta Refinery Energy Train	—	52	14	—
Maintenance of the Production Capacity of the Salina Cruz Refinery 2013-2017	—	3	25	—
Installation of a 250 T/hr. Steam Boiler in the Minatitlan Refinery	—	2	34	—
Residual Conversion of the Salamanca Refinery	—	—	7	—
Supervision and Administration Work for the use of Waste in the Salina Cruz Refinery	—	—	3	—
Others	71	6	—	129
Total	**Ps. 35,672**	**Ps. 20,594**	**Ps. 10,878**	**Ps. 21,438**

Notes: Numbers may not total due to rounding.

(1) Amounts based on cash basis method of accounting.

(2) Amended budget was authorized on January 31, 2023. The original budget was published in the Official Gazette of the Federation on November 28, 2022.

(3) Figures are stated in nominal pesos.

(4) Includes clean fuels investments for gasoline and diesel in our six refineries.

(5) Includes the project for the Rehabilitation of Electrical Substations Miguel Hidalgo Refinery reported in previous years.

Source: Petróleos Mexicanos.

In 2022, we imported 419.0 thousand barrels per day of gasoline, which represented 52.3% of total domestic demand for gasoline for the year. In 2023, our priority is to continue strengthening the operating performance of the National Refining System rehabilitation program to increase the levels of processing and production of high-value products (gasoline, diesel and jet fuel), stabilize the Olmeca refinery in Dos Bocas, Tabasco, and in the second half of 2023, as the different processing units of the refinery come into operation, increase crude oil processing, as well as advance our Residuals Utilization projects.

In addition, we are exploring alternative funding sources for capital investment projects, such as the reconfiguration of the Ing. Antonio Dovalí Jaime refinery in Salina Cruz, including residuals conversion. This project is expected to process 75 thousand barrels per day of catalytic and vacuum residuals to produce light and heavy naphta, ultra-low sulphur diesel, and hydrotreated heavy diesel oil.

Fuel Quality Project, Gasolines Phase (ULSG)

This project comprises the six refineries of the NRS and includes the installation of ultra-low-sulfur gasoline ("ULSG") post-treatment units. As of December 31, 2022, all gasoline produced in Mexico meets international environmental standards of American Society for Testing and Materials (ASTM) of 15ppm (parts per million) of sulphur content. Units are operating, but still pending completion of complementary works, which are currently suspended due to budgetary restrictions. The complementary works include, the construction of steam condensing unit in Salamanca refinery, laboratory for chemistry analysis in Madero refinery, infrastructure for management of residual gasolines in Tula refinery, integrated optimized gasoline mixing system in Tula refinery, integrated optimized gasoline mixing system in Cadereyta refinery, and two turbogenerators, one in Cadereyta refinery and the other in Madero refinery.

Fuel Quality Project, Diesel Phase (ULSD)

This project consists of the construction of five ultra-low-sulfur diesel ("ULSD") units with services facilities, including: five hydrogen units, four sulfur recovery units, five sour water treatment units and the reconfiguration of 17 existing units to produce ULSD. As of December 31, 2022, the project remained suspended and capital expenditures are focused on other priorities.

With regards to our ULSD units at Tula and Salina Cruz, their infrastructure will be constructed under the scope of the "Residuals utilization" projects. Financing of the "Residuals utilization" projects will be provided by the Mexican Government as provided in the Federal Expenditure Budget. As to the other refineries, funding alternatives are under evaluation, to complete the project in order to facilitate compliance with environmental regulations. The CRE approved extending the deadline to December 2024 to comply with Mexican Official Standard NOM-016-2016, which governs sulfur content in commercial diesel.

Residual Use at the Miguel Hidalgo Refinery in Tula (Formerly Reconfiguration of the Miguel Hidalgo Refinery in Tula)

This project is expected to increase production of refined oil products from 315 thousand barrels per day to 340 thousand barrels per day and improve performance of gasoline and distillates production.

On April 20, 2021, with resolution CA-046/2021, the Board of Directors of Petróleos Mexicanos approved a modification of this project's execution strategy, business objectives, scope and execution timeline. PTI Infraestructura de Desarrollo, S.A. de C.V. (PTI-ID) was appointed to develop the project.

The project comprises a processing scheme of delayed coking, which maximizes raw material usage, producing gasoline and diesel without asphalt or fuel oil. The scope includes the construction of three process units and four new service units, upgrade and renovation of seven existing units, auxiliary services, storage infrastructure and integration. The project is currently in progress and 47.7% has been completed.

Residual Conversion of the Salamanca Refinery

Our business plan for the period of 2023-2027 does not contemplate the residual conversion project in the Salamanca refinery because within the scope of the project "Utilization of residuals at the Miguel Hidalgo refinery", a

processing capacity of 240 thousand barrels per day of crude oil is currently contemplated, which would include approximately 40 thousand barrels per day of residuals from the Salamanca refinery.

Tuxpan Maritime Terminal

This project is intended to help meet the increase in demand for refined products in the metropolitan area of the Valley of Mexico. Currently, the total cost of the project is Ps. 6,264 million, which includes the construction of a pipeline 18-inches in diameter and 109 kilometers long, from Cima de Togo to Venta de Carpio. It also includes five storage tanks located at the Tuxpan Maritime Terminal with a capacity of 100,000 barrels each, a research study to determine the best option for the discharge of refined products from tankers and pipelines into these storage tanks and auxiliary services and integration.

As of December 2022, the three key phases of this project have been completed: the pre-investment studies phase, the transportation phase of the Tuxpan-Mexico pipeline, which is fully operational, and the storage system phase. The five storage tanks under the storage system phase have been delivered to the Tuxpan storage and port services terminal and are in operation as of the date of this annual report.

Rehabilitation of the National Refining System

The Rehabilitation Program of the NRS is focused on addressing the critical risks of the facilities, restoring the reliability of the assets and contributing to improve the efficiency and stabilization of crude oil process. In this regard, from September 2019 to December 2022, major and minor repairs have been carried out in various facilities of the National Refining System, mainly in primary distillation units, combined, viscosity reducer, coker, catalytic disintegration, deasphalting, catalytic reforming units, Methyl Tertiary Butyl Ether (MTBE), alkylation, isomerizer, gasoline and intermediate distillates hydrodesulfurization, and sulfur, as well as in facilities of the main services area and storage tanks. The NRS Rehabilitation Program will continue to be executed during 2023.

In 2019, we established a rehabilitation program to modernize and stabilize the National Refining System. The rehabilitation program is implemented by Pemex Industrial Transformation and seeks to address critical risks in our facilities, restore asset reliability and contribute to improvements in efficiency and stabilization in crude oil processes. The rehabilitation program seeks to address the critical risks of the facilities, restore the reliability of the assets and contribute to the improvement of the efficiency and stabilization of the crude oil process. Since the inception of this program in September 2019 through December 31, 2022, 57 major repairs and 238 minor repairs were completed in process units; 28 major repairs and 138 minor repairs in main services; and 27 major repairs and 55 minor repairs in storage tanks.

New Dos Bocas Refinery

On December 7, 2018, the Board of Directors of Petróleos Mexicanos, in accordance with resolution CA-161/2018, authorized the construction of a new refinery in Dos Bocas in Paraíso, Tabasco, as part of our institutional strategy plan.

On August 10, 2022, the Board of Directors of Petróleos Mexicanos, in accordance with resolution CA-092/2022, authorized the project “New Refinery in Dos Bocas, Paraíso, Tabasco, named Olmeca Refinery” and approved the project's scope and updated budget. We expect the Olmeca refinery in Dos Bocas, Paraíso, Tabasco to be in the stabilization stage during the first half of 2023. During the second half of 2023, we expect to gradually increase crude oil processing as the different processing units come into operation. The stable operation of the refinery will depend on the stabilization of the different processing units. As of the date hereof, refinery precommissioning works are under way. The current authorized budget for the project is U.S.$15,963.0 million including VAT, plus U.S.$853.3 million for start-up, including VAT.

Deer Park Refining Limited Partnership

On March 31, 1993, PMI NASA acquired 49.995% of the Deer Park Refinery. In its capacity as general partner of DPRLP, Shell was responsible for the operation and management of the Deer Park Refinery (installed capacity of approximately 340,000 barrels per day of crude oil).

The investment in Deer Park as of December 31, 2021 was Ps. 6.7 billion, which represented the 49.995% of interest of PMI NASA in Deer Park.

Indications of impairment were identified, and at the end of 2021, impairment tests were carried out on the amount of the investment recognized in Deer Park, and the result was the recognition of a total impairment in the book value of the investment as of December 31, 2021 of Ps. 6.7 billion which is presented as a separate line item in the statement of comprehensive income.

Prior to the acquisition, the participation in Deer Park was recognized as a joint venture. As a result, the participation was recognized in our Consolidated Financial Statements using the equity method.

Deer Park's activity before business combination was recognized as a commission fee between the joint venture parties and now, the core activity is the sale of refined products to third parties. (see Note 12 of the Consolidated financial statements included in this annual report).

Refining Processes and Capacity

Our refining production processes include the following:

- *Atmospheric distillation*. This process heats crude oil in a tube furnace at atmospheric pressure to distill refined products. The primary products produced are gasoline, jet fuel, diesel, atmospheric gas oil and atmospheric residual crude oil.
- *Vacuum distillation*. This process heats crude oil or other feedstock in a vacuum distillation column, which is operated at low pressures. The objective of this process is to maximize production of heavy vacuum gas oil, which is produced by boiling crude oil.
- *Cracking*. This process uses either heat and pressure or a catalytic agent to increase gasoline yields from crude oil.
- *Reforming processes*. These processes use heat and catalysts to transform smaller or unstable hydrocarbon molecules into larger, more useful refining or blending products. For example, we use reforming processes to convert low octane gasoline into higher octane stocks that are suitable for blending into finished gasoline and to convert naphtha into more volatile, higher octane products.
- *Hydrotreatment or residual hydrocracking*. This process uses a catalyst and hydrogen at high temperature and pressure to remove sulfur, nitrogen and some aromatic compounds. Hydrotreatment also processes some lighter liquid product off-take. The new processes also include the saturation of aromatic compounds.
- *Alkylation*. This polymerization process unites olefins and isoparaffins. Butylenes and isobutanes are combined with sulfuric acid or hydrofluoric acid to rearrange straight-chain hydrocarbon molecules into branched-chain products. Pentanes and hexanes, which are difficult to reform, are isomerized using aluminum chloride and other precious-metal catalysts. Normal butane may be isomerized to provide a portion of the isobutene feed needed for the alkylation process. The process produces a high octane, low sensitivity blending agent for gasoline.
- *Coking*. This process is a severe method of thermal cracking used to upgrade heavy residuals into lighter products or distillates. Coking produces straight-run gasoline (coker naphtha) and various middle-distillate fractions used as catalytic feedstock, thus generating a concentrated solid material.

These production processes together constitute our production capacity as set forth in the table below.

Deer Park Capacity by Production Process

	At December 31, 2022 (in thousands of barrels per day)
Production Process	
Atmospheric distillation	340
Vacuum distillation	180

Cracking	75
Reforming	69
Hydrotreatment	366
Alkylation	21
Coking	96

Source:Deer Park's statistical and accounting information systems

Production

We produce a wide range of products derived from crude oil and natural gas, including LPG, gasoline, jet fuel, diesel, fuel oil, aromatics and other refined products. In 2022, we produced 310.9 thousand barrels per day.

The following table sets forth, by category, our production of petroleum products for the year ended December 31, 2022.

Deer Park Production

	At December 31, 2022 (in thousands of barrels per day)
Refinery Crude Oil Runs	276.5
Refined Products	
Liquefied petroleum gas	12.6
Gasoline	
RUL	90.1
PUL	16.7
Gasoline Components	14.9
Total	121.7
Jet fuel	24.9
Diesel	
Diesel	89.0
Ultra-Low Sulfur Diesel	11.3
Others	—
Total	100.3
Heavy Oils and Residuals	14.0
Coke	20.1
Aromatics	4.2
Process Gases	11.1
Sulfur	2.2
Total	51.5
Total refined products	310.9

Note: Numbers may not total due to rounding.
Source: Deer Park's statistical and accounting information systems

Our refining production mostly consists of gasoline, diesel and heavy oils. In 2022, gasoline represented 39.2%, diesel fuel represented 32.2%, jet fuel represented 8.0%, LPG represented 4.0% and heavy oils represented 4.5% of total petroleum products production. The remainder, 12.1% of our production, consisted of a variety of other refined products.

Variable Refining Margin

During 2022, the Deer Park Refining Limited Partnership recorded a variable refining margin of U.S. $18.8 per barrel.

Deer Park Sales

Following you will find a table with Deer Park Sales Volumes:

Value of Deer Park's Sales

	At December 31, 2022		
	(in thousands of barrels per day)		**(in millons of U.S. dollars)**
Refined Products			
Gasoline			
RUL	90.6	U.S.$	3,891.2
PUL	16.2		717.1
Components	17.7		563.9
Total	**124.5**	**U.S. $**	**5,172.2**
LPG	19.3	U.S.$	376.5
Jet Fuel	25.1		1,272.6
Diesel			
Diesel	89.0		4,618.7
ULSH	11.3		506.0
Total	**100.3**	**U.S.$**	**5,124.7**
Heavy oils and Resids	9.5		319.0
Coke	19.7		184.6
Aromatics	11.6		702.0
Process Gases	10.4		163.0
Sulfur	2.2		70.2
Total	**53.5**	**U.S.$**	**1,438.8**
Total Refined Products	**322.8**	**U.S.$**	**13,384.7**

Note: Numbers may not total due to rounding.
Source: Deer Park's statistical and accounting information systems

Deer Park's Capital Expenditures and Budget

Investments

Deer Park's Capital Expenditures

(in million of U.S. Dollars)			
	Year ended December 31, [1]		Forecast 2023
	2022		
Capital Projects	U.S.$	135.60	
Catalyst		27.8	
Turnaround		148.2	
Total Capital Spend 2022		**311.6**	
Forecast Capital Spend 2023			**U.S.$ 204.50**

Source: Deer Park's statistical and accounting information systems

Gas and Aromatics

Natural Gas and Condensates

All wet natural gas production is directed to our gas processing facilities. As of December 31, 2022, we owned nine facilities.

The following facilities are located in the Southern region:

- *Nuevo Pemex*. This facility contains 13 units that together in 2022 produced 673.4 million cubic feet per day of dry gas, 17.7 thousand barrels per day of ethane, 28.2 thousand barrels per day of liquefied gas, and 11.9 thousand barrels per day of naphtha.
- *Cactus*. This facility contains 22 units that together in 2022 produced 495.1 million cubic feet per day of dry gas, 14.2 thousand barrels per day of ethane, 20.8 thousand barrels per day of liquefied gas, 7.1 thousand barrels per day of naphtha.
- *Ciudad Pemex*. This facility contains eight units that together in 2022 produced 615.1 million cubic feet per day of dry gas and 176.3 thousand tons of sulfur.
- *La Venta*. This facility contains one unit that in 2022 produced 110.6 million cubic feet per day of dry gas.
- *Matapionche*. This facility contains five units that together in 2022 produced 8.7 million cubic feet per day of dry gas, 0.3 thousand barrels per day of liquefied gas, 0.1 thousand barrels per day of naphtha and 0.3 thousand tons of sulfur.
- The Morelos, Cangrejera and Pajaritos facilities form the Coatzacoalcos gas processing complex (which we refer to as a "GPC"):
  - *Morelos*. This facility contains one unit that in 2022 produced 5.4 thousand barrels per day of ethane, 9.2 thousand barrels per day of liquefied gas and 2.9 thousand barrels per day of naphtha.
  - *Cangrejera*. This facility contains two units that together in 2022 produced 8.5 thousand barrels per day of ethane, 15.7 thousand barrels per day of liquefied gas and 5.3 thousand barrels per day of naphtha.
  - *Pajaritos*. This facility contains one unit, which is non-operational as of the date of this annual report.

The following facilities are located in the Northern region:

- *Burgos*. This facility contains nine units that together in 2022 produced 300.4 million cubic feet per day of dry gas, 6.2 thousand barrels per day of liquefied gas and 4.8 thousand barrels per day of naphtha.
- *Poza Rica*. This facility contains five units that together in 2022 produced 33.8 million cubic feet per day of dry gas, 1.1 thousand barrels per day of liquefied gas and 0.4 thousand barrels per day of naphtha.

- *Arenque*. This facility contains three units that together in 2022 produced 27.2 million cubic feet per day of dry gas.

Petrochemical Complexes

In addition to our gas processing facilities, we also own the following two petrochemical complexes:

- *Independencia*. The Independencia petrochemical complex consists of two units and is located in the Central region. In 2022, this complex produced 137.5 thousand tons of methanol in its first unit and 1.9 thousand tons of petrochemical specialties in its second unit.
- *Cangrejera*. The Cangrejera petrochemical complex consists of five units and an aromatics line and is located in the Southern region. In 2022, this complex produced 446.3 thousand tons of aromatics and derivatives and 300.2 thousand tons of other petrochemical products (butanes, hexane, heptane, hydrogen, pentanes, BTX liquids, petroleum products, naphtha gas, octane-based gasoline and heavy naphtha).

The following tables set forth our processing capacity, as well as our total natural gas processing and production, for the five years ended December 31, 2022.

Gas and Aromatics' Processing and Production Capacity[1]

	Year ended December 31,				
	2022	2021	2020	2019	2018
	(in millions of cubic feet per day, except where otherwise indicated)				
Sweetening plants					
Sour condensates[2]	144	144	144	144	144
Sour natural gas	4,523	4,523	4,523	4,523	4,523
Natural gas liquids recovery plants					
Cryogenics	5,912	5,912	5,912	5,912	5,912
Natural gas liquids fractionating[2]	569	569	569	569	569
Processing of hydrosulfuric acid	229	229	229 (4)	229 (4)	229
Aromatic compounds and derivatives (Cangrejera and Independencia)[3]	1,675	1,675 (4)	1,734	1,734	1,734

(1) Production capacity refers to aromatic compounds and derivatives.
(2) In thousands of barrels per day.
(3) In thousands of metric tons per year.
(4) Reflects adjustments made to Pemex BDI.

Source: Pemex BDI at the end of December 31, 2022.

Natural Gas, Condensates and Aromatics' Processing and Production[1]

	Year ended December 31,					
	2022	2021	2020	2019	2018	2022 vs. 2021
	(in millions of cubic feet per day, except where otherwise indicated)					(%)
Processing						
Wet gas	2,770.2	2,628.2	2,765.4	2,826.3	2,951.9	5.4
Sour gas	2,392.0	2,224.6	2,327.6	2,395.6	2,492.5	7.5
Sweet gas[2]	378.2	403.6	437.8	430.7	459.5	(6.3)
Condensates[3][4]	12.8	14.0	22.6	22.4	27.4	(8.6)
Gas to natural gas liquids extraction	2,456.5	2,306.0	2,497.4	2,651.2	2,781.7	6.5
Wet gas	2,456.5	2,306.0	2,497.4	2,651.2	2,781.7	6.5
Production						
Dry gas[5]	2,279.8 [13]	2,080.3	2,245.2	2,305.0	2,421.7	9.6
Natural gas liquids[4][6]	160.8	171.1	207.4	221.3	240.1	(6.0)
Liquefied petroleum gas[4][7]	92.2	92.2	100.5	107.6	122.2	—
Ethane[4]	45.8	54.8	70.8	76.8	84.8	(16.4)
Naphtha[4]	32.5	32.7	40.5	42.9	43.3	(0.6)
Sulfur[8][9]	290.1	203.4 [12]	265.1	376.6	442.6	42.6
Methanol[8]	137.5	148.5	138.1	141.5	148.4	(7.4)
Aromatic compounds and derivatives[8][10]	446.3	474.6	336.4	919.6	569.5	(6.0)
Others[8][11]	302.1	319.7 [12]	266.4 [12]	499.8 [12]	219.3 [12]	(5.5)

Note: Numbers may not total due to rounding.
GPC= Gas Processing Complex

(1) Excludes operations of our exploration and production segment, which produced 4,692.8 million cubic feet per day in 2022.
(2) Includes sweet vapor from condensates.
(3) Includes internal streams.
(4) In thousands of barrels per day.
(5) Includes ethane reinjected into the natural gas stream.
(6) Includes stabilized condensates, reprocessing streams from the Cangrejera petrochemical complex and other streams for fractionating.
(7) Production from GPC, refineries and transfers from Pemex Exploration and Production.
(8) In thousands tons.
(9) Production of gas processing GPCs and refineries.
(10) Includes aromine 100, benzene, high octane hydrocarbon, toluene and xylene.
(11) Includes butanes, petrochemical specialties, pentanes, hexane, hydrogen, BTX liquids, isopentanes and petroleum products: naphtha gas, petrol octane base and heavy naphtha.
(12) Reflects adjustments made to Pemex BDI.
(13) La Venta gas processing complex requested to adjust the total production and dry gas venting on February 27, 2023, a date after the 2022 annual closing of the Pemex Industrial Transformation Institutional Database.

Source: Pemex BDI.

In 2022, we processed 2,770.2 million cubic feet per day of wet natural gas, of which 2,392.0 million cubic feet per day was wet sour gas and 378.2 million cubic feet per day was wet sweet gas. This figure is 5.4% higher than the processed gas in 2021, which was 2,628.2 million cubic feet per day, due to an increase in availability of sour wet gas in the southeast, and due to a higher production of gas from the Quesqui Field.

We process sour and sweet condensates from our exploration and production segment in order to obtain stabilized natural gas liquids and also to recover liquid hydrocarbons obtained from the processing of sweet natural gas. In addition,

we obtain liquids from internal streams and hydrocarbons condensed in sour wet gas pipelines. Our production of natural gas liquids, including stabilized condensates, reprocessing and other fractionating streams, decreased by 6.0% from 171.1 thousand barrels per day in 2021 to 160.8 thousand barrels per day in 2022 mainly due to a reduction in production at the gas processing complex Ciudad Pemex.

We process sour condensates, which have a higher sulfur content, to produce stabilized sweet condensates. The volume of sour condensates we processed and internal streams of our gas and aromatic compound sub-segment totaled 12.8 thousand barrels per day in 2022, an 8.6% decrease from the 14.0 thousand barrels per day processed in 2021. We also process sweet condensates at our Burgos facilities to produce light and heavy natural gasoline. In 2022, we processed 2.7 thousand barrels per day of sweet condensates at this facility, a decrease of 27.0% compared to the 3.7 thousand barrels per day processed in 2021. This decrease is mainly explained by a lower delivery of sour and sweet condensates by Pemex Exploration and Production.

The production of sulfur totaled 290.1 thousand tons in 2022, which represented a 42.6% increase from 203.4 thousand tons produced in 2021. This increase was mainly influenced by higher sulfur production at the Ciudad Pemex gas processing complex and the National Refining System refineries.

The production of aromatic compounds and derivatives totaled 446.3 thousand tons in 2022, which represented a 6.0% decrease from the 474.6 thousand tons produced in 2021. This reduction resulted from operational problems in the catalytic reforming cycle unit at La Cangrejera petrochemical complex which led to intermittent operations, maintenance issues and problems in the supply of auxiliary services due to the lack of raw materials.

Over the five years ended December 31, 2022, the value of our domestic sales was distributed as follows:

Value of Gas and Aromatics' Domestic Sales[1]

	Year ended December 31,					
	2022	2021	2020	2019	2018	2022 vs. 2021
			(in millions of pesos)[2]			(%)
Natural gas	Ps. 61,196.8	Ps. 58,188.3	(6) Ps. 31,854.3	(6) Ps. 41,735.5	Ps. 62,355.4	5.2
Liquefied petroleum gas	67,372.6	59,786.0	30,819.9	32,161.8	52,053.6	12.7
Ethane[3]	4,443.5	2,179.8	1,854.6	2,365.0	3,203.4	103.8
Butane	548.0	536.8	309.2	304.3	463.8	2.1
Propane	84.8	119.9	81.0	91.7	148.2	(29.3)
Light naphtha	434.0	154.8	117.0	212.7	221.4	180.4
Heavy naphtha	563.9	918.7	666.7	833.2	708.6	(38.6)
Sulfur	1,826.7	715.7	339.4	534.3	766.0	155.2
Methanol	811.8	1,171.5	797.6	818.7	1,089.9	(30.7)
Aromatic compounds and derivatives[4]	2,179.2	1,611.5	1,156.2	1,802.0	1,759.8	35.2
Others[5]	510.7	612.0	310.8	289.4	305.7	(16.6)
Total	**Ps. 139,972.0**	**Ps. 125,995.0**	**Ps. 68,306.7**	**Ps. 81,148.6**	**Ps. 123,075.8**	11.1

Note: Numbers may not total due to rounding.

(1) Excludes value added tax.
(2) Figures are stated in nominal pesos.
(3) In January 2016, ethane supply to Braskem-IDESA began.
(4) Includes aromine 100, benzene, toluene and xylene.
(5) Includes petrochemical specialties, naptha gas, hydrogen, isopropanol, heptane, hexane, pentane and waste oil.
(6) Reflects adjustments made to Pemex BDI.

Source: Pemex BDI.

The volume of our domestic sales of gas and aromatics for the five-year period ended December 31, 2022 was distributed as follows:

Volume of Gas and Aromatics' Domestic Sales

	Year ended December 31,					
	2022	2021	2020	2019	2018	2022 vs. 2021
	(in thousands of barrels per day, except where otherwise indicated)					(%)
Natural gas[1]	1,125.5	1,170.5 [2]	1312.6 [2]	1,604.4	2,064.3	(3.8)
Liquefied petroleum gas	158.6	151.2	143.9	149.5	163.6	4.9
Ethane	26.3	30.3	45.6	51.5	51.0	(13.2)
Butane	35.5	41.9	41.1	37.7	37.9	(15.3)
Propane	5.4	9.2	11.2	11.5	11.8	(41.3)
Heavy naphtha[3]	39.6	86.1	97.2	95.2	69.5	(54.0)
Light naphtha[3]	31.2	13.6	20.0	27.4	21.3	129.4
Sulfur[3]	294.7	209.5	273.8	382.5	450.5	40.7
Methanol[3]	68.9	109.7	120.5	107.1	106.0	(37.2)
Aromatic compounds and derivatives[3][4]	77.7	93.1	94.3	120.0	101.6	(16.5)
Others[3][5]	26.6	35.4	33.6	29.9	23.2	(24.9)

Note: Numbers may not total due to rounding.

(1) In millions of cubic feet per day.

(2) Reflects adjustments made to Pemex BDI

(3) In thousands tons.

(4) Includes aromine 100, benzene, toluene and xylene.

(5) Includes petrochemical specialties, naptha gas, hydrogen, isopropanol, heptane, hexane, pentane and waste oil.

Source: Pemex BDI.

In 2022, the value of our domestic sales in gas and aromatics increased by 11.1% as compared to 2021, reaching Ps. 139,972.0 million. This increase was a result of the increase in international reference prices.

Domestic sales of natural gas decreased by 3.8%, as compared to 2021, from 1,170.5 million cubic feet per day in 2021 to 1,125.5 million cubic feet per day in 2022. This decrease was mainly because private companies have the option to purchase natural gas from other marketers.

In 2022, domestic sales of liquefied petroleum gas increased by 4.9% compared to 2021, from 151.2 thousand barrels per day in 2021 to 158.6 thousand barrels per day in 2022. This increase resulted from the fact that the contractual nomination period with Pemex Industrial Transformation LPG customers remains in effect and contains commercial terms intended to increase market share.

Internal sales of sulfur increased by 40.7%, as compared to 2021, from 209.5 thousand tons in 2021 to 294.7 thousand tons in 2022. This increase is explained by a greater supply from the Ciudad Pemex gas processing complex and the National Refining System refineries.

Internal sales of aromatics decreased by 16.5%, compared to 2021, from 93.1 thousand tons in 2021 to 77.7 thousand tons in 2022. The decrease resulted from a lower domestic supply for these products. The demand was met by imported products.

Subsidiaries of Pemex Industrial Transformation

Pemex Industrial Transformation conducts certain management, real estate and distribution activities through its subsidiaries and through certain joint ventures. The following table lists its subsidiaries, their principal operating activities and Pemex Industrial Transformation's ownership interest as of December 31, 2022.

Subsidiaries of Pemex Industrial Transformation[1]

Subsidiary	Principal Activity	Ownership Interest (%)
Mex Gas Internacional, S.L.[2]	Holding company	100.00
Terrenos para Industrias, S.A.	Real estate holding company	100.00
PTI Infraestructura de Desarrollo, S.A. de C.V.[3]	Dos Bocas refinery project development company	100.00
PPQ Cadena Productiva, S.L.[4]	No staff, no operations	100.00
PMX Fertilizantes Holding, S.A. de C.V.	Holding company	100.00
PMX Fertilizantes Pacífico, S.A. de C.V.	Holding company	100.00

(1) As of December 31, 2022.
(2) Mex Gas Internacional, S.L. consolidates its financial statements with those of Petróleos Mexicanos. See Note 5 to our consolidated financial statements included herein.
(3) PTI Infraestructura de Desarrollo, S.A. de C.V consolidates its financial statements with those of Petróleos Mexicanos. See Note 5 to our consolidated financial statements included herein.
(4) The company is in process of liquidation.

Source: Pemex Industrial Transformation

Divestitures

On July 14, 2018, the Board of Directors of Petróleos Mexicanos authorized the divestiture of our 5% indirect participation in TAG Pipelines Sur, S. de R. L. de C. V. As of December 31, 2021, this operation was still in progress. The subsidiary holding company continues to evaluate fiscal, financial and corporate matters relevant to the divestment.

Natural Gas Hedging Operations

We can offer, as a value-added service, hedging contracts to our domestic customers to protect them against fluctuations in the prices of natural gas. As of December 31, 2022, there were no DFIs since all the DFIs of its portfolios expired in 2019. For information on hedging contracts offered to our domestic natural gas customers, see "*Item 11—Quantitative and Qualitative Disclosures about Market Risk.*"

Gas and Aromatics Capital Expenditures and Budget

Our gas and aromatics business invested Ps. 1,607 million in capital expenditures in 2022 and has budgeted Ps. 3,643 million in capital expenditures for 2023.

The following table sets forth our gas and aromatics business' capital expenditures, excluding non-capitalizable maintenance, for each of the three years ended December 31, 2022, and the budget for 2023. Capital expenditure amounts are derived from our budgetary records, which are prepared on a cash basis. Accordingly, these capital expenditure amounts do not correspond to capital expenditure amounts included in our consolidated financial statements prepared in accordance with IFRS.

Gas and Aromatics' Capital Expenditures

	Year ended December 31,[1]			Budget
	2022	2021	2020	2023[2]
	(in millions of pesos)[3]			
Gas and Aromatics				
Maintenance of the New Pemex GPC 2018-2022	Ps. 590	Ps. 547	Ps. 418	Ps. 698
Maintenance to the Cactus GPC 2018-2022	349	276	124	753
Maintenance of the Gas and Petrochemical Process Center Coatzacoalcos 2018-2022	156	62	146	693
Conservation of the Main Services of the GPC Cactus	117	12	91	—
Modernization of Systems and Processing Equipment of GPC La Venta	79	—	—	215
Project of pit Burners, Elevated and Integration, of the Ciudad Pemex GPC	79	—	—	264
Maintenance of the Ciudad Pemex GPC 2019-2023	77	19	3	259
Maintenance of the Poza Rica GPC 2018-2022	23	37	2	109
Integral Maintenance for the Operational Continuity of the Matapionche GPC 2021	19	—	—	510
Cryogenic Maintenance III Nuevo Pemex	6	22	—	7
Maintenance of the Fractionation Plant I of the GPC Nuevo Pemex	—	80	3	—
Modernization of Equipment of Cryogenic Plant 1 of the Ciudad Pemex GPC	—	23	—	5
Maintenance of Plants and Auxiliary Services of GPC Burgos	—	3	—	—
Adaptation of Fractionation Plants and Conversion of the Liquids Sweetener at Nuevo Pemex GPC	—	—	5	—
Others	112	147	184	130
Total	**Ps. 1,607**	**Ps. 1,228**	**Ps. 976**	**Ps. 3,643**

Notes: Numbers may not total due to rounding.
GPC = Gas Processing Complex.
(1) Amounts based on cash basis method of accounting.
(2) Amended budget was authorized on January 31, 2023. The original budget was published in the Official Gazette of the Federation on November 28, 2022.
(3) Figures are stated in nominal pesos.
Source: Petróleos Mexicanos.

Ethane Supply Contract

On February 19, 2010, we entered into a contract to supply 66,000 barrels per day of ethane to the Etileno XXI project, a petrochemical complex in Nanchital, Veracruz that produces ethylene and polyethylene. The Etileno XXI project commenced operations on March 18, 2016. The Etileno XXI project is owned and operated by Braskem IDESA, S.A.P.I. (Braskem IDESA).

On February 26, 2021, Pemex Industrial Transformation entered into an amendment agreement with Braskem IDESA to supply 30,000 barrels per day of ethane.

During 2022, we supplied 26,321 barrels per day of ethane for a total of Ps. 4,443.5 million under this contract.

Ethylene and Derivatives

The objectives of our ethylene and derivatives line of business include the production, distribution and marketing of ethane and propylene derivatives. In 2022, we produced a total of 655.7 thousand tons of petrochemical products, a 26.2% decrease from the 888.6 thousand tons of petrochemical products produced in 2021. This decrease primarily resulted from major maintenance work at the ethylene unit of La Cangrejera petrochemical complex from November 2021 to August 2022, which affected the availability of raw materials, and disrupted the supply of auxiliary services. A reduced supply of ethane by our gas processing complexes also contributed to this decrease.

Our ethylene line of business manufactures several petrochemical products, including:

- ethane derivatives, such as ethylene, polyethylene, ethylene oxide and glycols;
- propylene and derivatives; and
- others such as oxygen, nitrogen, hydrogen and butadiene, among other products.

Capacity

- *Cangrejera Petrochemical Complex*: This complex is located in the Southern region of Mexico and has five units and a line of aromatics.
- *Morelos Petrochemical Complex*: This complex is located in the Southern region of Mexico and has six units and auxiliary services.
- *Pajaritos Petrochemical Complex*: This complex is located in the Southern region of Mexico, and has an ethylene plant and has not operated since 2016.

In 2022, the Cangrejera and Morelos complexes together produced 279.8 thousand tons of ethane derivatives, 2.5 thousand tons of propylene and derivatives, and 373.4 thousand tons of other products.

- *Pajaritos Refrigerated Ethylene Shipping Terminal*: We imported ethane through this terminal until November 2020. We did not import ethane in 2022 or 2021.

Total production capacity of our operating plants for the five years ended December 31, 2022 was distributed among our facilities as set forth below.

Ethylene and Derivatives' Production Capacity

	Year ended December 31,				
	2022	2021	2020	2019	2018
	(in thousands of tons)				
Petrochemical Facility					
Cangrejera[(1)]	1,326.3	1,321.3	1,321.3	1,321.3	1,321.3
Morelos	2,277.2	2,277.2	2,277.2	2,277.2	2,277.2
Pajaritos[(2)]	207.0	207.0	207.0	207.0	207.0
Total	**3,810.6**	**3,805.6**	**3,805.6**	**3,805.6**	**3,805.6**

Notes: Numbers may not total due to rounding.

(1) Our ethylene and derivatives line of business' capacity in Cangrejera does not include the production capacity of aromatics and derivatives.

(2) At the end of 2018, the assets of the Pajaritos petrochemical complex were transferred to Pemex because the alliance with Petroquímica Mexicana de Vinilo (PMV) was dissolved.

Source: Pemex BDI.

Production

The following table sets forth our ethylene production for the five years ended December 31, 2022.

Ethylene's Production[(1)]

	Year ended December 31,					
	2022	2021	2020	2019	2018	2022 vs. 2021 %
	(in thousands of tons)					
Ethane derivatives	279.8	516.3	724.0	1,104.9	1,304.8	(45.8)
Propylene and derivatives	2.5	5.2	7.9	11.8	16.5	(51.9)
Others[(2)]	373.4	367.1	453.8	539.4	545.7	1.7
Total	**655.7**	**888.6**	**1,185.7**	**1,656.1**	**1,867.0**	**(26.2)**

Note: Numbers may not total due to rounding.

(1) Figures include petrochemical products used as raw material to produce other petrochemicals.
(2) Includes carbon dioxide, butadienes, polyethylene waxes, gross hydrogen production (including residual gas), ethylene pyrolysis liquids, nitrogen, oxygen and polyethylene by-products.

Source: Pemex BDI.

In 2022, the total production of our ethylene business decreased by 26.2%, as compared to 2021, from 888.6 thousand tons in 2021 to 655.7 thousand tons in 2022. This decrease was mainly due to operational and auxiliary services problems at the derivatives units.

Domestic Sales

The following table sets forth our ethylene domestic sales for the five years ended December 31, 2022.

Value of Ethylene's Domestic Sales[(1)]

	Year ended December 31,					
	2022	2021	2020	2019	2018	2022 vs. 2021
	(in millions of pesos)[(2)]					(%)
Ethane derivatives	Ps. 2,947.8	Ps. 6,310.7	Ps. 6,042.6	Ps. 8,951.4	Ps. 12,472.8	(53.3)
Propylene and derivatives	—	39.4	32.9	114.8	314.4	(100.0)
Others[(3)]	33.8	30.4	30.4	56.5	45.9	11.2
Total	**Ps. 2,981.6**	**Ps. 6,380.5**	**Ps. 6,105.9**	**Ps. 9,122.7**	**Ps. 12,833.1**	**(53.3)**

Note: Numbers may not total due to rounding.
(1) Excludes value added tax.
(2) Figures are stated in nominal pesos.
(3) Includes carbon dioxide, polyethylene waxes, nitrogen and oxygen.
Source: Pemex BDI.

In 2022, the value of our domestic sales decreased by 53.3% as compared to 2021, from Ps. 6,380.5 million in 2021 to Ps. 2,981.6 million in 2022. This performance was mainly influenced by lower sales of polyethylene resins due to the lower supply of available product.

Sales to other Subsidiary Entities

The following table sets forth the intercompany sales of petrochemical products for the five years ended December 31, 2022.

Ethylene's Intercompany Sales[1]

	Year ended December 31,					
	2022	2021	2020	2019	2018	2022 vs. 2021
	(in millions of pesos)[2]					(%)
Ethane and derivatives	Ps. —	Ps. —	Ps. 0.5	Ps. 3.8	Ps. 2.5	—
Others[3][4]	—	—	—	—	62.0	—
Total	**Ps. —**	**Ps. —**	**Ps. 0.5**	**Ps. 3.8**	**Ps. 64.5**	**—**

Note: Numbers may not total due to rounding.

(1) Excludes value added tax.
(2) Figures are stated in nominal pesos.
(3) Includes hydrogen, ethylene pyrolysis liquids, monoethylene glycol pure, nitrogen and anhydrous ammonia.
(4) Figures do not consider sales to Pemex Industrial Transformation as of July 1, 2019.
Source: Pemex BDI.

In 2022, as in 2021, there were no intercompany sales of ethylene and derivatives because there were no sales of triethylene glycol to Pemex Exploration and Production.

Ethylene Capital Expenditures and Budget

Our ethylene business invested Ps. 460 million in capital expenditures in 2022 and has budgeted Ps. 1,653 million for capital expenditures in 2023.

The following table sets forth our ethylene business' capital expenditures, excluding non-capitalizable maintenance, for each of the three years ended December 31, 2022, and the budget for 2023. Capital expenditure amounts are derived from our budgetary records, which are prepared on a cash basis. Accordingly, these capital expenditure amounts do not correspond to capital expenditure amounts included in our consolidated financial statements prepared in accordance with IFRS.

Ethylene's Capital Expenditures

	Year ended December 31[1]			Budget
	2022	2021	2020	2023[2]
	(in millions of pesos)[3]			
Ethylene[4]				
Rehabilitation of Maintenance Areas to Support Production at Cangrejera PC	Ps. 153	Ps. 40	Ps. —	Ps. 202
Maintenance for the Sustaining of the Operational Capacity of the Auxiliary Services Plants of the PC Cangrejera	126	36	—	939
Modernization of Fire Protection Network at Cangrejera PC	69	1	2	—
Maintenance for the Sustaining of the Operational Capacity of the Process Plants of the PC Morelos 2020	39	74	—	254
Maintenance for the Sustaining of the Operational Capacity of Services and Support Areas at Morelos PC[5]	21	61	47	83
Maintenance to the PC Independencia 2019-2023	17	6	5	32
Maintenance Program for the Production Capacity of the Ethylene Oxide Plant at Cangrejera PC	17	5	—	—
Maintenance Program of the Capacity of the Low Density Polyethylene Plant at Cangrejera PC	13	63	47	1
Maintenance Program of the Ethylene Plant at Cangrejera PC	2	20	3	—
Maintenance and Sustaining of the Operation of the Refrigerated Terminal of Ethane and Shipments in Pajaritos	2	—	1	134
Acquisition of Catalysts for Pemex Ethylene Plants 2017-2019	—	81	—	—
Maintaining the Production Capacity of Ethylene Oxide Plant 2015-2017 at Morelos PC	—	30	12	—
Maintaining the Production Capacity of the Swing Plant 2015-2017 at Morelos PC	—	19	4	—
Maintenance of the Production Capacity of the Asahi Plant 2015-2017 at Morelos PC	—	1	—	—
Others	1	61	16	8
Total	**Ps. 460**	**Ps. 498**	**Ps. 137**	**Ps. 1,653**

Notes: Numbers may not total due to rounding.
PC = Petrochemical Complex.

(1) Amounts based on cash basis method of accounting.

(2) Amended budget was authorized on January 31, 2023. The original budget was published in the Official Gazette of the Federation on November 28, 2022.

(3) Figures are stated in nominal pesos.

(4) Capital expenditures were made for certain projects in years following the original term indicated in the project title.

(5) Including the project Maintaining the Production Capacity of Auxiliary Services at Morelos PC.

Source: Petróleos Mexicanos.

Fertilizers

Prior to January 1, 2021, Pemex Fertilizers operated as an additional productive state-owned subsidiary. As of January 1, 2021, Pemex Fertilizers was merged into Pemex Industrial Transformation. Therefore, our fertilizers segment operates since January 1, 2021 as a line of business of Pemex Industrial Transformation.

Our fertilizers business integrates the ammonia production chain up to the point of sale of fertilizers, including agricultural and industrial nitrates, phosphate fertilizers and acids, which are produced by Grupo Fertinal, S.A. de C.V.

With this line of business, we intend to integrate the production chain from natural gas to ammonia to fertilizers through the integration of our Cosoleacaque petrochemical complex.

Capacity

We own four ammonia plants as of December 31, 2022, three of which are scheduled to undergo maintenance and come back into operation in a staggered manner between 2023 and 2024. The scheduling of this rehabilitation depends on the availability of budgetary resources.

The total ammonia production capacity of our operating plants for the years ended December 31, 2022 was distributed among our facilities as set forth below:

Fertilizers' Total Capacity

	Year ended December 31,		
Petrochemical Complexes	**2022**	**2021**	**2020**
		(thousands of tons)	
Cosoleacaque (ammonia)	1,440	1,440	1,440

Source: Pemex Industrial Transformation.

Production

The following table summarizes the annual production of our fertilizers segment for the three years ended December 31, 2022.

Fertilizers' Production

	Year ended December 31,			
	2022	**2021**	**2020**	**2022 vs. 2021**
		(thousands of tons)		(%)
Methane Derivatives				
Ammonia	277.8	243.9	136.4	13.9
Carbon dioxide	467.3	402.6	282.7	16.1
Total	**745.1**	**646.5**	**419.1**	**15.3**

Note: Numbers may not total due to rounding. *Source: Pemex BDI.*

Total annual production of methane derivatives in 2022 increased by 15.3%, from 646.5 thousand tons in 2021 to 745.1 thousand tons in 2022. This increase was mainly due for the continued operation of the ammonia VI unit of the Cosoleacaque petrochemical complex since February 2022.

Sales of Fertilizers

The following table sets forth the value of our domestic sales of our fertilizers segment for the three years ended December 31, 2022.

Value of Fertilizers' Domestic Sales[1]

	Year ended December 31,			
	2022	2021	2020	2022 vs. 2021
		(in millions of pesos)[2]		(%)
Methane Derivatives				
Ammonia	Ps. 9,701.7	Ps. 4,910.0	Ps. 1,890.9	97.6
Carbon dioxide	43.9	46.8	29.4	(6.2)
Total	**Ps. 9,745.6**	**Ps. 4,956.8**	**Ps. 1,920.3**	**96.6**

Note: Numbers may not total due to rounding.
(1) Excludes value added tax.
(2) Figures are stated in nominal pesos.

Source: Pemex BDI.

In 2022 the value of domestic sales in our fertilizers segment increased by 96.6%, from Ps. 4,956.8 million in 2021 to Ps.9,745.6 million in 2022. This result is explained by two factors, the first is the increase in the volume of sales and the second is related to the ammonia reference prices, which in April 2022 reached a historical peak, as a consequence of the behavior of the natural gas market.

Volume of sales

The following table sets forth the value of our domestic sales for the three years ended December 31, 2022.

Volume of Fertilizers' Domestic Sales

	Year ended December 31,			
	2022	2021	2020	2022vs. 2021
		(thousands of tons)		(%)
Methane Derivatives				
Ammonia	401.3	341.7	284.3	17.4
Carbon dioxide	315.9	226.1	150.3	39.7
Total	**717.2**	**567.8**	**434.6**	**26.3**

Note: Numbers may not total due to rounding.
Source: Pemex BDI.

Fertilizers Capital Expenditures

Our fertilizers segment invested Ps. 75 million in capital expenditures in 2022 and has budgeted Ps.3,148 million for capital expenditures in 2023.

The following table sets forth our fertilizers segment's capital expenditures, excluding non-capitalizable maintenance, for each of the three years ended December 31, 2022, and the budget for 2023. Capital expenditure amounts are derived from our budgetary records, which are prepared on a cash basis. Accordingly, these capital expenditure amounts do not correspond to capital expenditure amounts included in our consolidated financial statements prepared in accordance with IFRS.

Fertilizers' Capital Expenditures

	Year ended December 31,[1]			Budget
	2022	2021	2020	2023[2]
	(in millions of pesos)[3]			
Fertilizers [4]				
Maintenance to Cryogenic Ammonia Storage Plant No. 1 at Pajaritos Refrigerated Terminal	Ps. 36	Ps. —	Ps. 5	Ps. 250
Maintenance of Refrigeration and Ammonia Storage Plant No. 2 of the Pajaritos Refrigerated Terminal	16	—	12	—
Maintenance to Transportation, Handling and Storage Areas at Cosoleacaque PC	9	45	100	42
Maintaining the Production Capacity of Ammonia Plant VII and its Auxiliary Services at Cosoleacaque PC	8	48	17	391
Sustainability of the Production Capacity of Ammonia Plant VI at Cosoleacaque PC	5	—	—	2,056
Rehabilitation of the Ammonia Plant No. V, at Cosoleacaque PC	—	3	—	—
Maintenance to Receipt, Storage and Distribution Areas at Salina Cruz Refrigerated Ammonia Terminal	—	1	20	390
Rehabilitation of Ammonia Plant IV and Integration and Auxiliary Services for Cosoleacaque PC	—	—	11	—
Maintaining the Production Capacity of Ammonia Plant VI at Cosoleacaque PC	—	—	8	—
Maintenance to Storage and Distribution Areas at Cosoleacaque PC	—	—	2	—
Others	1	—	—	19
Total	**Ps. 75**	**Ps. 97**	**Ps. 175**	**Ps. 3,148**

Notes: Numbers may not total due to rounding.
PC = Petrochemical Complex.

(1) Amounts based on cash basis method of accounting.

(2) Amended budget was authorized on January 31, 2023. The original budget was published in the Official Gazette of the Federation on November 28, 2022.

(3) Figures are stated in nominal pesos.

(4) Prior to January 1, 2021, Pemex Fertilizers operated as an additional productive state-owned subsidiary. As of January 1, 2021, Pemex Fertilizers was merged into Pemex Industrial Transformation.

Source: Petróleos Mexicanos.

Pro-Agroindustria, S.A. de C.V. Complex

In 2014, we acquired a non-operating nitrogen fertilizer production facility located in Pajaritos, Veracruz. After the acquisition, we initiated a major rehabilitation project that involved the restoration of our rotating, static and mechanical equipment and the rehabilitation of a carbon dioxide compression station and pipelines for its transportation.

The production of urea started in November 2020 and, although it was stopped for different reasons during 2021, at the end of this period the volume of urea produced in out Urea 1 plant was 117,387 tons. There was a total annual production during 2022 of 200,139 tons of urea, with just one urea plant, with delivery of product for federal programs to support national producers and for other national clients. The production forecast for 2023 in the Urea 1 plant is more than 300,000 tons, supported by investments that will be made in order to improve the current operating conditions of the plants. It is planned to start production in a second urea plant in January 2023.

Grupo Fertinal, S.A. de C.V.

Grupo Fertinal, S.A. de C.V. produces fertilizers, primarily phosphates, as well as acids and other agricultural and industrial nitrates, and operates an industrial complex located in Lázaro Cárdenas, Michoacán.

Grupo Fertinal, S.A. de C.V.'s total installed and production capacity for the three years ended December 31, 2022 is as set forth below.

Grupo Fertinal, S.A. de C.V.'s Total Capacity

	Year ended December 31,		
	2022	2021	2020
	(thousands of tons)		
Installed capacity nitrate and phosphates	1,551.2	1,551.2	1,551.2
Production capacity nitrate and phosphates	1,219.0	1,252.5	1,109.2

Source: Grupo Fertinal, S.A. de C.V. Group

Grupo Fertinal, S.A. de C.V.'s total production for the three years ended December 31, 2022 is set forth below.

Grupo Fertinal, S.A. de C.V.'s Production

	Year ended December 31,			
	2022	2021	2020	2022 vs. 2021
	(thousands of tons)			(%)
Phosphates	434.4	711.8	730.4	(39.0)
Nitrates	181.1	190.2	164.9	(4.8)
Others	7.6	24.5	11.7	(69.0)
Total	**623.1**	**926.5**	**907.0**	**(32.7)**

Source: Grupo Fertinal, S.A. de C.V. Group

The following table sets forth the value of Grupo Fertinal, S.A. de C.V.'s domestic sales for the three years ended December 31, 2022.

Value of Grupo Fertinal, S.A. de C.V.'s Domestic Sales

	Year ended December 31,[1]			
	2022	2021	2020	2022 vs. 2021
	(in millions of pesos)[2]			(%)
Phosphates	Ps. 5,598.3	Ps. 2,838.6	Ps. 2,473.5	97.2
Nitrates	5,904.6	3,091.4	2,013.7	91.0
Ammonia	556.2	1,113.3	783.7	(50.0)
Sulfur	175.3	247.6	72.2	(29.2)
Sulfuric Acid	0.6	10.6	10.1	(94.4)
Others	20.0	31.1	0.9	(35.8)
Total	**Ps. 12,254.9**	**Ps. 7,332.5**	**Ps. 5,354.1**	**67.1**

Note: Numbers may not total due to rounding.
(1) Excludes value added tax.
(2) Figures are stated in nominal pesos.
Source: Grupo Fertinal, S.A. de C.V. Group.

Although the production of phosphates decreased in 2022, the increase in national sales was due to a greater participation in Mexico (70.1% in 2022 vs. 51.3% in 2021), as well as a general appreciation of prices in the global fertilizer market until the second quarter of 2022 derived from the destabilization of world markets following Russia's military activity in Ukraine. Similarly, the increase in the sales of Urea has generated a significant impact on the increase in sales of nitrogenous products, with an increase in sales of 102.9% in 2022 compared with 2021. However, the average price of the reference for diammonium phosphate (DAP) as of December 31, 2022 was 17.3% lower than at December 2021.

Sales Distribution of Grupo Fertinal, S.A. de C.V.'s

	Year ended December 31 (in millions of pesos)						
Market	**2022**	**% in sales**	**2021**	**% in sales**	**2020**	**% in sales**	**Dif. % In sales share 2022-2021**
Export	Ps. 5,228.7	29.9	Ps. 5,743.9	43.9	Ps. 3,151.9	37.1	(9.0)
Domestic	12,254.9	70.1	7,332.5	56.1	5,354.1	62.9	67.1
Total	**Ps. 17,483.6**	**100.0**	**Ps. 13,076.4**	**100.0**	**Ps. 8,506.0**	**100.0**	**33.7**

Note: Numbers may not total due to rounding.
Excludes value added tax.
Figures are stated in nominal pesos.
Source: Grupo Fertinal, S.A. de C.V. Group.

In 2022, our global average operating production capacity decreased to 53.8% of our total production capacity for fertilizers. Among the factors contributing to this decrease were an increase in cost of raw materials derived from Russia's military activity in Ukraine, which constrained our production of phosphate fertilizers, and a labor strike at our fertilizer plants which halted production for forty days.

Since 2019, Grupo Fertinal, S.A. de C.V. participates in the Mexican Government's *Fertilizantes para el Bienestar* (Fertilizers for Welfare) program pursuant to which it distributes DAP and Urea fertilizers to rural communities in Mexico without a cost. In 2022, Grupo Fertinal, S.A. de C.V. distributed 352 thousand metric tons under the program.

Collaboration and Other Agreements

On March 24, 2020, we entered into a collaboration agreement with the Ministry of Agriculture and Rural Development (SADER) to carry out activities to support the acquisition, supply and distribution of fertilizers and the provision of technical, legal and human resources within the Fertilizers for Welfare program until September 30, 2024. This broad agreement of technological and scientific collaboration is strictly non-commercial and there is no transfer of resources among the parties.

Logistics

Our logistics segment operates through the productive state-owned subsidiary Pemex Logistics and provides land, maritime and pipeline transportation, storage and distribution services to some of our subsidiaries and to other companies, including Tesoro, local gas stations and distributors, see "*—Business Overview—Transport and Distribution*" in this Item 4.

Transportation of Crude Oil and Refined Products

During 2022, we injected 1,472.2 thousand barrels per day of crude oil and petroleum products into our pipelines, a 15.7% increase as compared to 2021 when we injected 1,272.9 thousand barrels per day, mainly due to the recovery of fuel sales in general and the significant increase in crude process in refineries.

During 2022, we injected 116.0 thousand barrels per day of LPG, representing a 7.2% decrease as compared to the 125.0 thousand barrels per day of LPG injected in 2021, due to a decrease in the requirements of Pemex Industrial Transformation in the terminals and interconnections associated with the pipeline transport system for liquefied petroleum gas. In addition, we injected 5.3 thousand barrels per day of petrochemicals in 2022, an increase of 70.9% as compared to the 3.1 thousand barrels per day we injected in 2021. This increase was mainly due to an increased demand for isobutane at the Minatitlán and Salina Cruz refineries.

In 2022, we transported a total of 2,205.5 thousand barrels per day of petroleum products: 1,593.5 thousand barrels per day (72.3%) were injected by the pipeline systems, 454.0 thousand barrels per day (20.6%) were transported by land and the remaining 158.0 thousand barrels per day (7.2%) were transported by tankers.

Treatment and Primary Logistic

In 2022, we received an average of 1,213.0 thousand barrels per day of crude oil for treatment, which consists of dehydration and desalination, representing a decrease of 2.2% as compared to 1,240.0 thousand barrels per day in 2021. This decrease was due to a decrease in crude oil production by Pemex Exploration and Production. During 2022, we delivered an average of 814.0 thousand barrels of crude oil per day to the National Refining System and 250.0 thousand barrels of crude oil per day to the export terminals.

During 2022, we transported an average of 3,348.0 million cubic feet per day of non-processed natural gas through the Altamira, Misión, Santuario and Gas Marino Mesozoico transportation systems, as compared to the 3,192.0 million cubic feet per day in 2021, representing an increase of 4.9% due to higher non-processed natural gas production by Pemex Exploration and Production. In addition, we transported an average of 16.0 thousand barrels per day of condensate by the Misión and Condensado Terrestre Sur transportation systems compared to 13.0 thousand barrels per day in 2021, representing an increase of 23.1% due to an increase in the transport to Bateria Cactus I, as requested by Pemex Exploration and Production.

During 2022, we had 14 leak and spill events, none of which were significant.

Open Season

Since 2017, under the guidelines issued by the CRE, Pemex Logistics began participating in "Open Season" auctions, which are intended to be transparent and competitive auctions for access to our pipelines and storage infrastructure, wherein any participant can compete to offer its services.

As a result of the Open Season stages 1.1 and 3.1 assigned in 2017 and 2018 respectively, Pemex Logistics provides services to Tesoro, using our pipeline transport systems and storage terminals in the states of Sonora, Sinaloa, Baja California and Baja California Sur. These contracts include access to the Rosarito-Mexicali, Rosarito-Ensenada,Guaymas-

Hermosillo and Guaymas-Ciudad Obregón polyducts, and the Rosarito, Mexicali and Ensenada storage terminals in Baja California; the La Paz storage terminal in Baja California Sur; the Guaymas, Ciudad Obregón, Hermosillo, Magdalena, Nogales and Navojoa storage terminals in Sonora; and the Mazatlán, Topolobampo and Guamúchil storage terminals in Sinaloa.

On September 26, 2019, Pemex Logistics presented to the CRE the Open Season proposal for the remaining storage and transportation systems of petroleum products, whose capacity has not been offered and, therefore, is not reserved under a capacity contract, or reserved by Pemex Logistics for its own use. This available capacity was grouped in five systems: the Centro, Madero, Progreso, Salamanca and Veracruz zones. As of the date of this annual report, the CRE has not issued a response.

As a result of Stage 1.1 of the Open Season:

- the agreements for the three storage terminals in Rosarito, Mexicali and Ensenada, as well as the system of polyducts in the Rosarito area, were extended three years until October 5, 2023. The remaining contracts for six storage terminals (Guaymas-Hermosillo, Cd. Obregón, Magdalena, Nogales and Navojoa, and a system of polyducts from the Guaymas area), last until November 14, 2023.

Transport and Distribution

Our pipelines connect crude oil and natural gas production centers with refineries and petrochemical plants, and our storage terminals with Mexico's major cities. At the end of 2022, the pipeline network measured approximately 17,445.9 kilometers in length, of which 12,519.4 kilometers are currently in operation and 4,926.5 kilometers are temporarily out of operation. These pipelines may be temporarily out of operation because of a decrease in the production of a field where the pipeline is located or because the transportation service is irregular, which makes its operation unprofitable. Once such circumstances are more favorable, the pipelines may become operational again. As of the date of this annual report, we are analyzing the 885.3 kilometers of pipelines that are temporarily out of operation to determine whether and how they may be used in the future.

As of December 31, 2022, the pipeline network of Pemex Logistics was distributed as follows:

Transported Product	Length (km)
Petroleum products	8,501.0
Crude Oil	5,216.0
LP Gas	1,406.5
Chemicals	394.1
Petrochemicals	1,696.5
Fuel Oil	139.4
Jet Fuel	81.5
Water	11.0
Total	**17,445.9**

We implemented a management plan for pipeline devices, which requires maintaining detailed documentation of pipeline conditions to optimize investments focused on maintenance. The pipeline integrity management plan is based on what is established in Chapter IV of the "General Administrative Provisions that support the Guidelines on Industrial Safety, Operational Safety and Environmental Protection, for land transport by means of Oil, Petroleum and Petrochemical Pipelines" (DAGs), taken in turn from NOM-027-SESH-2010, as well as API RP 1160 standards for liquid hydrocarbons, and ASME B31.8S for gas, and contemplates the following stages:

- collection of detailed logs and the development of a pipeline database;
- categorization and identification of threats that could affect integrity, safety and operation of pipelines;
- identification of critical points in the pipeline;
- risk assessment of the reliability and integrity of pipelines;

- planning and scheduling of maintenance and risk mitigation; and
- continuous monitoring throughout all stages.

We have made considerable progress towards meeting the General Administrative Provisions that establish the guidelines on Industrial Safety, Operational Safety and Environmental Protection for onshore transport through Oil, Petroleum and Petrochemical Pipelines ("DAGs") requirements on risk assessment and pipeline integrity described in Chapter VI of the DAGs. As of December 31, 2022, we have analyzed 100% of our network of logistics pipelines. The risk and integrity analyses are conducted on a yearly basis, in order to keep all the integrity management plans updated. In addition, we have implemented several measures related to our pipeline integrity management plan, including by collecting information to create pipeline databases.

The results of our risk evaluation are as follows:

High Risk	0.00	kilometers
Medium Risk	8,253.0	kilometers
Low Risk	9,301.0	kilometers

Despite the implementation of our pipeline integrity management plan, we experienced 92 leaks and spills in 2022. The total number of incidents in 2022 represented an increase of 27.8%, as compared to the 72 incidents we experienced in 2021. All of the 92 incidents in our transportation pipelines were due to failures in the mechanical integrity of the pipelines and corrosion.

The transportation of crude oil, natural gas and other products through the pipeline network is subject to various risks, including risk of leakage and spills, explosions and fuel theft. In 2022, we spent a total of Ps. 1,105.0 million for the rehabilitation and maintenance of our pipeline network and we have budgeted Ps. 775.0 million for these expenditures in 2023. See "*Item 3—Key Information—Risk Factors—Risk Factors Related to our Operations—We are an integrated oil and gas company and are exposed to production, equipment and transportation risks, criminal acts, blockades to our facilities and deliberate acts of terror that could adversely affect our business, results of operations and financial condition*" and "*—Business Overview—Environmental Liabilities*" above.

Fleet Developments

In July of 2013, as part of a plan to modernize the fleet, we signed an agreement with the *Secretaría de Marina Armada de México* (Mexican Navy, or "SEMAR"), valued at Ps. 3,212.1 million (U.S. $250.0 million), for the construction of 22 vessels for Pemex Industrial Transformation, which formally operated through Pemex Refining. This agreement initially included construction of 16 tugboats, three multipurpose vessels and three barges, but was amended in 2016 to remove the construction of the three barges and to extend the final delivery date to January 2022. On March 26, 2021, the Mexican Navy and Petróleos Mexicanos agreed to reduce of the scope of the this agreement in two supply orders. This transaction is now valued at Ps. 5,235 million. As of December 31, 2022, the Mexican Navy has delivered 12 of 17 tugboats, keeping two of them as guarantee for the payment of owed amounts for the services rendered. The remaining three tugboats are scheduled for delivery during 2023.

As of December 31, 2022, we owned 16 refined product tankers. We also have 17 tugboats, 3 suppliers, 1,444 tanker trucks and 348 tanker cars, as well as 74 storage and distribution terminals, 10 liquefied gas terminals, five maritime terminals and 10 dock operation and maintenance facilities. These facilities, together with our pipeline network, constitute the hydrocarbons transportation and distribution infrastructure.

Our current fleet of refined product tankers includes 16 vessels, 14 of which are owned by Pemex Logistics and two of which are leased under financial leases, with a total transportation capacity of 4,566.0 thousand barrels. 53.33% of our ships are located on the Pacific coast and the other 46.67% are in the Gulf of Mexico. Of the capacity of the ships located on the Pacific coast, 87.50% is used to transport distillates and 12.50% is used to transport fuel oil and heavy diesel. Of the capacity of the ships located in the Gulf of Mexico, 71.43% is used for distillates and 28.57% is used for fuel oil and heavy diesel. The reduction in transportation capacity during 2022 was primarily due to a halt in operations of the tanker "Bicentenario" for maintenance work.

Logistics Capital Expenditures and Budget

Our logistics segment invested Ps. 6,274 million in capital expenditures in 2022 and has budgeted Ps. 7,517 million in capital expenditures for 2023.

The following table sets forth our logistics segment's capital expenditures, excluding non-capitalizable maintenance, for each of the three years ended December 31, 2022, and the budget for 2023. Capital expenditure amounts are derived from our budgetary records, which are prepared on a cash basis. Accordingly, these capital expenditure amounts do not correspond to capital expenditure amounts included in our consolidated financial statements prepared in accordance with IFRS.

Logistics' Capital Expenditures

	Year ended December 31,[1]			Budget
	2022	2021	2020	2023[2]
	(in millions of pesos)[3]			
Logistics				
T M Dos Bocas – CCC Palomas Corridor	Ps. 1,170	Ps. 519	Ps. 91	Ps. 1,041
Maintenance of TM Dos Bocas	744	415	553	5
Maintenance of Pipeline Transportation Systems Permission 7 Crudos	517	370	90	—
Gas Marino-Mesozoico Transportation Systems	447	333	76	531
Capitalized Maintenance for the Pajaritos Storage and Port Services Terminal and Pajaritos Storage and Dispatch Terminal	399	224	—	977
Replacement of Vessel Tanks Nuevo Pemex I, II, III and IV by Acquisition and/or Leasing	355	354	370	—
Capitalized Maintenance to 5 TAD under Center Regional Logistics Management: TAD 18 de Marzo, Añil, Barranca del Muerto, San Juan Ixhuatepec and Toluca	290	51	—	90
Maintenance of 7 Storage Terminals of the Pacific Regional Logistics Management: TAD Acapulco, Colima, El Castillo, Lázaro Cárdenas, Manzanillo, Tepic, Zapopan	234	106	—	132
Altamira Integral System Maintenance Case	227	263	92	—
Integral Maintenance for the Reliability of the Liquefied Petroleum Gas Distribution Terminals	160	20	15	—
Maintenance of 5 Terminals: TAD Poza Rica, Tierra Blanca, Jalapa, Perote and Veracruz	157	13	—	—
Maintenance of Mission System	140	54	31	—
Integrity Diagnostics and Adequacy of the Instrumented Safety Systems and the Basic Control of the Southeast Pumping Stations	121	208	348	624
Maintenance of Pipeline Transportation Systems Permit 5 Oil Pipeline Transportation for the Southern Zone System Gulf Midwest	119	—	—	830
Operational Reliability in the Assets of the Pipeline Sub-Directorate	113	112	77	69
Major Rehabilitations for the Sustaining of the Vessels of the Major Fleet Assigned to Pemex Logistics	97	104	30	412
Maintenance of Pipeline Monitoring, Control Systems and Flow Measurement Systems of the National Distribution Network of Pemex Refineries	84	52	66	180
Maintenance to the Pipeline Transportation Systems Permission 4 North	79	—	—	133
Restoration, Standardization and Adaptation of the Docks of the TOMP Pajaritos	71	120	9	—
Restoration, Standardization and Adaptation of the Docks of the TOMP Salina Cruz	62	91	64	—

	Year ended December 31,[1]			Budget
	2022	2021	2020	2023[2]
Capitalized Maintenance to 7 Storage Terminals under North Regional Logistics Management: TAD Santa Catarina, Chihuahua, Cd. Juárez, Parral, Saltillo, Gómez Palacio Durango	49	77	—	23
Rehabilitations of Support Vessels for the Nautical Operation Assigned to Pemex Logistics	42	25	2	64
Capitalizable Maintenance of the Storage Terminal and Port Services in Tuxpan, Veracruz	41	20	—	90
Maintenance of Mission Pipeline Transportation Systems: Gas and Condensates	37	—	—	279
Maintenance of the North Ground Oil Treatment System	27	—	—	117
Maintenance of 7 Storage Terminals under Pacific Regional Logistics Management: TAD Obregón, Guaymas, Hermosillo, La Paz, Magdalena, Navojoa and Nogales and 2 Storage and Port Services Terminals (TASP) Guaymas and La Paz	23	25	—	—
Maintenance of Pipeline Transportation Systems LPG (Liquefied Petroleum Gas) Permit	20	—	—	235
Implementation of the SCADA System in 47 Pipeline Transportation Systems	18	—	—	—
Capitalizable Maintenance to the Storage and Port Services Terminal (TASP): Salina Cruz and marine pipelines of Storage and Port Services Management	17	9	—	—
Maintenance of Transportation System by Pipeline, Permission Number 3 Topolobampo	12	18	11	—
Acquisition of 5 Tankers Vessel by Cash and/or by Leasing	8	460	478	—
Maintenance of Pipelines Transportation Systems Permission 5 South, Gulf, Central and West Zones	6	80	65	—
Capitalized Maintenance to 7 Storage Terminals under Pacific Regional Logistics Management: TAD Rosarito, Ensenada, Mexicali, Topolobampo, Mazatlán, Culiacán and Guamúchil	2	53	—	261
Natural Gas Transportation from Jáltipan to Salina Cruz Refinery	—	185	—	—
Acquisition of 1 Tanker in Cash and/or by Financial Lease	—	42	97	—
Capitalizable Maintenance to 5 Storage Terminals of Gulf Regional Logistics Management: TAD Minatitlan, Tapachula, Tuxtla Gutierrez, Villahermosa, and Campeche	—	28	—	—
Renewal of Tugs, Chalanes and Multipurpose Vessels of the Smaller Fleet	—	—	253	—
Maintenance of Safety, Measurement, Control and Automation Systems in Storage and Distribution Terminals	—	—	57	130
Evaluation and Rehabilitation of the Mechanical Integrity of the Poza Rica-Salamanca and Nuevo Teapa- Tula-Salamanca Pipelines	—	—	5	—
Maintenance of the Southern Oil Transportation System	—	—	—	562
Maintenance of the Mesozoic Marine Gas Transportation System 2023-2027				498
Others	386	38	76	234
Total	**Ps. 6,274**	**Ps. 4,469**	**Ps. 2,956**	**Ps. 7,517**

Notes: Numbers may not total due to rounding.
TM = *Terminal Marítima* (Marine Terminal).
TOMP = *Terminal de Operación Marítima y Portuaria* (Maritime and Port Operation Terminal).
TAD = *Terminal de Almacenamiento y Distribución* (Storage and Distribution Terminal).

(1) Amounts based on cash basis method of accounting.
(2) Amended budget was authorized on January 31, 2023. The original budget was published in the Official Gazette of the Federation on November 28, 2022.
(3) Figures are stated in nominal pesos.

Source: Petróleos Mexicanos.

CENAGAS

Pursuant to the Hydrocarbons Law, on August 11, 2014, CENAGAS was created as a decentralized public entity of the Mexican Government to act as the independent administrator of the Integrated Natural Gas System. This system interconnects the infrastructure for the storage and transportation of natural gas across the nation, with the aim of expanding coverage, strengthening security measures and improving the continuity, quality and efficiency in transportation service.

We provide operation and maintenance services and commercial operation services to CENAGAS for 20 of its 21 pipeline subsystems.

During 2022 we obtained Ps. 1.2 million from our services provided to CENAGAS.

International Trading

PMI and the PMI Subsidiaries conduct international commercial activities for our crude oil, refined and petrochemical products, with the exception of natural gas, which is marketed directly by Pemex Industrial Transformation. The PMI Subsidiaries' main objectives are to assist in maximizing our profitability and optimizing our operations through international trade. The PMI Subsidiaries facilitate our link with international markets and pursue new business opportunities by marketing PEMEX's required or produced products internationally. PMI and the PMI Subsidiaries manage the international sales of our crude oil and petroleum products and acquire in the international markets the petroleum products required to satisfy domestic demand. Sales of our crude oil are carried out through PMI. Trading of petroleum products in the international markets is carried out through P.M.I. Trading DAC, which also performs third-party trading, transportation and risk management activities in alternative markets (customers and suppliers other than us).

Exports and Imports

PMI purchases crude oil from Pemex Exploration and Production and then sells it to PMI's customers. PMI sold an average of 953.2 thousand barrels of crude oil per day in 2022, which represented 54.0% of our total crude oil production, inclusive of condensed crude oil production and exclusive of amounts produced in conjunction with other partners.

The following tables set forth the composition and average prices of our crude oil exports for the periods indicated.

	Year ended December 31,									
	2022		2021		2020		2019		2018	
	(tbpd)	(%)	(tbpd)	(%)	(tbpd)	(%)	(tbpd)	(%)	(tbpd)	(%)
Crude Oil Exports (by Volume)										
Olmeca[(1)] (API gravity of 38°-39°)	—	—	—	—	—	—	—	—	—	—
Isthmus (API gravity of 32°-33°)	289.5	30.4	181.4	17.8	139.7	12.5	4.1	0.4	30.7	2.6
Maya (API gravity of 21°-22°)	639.5	67.1	796.8	78.3	908.6	81.1	985.0	89.3	1,090.0	92.0
Altamira (API gravity of 15.0°-16.5°)	17.5	1.8	18.5	1.8	18.4	1.6	20.7	1.9	19.9	1.7
Talam (API gravity of -15.8º)	6.8	0.7	21.6	2.1	53.2	4.8	93.5	8.4	43.4	3.7
Total	**953.2**	**100.0**	**1,018.3**	**100.0**	**1,119.9**	**100.0**	**1,103.3**	**100.0**	**1,184.0**	**100.0**

Notes: Numbers may not total due to rounding.
tbpd = thousand barrels per day.
API gravity refers to the specific gravity or density of liquid petroleum products, measured in degrees on the American Petroleum Institute ("API") scale. On the API scale, oil with the lowest specific gravity has the highest API gravity. In addition, holding all other factors constant, the higher the API gravity, the greater the value of the crude oil.

(1) During 2018, 2019, 2020, 2021 and 2022 we did not export Olmeca crude oil.

Source: PMI operating statistics as of January 10, 2023.

	Year ended December 31,				
	2022	2021	2020	2019	2018
	(U.S. dollars per barrel)				
Crude Oil Prices					
Olmeca	U.S. $ —	U.S. $ —	U.S. $ —	U.S. $ —	U.S. $ —
Isthmus	92.16	67.44	37.60	57.12	64.54
Maya	88.21	65.51	36.63	55.75	61.47
Altamira	86.47	61.61	32.06	53.69	57.81
Talam	83.93	65.23	27.60	53.50	59.47
Weighted average realized price	U.S.$ 89.35	U.S.$ 65.78	U.S.$ 36.24	U.S.$ 55.53	U.S.$ 61.41

Source: PMI operating statistics as of January 10, 2023.

Geographic Distribution of Export Sales

As of December 31, 2022, PMI had 17 customers in five countries. In 2022, 66.9% of our crude oil export sales were to customers in the United States, which represented a 10.2% increase as compared to 2021.

The following table sets forth the geographic distribution of PMI's sales of crude oil exports for the five years ended December 31, 2022. The table also presents the distribution of exports among PMI's crude oil types for those years.

Composition and Geographic Distribution of Crude Oil Export Sales

	Year ended December 31,									
	2022		2021		2020		2019		2018	
	(tbpd)	(%)	(tbpd)	(%)	(tbpd)	(%)	(tbpd)	(%)	(tbpd)	(%)
PMI Crude Oil Export Sales to:										
United States and Canada	637.9	66.9	578.8	56.9	659.6	58.9	609.2	55.2	669.6	56.6
Europe	113.0	11.9	141.9	13.9	162.8	14.5	181.8	16.5	199.1	16.8
Asia	202.3	21.2	297.6	29.2	297.5	26.6	312.3	28.3	311.4	26.3
Central and South America	—	—	—	—	—	—	—	—	3.9	0.3
Total	**953.2**	**100.0**	**1,018.3**	**100.0**	**1,119.9**	**100.0**	**1,103.3**	**100.0**	**1,184.0**	**100.0**
Olmeca (API gravity of 38°-39°)[1]										
United States and Canada	—	—	—	—	—	—	—	—	—	—
Others	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—
Isthmus (API gravity of 32°-33°)										
United States and Canada	197.4	20.7	146.7	14.4	124.6	11.2	2.7	0.3	—	—
Others	92.1	9.7	34.7	3.4	15.1	1.3	1.4	0.1	30.7	2.6
Total	**289.5**	**30.4**	**181.4**	**17.8**	**139.7**	**12.5**	**4.1**	**0.4**	**30.7**	**2.6**
Maya (API gravity of 21°-22°)										
United States and Canada	417.6	43.8	398.9	39.2	474.8	42.4	506.1	45.9	623.9	52.7
Others	221.9	23.3	397.9	39.1	433.8	38.7	478.9	43.4	466.1	39.3
Total	**639.5**	**67.1**	**796.8**	**78.3**	**908.6**	**81.1**	**985.0**	**89.3**	**1,090.0**	**92.0**
Altamira (API gravity of 15.0°-16.5°)										
United States and Canada	17.5	1.8	18.5	1.8	18.4	1.6	20.7	1.9	19.9	1.7
Others	—	—	—	—	—	—	—	—	—	—
Total	**17.5**	**1.8**	**18.5**	**1.8**	**18.4**	**1.6**	**20.7**	**1.9**	**19.9**	**1.7**
Talam (API gravity of 15.8°)										
United States and Canada	5.5	0.6	14.8	1.5	41.7	3.7	79.7	7.2	25.8	2.2
Others	1.3	0.1	6.8	0.6	11.5	1.1	13.8	1.2	17.6	1.5
Total	**6.8**	**0.7**	**21.6**	**2.1**	**53.2**	**4.8**	**93.5**	**8.4**	**43.4**	**3.7**

Notes: Numbers may not total due to rounding.
Tbpd = thousand barrels per day.
API gravity refers to the specific gravity or density of liquid petroleum products, measured in degrees on the API scale. On the API scale, oil with the lowest specific gravity has the highest API gravity. In addition, holding all other factors constant, the higher the API gravity, the greater the value of the crude oil.
(1) During 2022, we did not export Olmeca crude oil.

Source: PMI operating statistics as of January 10, 2023.

In total, we exported 953.2 thousand barrels of crude oil per day in 2022 and, pursuant to Pemex Exploration and Production's request, we expect to export 1,047 thousand barrels of crude oil per day in 2023 (including Maya, Istmo, Altamira and Talam crude oil). We sell crude oil produced by Pemex Exploration and Production under a variety of contractual arrangements. We believe that our proved developed and proved undeveloped reserves will be sufficient to allow us to fulfill our supply commitments.

The following table sets forth the average volume of our exports and imports of crude oil, natural gas and petroleum products for the five years ended December 31, 2022.

Volume of Exports and Imports

	Year ended December 31,					
	2022	2021	2020	2019	2018	2022 vs. 2021
	(in thousands of barrels per day, except as noted)					(%)
Exports						
Crude Oil:						
Olmeca	—	—	—	—	—	—
Isthmus	289.5	181.4	139.7	4.1	30.7	59.6
Maya	639.5	796.8	908.6	985.0	1,090.0	(19.7)
Altamira	17.5	18.5	18.4	20.7	19.9	(5.4)
Talam	6.8	21.6	53.2	93.5	43.4	(68.5)
Total crude oil	**953.2**	**1,018.3**	**1,119.9**	**1,103.3**	**1,184.0**	**(6.4)**
Natural gas[1]	0.7	0.8	1.0	1.3	1.4	(12.5)
Gasoline	8.0	6.8	12.2	33.6	37.7	17.6
Other petroleum products and LPG	189.7	160.3	127.1	82.8	95.1	18.3
Petrochemical products[2]	18.3	110.5	40.2	71.9	57.8	(83.4)
Imports						
Natural gas[1]	532.1	904.6	853.1	966.6	1,316.5	(41.2)
Gasoline [3]	428.3	349.3 (4)	396.5 (4)	543.8 (4)	606.8 (4)	22.6
Other petroleum products and LPG[1]	311.4	208.0 (4)	197.3	302.8	378.7	49.7
Petrochemical products[2]	373.9	349.2	386.0	881.3	831.8	7.1

Note: Numbers subject to adjustment because crude oil exports may be adjusted to reflect the percentage of water in each shipment.
Numbers may not total due to rounding.
(1) Numbers expressed in millions of cubic feet per day.
(2) In thousands of tons.
(3) Includes premium terminadas, regular terminadas, components and naftas.
(4) Reflects adjustments made to Pemex BDI.

Source: PMI operating statistics as of January 10, 2023, and Pemex Industrial Transformation.

Crude oil exports decreased by 6.4% in 2022, from 1,018.3 thousand barrels per day in 2021 to 953.2 thousand barrels per day in 2022, mainly due to the National Refining System's process increase. We did not export Olmeca crude oil during 2018, 2019, 2020, 2021 and 2022, due to a lack of availability of Olmeca crude oil for export.

We import dry gas, a variety of natural gas, to satisfy shortfalls in our production and to meet demand in areas of northern Mexico that, due to their distance from the fields, can be supplied more efficiently by importing natural gas from the United States. Domestic sales of dry gas decreased by 3.8%, as compared to 2021, from 1,170.5 million cubic feet per day in 2021 to 1,125.5 million cubic feet per day in 2022, mainly due to private companies importing natural gas directly to satisfy their requirements, because customers have the option to purchase natural gas from other marketers. In 2022, 532.1 million cubic feet per day of natural gas was imported, a 41.2% decrease from the 904.6 million cubic feet per day imported in 2021. The reduction in imports is explained by the lower availability of gas from Pemex Exploration and Production fields and the reduction in dry gas production from cryogenic units.

P.M.I. Trading sells and buys refined and petrochemical products on a *Free on Board*, *Delivered Ex-ship, Cost and Freight, Delivery at Frontier* and *Delivered at Place* basis.

The following table sets forth the value of exports and imports of crude oil, natural gas and petroleum products for the five years ended December 31, 2022.

Value of Exports and Imports[1]

	Year ended December 31,					
	2022	2021	2020	2019	2018	2022 vs. 2021
	(in millions of U.S. dollars)					(%)
Exports						
Olmeca	U.S. $ —	U.S. $ —	U.S. $ —	U.S. $ —	U.S. $ —	—
Isthmus	9,737.0	4,465.0	1,921.5	85.2	722.2	118.1
Altamira	551.0	416.8	216.2	405.7	419.5	32.2
Maya	20,590.6	19,052.7	12,179.9	20,043.9	24,455.2	8.1
Talam	206.8	514.2	537.4	1,826.6	943.4	(59.8)
Total crude oil[2]	**U.S. $ 31,085.4**	**U.S. $24,448.7**	**U.S. $ 14,855.0**	**U.S. $ 22,361.4**	**U.S. $ 26,540.3**	**27.1**
Natural gas	1.5	0.9	0.4	0.8	1.0	66.7
Gasoline	219.2	154.9	154.9	626.6	813.9	41.5
Other petroleum products	4,938.3	3,285.8 (3)	1,321.3	1,400.3	1,921.7 (3)	50.3
Petrochemical products	12.1	68.2	12.7	39.6	39.2	(82.3)
Total natural gas, petroleum and petrochemical products	**U.S. $ 5,171.1**	**U.S. $ 3,509.8** (3)	**U.S. $ 1,489.3**	**U.S. $ 2,067.3**	**U.S. $ 2,775.8** (3)	**47.3**
Total exports	**U.S. $ 36,256.5**	**U.S. $27,958.5**	**U.S. $ 16,344.3**	**U.S. $ 24,428.7**	**U.S. $ 29,316.1**	**29.7**
Imports						
Natural gas	1,360.0	2,196.4	774.1	1,071.9 (3)	2,043.2	(38.1)
Gasoline	20,555.0	10,848.6 (3)	8,120.1 (3)	15,336.6	18,957.9	89.5
Other petroleum products and LPG	14,163.0	5,445.0 (3)	3,614.0 (3)	7,983.7	11,159.1	160.1
Petrochemical products	1,714.4	881.0	633.0	658.4	588.8	94.6
Total imports	**U.S. $ 37,792.4**	**U.S. $19,371.0** (3)	**U.S. $ 13,141.2** (3)	**U.S. $ 25,050.6** (3)	**U.S. $ 32,749.0**	**95.1**
Net exports (imports)	**U.S. $ (1,535.9)**	**U.S. $ 8,587.5**	**U.S. $ 3,203.1**	**U.S. $ (621.9)**	**U.S. $ (3,432.9)**	**(117.9)**

Note: Numbers may not total due to rounding.

(1) Does not include operations with third parties carried out by P.M.I. Trading DAC and PMI-NASA of crude oil, refined products, petrochemicals and liquefied petroleum gas outside of Mexico and resold in international markets. Figures expressed in this table differ from the amounts contained in the Audited Consolidated Financial Statements under "Net Sales" due to differences in the methodology related to the calculation of exchange rates and other minor adjustments.

(2) Crude oil exports are subject to adjustment to reflect the percentage of water in each shipment.

(3) Reflects adjustments made to Pemex BDI.

Source: PMI operating statistics as of January 10, 2023, which are based on information in bills of lading, and Pemex Industrial Transformation.

In 2022, imports of natural gas decreased in value by 38.1% as compared to 2021, primarily as a result of a decrease in the volume of natural gas imports. Imports of gasoline increased in value by 89.5%, mainly due to higher prices of refined products in the Gulf of Mexico.

The following table describes the composition of our exports and imports of selected refined products for the three years ended December 31, 2022.

Exports and Imports of Selected Petroleum Products

	Year ended December 31,					
	2022		2021		2020	
	(tbpd)	(%)	(tbpd)	(%)	(tbpd)	(%)
Exports						
Liquefied petroleum gas[1]	—	—	—	—	0.8	0.6
Fuel oil	173.6	87.9	157.5	94.3	109.6	78.7
Gasoline	8.0	4.0	6.8	4.1	12.2	8.8 (3)
Others	16.0	8.1	2.8	1.7	16.7	12.0
Total	**197.6**	**100.0**	**167.1**	**100.0**	**139.3**	**100.0**
Imports						
Gasoline[2]	428.3	57.9	349.3 (3)	62.7	396.5 (3)	66.8
Fuel oil	—	—	—	—	4.3	0.7
Liquefied petroleum gas [1]	77.2	10.4	66.9	12.0	53.1	8.9
Diesel	174.1	23.5	102.6 (3)	18.4 (3)	114.2	19.2
Others	60.1	8.1	38.5 (3)	6.9	25.8	4.3
Total	**739.7**	**100.0**	**557.3** (3)	**100.0**	**593.9** (3)	**100.0**

Notes: Numbers may not total due to rounding.
tbpd = thousand barrels per day.
(1) Includes butanes and propane.
(2) Includes premium gasoline, regular gasoline, premium components and naphthas
(3) Reflects adjustments made to Pemex BDI.

Source: Pemex BDI.

In 2022, exports of petroleum products increased by 18.3%, from 167.1 thousand barrels per day in 2021 to 197.6 thousand barrels per day in 2022, mainly due to an increase in the export volumes of fuel oil of 10.2%. Imports of petroleum products increased by 32.7% in 2022, from 557.3 thousand barrels per day in 2021 to 739.7 thousand barrels per day in 2022, mainly due to an increase in imports of gasoline and diesel to meet Mexico's demand following the recovery of the domestic market for such products.

Exports of petroleum products increased in value by 47.3% in 2022, primarily due to the increase in the price of petroleum products. In 2022, imports of petroleum products increased in value by 95.1%, which is also a consequence of higher refining prices in the Northern Coast of the Gulf of Mexico. Our net exports of petroleum products for 2021 totaled U.S. $8,587.5 million, which represents a 117.9% decrease from our net imports of petroleum products of U.S. $(1,535.9) million in 2022.

The Secretary of Energy did not enter into any further agreements to reduce or increase crude oil exports and production, during 2021 and 2022. See "*Item 4—Information on the Company—Trade Regulation, Export Agreement and Production Agreements*" below.

Hedging Operations

Certain PMI Subsidiaries have implemented a regulatory framework for risk management with respect to its activities, which consists of policies, guidelines and procedures to manage the market risk associated with its commodity trading activities in accordance with industry best practices, such as: 1) the use of derivative financial instruments (DFIs)

for financial risk mitigation purposes; 2) the segregation of duties; 3) valuation and monitoring mechanisms, such as the generation of a daily portfolio risk report, value at risk ("VaR") computation; and 4) VaR limits, both at a global and business unit level and the implementation of stop loss mechanisms. See "*Item 11—Quantitative and Qualitative Disclosures About Market Risk*."

Gas Stations in the United States

In 2022, there were a total of 15 PEMEX-branded service stations in the United States (five in the state of Texas and 10 in the state of California). The fuel supply at these gas stations is derived from the United States wholesale market, and the retail selling prices are subject to the local market conditions in the locations of each service station. Current market conditions, including fuel demand and any ongoing impacts of the COVID-19 pandemic are analyzed continually to evaluate the commercial strategy, with the goals of maximizing brand recognition and awareness for market penetration in subset markets, responding to consumers' needs in each region, and aligning with our strategic objectives.

PEMEX Corporate Matters

In addition to our operating activities that we undertake through our subsidiary entities and subsidiary companies, we have certain centralized corporate operations that coordinate general labor, safety, insurance and legal matters.

Industrial Safety and Environmental Protection

Our Corporate Office of Planning, Coordination and Performance is responsible for planning, conducting and coordinating programs to:

- foster a company culture of safety, environmental protection and efficient and rational use of energy;
- improve the safety of our workers and facilities;
- reduce risks to residents of the areas surrounding our facilities; and
- reduce the environmental impacts generated by our operations and greenhouse gas emissions.

We intend to further develop industrial safety and environmental programs for each subsidiary entity. The environmental and safety division of each subsidiary entity coordinates closely with the Corporate Office of Planning, Coordination and Performance to promote sustainable performance focused on continuous improvement.

Insurance

We maintain damage and liability insurance coverage for our properties, such as refineries, processing plants and gas processing and distribution centers, pipelines and storage facilities, as well as for all of our offshore assets, such as drilling platforms, rigs, gas gathering systems, as well as for the fleet of vessels for product transportation and support of maritime operations.

Our insurance covers risks of sudden and accidental physical damage to or destruction of our properties, as well as risk of sudden and accidental physical loss, including as a consequence of purposeful terrorist acts and sabotage. This insurance also provides coverage for the contents of pipelines, storage facilities and packaged products, and any of our liabilities arising from such acts. Our insurance also covers extraordinary costs related to the operation of offshore wells, such as control and re-drilling costs, evacuation expenses and liability costs associated with spills. We also maintain protection and indemnity insurance for our full marine fleet, in addition to life insurance for employees, automobile and heavy equipment insurance, cargo and transportation insurance, as well as insurance against all risks in construction for minor works or assemblies on assets in operation, as well as insurance to protect against illegal acts.

In accordance with Mexican law, we have entered into all of our insurance contracts with Mexican insurance carriers. These policies have limits of U.S. $1.8 billion for onshore property, which includes insurance for the entire Deer Park acquisition, U.S. $1.9 billion for offshore property, U.S. $0.3 billion for extraordinary costs related to the operation of offshore wells, U.S. $1.1 billion for onshore and offshore liabilities, U.S. $0.5 billion for offshore terrorist acts and U.S. $0.5 billion for onshore terrorist acts, plus U.S. $1.0 billion for liabilities associated with the operation of vessels.

Limits of insurance policies purchased for each category of risk are determined using professional risk management assessment surveys conducted by international companies on an annual basis and the market capacity available per risk. In

addition, in compliance with the regulations enacted in June 2016 by the Agencia Nacional de Seguridad Industrial y de Protección al Medio Ambiente del Sector Hidrocarburos (National Agency for Industrial Safety and Environmental Protection of the Hydrocarbons Sector, or "ASEA"), we maintain insurance coverage with respect to third party liability, liability for environmental damage and control of wells, works or drilling activities, extraction of hydrocarbons, the treatment and refining of crude oil and the processing of natural gas. We have also ensured that we maintain insurance coverage in connection with our strategic alliances and other joint arrangements.

Since 2003, we purchase ad hoc business interruption mitigation insurance coverage, which compensates us for the additional expenses necessary to recover our production capabilities in the shortest time possible.

All of our insurance policies are reinsured through Kot Insurance Company, AG (which we refer to as Kot AG). Kot AG is a wholly owned subsidiary company that was originally formed in 1993 under the laws of Bermuda as Kot Insurance Company, Ltd. and was subsequently organized under the laws of Switzerland in 2004. Kot AG is used as a risk management tool to structure and distribute risks across the international reinsurance markets. Kot AG reinsures policies held through our local insurance carriers and maintains control over the cost and quality of the insurance covering our risks. Kot AG reinsures over 82% of its reinsurance policies with unaffiliated third party reinsurers. Kot AG carefully monitors the financial performance of its reinsurers and actively manages counterparty credit risk across its reinsurance portfolio to ensure its own financial stability and creditworthiness. Kot AG maintains solid capitalization and solvency margins consistent with guidelines provided by Swiss insurance authorities and regulations. As of December 31, 2022, Kot AG’s net risk retention is circa U.S. $565 million spread across different reinsurance coverages to mitigate potential aggregation factors.

Compliance at Pemex

Our current corporate compliance program *Pemex Cumple* (Pemex Complies) was authorized by the Board of Directors of Petróleos Mexicanos in November 2019. This program amended and supplemented our previous compliance program, which the Board of Directors of Petróleos Mexicanos approved on July 14, 2017. See “Item 4 – General Regulatory Framework” for more information regarding Pemex Complies.

As part of this program, we implemented a compliance hub with different lines of attention: ethics and integrity, anticorruption and due diligence, legal compliance, and data protection and transparency. The program is aimed at strengthening our compliance culture concerning the applicable legal provisions as well as preventing financial and legal risks, with respect to the national anticorruption strategy, international laws, international treaties, specific regulations for the oil and gas sector, economic competition and internal policies. The General Counsel of Petróleos Mexicanos provides quarterly progress reports to the Board of Directors of Petróleos Mexicanos concerning the implementation of Pemex Complies.

The Board of Directors approved modifications to the Organic Statute of Petróleos Mexicanos on April 27, 2021, to strengthen Pemex Complies, published in the Official Gazette of the Federation on May 7, 2021. These modifications aimed to reinforce some activities and new functions are added to the Legal Department of Petróleos Mexicanos to conform them to those carried out by a compliance officer following the best international practices such as conducting the implementation of the Pemex Complies program and monitor its compliance and, where appropriate, issue recommendations

These measures are oriented at preventing, reducing and mitigating acts of theft, fraud and corruption, having adequate and effective control and surveillance systems, which constantly and periodically monitor compliance with our integrity standards, as well as compliance with the regulatory and legal provisions that are applicable to us.

Ethics Committee

Our Ethics Committee comprises members from our management team and specializes in corporate ethics, which regulates and promotes the implementation and compliance with our Code of Ethics and the Code of Conduct.

Our Ethics Committee is primarily responsible for:

- promoting corporate strategies to create an ethical environment that promotes compliance with our objectives;

- driving knowledge and practice of the Code of Ethics and the Code of Conduct to improve the level of ethical culture of our executive officers and employees;
- establishing procedures that implement the principles found in our Code of Ethics in order to increase compliance and to detect behavior that adversely affects our activities;
- detecting behaviors that may affect the healthy development of our activities and implement, when appropriate, strategies that strengthen compliance with the Code of Ethics and Code of Conduct;
- knowing and analyzing possible violations of our Code of Ethics and Code of Conduct that are reported through the ethics tip line;
- knowing, giving an opinion, analyzing and recommending to the appropriate areas on relevant cases of possible violations of the Code of Ethics and the Code of Conduct reported through the ethics tip line; and
- acting as a consultation and advisory body on matters related to the implementation of the Code of Ethics and the Code of Conduct.

See "Item 16B—Code of Ethics" for more information regarding our Code of Ethics.

Collaboration and Other Agreements

On April 3, 2020, we signed a general coordination agreement for the exchange of services with the *Instituto Mexicano de Seguro Social* (IMSS), *Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado* (ISSSTE) and the *Secretaría de Salud* (Ministry of Health) with the aim of joining the federal universal healthcare system. The agreement establishes general guidelines and operational, administrative, financing and legal criteria for the provision of universal healthcare and for the exchange or unilateral provision of health care services between our medical providers and those of the other signatories, as well Mexican government health service providers, national health institutes, specialty regional hospitals, federal hospitals and other institutions of the national health system, once we join the universal healthcare program.

Through these agreements and health services, we seek to increase our technical and scientific knowledge in areas that include exploration and drilling. These broad agreements of technological and scientific collaboration are strictly non-commercial, i.e., there is no transfer of resources among the parties.

Property, Plants and Equipment

General

Substantially all of our property, consisting of refineries, storage, production, manufacturing and transportation facilities and certain retail outlets, is located in Mexico, including Mexican waters in the Gulf of Mexico, except for facilities related to Deer Park refinery, which are located in the state of Texas in the United States of America. The location, character, utilization and productive capacity of our exploration, drilling, refining, petrochemical production, transportation and storage facilities are described above. See "*—Exploration and Production," "—Industrial Transformation," "—Fertilizers" and "—Logistics*" in this Item 4. The insurance program covering all of our properties is also described above under "*—Insurance*."

Reserves

Under the Mexican Constitution, all crude oil and other oil and gas reserves located in the subsoil of Mexico are owned by Mexico and not by us. In August 2014, through the process known as *Ronda Cero* (Round Zero), the Mexican Government granted us the right to extract, but not own, certain petroleum and other oil and has reserves assigned to us in Mexico. The Mexican Government has granted us the right to explore for and exploit petroleum and other oil and gas reserves in areas that have been granted to us in subsequent rounds. Productive state-owned companies and other companies participating in the Mexican oil and gas industry may report assignments or contracts and the corresponding expected benefits for accounting and financial purposes. See "*Information on the Company—History and Development—Legal Regime*" above in this Item 4. Our estimates of hydrocarbons reserves are described under "*—Exploration and Production—Reserves*" above.

GENERAL REGULATORY FRAMEWORK

Petróleos Mexicanos is regulated by the Mexican Constitution, the Petróleos Mexicanos Law and the Hydrocarbons Law, among other regulations. The purpose of the Petróleos Mexicanos Law is to regulate the organization, management, operation, monitoring, evaluation and accountability of Petróleos Mexicanos as a productive state-owned company of the Mexican Government. On October 31, 2014, the Regulations to the Petróleos Mexicanos Law were published in the Official Gazette of the Federation. These regulations were modified on February 9, 2015. The purpose of these regulations is to regulate, among other things, the appointment and removal of the members of the Board of Directors of Petróleos Mexicanos, potential conflicts of interest for Board members, and the evaluation of Petróleos Mexicanos.

The Mexican Government and its ministries regulate our operations in the oil and gas sector. The Ministry of Energy monitors our operations, and the Secretary of Energy acts as the chairperson of the Board of Directors of Petróleos Mexicanos. In addition, the *Ley de los Órganos Reguladores Coordinados en Materia Energética* (Coordinated Energy Regulatory Bodies related to the Energy Matters Law), which took effect on August 12, 2014, establishes mechanisms for the coordination of these entities with the Ministry of Energy and other ministries of the Mexican Government. The National Hydrocarbons Commission has the authority to award and execute contracts for exploration and production in connection with competitive bidding rounds. The CRE has the authority to grant permits for the storage, transportation and distribution of oil, gas, petroleum products and petrochemicals in Mexico, and to regulate the first-hand sale of these products. The regulatory powers of the National Hydrocarbons Commission and the Energy Regulatory Commission extend to all oil and gas companies operating in Mexico, including us and our subsidiary entities.

On December 2, 2014, the Ministry of Energy published in the Official Gazette of the Federation a statement declaring that the new Board of Directors of Petróleos Mexicanos was performing its duties and the mechanisms for our oversight, transparency and accountability had been implemented in accordance with the Petróleos Mexicanos Law. As a result, the special regime that governs Petróleos Mexicanos' activities relating to productive state-owned subsidiaries, affiliates, compensation, assets, administrative liabilities, budget, debt levels and the state dividend became effective. On October 8, 2021, the General Provisions for Contracting with Petróleos Mexicanos and its Productive State-Owned Subsidiaries were published in the Official Gazette of the Federation. These General Provisions regulate the legal process for acquisitions, leases, works and services needed for our projects and require that our suppliers, contractors and other participants with whom we have or intend to have a commercial relationship have compliance programs, or adhere to our *Código de Ética para Petróleos Mexicanos, sus empresas productivas subsidiarias y empresas filiales* (Code of Ethics for Petróleos Mexicanos, its productive subsidiary entities and affiliates, or the Code of Ethics) and our *Código de Conducta de Petróleos Mexicanos, sus empresas productivas subsidiarias y, en su caso, empresas filiales* (Code of Conduct of Petróleos Mexicanos, its productive subsidiary entities and, where applicable, affiliated companies, or the Code of Conduct), which are part of our compliance program, with the signed commitment to implement their own compliance program, as well as having programs or systems for prevention and compliance with the legal provisions and applicable to the development of its operations, activities or services. In addition, a due diligence process is conducted to any third party with whom we intend to enter into and/or continue with a commercial agreement prior to the execution of the agreement.

Following the Petróleos Mexicanos Law, each year the Ministry of Finance and Public Credit provides us with estimated macroeconomic indicators for the following fiscal year, which we are to use to prepare the consolidated annual budget for Petróleos Mexicanos and the subsidiary entities, including our financing program. Upon approval by the Board of Directors of Petróleos Mexicanos, our consolidated budget and financing program is then submitted to the Ministry of Finance and Public Credit, which has the authority to adjust our financial balance goal and the ceiling on our wage and salary expenditures for the fiscal year. The consolidated annual budget and financing program of Petróleos Mexicanos and the subsidiary entities, including any adjustments made by the Ministry of Finance and Public Credit, is then incorporated into the federal budget for approval by the Chamber of Deputies. The Mexican Government is not, however, liable for the financial obligations that we incur. In approving the federal budget, the Chamber of Deputies authorizes our financial balance goal and the ceiling on our wage and salary expenditures for the fiscal year, which it may subsequently adjust at any time by modifying the applicable law.

We are also subject to various domestic and international laws and regulations related to anti-corruption, anti-bribery and anti-money laundering, such as the *Código Penal Federal* (Federal Criminal Code), which criminalizes certain corrupt practices, including bribery, embezzlement and abuse of authority; the *Ley General del Sistema Nacional Anticorrupción* (General Law of the National Anti-Corruption System); the *Ley* de *Fiscalización* y *Rendición de Cuentas de la Federación* (Federal Audit and Accountability Law) and the Ley General de Responsabilidades Administrativas (General Law of

Administrative Liabilities), among others. These laws establish a national anti-corruption system designed to coordinate efforts among the Mexican Government, federal entities, states and municipalities to prevent, investigate and punish corrupt activities and oversee public resources, as well as determine administrative liabilities of public officials and the applicable penalties.

We also employ internal control procedures and guidelines designed to monitor the activities of our employees, including senior management, and to ensure compliance with applicable anti-corruption, anti-bribery and anti-money laundering laws and regulations. The *Lineamientos que regulan el sistema de control interno en Petróleos Mexicanos, sus empresas productivas subsidiarias y empresas filiales* (Guidelines governing the internal control system of Petróleos Mexicanos, its productive subsidiary entities and affiliates) set forth the principles underlying our internal controls system and the procedures necessary for its implementation and monitoring. In addition, the *Lineamientos para regular a los Testigos Sociales en Petróleos Mexicanos y sus empresas productivas subsidiarias* (Guidelines to regulate public witnesses in Petróleos Mexicanos and its productive subsidiary entities), delineates how public witnesses may function as third-party observers in connection with our procurement procedures. These internal controls and guidelines apply to Petróleos Mexicanos and the subsidiary entities. For a description of the risks relating to anti-corruption, anti-bribery and anti-money laundering laws and regulations, see "Item 3—Key Information—Risk Factors—Risk Factors Related to our Operations—We are subject to Mexican and international anti-corruption,anti-bribery, anti-money laundering laws. Our failure to comply with these laws could result in penalties, which could harm our reputation, prevent us from obtaining governmental authorizations needed to carry out our operations and have an adverse effect on our business, results of operations and financial condition."

In November 2019, the Board of Directors of Petróleos Mexicanos authorized our compliance program "Pemex Complies". As part of this program, we implemented a compliance hub with different lines of attention: ethics and integrity, anticorruption and due diligence, legal compliance, and data protection and transparency.

The program aims to strengthen our compliance culture and prevent financial and legal risks with respect to national anti-corruption strategy and national and international laws, international treaties, specific regulations for the oil and gas sector, economic competition and internal policies.

On November 11, 2019, our Code of Conduct, was published in the Official Gazette of the Federation, replacing the code of conduct issued on August 28, 2017. Our Code of Conduct delineates behaviors expected of and banned for our executives officers and employees, in accordance with the values established in our Code of Ethics, and includes data protection and transparency related matters. See "*Item 16B—Code of Ethics*" for more information regarding our code of ethics.

Our Code of Ethics was approved by the Board of the Directors of Petróleos Mexicanos on November 26, 2019 and published in the Official Gazette of the Federation on December 24, 2019. Our Code of Ethics includes the following principles and values: respect, non-discrimination, honesty, loyalty, responsibility, legality, impartiality and integrity. See "*Item 16B—Code of Ethics*" for more information regarding our Code of Ethics.

On July 21, 2021, the *Políticas y Lineamientos Anticorrupción para Petróleos Mexicanos, sus empresas productivas subsidiarias y, en su caso, Empresas Filiales* (Anti-corruption Policies and Guidelines for Petróleos Mexicanos, its productive subsidiary entities and, where applicable, affiliated companies) and the *Políticas y Lineamientos para el desarrollo de la Debida Diligencia en Petróleos Mexicanos, sus empresas productivas subsidiarias y, en su caso, Empresas Filiales, en Materia de Ética e Integridad Corporativa* (Policies and Guidelines to carry out Due Diligence in Petróleos Mexicanos, its productive subsidiary entities and, where applicable, affiliated companies, in Ethics and Corporate Integrity Matters) were updated and published in the Official Gazette of the Federation. The purpose of these regulations is to set up actions to prevent acts of corruption, as well as provide means for executives' officers and employees to identify, manage, and mitigate corruption risks that may affect the attainment of our objectives or our involvement in illicit acts of any kind.

On June 15, 2020 and January 1, 2021, the *Políticas y Lineamientos para la Protección de Datos Personales en Petróleos Mexicanos, sus empresas productivas subsidiarias y, en su caso, Empresas Filiales* (Data Privacy Protection Policies and Guidelines for Petróleos Mexicanos, its productive subsidiary entities and, where applicable, affiliated companies) and the *Políticas y Lineamientos para el Cumplimiento de Obligaciones de Transparencia y Acceso a la Información Pública en Petróleos Mexicanos, sus empresas productivas subsidiarias y, en su caso, Empresas Filiales* (Policies and Guidelines to comply Transparency and Public Access Information duties in Petróleos Mexicanos, its productive subsidiary entities and, where applicable, affiliated companies) became effective, respectively. These

regulations aim to create a framework for data privacy protection and promote transparency and public access in respect of our operations.

As an issuer of debt securities that are registered under the Securities Act and in connection with certain representations and covenants included in our financing agreements, we must comply with the U.S. Foreign Corrupt Practices Act, or the FCPA. The FCPA generally prohibits companies and anyone acting on their behalf from offering or making improper payments or providing benefits to government officials to obtain or keep business. In addition, we are subject to other international laws and regulations related to anti-corruption,anti-bribery and anti-money laundering, including the U.K. Bribery Act 2010, which prohibits the solicitation of, the agreement to receive and the acceptance of bribes.

ENVIRONMENTAL REGULATION

Legal Framework

We are subject to various environmental laws and regulations associated with atmospheric emissions, water usage and wastewater discharge, as well as waste management and care for affected sites. In particular, we are subject to the provisions of the *Ley General del Equilibrio Ecológico y la Protección al Ambiente* (General Law on Ecological Equilibrium and Environmental Protection, which we refer to as the Environmental Law) and related regulations, the *Ley General para la Prevención y Gestión Integral de los Residuos* (General Law on Waste Prevention and Integral Management), the *Ley General de Cambio Climático* (General Law on Climate Change) and other environmental standards issued by the *Secretaría del Medio Ambiente y Recursos Naturales* (Ministry of the Environment and Natural Resources, or "SEMARNAT"), the *Comisión Nacional del Agua* (National Water Commission, or "CONAGUA"), the Mexican Navy, the Mexican Hydrocarbons Commission and the ASEA, as well as the latest update of NOM-001-SEMARNAT-2021, which establishes the permissible limits of pollutants in wastewater discharges into receiving water bodies.

In April 1997, SEMARNAT issued regulations governing the procedures for obtaining an environmental license, under which new industrial facilities can comply with all applicable environmental requirements through a single administrative procedure. Each environmental license integrates all of the different permits, licenses and authorizations related to environmental matters for a particular facility. Since these regulations went into effect, we have been required to obtain an environmental license for any new facility, in addition to environmental impact and risk authorizations required by SEMARNAT.

ASEA is a decentralized administrative body of SEMARNAT that operates with technical and administrative autonomy and has the authority to regulate and supervise companies participating in the hydrocarbon sector through its issuance of rules establishing safety standards and guidelines for the dismantling and abandonment of facilities, among other things. The *Ley de la Agencia Nacional de Seguridad Industrial y de Protección al Medio Ambiente del Sector Hidrocarburos* (Law of the Hydrocarbons Industrial Safety and Environmental Protection Agency of the Hydrocarbon Sector) provides that until the general administrative provisions and Official Mexican Standards proposed by the ASEA are in effect, obligations will continue under the guidelines, technical and administrative arrangements, agreements and Official Mexican Standards promulgated by SEMARNAT, the National Hydrocarbons Commission and the Energy Regulatory Commission.

Federal and state authorities are authorized to inspect any facility to determine its compliance with the Environmental Law, state environmental laws, regulations and technical official standards, as well as administrative provisions established by the ASEA in environmental matters. Violations or non-compliance with environmental standards and regulations may result in substantial fines, temporary or permanent shutdown of a facility, required capital expenditures to minimize the effect of our operations on the environment, cleanup of contaminated soil and water, cancellation of a concession or revocation of an authorization to carry out certain activities and, in certain cases, criminal proceedings. See "*Item 3—Key Information—Risk Factors—Risk Factors Related to Our Operations—Our compliance with environmental regulations in Mexico could result in material adverse effects on our results of operations*."

Mexico participates in multilateral negotiations on climate change to promote a sustainable and low-carbon economy. In September 2016, the Mexican Government ratified the Paris Agreement and endorsed its Nationally Determined Contribution (NDC) by unconditionally committing Mexico to the reduction of 22.0% of its greenhouse gas emissions and 51.0% of its black carbon emissions (a short-lived climate pollutant) with respect to its 2013 baseline projected to 2030. This commitment may also be increased by an additional reduction of up to 36.0% of Mexico's greenhouse gas emissions and 70.0% of its black carbon emissions, on a conditional basis, subject to international

financing, innovation and technology transfer, and if other countries, mainly major emitters, make efforts commensurate with the more ambitious targets of the Paris Agreement.

In order to achieve the goals committed in Mexico's NDC commitment, the participation of all social and economic segments of the country is implicated, especially the energy and industrial sectors. As a result, in July 2018, the second transitory article of the General Law on Climate Change was amended to include the commitments made by the government. Pursuant to the General Law on Climate Change, greenhouse gas emissions from the oil and gas sector are required to decrease by 14.0% by the year 2030, as compared to the sector's baseline from 2013. In 2022, Mexico renewed its unconditional commitment, increasing its Greenhouse Gas ("GHG") emissions reduction from 22.0% to 35.0%, and may increase its 2030 target by up to 40.0% GHG reduction subject to further global agreements. To date, the commitment to reduce GHG emissions from the oil and gas sector by 14.0% established in the General Law on Climate Change has been maintained.

Additionally, Article 94 of the General Law on Climate Change was supplemented to indicate that SEMARNAT must gradually and progressively establish a national emissions trading system, designed to promote the reduction of emissions at the lowest possible cost. Pursuant to this law, the reduction of emissions must be measurable, reportable and verifiable. In order to ease the transition for system participants, the *Programa de Prueba del Sistema de Comercio de Emisiones* (Pilot Program for the Emissions Trading System) operated from 2020 to 2022. To facilitate the transition, during the years 2020 to 2022, the Pilot Program for the Emissions Trading System was in operation, a phase during which we evaluated and actively participated in initiatives to reduce our emissions, taking into consideration the additional benefit that its implementation will have once emissions caps are defined for each participant.

In Mexico, regulations are generally reviewed every five years, and we work with the Mexican Government to update and develop new environmental regulations of activities related to the hydrocarbon industry through the National Consultative Committee for Environmental and Natural Resources Standardization.

Climate Change

We are working to develop and implement a series of projects and initiatives to advance the fulfillment of our emissions goals for our main productive activities. In 2022, our operations generated 69.8 million tons of carbon dioxide equivalent, which represented a reduction of 1.8%, as compared to our total carbon dioxide equivalent emissions in 2021. The main cause of this reduction was the greater use of associated gas and non-associated gas in the exploration and production processes, due to the initiation of hydrocarbon transportation projects and operational flexibility which involves the availability of equipment replacements, as well as the productive improvements implemented for our gas refining and process infrastructure. The values reported for 2021 were updated as a result of our inventory verification exercise, reporting a total of 71.1 million tons of carbon dioxide equivalent for 2021.

In 2022, considering the relevance of climate change and our commitment to this issue, we took the following actions and made the following investments in this area, which we intend will have an impact on our emissions mitigation, resilience and capacity to adapt:

- The refurbishment of natural gas sweetening and alkylation plants and sulfur recovery units at Pemex Industrial Transformation.
- The implementation of the strategy for the management and use of gas by Pemex Exploration and Production, which included the closure of wells with high gas and oil ratios, reestablishment of boosters, overhaul of compressors, development of surface infrastructure for the management of production and operational flexibility for the development of new and existing fields.
- The maintenance and rehabilitation of compressors at the Gas Processing Centers, which we expect will, in time, increase the use of natural gas for production purposes and reduce rejections in Pemex Exploration and Production's processes.
- Advancements in compliance with the *Programas de Prevención y Control de Emisiones de Metano* (Methane Emission Prevention and Control Programs) in our facilities.
- The verification of GHG emissions inventories at work centers participating in the Emissions Trading System Test Program and the National Emissions Registry Regulations.

- The work centers participating in the Emissions Trading System Test Program exercised their allowances rights corresponding to the second year of operations of the Pilot Phase and implemented controls to monitor their processes that generate the highest generation of GHG emissions.
- The Advisory Committee of the Emissions Trading System, of which Pemex is part, generated proposals applicable to the operational phase of the System.
- Regarding the progress of the climate risk analysis of the pipeline transportation system in the Fortín-Maltrata, Veracruz section, face-to face workshops were held at the facilities of the Mendoza Pipeline Sector for the identification, prioritization, monitoring and evaluation of adaptation measures to climate change.
- Preparation and diffusion within the company of the technical guide to prepare terrestrial analysis of our climate risk.

Biodiversity

During 2022, we continued operating the Jaguaroundi Ecological Park, located in Coatzacoalcos, Veracruz. This park is certified as an *Área Destinada Voluntariamente a la Conservación* (Voluntary Area for Conversation). This park is the first Voluntary Area for Conservation and has an extension of 960 hectares of rain forest, natural grassland, tropical oak and 57 hectares of water bodies that are registered with the *Comisión Nacional de Áreas Naturales Protegidas* (National Commission for Protected Natural Areas). The park is open to the public and environmental education activities are carried out for nearby communities, schools and industries.

We also maintain the Tuzandépetl Ecological Park, located in the Municipality of Ixhuatlán del Sureste, Veracruz. With an area of 1,104 hectares, the Tuzandépetl Ecological Park is also certified as a Voluntary Area for Conservation. Interesting and rich extensions of mangrove, popal and tular are found here. This wetland of about 600 hectares is important for its role as a flood regulator in the area and as a receiver of migratory birds in the winter. The property also has important groves of corozo palms, yucatecan palms and evergreen rainforest. Troops of howler monkeys and spider monkeys live in the park, which are the only two Mexican primates considered as fauna in protected status under the NOM-059-SEMARNAT-2018. The conservation value of Tuzandépetl Ecological Park lies in the fact that is located in one of the states with the greatest change in land use that preserves only 3.0% of its native vegetation. By keeping these wet land and rain forest remnants in a good state of conservation, it allows the community and Pemex to enjoy the environmental services that nature provides, such as a favorable habitat for pollinators or the capture of water and carbon dioxide.

HEALTH, SAFETY AND ENVIRONMENTAL PERFORMANCE

We believe that we are in substantial compliance with current federal and state environmental laws and that we maintain an organizational structure designed to identify and solve environmental risks. In addition, our subsidiary entities have specialized departments that implement their own internal environmental programs, audits and facilities inspections. When these internal audits reveal problems or deficiencies, the subsidiary entities take the necessary measures to eliminate them.

Since 1993, we have participated in the National Environmental Audit Program ("NEAP"), a voluntary alternative to the traditional system of inspections and penalties. This program was created by *Procuraduría Federal de Protección al Ambiente* ("PROFEPA") in 1992 as a regulatory incentive for companies to voluntarily correct any environmental irregularities in their operations and is now carried out instead by ASEA for the hydrocarbons sector.

In general terms, voluntary environmental auditing consists of three stages: (i) an audit and compliance diagnosis; (ii) the development of an action plan to correct irregularities; and (iii) the implementation of the action plan. If a company satisfactorily completes these three stages, ASEA or PROFEPA grants the audited company a clean industry certificate or an environmental quality certificate, indicating our compliance with the applicable environmental legislation for its industry.

As of December 31, 2022, we have registered seven of our facilities with NEAP with the objective of obtaining a “environmental quality” certificate for each facility. During 2022, four of our facilities were re-certified and one of our facilities were certified for the first time. Two more facilities are currently in the process of obtaining certification. In recent years, for industrial facilities, the authority has privileged the verification of compliance with the Industrial Safety, Operational Safety and Environmental Protection Administration System (SASISOPA), therefore, with respect to the NEAP, we have the commitment to maintain environmental quality certificates in non-industrial facilities.

As part of our accident prevention strategy, we conduct root cause investigations of all incidents that occur during our operations. These investigations are carried out by multidisciplinary groups to identify the causes, establish corrective measures and follow up until 100% implementation, both in the workplace where the accident occurred and in similar facilities. Despite these efforts, we continue to experience hazardous events at our facilities.

During 2022, we experienced the following eight hazardous events at our facilities:

- On March 3, 2022, a contractor lost his life due to an electric shock on Line 1128.
- On July 8, 2022, a contractor lost his life performing drilling work when he got trapped by a cable on the Quesqui 5 well.
- On July 29, 2022, a contractor lost his life due to fire recorded at the Madero Refinery, caused by an atmospheric electrical discharge.
- On August 20, 2022, a contractor lost his life and another contractor was injured performing drilling work he got hit in the Arroyo Prieto 20 well at the Cinco Presidentes Production Asset.
- On November 24, 2022, a contractor lost his life and one contractor was injured due to crane falling into the sea at the West Courageous Platform.
- On November 25, 2022, two contractors lost their lives when they fell into a well cel pit at Macropera Madrefil 41, in the Bellota Jujo Production Asset.
- On December 21, 2022,a contractor lost his life due to a fire explosion in the 16” polyduct in the pipeline Catalina sector.
- On December 29, 2022, a contractor lost his life and one contractor was injured due to a leak in the acid gas vent head at the Bitter Waters Plant, at the Cadereyta Refinery.

In 2022, our lost time injury frequency rate increased 40.0%, going from 0.35 to 0.49 accidents per million man-hours worked with exposure to risk, from 2021 to 2022. Pemex Industrial Transformation had the highest lost time injury rates during the year. Our lost days indicator due to injuries increased 45.0%, from 20 to 29 lost days per million man-hours worked with risk exposure from 2021 to 2022. Lost days are those missed as a result of incapacitating injuries suffered at work or those for which compensation is paid for death. For 2021 and 2022, the lost time injury frequency rate of contractor personnel accidents decreased by 25%, going from 0.16 to 0.12 accidents per million man-hours worked with exposure to risk.

In 2022, our primary initiatives in industrial safety, health and environmental protection ("EH&S") included the following:

- Publication of the 2021 sustainability report based on the oil and gas industry guidance on voluntary sustainability reporting of IPIECA/API/IOGP and verified by KPMG Cárdenas Dosal, S.C.
- Update of Pemex's environmental risk inventory, with a total of 225 risks, for an estimated amount of 9,005 million pesos. During 2022, we began attending 36 environmental risks designated as priority 1.
- The issuance of 10 environmental issues technical reports of work centers selected by the CEO's Technical Team.
- Completed 11 audits of the environmental management subsystem and carried out compliance verifications as part of the corrective and preventive action programs in order to address the findings identified during the audits.
- Update of the environmental modules which are part of the environmental information system (SISPA) to provide support in the preparation of the company's environmental and energy information reports.
- Preparation and registration in the online course on the ISO 14001 Environmental Management System 2015 version to strengthen the environmental competence and awareness of Pemex's employees.
- Preparation of a climate risk analysis and a technical guide for the dissemination of environmental, energy and climate change adaptation events.
- Follow up on the A1 critical risk attention program for 2022, the level of attention was the following: 48.76% of the risks that were authorized by the Pemex Risk Committee for facilities of our subsidiaries and 42.00% of the risks of the National Refining System have been addressed.

- Evaluation of the action plan associated with improvements in safe execution and supervision with zero risk tolerance at Pemex Exploration and Production, Pemex Logistics, Pemex Industrial Transformation and Pemex Corporate. Additionally, the first stage of the zero tolerance reinforcement program began, with meetings on traceability and quality of information related to injuries caused by work accidents and process safety events to develop actions that allow will us to revert our current trends.
- Within the program of compliance evaluation with the official Mexican standard NOM-020-STPS-2011, "Containers subject to pressure, cryogenic containers and steam generators or boilers - Operation - Safety conditions", 318 technical reports were issued during the year 2022.
- Issuance of technical and regulatory reports on industrial safety of the facilities of our subsidiaries and filiates, determined by our general management.
- Supervision of actions to mitigate type A industrial risks, which affect the safety and continuity of our subsidiaries and filiates operations, validated by the Pemex Risk Committee.
- Monitor and evaluation for the attention of recommendations derived from: root cause analysis, insurance companies and government agencies (Ministry of Labor and ASEA).
- Audits to assess comprehensive performance in risk management.
- Conduction of the root cause analysis of relevant events.

We expect to carry out the following activities during 2023, which are intended to reverse the trend of our accident rates:

1. Identify, prevent and mitigate the risks inherent in the operational and support processes for the value chain through the deployment of first, second and third party audit programs in safety and health at work.
2. Prevent, identify, evaluate and control the health risks to which workers are exposed, including by strengthening preventive measures and updating the atlas of health risks to safeguard the integrity of workers.
3. Establish and implement accident prevention and risk reduction programs in work centers with low performance in industrial safety and occupational health. The work centers with the lowest performance will be selected quarterly to establish particular programs that allows us to implement preventive measures to reverse the trend of accidents.
4. Change system management of the Pemex SSPA System: During this year, we intend to launch the new version of the Pemex SSPA System, which includes tools aligned with the best international practices that will contribute to the optimal development of activities in the work centers, strengthening the planning and execution process.
5. Reinforce the culture of industrial safety and health at work, including by implementing accountability mechanisms at a strategic, tactical and operational level that allows us to take the necessary measures to prevent injuries and industrial accidents, as well as the reduction of health risks at work.

Environmental Liabilities

As of December 31, 2022, our estimated and accrued environmental liabilities totaled Ps. 11,914.2 million. Of this total, Ps.3,478.1 million pertained to Pemex Exploration and Production, Ps.3,950.3 million to Pemex Industrial Transformation and Ps. 3,151.6 million to Pemex Logistics and Ps. 1,334.2 million to Deer Park.

The following tables detail our environmental liabilities by productive subsidiary entity and operating region at December 31, 2022.

Pemex Exploration and Production	Estimated Affected Area	Estimated Liability
	(in hectares)	(in millions of pesos)
Northern region	411.8	Ps. 1,544.9
Southern region	452.8	1,824.1
Total	864.6	Ps. 3,369.0

Note: Numbers may not total due to rounding.

Source: Pemex Exploration and Production.

	Holding Ponds Drainage	
	Number of Holding Ponds Reported as Liabilities	Estimated Liability
		(in millions of pesos)
Southern region	8	Ps. 74.9
Northern region	24	34.2
Total	32	Ps. 109.1
Total estimated environmental liabilities of Pemex Exploration and Production		**Ps. 3,478.1**

Note: Numbers may not total due to rounding.

Source: Pemex Exploration and Production.

Pemex Industrial Transformation	Estimated Affected Area	Estimated Liability
	(in hectares)	(in millions of pesos)
Refineries	235.5	Ps. 3,823.0
Complex gas processors	6.0	127.3
Total estimated environmental liabilities of Pemex Industrial Transformation	**241.5**	**Ps. 3,950.3**

Note: Numbers may not total due to rounding

Source: Pemex Industrial Transformation.

Pemex Logistics	Estimated Affected Area	Estimated Liability
	(in hectares)	(in millions of pesos)
Storage and Distribution Terminals	61.0	Ps. 1,140.3
Pipelines	64.9	1,381.4
Treatment and Logistics	110.1	629.9
Total estimated environmental liabilities of Pemex Logistics	**236.0**	**Ps. 3,151.6**

Note: Numbers may not total due to rounding.

Source: Pemex Logistics.

Deer Park´s environmental obligations for Ps. 1,334.2 million relating to its renewable fuels obligations in the United States of America, see Note 3-T to our consolidated financial statements included herein.

Our estimates of environmental liabilities include cost estimates based on the characteristics of the claim and the corresponding remediation. Our environmental liabilities also include the elimination of holding ponds created by abandoned petroleum wells. We accrue environmental liabilities, in accordance with IAS 37 “Provisions, Contingent Liabilities and Contingent Assets” for IFRS purposes. Estimated liabilities include assumptions resulting from an initial evaluation of damage, including land acreage to be remediated, depth and type of contamination. There is a possibility that the actual scope of remediation could vary depending upon information gathered during the initial evaluation and the remediation process. For a further discussion of our environmental liabilities, see Note 3-J and Note 20 to our consolidated financial statements included herein.

Unasserted or additional claims are not reflected in our identified liabilities. As of December 31, 2022, we were not aware of uncertainties with respect to joint and several liabilities that could affect our assessment of environmental contingencies or otherwise result in a major environmental liability. As a result, we believe we are positioned to know immediately of any claims and are therefore directly accountable for any claims that may be brought against us.

Pemex Exploration and Production remains responsible for handling existing environmental liabilities—these responsibilities are not part of the Integrated E&P Contracts. Nevertheless, the Integrated E&P Contracts include environmental clauses related to the contractors' and Pemex Exploration and Production's responsibility to ensure an adequate environmental performance, and also establish the terms for compensation and repair of any new environmental impacts.

The initial evaluation and remediation of environmental liability sites are dependent upon the annual budget approved by the Mexican Congress.

On August 1, 2017, we were granted a favorable judgment by the Supreme Court of Justice of the Nation, which determined that we are not liable for material and environmental damages caused by hydrocarbons spills related to illegal tapping of pipelines, since the environmental damage was caused by third party criminal behavior.

Environmental Projects and Expenditures

In 2022, we spent Ps. 1,607.2 million on environmental projects and related expenditures, as compared to Ps. 1,057.4 million in 2021. For 2023, we have budgeted Ps. 2,581.1 million for environmental projects and expenditures, including integrated management of hazardous and non-hazardous waste, connate and residual water treatment, environmental risks management, soil sanitation and restoration, ecological protection services, engaging in environmental investigations, air quality monitoring, greenhouse gas emissions reports, preventive maintenance of environmental protection equipment and acquisitions of equipment to address contingencies related to oil and gas spills.

We believe that the cost of complying with environmental laws or environmental requirements related to the USMCA among the governments of Mexico, the United States and Canada, the Vienna Convention for the Protection of the Ozone Layer, the Agreement on Environmental Cooperation between the Governments of Mexico and Canada or Mexico's membership in the Organization for Economic Cooperation and Development, could cause a significant increase in our environmental expenditures.

Social Responsibility

We understand social responsibility as the commitment we have with the communities where we carry out our hydrocarbon production, transformation and logistics activities. In compliance with the laws and regulations, we strive to build good community relationships based on trust, transparency and respect to the forms of coexistence of the communities. Through this and some other actions, we seek to give back to the communities, by generating shared benefits with stakeholders that favor our operational continuity and the generation of value.

During 2022, we implemented and continued various corporate social responsibility initiatives in communities where we carried out substantial activities to our value chain.

Our corporate and social responsibility goals are carried out through the following mechanisms:

- product donations of fuels and asphalt;
- the *Programa de Apoyo a la Comunidad y Medio Ambiente* (Program to Support Communities and the Environment, which we refer to as PACMA), which supports and implements social programs, actions and public works designed to improve the social conditions of the communities in which we operate;
- other instruments that provide a positive impact on communities such as Integrated E&P Contracts, through which we and our contractors commit to improving the quality of life in communities where we operate directly or indirectly; and
- mutually beneficial public works or projects, which we carry out in collaboration with local authorities and communities to improve infrastructure that is beneficial both to us and to the community.

In 2022, the total value of our social responsibility donations and contributions amounted to Ps. 2,244.1 million. Our asphalt and fuel donations amounted to Ps. 1,400.8 million. PACMA contributions amounted to Ps. 776.3 million, contributions made through provisions of our Integrated E&P Contracts amounted to Ps. 11.5 million and mutual benefit project contributions amounted to Ps. 55.5 million.

Approximately 92.8% of our donations and contributions were assigned to nine states with greater activity in the oil and gas industry (Campeche, Guanajuato, Hidalgo, Nuevo León, Oaxaca, Puebla, Tabasco, Tamaulipas and Veracruz); and the remaining 7.2% to the remaining states.

Notably, we took the following specific actions in 2022:

- contributed Ps. 1,400.8 million in asphalt and fuel donations. Of our 2022 asphalt and fuel donations, 64.8% was concentrated in the states of Campeche, Tabasco and Veracruz;
- made several social responsibility actions under our PACMA program. Approximately 48.7% of these actions were allocated to Tabasco, approximately 18.3% to Campeche and approximately 14.5% to Veracruz. The remainder, or approximately 18.5%, was allocated to Chiapas, Guanajuato, Hidalgo, Nuevo León, Oaxaca, Puebla and Tamaulipas.
- carried out 11 projects related to Integrated E&P Contracts in the states of Veracruz and Tamaulipas for a total amount of Ps. 11.5 million. We contributed Ps. 3.7 million in Veracruz and Ps. 7.8 million in Tamaulipas. These projects were mainly education, sports, health and environmental protection projects; and
- contributed a total of Ps. 55.5 million via one mutual benefit project, which was directed towards the state of Chiapas and Tabasco. This project was for infrastructure, such as the paving of roads.

In sum, we contributed Ps. 843.3 million through programs, works and/or actions as follows: Ps. 262.0 million to infrastructure, Ps. 232.4 million to health, Ps. 151.5 million to public safety and civil, Ps. 102.4 million to environmental protection, Ps. 61.6 million to education and sports and Ps. 33.4 million to productive projects.

TRADE REGULATION, EXPORT AGREEMENTS AND PRODUCTION AGREEMENTS Mexico is not a member of OPEC, it has periodically announced increases and decreases in our crude oil exports reflecting production revisions made by other oil producing countries and entered into agreements with OPEC and non-OPEC members to reduce its oil exports, in order to contribute to crude oil prices stabilization.

On April 12, 2020, Mexico entered into an agreement with OPEC and non-OPEC countries to reduce world crude oil production. Pursuant to this agreement, the OPEC+ countries agreed to reduce their overall crude oil production by 9.7 million barrels per day from May 1, 2020 through June 30, 2020, by 7.7 million barrels per day from July 1, 2020 through December 31, 2020 and by 5.8 million barrels per day from January 1, 2021 through April 30, 2022. In particular, Mexico agreed to reduce its, and in turn our, crude oil production by 100,000 barrels per day for a period of two months beginning on May 1, 2020. This agreement was intended to help mitigate the decrease in oil prices and demand that has taken place as a result of the COVID-19 pandemic. Mexico has not agreed to additional production cuts since the April 12, 2020 agreement.

On July 1, 2020, the USMCA entered into force, replacing NAFTA. The USMCA has not affected Mexico's rights, through PEMEX or other companies, to explore and exploit crude oil and natural gas in Mexico, to refine and process crude oil and natural gas and to produce petrochemicals in Mexico. The USMCA continues the zero-tariff rate on the export of petrochemical products from Mexico to the United States that existed under NAFTA. However, any change in trade relations between Mexico, the United States and Canada as a result of the implementation of the USMCA could require us to renegotiate our contracts, limit our ability to explore and exploit crude oil or natural gas in Mexico, increase the tariff rate and/or lose business, resulting in an adverse impact on our business and the results of our operations. See "*Item 3—Key Information—Risk Factors—Risk Factors Related to Mexico—Economic and political developments in the United States may adversely affect Mexican economic policy and, in turn, our operations*."

TAXES, DUTIES AND OTHER PAYMENTS TO THE MEXICAN GOVERNMENT

General

Taxes and duties applicable to us are a significant source of revenues to the Mexican Government. We contributed approximately 6.6% of the Mexican Government's revenues in 2021 and 8.2% in 2022. In 2022, we paid a number of special oil and gas taxes and duties, in addition to the other taxes and duties paid by some of the subsidiary companies, as described below under "—Other Taxes." The fiscal regime in effect for Petróleos Mexicanos and the subsidiary entities for 2022 (which we refer to as the fiscal regime) became effective in 2015 and can be subsequently modified from time to time. The implementing legislation published in August 2014 set forth a fiscal regime applicable to the new contractual arrangements that governs exploration and production activities conducted in Mexico beginning on January 1, 2015, as well as a state dividend to be paid by Petróleos Mexicanos and the subsidiary entities beginning on January 1, 2016. For more information, see Note 21 to our consolidated financial statements included herein.

Fiscal Regime for PEMEX

For a description of the taxes and duties to which we are subject, see Note 21 to our consolidated financial statements included herein.

Other Payments to the Mexican Government

Pursuant to the Petróleos Mexicanos Law, as of January 1, 2016, Petróleos Mexicanos and the subsidiary entities are required to pay a state dividend to the Mexican Government on an annual basis. In July of each year, Petróleos Mexicanos and the subsidiary entities are required to provide the Ministry of Finance and Public Credit a report disclosing their financial results for the previous fiscal year and their investment and financing plans for the following five years, together with an analysis of the profitability of these investments and the relevant projections of their financial positions. The Ministry of Finance and Public Credit will rely on this report and a favorable opinion issued by a technical committee of the Mexican Petroleum Fund for Stabilization and Development to determine the amount of the state dividend to be paid by Petróleos Mexicanos and each of the subsidiary entities. The Petróleos Mexicanos Law provides that the aggregate amount of the state dividend to be paid in 2016 was to be equal to, at minimum, 30.0% of the total revenues of Petróleos Mexicanos and the subsidiary entities, after taxes, from the previous fiscal year. It further provides that this percentage will decrease in subsequent years, until reaching 15% in 2021 and 0% in 2026. In accordance with the Federal Revenue Law for 2020, 2021 and 2022, Petróleos Mexicanos was not required to pay a state dividend in 2020, 2021 and 2022. In addition, we will not be required to pay a state dividend in 2023.

Other Taxes

Since 1994, our interest payments on our external debt have been subject to Mexican Government withholding taxes. Nevertheless, withholding taxes do not represent a substantial portion of our total tax liability.

We are subject to municipal and state taxes, such as real property and payroll taxes. However, because most of our facilities are located on federal property, which is not subject to municipal taxation, real property taxes are not a significant part of our overall taxes. Similarly, payroll taxes do not represent a substantial portion of our total tax liability.

In addition, we have a number of non-Mexican subsidiary companies that may be subject to taxation in the jurisdiction of their incorporation or operations. The aggregate accrued income taxes related to the subsidiary companies were Ps. 2,298.8 million in 2020, Ps. 1,413.4 million in 2021 and Ps. 3,334.1 million in 2022.

No assurance can be given that our tax regime will not change in the future. See "*Item 3—Key Information—Risk Factors—Risk Factors Related to our Relationship with the Mexican Government—We pay significant taxes and duties to the Mexican Government, and, if certain conditions are met,* we *may be required to pay a state dividend, which may limit our capacity to expand our investment program or negatively impact our financial condition generally*."

Item 4A. Unresolved Staff Comments

Not applicable.

Item 5. Operating and Financial Review and Prospects

General

We earn income from:

- export sales, which consist of sales of crude oil and condensates, petroleum products and petrochemical products;
- domestic sales, which consist of sales of natural gas, petroleum products (such as gasoline, diesel fuel and LPG) and petrochemical products;
- the incentive for automotive fuels, through which we can recover from the Mexican Government the difference between the international reference price of gasoline and the price at which the gasoline is traded in the domestic market; and
- other sources, including financial and investment income and insurance revenue.

Our operating expenses include:

- cost of sales, including the cost of purchases of imported petroleum and other products, depreciation and amortization, salaries, wages and benefits, a portion of the net cost of employee benefits for the period, the variation of inventories, maintenance, and exploration and unsuccessful drilling expenses;
- transportation and distribution expenses (including a portion of the net cost of employee benefits for the period); and
- administrative expenses (including a portion of the net cost of employee benefits for the period).

Our income is affected by a number of factors, including:

- changes in international prices of crude oil, petroleum products and petrochemical products, which are denominated in U.S. dollars, and domestic prices of petroleum products, which are denominated in pesos;
- the type and volume of crude oil produced and exported;
- the type and volume of natural gas produced, processed and sold domestically and internationally;
- the results of development and exploration activities;
- the amount of taxes, duties and other payments that we are required to make to the Mexican Government;
- fluctuations in the peso-U.S. dollar exchange rate; and
- Mexican and global economic conditions, including the levels of international interest rates.

Overview

In 2022, we continued to experience significant operational challenges despite marginal increases in our proved hydrocarbon reserves and production. Notwithstanding these challenges, we remained focused on stabilizing our operations and strengthening our financial position, and we benefited from an increase in oil prices, the appreciation of the peso against the U.S. dollar and capital equity contributions received from the Mexican Government. A combination of these factors including, in particular, the contributions from the Mexican Government, allowed us to reduce our outstanding debt. However, oil prices remained volatile as a result of the destabilization of international energy markets, inflationary concerns and increased uncertainty regarding global economic activity. In 2022, the weighted average Mexican crude oil export price increased to U.S. $89.35 per barrel from U.S. $65.78 per barrel in 2021. In addition, our total crude oil and condensates production in 2022 amounted to 1,764 thousand barrels per day, below our target of 1,853 thousand barrels per day.

Going Concern

Our consolidated financial statements as of December 31, 2022 and 2021 have been prepared on a going concern basis, which assumes that we can meet our payment obligations and our operating continuity. We discuss below, and in

Notes 2-C and 22-F to our consolidated financial statements, the circumstances that have caused these negative trends and the concrete actions we are taking to improve our results, strengthen our ability to continue operating and achieve revenue maximization and efficiencies. We continue operating as a going concern, and our consolidated financial statements do not contain any adjustments that might result from the outcome of this uncertainty.

We have substantial debt, including substantial short-term debt, which we have incurred primarily to fund our operating expenses and finance capital investment projects. Due to our heavy fiscal burden resulting from the payment of hydrocarbons extraction duties and other taxes that we are required to pay the Mexican Government, the cash flow derived from our operations in recent years has not been sufficient to fund our operations and capital expenditure programs. As a result, our indebtedness has increased significantly and we had a negative working capital for the years ended December 31, 2022 and 2021 and the Mexican Government has had to financially support us.

Although we recognized a net income of Ps. 100.0 billion in 2022, during 2021 and 2020 we recognized net losses of Ps. (294.8) billion and Ps. (509.1) billion, respectively. In addition, as of December 31, 2022 and 2021, we had a negative equity of Ps. 1,768.8 billion, and Ps. 2,170.0 billion, respectively, mainly due to continuous net losses prior to 2022. In addition, we had a negative working capital of Ps. 401.8 billion and Ps. 464.3 billion, as of December 31, 2022 and 2021, respectively. See "*Item 3—Risk Factors—Risk Factors Related to Our Operations—We have a substantial amount of indebtedness and other liabilities and are exposed to significant liquidity constraints, which could make it difficult for us to obtain financing on favorable terms and could adversely affect our financial condition, results of operations and ability to repay our debt and, ultimately, our ability to operate as a going concern without additional support from the Mexican Government, which we may not receive*" for more information.

Our future cash flows, including the ability to refinance debt, are uncertain due to the circumstances outside our control. A sustained decrease in crude oil prices below the budget average price for 2023, an economic slowdown or an increase in the cost of financing would have an adverse impact on our results of operation and cash flows and may require us to consider additional actions to address these shortfalls.

In 2021 and 2022, certain ratings agencies downgraded our credit rating, mainly driven by the effects of COVID-19, as well the volatility of the crude oil prices and the downgrade of the Mexican Government's sovereign debt rating, impacting our access to the financial markets, the financial cost and terms of our new debt and contract renegotiations that we engaged during 2022 and 2023. These conditions have negatively impacted our financial performance and liquidity position.

We have budget autonomy, and, in public finance terms, are subject to the cash flows financial balance goals approved in the *Decreto de Presupuesto de Egresos de la Federación* ("Federal Expenditure Budget Decree"). This represents the difference between our gross revenues (inflows) and our total budgeted expenditures (outflows) including the financial cost of our debt, which is proposed by the *Secretaría de Hacienda y Crédito Público ("SHCP")* and approved by the Mexican Congress. The Federal Budget for 2022 authorized us to have a negative financial balance budget of Ps. zero. This shortfall does not consider payments of principal of our debt due in 2023 which we intend will be covered by financing activities that do not represent a net debt in terms of public debt greater than Ps. 29.9 billion. We have short-term debt principal maturities (including interest payable) of Ps.465.9 billion as of December 31, 2022.

The combined effect of the above-mentioned events indicates the existence of significant doubt about our ability to continue as a going concern. For more information on the circumstances that have caused these negative trends and the concrete actions we are taking to improve our results, strengthen our ability to continue operating and achieve revenue maximization and efficiencies, see Notes 22-F and 28 to our consolidated financial statements included herein.

2023-2027 Business Plan

On December 13, 2022, our Board of Directors approved the business plan of Petróleos Mexicanos and its Subsidiary Productive Companies for 2023-2027 (the "Business Plan").

The Business Plan is our main planning instrument and is aligned with both the Plan Nacional de Desarrollo 2019-2024 (National Development Plan 2019-2024) and the Política Energética Nacional (National Energy Policy) adopted by the Mexican Government. Our new Business Plan defines eight strategic objectives to establish our vision and includes the mechanisms and projects we are implementing in pursuit of our goals. The following sets forth a summary of

each institutional strategic objective as described in our new Business Plan:

1. Consolidate the path to a sustainable performance: We seek to implement programs and actions to control and reduce our greenhouse gas emissions, improve energy efficiency and performance in our operations, reduce and mitigate our environmental impact, and design and implement actions to adapt to climate change and improve our stakeholders position in the communities in which we operate. In addition, our Business Plan prioritizes improving the occupational health and safety of our workers, strengthening the security of our strategic facilities and information technology systems, collaborating with the Mexican Government to combat the illegal extraction and trade of the fuels we produce, continuing development of our partnerships with domestic suppliers and contractors, maintaining our net-zero indebtedness in real terms and ensuring financial discipline in capital expenditures.

2. Achieve reserve incorporation rates in line with our production platform: We are implementing efforts to improve our reserve incorporation rates by (i) increasing exploratory activity in onshore locations, shallow waters and areas adjacent to current production fields, (ii) evaluating the potential of established and hypothetical plays and (iii) accelerating secondary and enhanced oil-recovery processes in mature fields.

3. Optimize exploration and production project portfolio: We remain focused on optimizing our exploration and production portfolio by (i) accelerating the development of newly-discovered fields, (ii) prioritizing activities to restore proven reserves and accelerate the recategorization of reserves from possible and probable to proven and (iii) implementing current and new methodologies to mitigate oil output decline.

4. Strengthen downstream infrastructure: We are taking concrete actions to improve our downstream capabilities and infrastructure, including (i) expanding our refining capacity through the construction of the new Olmeca refinery in Dos Bocas, Tabasco, (ii) investing in, developing and modifying our processing infrastructure to enable Pemex Industrial Transformation to produce higher-value petroleum products, (iii) rehabilitating and reactivating certain secondary petrochemical operations to increase utilization of ethane-ethylene infrastructure and (iv) rehabilitating ammoniate-producing plants to maintain fertilizer production.

5. Support operations continuity by ensuring the efficiency of services, treatment facilities, transportation and storage facilities and measurement systems: We are prioritizing the refurbishment and modernization of our midstream infrastructure by (i) maintaining and repairing strategic storage facilities, (ii) restoring and reinforcing storage capacity in terminals and tankers and (iii) upgrading and maintaining our hydrocarbon measurement infrastructure.

6. Increase the reliability and operational efficiency of our facilities: We remain committed to identifying and capitalizing on opportunities to improve the reliability of our production infrastructure, as well as to optimizing cost structures and developing new initiatives to improve efficiency and the operational yield.

7. Increase our domestic market share and competitive position: We are implementing efforts to strengthen our competitive position in Mexico, by (i) improving the positioning of our logistics services, (ii) prioritizing greater coordination with our trading partners, (iii) leveraging our existing retail and commercial infrastructure and (iv) diversifying our supply sources.

8. Align corporate and administrative activities with the needs of our value chain: We seek to (i) improve the timely and satisfactory fulfillment of our value chain supply requirements, (ii) accelerate the implementation of information technology solutions and (iii) promote changes in the domestic regulatory framework that limit our capacity, competitiveness and value-generation.

Mexican Government Support

The application of the tax credit decree to automotive fuels published in the Official Gazette of the Federation on March 4, 2022, which allows us to substantially recover from the Mexican Government the difference between the international reference price of gasoline and the price at which gasoline is traded in the domestic market, and regarding to gasoline and diesel, these are limited to the effects of inflation in the country. See "*Item 5—Results of Operations—Results of Operations of Petróleos Mexicanos, the Subsidiary Entities and the Subsidiary Companies—For the Year Ended December 31, 2022 Compared to the Year Ended December 31, 2021—Total Revenues.*"

The reduction of the profit-sharing duty rate remains for 2023, as in 2022, since the decreased to 40.0% in 2022 from 54.0% in 2021.

During the first quarter of 2023, we received equity contributions from the Mexican Government of Ps. 7.2 billion to continue strengthening our financial position.

In addition, we plan to raise funds from the markets in accordance with prevailing conditions, to refinance its debt. See Notes 22-F and 28 to our consolidated financial statements included herein.

Budget

In public finance terms, we are subject to the cash flows financial balance goals approved in the *Decreto de Presupuesto de Egresos de la Federación* ("Federal Expenditure Budget Decree"). This represents the difference between our gross revenues (inflows) and our total budgeted expenditures (outflows) including the financial cost of our debt, which is proposed by the SHCP and approved by the Mexican Congress. The Federal Budget for 2022 authorized us to have a negative financial balance budget of Ps. zero. This shortfall does not consider payments of principal of our debt due in 2023 which we intend will be covered by financing activities that do not represent a net debt in terms of public debt greater than Ps. 29.9 billion. We have short-term debt principal maturities (including interest payable) of Ps.465.9 billion as of December 31, 2022.

Taking into account the conditions mentioned above and the price level observed at the date of this annual report, we plan to increase our budget revenues, improve our budget deficit and potentially increase our investment spending during the year.

Results of Operations and Financial Condition in 2022

For the year ended December 31, 2022, our results of operations improved, from a net loss of Ps. 294.8 billion in 2021 to a net income of Ps. 100.0 billion in 2022. This improvement was primarily due to:

- a Ps. 887.8 billion increase in total revenue, mainly due to an increase in the average price of crude oil and natural gas and the incentive for automotive fuels;
- a Ps. 175.4 billion decrease in exchange loss due to the appreciation of the peso against the U.S. dollar;
- a Ps. 25.4 billion decrease in other expenses;
- a Ps. 22.3 billion increase in other income;
- a Ps. 4.9 billion decrease in financing cost, which was facilitated by contributions from the Mexican Government;
- a Ps. 2.4 billion decrease in cost of derivative financial instruments, net; and
- a Ps. 1.7 billion increase in financing income.

These effects were partially offset by:

- a Ps. 631.9 billion increase in cost of sales, mainly due to an increase in purchases of products;
- a Ps. 12.8 billion increase in taxes and other duties;
- a Ps. 82.3 billion increase in impairment of wells, pipelines, properties, plant and equipment; and
- a Ps. 4.7 billion increase in administrative expenses and distribution, transportation and sale expenses;

For more information on our results of operations, see "*—Results of Operations of Petróleos Mexicanos, the Subsidiary Entities and the Subsidiary Companies—For the Year Ended December 31, 2022 Compared to the Year Ended December 31, 2021*" below.

In 2022, our total equity (deficit) improved by Ps. 401.2 billion from negative Ps. 2,170.0 billion as of December 31, 2021 to negative Ps. 1,768.8 billion as of December 31, 2022. For more information on the improvement in our total equity

(deficit) see "—Liquidity and Capital Resources—Equity Structure and Mexican Government Contributions" below. This decrease was mainly due to our net income for the year of Ps. 100.0 billion, Ps. 123.4 billion in actuarial gains on employee benefits and a decrease of Ps. 158.2 billion in total debt enabled by Mexican Government contributions.

Our accounts receivable decreased by 1.3% in 2022, from Ps. 278.4 billion as of December 31, 2021 to Ps. 274.9 billion as of December 31, 2022, mainly due to prepaid taxes and a decrease in taxes to be recovered.

As of December 31, 2022, we owed our suppliers Ps. 282.2 billion as compared to Ps. 264.1 billion as of December 31, 2021. As of December 31, 2022 we have paid the total outstanding balance due to suppliers and contractors as of December 31, 2021 and, as of March 31, 2023, we have paid approximately 36.8% of the total outstanding balance due to suppliers and contractors as of December 31, 2022.

Operating Information

In 2022, our crude oil and condensates production totaled 1,764 thousand barrels per day, as compared to the average production of 1,736 thousand barrels per day in 2021. Thus, the upward trend in liquids production continued, mainly due to progress made in the implementation of our strategy to develop new fields and the early production of these fields, which amounted to 507 thousand barrels as of December 31, 2022. Our production of nitrogen-free gas averaged 3,866 million cubic feet per day during 2022, which was 4.7% higher than 3,692 million cubic feet per day we averaged in 2021. This was driven by the contribution of wells with a high gas-oil ratio from the Quesqui and Tupilco Profundo fields in the Southern Region, the Ixachi field in the Northern Region and the Koban field in the Southwestern Marine Region.

In 2022, we completed 162 new development wells with an associated daily production of 150 thousand barrels per day of liquids and 336 million cubic feet of gas. Of these wells, 106 are located onshore and 56 offshore. In terms of classification, 132 wells are oil and gas producers, 16 are wet-gas producers, seven are gas and condensate producers, three are dry gas producers, three are water injectors, and one is a non-commercial oil and gas producer. Our development success rate for these wells during 2022 was 99%. For more information about our increase in production, see "*Item 4—Information on the Company—Business Overview—Exploration and Production—Crude Oil and Natural Gas Production.*"

In 2022, we processed a total of 816 thousand barrels of crude oil per day, which represented a 14.6% increase when compared to the 712 thousand barrels per day processed in 2021. This performance is explained by an improved operating performance at the Tula, Salina Cruz, Salamanca, Minatitlán and Madero refineries, with the following crude processing levels, respectively: 180 Mbd, 178 Mbd, 130 Mbd, 112 Mbd and 98 Mbd. As a result, we used 49.7% of our primary distillation capacity in 2022, a 6.4 points increase as compared to 2021.

Our refineries with above-average utilization rates in 2022 were: Tula, Salina Cruz, Salamanca, and Madero, which recorded utilization rates of 57.1%, 53.9%, 52.9%, and 51.6%, respectively. In 2022, our variable refining margin increased by U.S. $4.42 per barrel, from U.S. $2.92 per barrel in 2021 to U.S. $7.34 per barrel in 2022. This increase was primarily due to the recovery of petroleum products' prices in the Gulf Coast and the improved operating performance of the National Refinery System, which recorded higher distillate yields.

COVID-19 Pandemic Impacts

During 2021, 2022 and as of the date of this annual report, all of our operations have continued without interruptions related to COVID-19.

During 2021 and 2022, international crude oil and natural gas prices have remained volatile but largely recovered, primarily due to geopolitical events unrelated to COVID-19, reducing possible adverse effects on our results of operation and financial situation.

The extent to which COVID-19 or other health pandemics or epidemics may continue to impact Mexico, the Mexican economy and the global economy and, in turn, our business, results of operations and financial condition is highly uncertain and will depend on numerous evolving factors that cannot be predicted.

Russian activities in Ukraine and the related destabilization of world energy markets

As a result of the ongoing military conflict involving Russia and Ukraine, the prices of oil and natural gas remain extremely volatile. Our revenues and profitability are heavily dependent on the prices we receive from sales of oil and

natural gas. Oil prices are particularly sensitive to actual and perceived threats to global political stability and to changes in production from OPEC and OPEC+ member states and other oil-producing nations. Destabilization of global oil and gas prices could reduce our sales and adversely affect our results and profitability. Increases in oil and gas prices may not persist and could be followed by price decreases based on factors beyond our control, including geopolitical events.

During 2022, the price of the Mexican crude oil export mix increased by U.S.$22.56 or 34.3%, from U.S.$65.85 per barrel in 2021 to U.S.$88.41 per barrel in 2022, which was reflected in the increase in the value of our revenues.

Total sales increased by 59.4% or Ps. 887.8 billion in 2022, from Ps. $1,495.6 billion in 2021 to Ps. $2,383.4 billion in 2022, mainly due to increases in the sales prices of gasoline, diesel, fuel oil, jet fuel, natural gas and natural gas liquids.

Sales Volumes and Prices

The profitability of our operations in any particular accounting period is directly related to the sales volume of, and average realized prices for, the crude oil and natural gas that we sell. These average realized prices for crude oil and natural gas fluctuate from one period to another due to world market conditions and other factors.

Export Volumes and Prices

Pemex Exploration and Production sells crude oil to PMI, which then sells it to international clients. The volume of crude oil that we export is the volume delivered to international clients as adjusted for water content according to the bill of lading and standard market practice. PMI bases crude oil export price formulas on a basket of international reference prices and a constant set according to specific market conditions. We determine export prices of refined products, petrochemicals and natural gas by reference to market conditions and direct negotiations with our clients.

Significant changes in international crude oil prices directly affect our financial results. The impact of changes in crude oil prices on our refining activities and petrochemicals business depends on:

- the magnitude of the change in crude oil prices;
- how quickly petroleum and petrochemical product prices in international markets adjust to reflect changes in crude oil prices; and
- the extent to which prices in Mexico, where we sell most of our petroleum products and petrochemicals, reflect international prices for those products.

The following table sets forth the weighted average market price per barrel of crude oil that PMI received from exports and the average price of the United States benchmark (as the main market for Mexican crude oil), West Texas Intermediate (or WTI) crude oil, for the years indicated. The average price differential between WTI and the crude oil that we exported in the last three years fluctuated between U.S. $3.01 in 2020 to U.S. $5.23 in 2022, which is mainly the result of fluctuations in the price of other benchmarks on which our pricing formulas for crude oil are based. See "*Item 4—Information on the Company—Business Overview—International Trading*."

	Year ended December 31,		
	2022	2021	2020
	(in dollars per barrel)		
West Texas Intermediate crude oil average price	U.S. $ 94.58	U.S. $ 68.10	U.S. $ 39.25
PEMEX crude oil weighted average export price	89.35	65.78	36.24

Note: The numbers in this table are daily average prices for the full year, which differ from spot prices at year end. On April 24, 2023, the spot price for West Texas Intermediate crude oil was U.S. $78.76 per barrel and the reference price for the Mexican crude oil basket was an estimated U.S. $69.44 per barrel.

Sources: PEMEX's oil statistics and Platt's U.S. Marketscan (S&P Global Inc.).

Domestic Prices

As of December 31, 2017, domestic fuel prices are fully liberalized and are determined according to market forces

and may vary without regard to any specific range determined by the Mexican Government. For further information on domestic prices, see "*Item 4—Business Overview—Industrial Transformation—Refining—Pricing Regulations*." The following table compares the average prices in nominal terms of selected petroleum and petrochemical products in Mexico for the years indicated:

	Year ended December 31,		
	2022	**2021**	**2020**
Petroleum Products			
Unleaded regular gasoline[(1)]	Ps. 2,433.60	Ps. 1,995.23	Ps. 1,391.19
Premium gasoline[(1)]	2,636.63	2,086.49	1,501.62
Diesel[(1)]	2,708.67	1,922.21	1,438.57
Jet fuel[(1)]	2,946.60	1,832.08	1,415.72
Natural Gas[(2)]	13.96	13.16	4.61
Liquified Petroleum[(2)]	36.89	34.16	18.41
Selected Petrochemicals			
Ammonia[(3)]	28,206.00	18,334.19	6,317.20
Polyethylene[(3)]	26,827.44	30,215.87	17,720.23

(1) Pesos per barrel.
(2) Pesos per hundred cubic feet.
(3) Pesos per ton.
Source: Petróleos Mexicanos.

Hydrocarbon Duties and Income Taxes

The following table sets forth the taxes and duties that we recorded for each of the past three years.

	Year ended December 31,		
	2022	**2021**	**2020**
	(in millions of pesos)		
Hydrocarbon extraction duties	Ps. 391,420	Ps. 306,827	Ps. 154,609
Income tax (benefit)	(71,239)	Ps. 521	Ps. 30,963
Total	**Ps. 320,181**	**Ps. 307,348**	**Ps. 185,572**

Note: For a description of these taxes and duties, see "*Item 4—Information on the Company—Taxes, Duties and Other Payments to the Mexican Government*."
Numbers may not total due to rounding.

Source: PEMEX's audited consolidated financial statements, prepared in accordance with IFRS.

Relation to the Mexican Government

Petróleos Mexicanos and our subsidiary entities are public entities of the Mexican Government, rather than corporations organized under Mexican law. We do not have the power to issue shares of equity securities evidencing ownership interests and are not required, unlike Mexican corporations, to have multiple shareholders. Our financing obligations do not constitute obligations of, and are not guaranteed by, the Mexican Government. The President of Mexico appoints five of the ten members of our Board of Directors as representatives of the Mexican Government, including the

Secretary of Energy, who serves as the Chairperson of our Board of Directors, and the Secretary of Finance and Public Credit. The President of Mexico also nominates five independent members to our Board of Directors, whose appointment must be ratified by the Mexican Senate.

Pursuant to the Petróleos Mexicanos Law, our consolidated annual budget, including our financing program, must be submitted to the Ministry of Finance and Public Credit, which has the authority to adjust our financial balance goal and the ceiling on our wages and salary expenditures for the fiscal year. The Mexican Government incorporates our consolidated annual budget and financing program into its budget, which the Chamber of Deputies must approve each year. The Mexican Congress has the authority to adjust our annual financial balance goal at any time by amending applicable law. In addition, any proposal by our Board of Directors to change our annual financial balance goal, increase the limit on our wages and salary expenditures or adjust our financing program must be approved by the Chamber of Deputies.

Consolidation

Our financial statements consolidate the results of Petróleos Mexicanos, our subsidiary entities and the subsidiary companies. Certain non-material subsidiary companies are not consolidated and are accounted for under either the cost method or the equity method. For more information on the basis for consolidation and a list of the consolidated subsidiary companies, see Note 3-A and Note 5 to our consolidated financial statements included herein.

Export Agreements and Production Agreements

Though Mexico is not a member of OPEC, it has periodically announced increases and decreases in our crude oil exports reflecting production revisions made by other oil producing countries and entered into agreements with OPEC and non-OPEC members to reduce its oil exports, in order to contribute to crude oil prices stabilization.

On April 12, 2020, the OPEC+ countries, including Mexico, agreed to reduce their overall crude oil production by 9.7 million barrels per day from May 1, 2020 through June 30, 2020, by 7.7 million barrels per day from July 1, 2020 through December 31, 2020 and by 5.8 million barrels per day from January 1, 2021 through April 30, 2022. Pursuant to this agreement, Mexico agreed to reduce its crude oil production by 100,000 barrels per day for a period of two months beginning on May 1, 2020. While OPEC+ has since entered into further production agreements, including a reduction of oil production announced on April 2, 2023, no further agreements have been made between Mexico and the OPEC and non-OPEC members as of December 31, 2022 and as of the date of this annual report.

Selected Financial Data

The selected statement of comprehensive income (loss), statement of financial position and statement of cash flows data set forth below have been derived from, and should be read in conjunction with, our consolidated financial statements.

	Year ended December 31,[1]			
	2022	2021	2020	2022[2]
	(in millions of pesos)			(in millions of U.S. dollars)
Statement of Comprehensive Income (Loss) Data				
Total revenues	2,383,388	1,495,629	953,662	122,765
Operating income (loss)	445,459	228,928	(63,063)	22,945
Financing income	27,228	28,907	16,742	1,402
Financing cost	(159,684)	(164,572)	(161,765)	(8,225)
Derivative financial instruments (cost) income—Net	(22,863)	(25,224)	17,096	(1,178)
Exchange gain (loss) —Net	129,690	(45,675)	(128,949)	6,680
Net income (loss) for the period	99,998	(294,776)	(509,052)	5,151
Statement of Financial Position Data (end of period)				
Cash and cash equivalents	64,415	76,506	39,990	3,318
Total assets	2,245,558	2,052,098	1,928,488	115,665
Short-term debt and current portion of long-term debt	465,948	492,284	391,097	24,000
Long-term debt, net of current portion	1,625,516	1,757,412	1,867,630	83,728
Total long-term liabilities	3,084,643	3,299,451	3,560,805	158,885
Total equity (deficit)	(1,768,822)	(2,170,001)	(2,404,727)	(91,109)
Statement of Cash Flows				
Depreciation and amortization of wells, pipelines, properties, plant and equipment	139,772	133,431	129,632	7,199
Acquisition of wells, pipelines, properties, plant and equipment[3]	(305,335)	(209,592)	(114,977)	(15,727)

(1) Includes Petróleos Mexicanos, the subsidiary entities and the subsidiary companies listed in Note 5 to our consolidated financial statements included herein.

(2) Translations into U.S. dollars of amounts in pesos have been made at the exchange rate established by the Ministry of Finance and Public Credit for accounting purposes of Ps. 19.4143 = U.S. $1.00 at December 31, 2022. Such translations should not be construed as a representation that the peso amounts have been or could be converted into U.S. dollar amounts at the foregoing or any other rate.

(3) Includes capitalized financing cost. See Note 13-A to our consolidated financial statements included herein and "—*Operating and Financial Review and Prospects—Liquidity and Capital Resources*" in this Item 5.

Source: PEMEX's consolidated financial statements, prepared in accordance with IFRS, as it relates to the selected statements of comprehensive income, statement of financial position and statement of cash flows data; and Petróleos Mexicanos, as it relates to other financial data.

Results of Operations

A. Results of Operations of Petróleos Mexicanos, the Subsidiary Entities and the Subsidiary Companies—For the Year Ended December 31, 2022 Compared to the Year Ended December 31, 2021

Total Revenues

Total revenues increased by 59.4% or Ps. 887.8 billion in 2022, from Ps. 1,495.6 billion in 2021 to Ps. 2,383.4 billion in 2022, primarily due to increases in domestic sales prices of gasoline, diesel, fuel oil, jet fuel, natural gas and natural gas liquids, an increase in volume of gasoline, diesel and jet fuel, and a 35.7% increase in the weighted average price of Mexican crude oil for export sales. This increase in total revenues was due to price increases of 40.4%, increases in volume of 19.5%, the recognition of product sales by Deer Park Refining Limited Partnership ("Deer Park" or "DPRLP")

of 26.9%, foreign currency variations of 0.6% and the recognition of a tax incentive of 12.6% in the form of a tax credit for the *Impuesto Especial Sobre Producción y Servicios* (IEPS) published on March 4, 2022 (the "IEPS Tax Decree"), on the sale of automotive fuels.

From January 1 to December 31, 2022, the weighted average Mexican export crude oil price was U.S. $89.35 per barrel, as compared to U.S. $65.85 per barrel for the same period in 2021.

Domestic Sales

Domestic sales increased by 56.5% or Ps. 430.6 billion in 2022, from Ps. 762.1 billion in 2021 to Ps. 1,192.7 billion in 2022, mainly due to increases in the sales prices of gasoline, diesel, fuel oil, jet fuel, natural gas and natural gas liquids and also an increase in sales volume of gasoline, diesel and jet fuel. Domestic sales of petroleum products increased by 65.9% in 2022, from Ps. 575.2 billion in 2021 to Ps. 954.4 billion in 2022, mainly due to (i) a 24.2% increase in the sales price of gasoline, a 47.1% increase in the sales price of diesel, a 25.8% increase in the sales price of fuel oil and a 60.8% increase in the sales price of jet fuel, and (ii) an increase in sales volume, mainly due to a 24.7% increase in the sales volume of Magna gasoline, a 51.1% increase in the sales volume of diesel and a 41.4% increase in the sales volume of jet fuel.

Domestic sales of natural gas increased by 7.5% in 2022, from Ps. 53.3 billion in 2021 to Ps. 57.3 billion in 2022, primarily due to a 6.0% increase in the average sales price.

Domestic sales of LPG increased by 10.2% in 2022, from Ps. 59.6 billion in 2021 to Ps. 65.7 billion in 2022. This increase was primarily due to an 8.0% increase in its average sales price.

Incentive for Automotive Fuels

We recognized Ps. 111.9 billion in 2022 related to the IEPS Tax Decree. Pursuant to IEPS Tax Decree, we can recover the difference between the international reference price of gasoline and the price at which the gasoline is traded in the domestic market. We recognized no income related to this IEPS Tax Decree credit in 2021. For more information on the IEPS Tax Decree, please see Note 3-S to our consolidated financial statements included herein.

Export Sales

Export sales increased by 47.3% in peso terms in 2022 (with U.S. dollar-denominated export revenues translated to pesos at the exchange rate on the date of the corresponding export sale) from Ps. 728.5 billion in 2021 to Ps. 1,073.4 billion in 2022. This increase was mainly due to a 35.7% increase in the weighted average Mexican export crude oil price in 2022, compared to 2021. From January 1 to December 31, 2022, the weighted average Mexican export crude oil price was U.S. $89.35 per barrel, as compared to U.S. $65.85 per barrel for the same period in 2021. Export sales of Deer Park as of December 31, 2022, amounted to Ps. 238.5 billion, mainly due to petroleum distillates and gasolines sales.

Excluding the trading activities of the Trading Companies and Deer Park (in order to show only the amount of export sales related to the subsidiary entities), export sales by the subsidiary entities to third parties increased by 32.1% in peso terms, from Ps. 561.2 billion in 2021 to Ps. 741.3 billion in 2022. In U.S. dollar terms, excluding the trading activities of the Trading Companies, total export sales (which are U.S. dollar denominated) increased by 29.7% in 2021, from U.S. $28.3 billion in 2021 to U.S. $36.7 billion in 2022. This was primarily due to the 35.7% increase in the weighted average Mexican crude oil export price. The trading and export activities of the Trading Companies generated additional revenues of Ps. 332.1 billion in 2022, 98.5% higher in peso terms than the Ps. 167.3 billion generated in 2021. This increase was mainly due to export sales of Deer Park and increases in the average prices of gasoline and fuel oil.

Crude oil and condensate export sales accounted for 84.8% of total export sales (excluding the trading activities of the Trading Companies) in 2022, as compared to 86.1% in 2021. These crude oil and condensate sales increased in peso terms by 30.1% in 2022, from Ps. 483.1 billion in 2021 to Ps. 628.7 billion in 2022, and in U.S. dollar terms by 28.3%, from U.S. $24.4 billion in 2021 to U.S. $31.3 billion in 2022. The weighted average Mexican crude oil export price in 2022 was 35.7% higher than the weighted average price of U.S. $65.85 per barrel in 2021.

Export sales of petroleum products, including natural gas and natural gas liquids, by our industrial transformation segment increased from 12.7% of total export sales (excluding the trading activities of the Trading Companies) in 2021 to 14.0% of those export sales in 2022. Export sales of petroleum products, including products derived from natural gas and natural gas liquids, increased by 46.1%, from Ps. 71.1 billion in 2021 to Ps. 103.9 billion in 2022, primarily due to an increase in the sales prices of fuel oil.

Export sales of petrochemical products (including certain byproducts of the petrochemical process) decreased by Ps. 1.6 billion in 2022, from Ps. 7.1 billion in 2021 to Ps. 5.5 billion in 2022, primarily due to a decrease in volume of sales by Grupo Fertinal, S.A. de C.V. and Pemex Industrial Transformation in 2022.

Services Income

Services income increased by 8.3% in 2022, from Ps. 5.0 billion in 2021 to Ps. 5.4 billion in 2022, primarily as a result of an increase in transportation services provided by Pemex Industrial Transformation and Pemex Logistics to third parties.

Cost of Sales

Cost of sales increased by 59.2%, from Ps. 1,066.7 billion in 2021 to Ps. 1,698.6 billion in 2022. This increase was mainly due to: (1) a Ps. 401.9 billion increase in import purchases, primarily of Premium and Magna gasoline, diesel, jet fuel and natural gas, due to an increase in the purchase price of these products, (2) import purchases of Deer Park, which amounted to Ps. 167.9 billion as of December 31, 2022, and which mainly relate to crude oil, (3) a Ps. 48.2 billion increase in exploration and extraction taxes and duties, mainly due to the recovery of hydrocarbon prices and (4) an increase of Ps. 42.3 billion in purchases of crude oil from third parties who hold contracts with National Hydrocarbons Commission due to increases of crude oil price.

Impairment of Wells, Pipelines, Properties, Plant and Equipment

Impairment of wells, pipelines, properties, plant and equipment increased by Ps. 82.3 billion in 2022, from a net impairment of Ps. 1.2 billion in 2021 to a net impairment of Ps. 83.5 billion in 2022. This net impairment was primarily due to Ps. 25.6 billion in the cash generating units of Pemex Industrial Transformation, mainly due to a negative effect of exchange rate from Ps. 20.5835 = U.S. $1.00 as of December 31, 2021, to Ps. 19.4143 = U.S. $1.00 as of December 31, 2022 and an increase in the discount rate from 9.45% in 2021 to 14.16% in 2022; and Ps. 60.4 billion in the cash generating units of Pemex Exploration and Production, mainly due to a decrease in production profiles volume in the barrel of crude oil equivalent.

Administrative Expenses and Distribution, Transportation and Sale Expenses

Administrative expenses and distribution, transportation and sale expenses increased by Ps. 4.7 billion in 2022, from Ps. 165.5 billion in 2021 to Ps. 170.2 billion in 2022, mainly due to increases relating to the materials and spare parts and personnel services.

Other Revenues

Other revenues increased by Ps. 22.3 billion in 2022, from Ps. 17.6 billion in 2021 to Ps. 39.9 billion in 2022. This increase was mainly due to Ps. 10.4 billion attributable to the currency exchange effect resulting from the investment in Deer Park and Ps. 11.8 in sundry income.

Other Expenses

Other expenses decreased by Ps. 25.4 billion in 2022, from Ps. 51.0 billion in 2021 to Ps. 25.6 billion in 2022. This decrease was mainly due to a Ps. 26.1 billion reduction in disposal of fixed assets without development plans in Pemex Exploration and Production.

Financing Income

Financing income decreased by Ps. 1.7 billion in 2022, from Ps. 28.9 billion in 2021 to Ps. 27.2 billion in 2022. This decrease was mainly due to effects of the interest rates changes of the Mexican Government bonds.

Financing Costs

Financing costs decreased by Ps. 4.9 billion in 2022, from Ps. 164.6 billion in 2021 to Ps. 159.7 billion in 2022, mainly due to the effect of the 5.7% appreciation of the peso against the U.S. dollar as of December 31, 2022, as compared to depreciation of 3.2% for the same period in 2021.

Derivative Financial Instruments (Cost) Income, Net

Derivative financial instruments cost decreased by Ps. 2.4 billion in 2022, from a derivative financial instruments cost of Ps. 25.2 billion in 2021 to a cost of Ps. 22.9 billion in 2022, mainly as a result of (1) a decrease in the fair value of our cross-currency swaps, arising from the appreciation of the U.S. dollar against other currencies in which our debt is denominated and (2) a net decrease in other derivative financial instruments, such as currency options and crude oil options.

Foreign Exchange Income (Loss), Net

A substantial portion of our indebtedness, 83.3% as of December 31, 2022, is denominated in foreign currencies. Our exchange loss, net, decreased by Ps. 175.4 billion in 2022, from an exchange loss of Ps. 45.7 billion in 2021 to an exchange income of Ps. 129.7 billion in 2022, primarily as a result of a 5.7% appreciation of the peso relative to the U.S. dollar in 2022. Due to the fact that 100% of our revenues from exports and domestic sales are referenced to prices denominated in U.S. dollars, and only 71% of our expenses, including financing costs, are linked to U.S. dollar prices, the appreciation of the peso relative to the U.S. dollar benefits our ability to meet peso-denominated obligations. The value of the peso in U.S. dollar terms appreciated by 5.7% in 2022, from Ps. 20.5835 per U.S. $1.00 on December 31, 2021 to Ps. 19.4143 per U.S. $1.00 on December 31, 2022, as compared to a 3.2% depreciation of the peso in U.S. dollar terms in 2021.

Profits (loss) sharing in joint ventures and associates

The profit sharing in joint ventures and associates increased by 111.3% in 2022, from a loss sharing of Ps. 3.1 billion in 2021, to a profit sharing of Ps. 0.3 billion in 2022, primarily due to the offset by positive results of the other associates, from the Deer Park loss sharing of Ps.3.4 billion in 2021. For 2022, Deer Park is now considered in the consolidated financial statements.

Taxes, Duties and Other

The Profit-Sharing Duty and other duties and taxes paid increased by 4.2% in 2022, from Ps. 307.3 billion in 2021, to Ps. 320.2 billion in 2022, mainly due to (1) an increase in the Profit-sharing Duty of Ps. 84.6 billion, principally driven by the 34.3% increase in the weighted average export price of Mexican crude oil, from U.S. $68.85 per barrel in 2021 to U.S. $88.41 per barrel in 2022 and (2) the favorable effect of deferred income tax of Ps. 73.9 billion mainly due to the increase in tax loss carry-forwards. Duties and taxes represented 13.4% and 20.5% of total sales in 2022 and 2021, respectively.

Net Income/Loss

In 2022, we had a net income of Ps. 100.0 billion from Ps. 2,383.4 billion in total revenues, as compared to a net loss of Ps. 294.8 billion from Ps. 1,495.6 billion in total revenues in 2021. This increase in net income relative to 2021 was primarily explained by:

- a Ps. 887.8 billion increase in total revenues, mainly due to an increase in the average price of crude oil, increase in prices of gasoline, diesel, fuel oil, jet fuel, natural gas and natural gas liquids and increase in volume of gasoline, diesel and jet fuel;
- a Ps. 22.3 billion increase in other income;
- a Ps. 25.4 billion decrease in other expenses;
- a Ps. 175.4 billion increase in exchange gain; and
- a Ps. 10.1 billion increase in profit sharing of joint ventures and associates, including the impairment of joint ventures;

These effects were partially offset by:

- a Ps. 631.9 billion increase in cost of sales, mainly due to an increase in purchases of products;
- a Ps. 82.3 billion increase in impairment of wells, pipelines, properties, plant and equipment;
- a Ps. 4.7 billion increase in administrative expenses and distribution, transportation and sale expenses; and
- a Ps. 12.8 billion increase in taxes and other duties.

Other Comprehensive Results

In 2022, we had a total comprehensive income of Ps. 189.9 billion as compared to Ps. 81.6 billion of comprehensive loss in 2021, primarily due to actuarial gains related to retirement and post-employment benefits, mainly due to an increase in the discount and return on plan assets rate from 8.46% as of December 31, 2021 to 9.39% as of December 31, 2022

B. Results of Operations of Petróleos Mexicanos, the Subsidiary Entities and the Subsidiary Companies—For the Year Ended December 31, 2021 Compared to the Year Ended December 31, 2020

Total Revenues

Total sales increased by 56.8% or 541.9 billion in 2021, from Ps. 953.7 billion in 2020 to Ps. 1,495.6 billion in 2021, primarily due to increases in domestic sales prices of gasoline, diesel, fuel oil, jet fuel, natural gas and natural gas liquids and an 85.6% increase in the weighted average price of Mexican crude oil for export sales. From January 1 to December 31, 2021, the weighted average Mexican export crude oil price was U.S. $65.85 per barrel, as compared to U.S. $35.47 per barrel for the same period in 2020.

Domestic Sales

Domestic sales increased by 51.3% or 258.4 billion in 2021, from Ps. 503.7 in 2020 to Ps. 762.1 billion in 2021, mainly due to increases in the sales prices of gasoline, diesel, fuel oil, jet fuel, natural gas and natural gas liquids. Domestic sales of petroleum products increased by 40.6% in 2021, from Ps. 409.1 billion in 2020 to Ps. 575.2 billion in 2021, mainly due to a 41.1% increase in the sales price of gasoline, a 34.3% increase in the sales price of diesel, 60.4% increase in the sales price of fuel oil and 29.4% increase in the sales price of jet fuel.

Domestic sales of natural gas increased by 135.8% in 2021, from Ps. 22.6 billion in 2020 to Ps. 53.3 billion in 2021, primarily due to a 185.7% increase in the average sales price.

Domestic sales of LPG increased by 93.5% in 2021, from Ps. 30.8 billion in 2020 to Ps. 59.6 billion in 2021. This increase was primarily due to an 85.5% increase in its average sales price.

Export Sales

Export sales increased by 63.6% in peso terms in 2021 (with U.S. dollar-denominated export revenues translated to pesos at the exchange rate on the date of the corresponding export sale) from Ps. 445.2 billion in 2020 to Ps. 728.5 billion in 2021. This increase was mainly due to an 85.6% increase in the weighted average Mexican export crude oil price in 2021, compared to 2020. From January 1 to December 31, 2021, the weighted average Mexican export crude oil price was U.S. $65.85 per barrel, compared to U.S. $35.47 per barrel for the same period in 2020.

Excluding the trading activities of the Trading Companies (in order to show only the amount of export sales related to the subsidiary entities), export sales by the subsidiary entities to third parties increased by 60.8% in peso terms, from Ps. 349.1 billion in 2020 to Ps. 561.2 billion in 2021. In U.S. dollar terms, excluding the trading activities of the Trading Companies, total export sales (which are U.S. dollar denominated) increased by 75.8% in 2021, from U.S. $16.1 billion in 2020 to U.S. $28.3 billion in 2021. This was primarily due to the 85.6% increase in the weighted average Mexican crude oil export price. The trading and export activities of the Trading Companies generated additional revenues of Ps. 167.3 billion in 2021, 74.0% higher in peso terms than the Ps. 96.1 billion of additional revenues generated in 2020. This increase was mainly due to an increase in the average prices of diesel, gasoline and fuel oil. Export sales of PMI NASA, one of our principal Trading Companies, increased by 64.2% in 2021, from Ps. 54.7 billion in 2020 to Ps. 89.8 billion in 2021.

Crude oil and condensate export sales accounted for 86.1% of total export sales (excluding the trading activities of the Trading Companies) in 2021, as compared to 90.3% in 2020. These crude oil and condensate sales increased in peso terms by 53.3% in 2021, from Ps. 315.1 billion in 2020 to Ps. 483.1 billion in 2021, and in U.S. dollar terms by 67.1%, from U.S. $14.6 billion in 2020 to U.S. $24.4 billion in 2021. The weighted average Mexican crude oil export price in 2021 was 85.6% higher than the weighted average price of U.S. $35.47 per barrel in 2020.

Export sales of petroleum products, including natural gas and natural gas liquids, by our industrial transformation segment increased from 8.7% of total export sales (excluding the trading activities of the Trading Companies) in 2020 to 12.7% of those export sales in 2021. Export sales of petroleum products, including products derived from natural gas and natural gas liquids, increased by 133.1%, from Ps. 30.5 billion in 2020 to Ps. 71.1 billion in 2021, primarily due to an increase in the sales prices of fuel oil.

Export sales of petrochemical products (including certain byproducts of the petrochemical process) increased by Ps. 3,640.6 million in 2021, from Ps. 3,449.9 million in 2020 to Ps. 7,090.5 million in 2021, primarily due to an increase in export sales by Grupo Fertinal, S.A. de C.V. in 2021.

Services Income

Services income increased by 6.4% in 2021, from Ps. 4.7 billion in 2020 to Ps. 5.0 billion in 2021, primarily as a result of an increase in transportation services provided by Pemex Industrial Transformation and Pemex Logistics to third parties.

Cost of Sales

Cost of sales increased by 28.1%, from Ps. 832.6 billion in 2020 to Ps. 1.066.7 billion in 2021. This increase was mainly due to: (1) a Ps. 163.0 billion increase in import purchases, primarily of Premium and Magna gasoline, diesel, jet fuel and natural gas, due to an increase in the purchase price of these products; (2) a Ps. 45.0 billion increase in exploration

and extraction taxes and duties, mainly due to the recovery of hydrocarbon prices from lows reached during the months of the COVID-19 pandemic; and (3) an increase of Ps. 21.7 billion in purchases of crude oil from third parties who hold contracts with National Hydrocarbon Commission due to increases of crude oil price.

Impairment of Wells, Pipelines, Properties, Plant and Equipment

Impairment of wells, pipelines, properties, plant and equipment decreased by Ps. 35.2 billion in 2021, from a net impairment of Ps. (36.4) billion in 2020 to a net impairment of Ps. (1.2) billion in 2021. This net impairment was primarily due to Ps. 32.2 billion in the cash generating units of Pemex Industrial Transformation, mainly due to lower production levels in our refineries. These lower production levels were primarily the result of the inability to achieve the projected production rate, as the Ultra Low Sulfur Gasoline (Gubas) and Ultra Low Sulfur Diesel (Dubas) projects have not received resources for their continuation and no provision is made for the continuation of these works within the approved budget for 2022. The lower production levels were partially offset by a net reversal of impairment of Ps. 34.6 billion in the cash generating units of Pemex Exploration and Production, mainly due to an increase in the effect of exchange rates and an increase in crude oil prices.

Administrative Expenses and Distribution, Transportation and Sale Expenses

Administrative expenses and distribution, transportation and sale expenses increased by Ps. 7.1 billion in 2021, from Ps. 158.3 billion in 2020 to Ps. 165.4 billion in 2021, mainly due to an increase relating to the periodic cost of employee benefits and maintenance.

Other Revenues

Other revenues increased by Ps. 5.8 billion in 2021, from Ps. 11.8 billion in 2020 to Ps. 17.6 billion in 2021. This increase was mainly due to Ps. 1.7 billion of funds received from *Fondo Nacional de Infraestructura* (National Infrastructure Fund, or "FONADIN") for payments to contractors of the Tula Refinery rehabilitation project and Ps. 2.8 billion from the recognition of partial income from remediation agreement in favor of Petróleos Mexicanos.

Other Expenses

Other expenses increased by Ps. 49.8 billion in 2021, from Ps. 1.2 billion in 2020 to Ps. 51.0 billion in 2021. This increase was mainly due to the recognition of Ps. 44.6 billion in disposal of fixed assets without development plans in Pemex Exploration and Production.

Financing Income

Financing income increased by Ps. 12.2 billion in 2021, from Ps. 16.7 billion in 2020 to Ps. 28.9 in 2021. This increase was mainly due to effects from the recognition of changes in accounts receivable as a result of the sale of hydrocarbons to Asia.

Financing Costs

Financing costs increased by Ps. 2.8 billion in 2021, from Ps. 161.8 billion in 2020 to Ps. 164.6 billion in 2021, mainly as a result of the effects from the liability management transactions conducted in December 2021.

Derivative Financial Instruments (cost), net

Derivative financial instruments (cost), net, increased by Ps. (42.3) billion, from a derivative financial instruments income of Ps. 17.1 billion in 2020 to a loss of Ps. (25.2) billion in 2021, mainly as a result of (1) a decrease in the fair value of our cross-currency swaps, arising from the appreciation of the U.S. dollar against other currencies in which our debt is denominated and (2) a net decrease in other derivative financial instruments, such as currency options and crude oil options.

Exchange Loss, Net

A substantial portion of our indebtedness, 85.7% as of December 31, 2021, is denominated in foreign currencies. Our exchange loss, net, decreased by Ps. 83.2 billion in 2021, from an exchange loss of Ps. 128.9 billion in 2020 to an

exchange loss of Ps. 45.7 billion in 2021, primarily as a result of a 3.2% depreciation of the peso relative to the U.S. dollar in 2021. Due to the fact that 100% of our revenues from exports and domestic sales are referenced to prices denominated in U.S. dollars, and only 72% of our expenses, including financing costs, are linked to U.S. dollar prices, the depreciation of the peso relative to the U.S. dollar benefits our ability to meet peso-denominated obligations. The value of the peso in U.S. dollar terms depreciated by 3.2% in 2021, from Ps. 19.9487 per U.S. $1.00 on December 31, 2020 to Ps. 20.5835 per U.S. $1.00 on December 31, 2021, as compared to a 5.9% depreciation of the peso in U.S. dollar terms in 2020.

Impairment in joint venture

The increase in impairment in joint venture of Ps. 6.7 billion was mainly due to the impairment in the investment of Deer Park as of December 31, 2021.

Taxes, Duties and Other

The Profit-Sharing Duty and other duties and taxes paid increased by 65.6% in 2021, from Ps. 185.6 billion in 2020, to Ps. 307.3 billion in 2021, principally driven by the 85.6% increase in the weighted average export price of Mexican crude oil, from U.S. $35.47 per barrel in 2020 to U.S. $65.85 per barrel in 2021. Duties and taxes represented 19.5% and 20.5% of total sales in 2020 and 2021, respectively.

Net Income/Loss

In 2021, we had a net loss of Ps. 294.8 billion from Ps. 1,495.6 billion in total sales revenues, as compared to a net loss of Ps. 509.1 billion from Ps. 953.7 billion in total sales revenues in 2020. This decrease in net loss relative to 2020 was primarily explained by:

- a Ps. 542.0 billion increase in total sales, mainly due to an increase in the average price of crude oil and natural gas;
- a Ps. 35.1 billion decrease in impairment of wells, pipelines, properties, plant and equipment;
- a Ps. 5.8 billion increase in other income;
- a Ps. 12.2 billion increase in financing income; and
- a Ps. 83.3 billion decrease in exchange loss.

These effects were partially offset by:

- a Ps. 234.0 billion increase in cost of sales, mainly due to an increase in purchases of products;
- a Ps. 49.8 billion increase in other expenses;
- a Ps. 7.1 billion increase in administrative expenses and distribution, transportation and sale expenses;
- a Ps. 2.8 billion increase in financing cost;
- a Ps. 42.3 billion increase in cost of derivative financial instruments, net;
- a Ps. 6.7 billion increase in impairment of joint ventures; and
- a Ps. 121.8 billion increase in taxes and other duties.

Other Comprehensive Results

In 2021, we had a total comprehensive loss of Ps. 81.6 billion as compared to Ps. 520.4 billion in 2020, primarily due to an increase in actuarial gains related to retirement and post-employment benefits, mainly due to an increase in the discount and return on plan assets rate from 7.08% as of December 31, 2020 to 8.46% as of December 31, 2021.

Liquidity and Capital Resources

Overview

During 2022, our liquidity position decreased 15.4% due to lower cash and cash equivalents. Under the definition of liquidity as funds available under our lines of credit, as well as cash and cash equivalents, our liquidity position was Ps. 65.6 billion as of December 31, 2022, which represented a decrease of Ps. 11.9 billion from our Ps. 77.5 billion position as of December 31, 2021.

Our principal use of funds in 2022 was the payment of debt maturities and capital expenditures. We serviced our debt maturities primarily with Ps. 1,064.2 billion from borrowings and with Ps. 211.3 billion in equity contributions from the Mexican Government.

Our 2022 budget included Ps. 129.8 billion related to capital contributions for our subsidiary company PTI Infraestructura de Desarrollo for the construction of the Olmeca refinery in Dos Bocas, Paraíso, Tabasco. For budgetary purposes, these capital contributions were classified as a financial investment, rather than a capital expenditure. During 2022, works in progress for the construction of the Olmeca refinery, including payments made in advance to contractors, decreased by Ps. 9.4 billion from Ps. 35.9 billion as of December 31, 2021 to Ps. 26.5 billion as of December 31, 2022.

As of December 31, 2022, we owed our suppliers Ps. 282.2 billion as compared to Ps. 264.1 billion as of December 31, 2021. As of December 31, 2022, we have paid the total outstanding balance due to suppliers and contractors as of December 31, 2021 and, as of March 31, 2023, we have paid approximately 36.8% of the total outstanding balance due to suppliers and contractors as of December 31, 2022. The average number of days outstanding of our accounts payable decreased by 50.8%, from 183 days as of December 31, 2021 to 90 days as of December 31, 2022.

Despite these obligations, we believe net cash flows from our operating and financing activities, available cash from our available credit lines and cash and cash equivalents, will be sufficient to meet our working capital, debt service and capital expenditure requirements in 2023. Our ability to raise cash from financing activities and contributions from the Mexican Government involves matters outside of our management's control and there can be no assurance that such efforts may be successful.

The *Ley de Ingresos de la Federación para el Ejercicio Fiscal* (Federal Revenue Law) applicable to us as of January 1, 2023, provides for our incurrence of up to Ps. 29.9 billion of net indebtedness through a combination of domestic and international capital markets offerings and borrowings from domestic and international financial institutions. The Federal Revenue Law applicable to us from January 1 to December 31, 2022, provided for our incurrence of up to Ps. 65.0 billion of net indebtedness through a combination of domestic and international capital markets offerings and borrowings from domestic and international financial institutions.

As of December 31, 2022, our total indebtedness, including accrued interest, was Ps. 2,091.5 billion (U.S. $107.7 billion) in nominal terms, which represented a 7.0% decrease compared to our total indebtedness, including accrued interest, of Ps. 2,249.7 billion (U.S. $115.9 billion) as of December 31, 2021. Ps. 808.8 billion (U.S. $41.7 billion) of our existing debt as of December 31, 2022, or 38.7%, is scheduled to mature in the next three years. Our working capital increased from a negative working capital of Ps. 464.3 billion (U.S. $23.9 billion) as of December 31, 2021 to a negative working capital of Ps. 401.8 billion (U.S. $20.7 billion) as of December 31, 2022. Our level of debt may increase further in the short or medium term as a result of new financing activities or future depreciation of the peso as compared to the U.S. dollar, which may have an adverse effect on our financial condition, results of operations and liquidity position. To service our debt, we have relied and may continue to rely on a combination of cash flow from operations, equity capital contributions from the Mexican Government, drawdowns under our available credit facilities and refinancing our existing indebtedness and repurchase transactions. See Note 22-F to our consolidated financial statements included herein for more information related to the actions we are taking to improve our financial position.

We currently have a substantial amount of employee benefits liabilities. Benefits to employees were 32.6% of our total liabilities as of December 31, 2022, and any adjustments recorded will affect our net income and/or comprehensive net income during the corresponding period. As of December 31, 2022, our substantial unfunded reserve for retirement pensions and seniority premiums was Ps. 1,306.9 billion. For more information on our Employee Benefits and Benefit Pension Plan, see Note 19 to our consolidated financial statements included herein.

Adverse ratings actions related to us that occurred in 2022 include the following:

- In July 2022, Moody's Investor Service ("Moody's") downgraded our credit ratings from Ba3 to B1 and changed its outlook on our ratings from negative to stable. These actions were triggered by Moody's announcement on July 8, 2022 that it had downgraded the Mexican Government's ratings from Baa1 to Baa2. For its part, S&P Global Ratings revised our outlook, which has a global BBB scale in foreign currency rating, from negative to stable after reviewing Mexico's long-term outlook.

Ratings address our creditworthiness and the likelihood of timely payment of our long-term debt securities. Ratings are not a recommendation to purchase, hold or sell securities and may be changed, suspended or withdrawn at any time. Our current ratings and the rating outlooks depend, in part, on economic conditions and other factors that affect credit risk and are outside our control, as well as assessments of the creditworthiness of Mexico.

Further downgrades of our credit ratings, particularly those below investment grade, may have material adverse consequences on our ability to access the financial markets and/or our cost of financing. In turn, this could significantly harm our ability to meet our existing obligations, financial condition and results of operations. See "*Item 4—Risk Factors—Risk Factors Related to Our Operations—Downgrades in our credit ratings could negatively impact our access to the financial markets and cost of financing*" above.

If such constraints occur at a time when our cash flow from operations is less than the resources necessary to meet our debt service obligations, in order to provide additional liquidity to our operations, we could be forced to further reduce our planned capital expenditures, implement further austerity measures and/or utilize alternative financing mechanisms that do not constitute public debt. A reduction in our capital expenditure program could adversely affect our financial condition and results of operations. Additionally, such measures may not be sufficient to permit us to meet our obligations.

Equity Structure and Mexican Government Contributions

Our total equity (deficit) as of December 31, 2022 was negative Ps. 1,768.8 billion, and our total capitalization (long-term debt plus equity) totaled negative Ps. 143.3 billion. During 2022, our total deficit decreased from negative Ps. 2,170.0 billion as of December 31, 2021 to negative Ps. 1,768.8 billion as of December 31, 2022, primarily due to our net income for the year of Ps. 100.0 billion and a Ps. 158.2 billion decrease in total debt. Under the *Ley de Concursos Mercantiles* (the Commercial Bankruptcy Law), Petróleos Mexicanos and the subsidiary entities cannot be subject to bankruptcy proceedings. In addition, our current financing agreements do not include financial covenants or events of default that would be triggered as a result of our having negative equity.

During 2022, we received Ps. 211.3 billion in capital contributions from the Mexican Government, including Ps. 23.0 billion in proceeds from FONADIN grants for the purchase of Deer Park. See Notes 22 and 28-E to our consolidated financial statements included herein for more information.

As of December 31, 2022 and 2021, the total amount of contributions in the form of Certificates of Contribution “A” was Ps. 188.3 billion and Ps. 316.4 billion, respectively. As of December 31, 2022 and 2021, the balance of the form of Certificates of Contribution “A” was Ps. 1,029.6 billion and Ps. 841.3 billion, respectively.

During the first quarter of 2023, we received equity contributions from the Mexican Government of P.s 7.2 billion.

Cash Flows from Operating, Financing and Investing Activities

During 2022, net cash flows from operating activities totaled Ps. 356.6 billion, as compared to Ps. 189.2 billion in 2021. During 2022, our net cash flows used in investing activities totaled Ps. 372.9 billion, as compared to net cash flows used in investing activities of Ps. 262.2 billion in 2021. Our net cash flows from financing activities totaled Ps. 11.2 billion in 2022, as compared to Ps. 99.4 billion in 2021.

At December 31, 2022, our cash and cash equivalents totaled Ps. 64.4 billion, as compared to Ps. 76.5 billion at December 31, 2021. See Note 9 to our consolidated financial statements included herein for more information about our cash and cash equivalents.

Liquidity Position

We define liquidity as funds available under our lines of credit, as well as cash and cash equivalents. The following table summarizes our liquidity position as of December 31, 2022 and 2021.

	As of December 31,	
	2022	2021
	(millions of pesos)	
Borrowing base under lines of credit	Ps. 1,206	Ps. 1,029
Cash and cash equivalents	64,415	76,506
Liquidity	Ps. 65,621	Ps. 77,535

The following table summarizes our sources and uses of cash for the years ended December 31, 2022 and 2021.

	For the years ended December 31,	
	2022	2021
	(millions of pesos)	
Net cash flows from operating activities	Ps. 356,638	Ps. 189,235
Net cash flows used in investing activities	(372,935)	(262,236)
Net cash flows from financing activities	11,189	99,380
Effects of foreign exchange on cash balances	(6,984)	10,137
Net (decrease) increase in cash and cash equivalents	Ps. (12,092)	Ps. 36,517

Note: Numbers may not total due to rounding.

Investment Policies

Our Finance and Treasury Department aims to maintain financial resources sufficient to meet our payment commitments and those of the subsidiary entities, as well as a comprehensive, consolidated cash position and related projections in anticipation of such commitments.

Our investment policies attempt to take advantage of favorable market conditions by accessing the most favorable terms offered to us by financial institutions. Investments of financial resources by our Finance and Treasury Department are made in accordance with the following policies:

(i) Investments of Mexican Pesos

In connection with investments in Mexican pesos, we are obligated, during the structuring and development phase of our financial transactions, to observe and comply with the investment guidelines for resources in pesos that were approved by our Financial Resources Committee on July 24, 2017, as modified from time to time. We may only invest in the following:

(a) securities issued or guaranteed by the Mexican Government;

(b) securities issued by *Sociedades Nacionales de Crédito* (National Credit Societies), the balance of which may not exceed 50% of our cash and cash equivalents;

(c) repurchase agreements that use securities issued or guaranteed by the Mexican Government;

(d) time deposits with major financial institutions, the balance of which may not exceed 30% of our cash and cash equivalents; and

(e) shares of mutual funds whose investments are limited to securities issued or guaranteed by the Mexican Government.

In addition to the restrictions listed above, demand deposit accounts must be traded with financial institutions that maintain, at a minimum, the following credit ratings as issued by the applicable rating agency:

Domestic scale	Fitch Ratings	S&P	Moody's
Long term	AA(mex)	mxAA	Aa2.mx
Short term	F1(mex)	A-1	Mx-1

(ii) Investments of Financial Resources in Dollars

Investments of financial resources in dollars must meet our operational and strategic requirements and must be previously approved by *Banco de México* on a case-by-case basis. Currently, our investments in dollars are limited to operational accounts, short-term money market funds and time deposits. Our dollar investments are managed by *Banco de México*.

Operational Currencies

The main currencies for investing cash and cash equivalents are pesos and dollars. Similarly, we generate revenues from the domestic and international sales of our products in those two currencies and our expenses, including those relating to our debt service, are payable in these two currencies.

Commitments for Capital Expenditures and Sources of Funding

Our capital expenditures for 2022 were Ps. 206,811 million, however, we expect to increase our capital expenditures budget for 2023 up to Ps. 278,804 million. Both figures exclude amounts for non-capitalizable maintenance. For an overview of current capital expenditure commitments, see "*Item 4—Information on the Company—History and Development—Capital Expenditures*" and the "*Capital Expenditures and Budget*" sections for each business segment in Item 4. The amount of our aggregate capital expenditures commitments for 2023 remains subject to adjustment by the Mexican Government. See "*Item 3—Key Information—Risk Factors—Risk Factors Related to our Relationship with the Mexican Government—The Mexican Government controls us, could transfer or reorganize our assets, or may otherwise limit our ability to satisfy our external debt obligations*."

The following table sets forth our total capital expenditures, excluding non-capitalizable maintenance, by segment for the year ended December 31, 2022, and the budget for these expenditures for 2023. Capital expenditure amounts are derived from our budgetary records, which are prepared on a cash basis. Accordingly, these capital expenditure amounts do not correspond to capital expenditure amounts included in our consolidated financial statements prepared in accordance with IFRS. For more information, see "*Item 4—History and Development —Capital Expenditures*."

	Year ended December 31,	Budget
	2022	2023[1]
	(millions of pesos)[2]	
Exploration and Production	Ps. 161,838	Ps. 239,928
Industrial Transformation	37,813	29,881
Logistics	6,274	7,517
Corporate and other Subsidiaries	885	1,477
Total	**Ps. 206,811**	**Ps. 278,804**

Note: Numbers may not total due to rounding.

(1) Amended budget was authorized on January 31, 2023. The original budget was published in the Official Gazette of the Federation on November 28, 2022.

(2) Figures are stated in nominal pesos.

Source: Petróleos Mexicanos.

Our current commitments for capital expenditures have fluctuated in recent years as compared to previous years. Based on past experience, we expect to generate sufficient funds for our working capital, capital expenditures and investments through:

- cash flow generated by operations;
- the renewal of existing lines of credit and the entering into of new lines of credit from international and local commercial banks;
- the issuance of *certificados bursátiles* (peso-denominated publicly traded notes) in the Mexican market; and
- other financing activities that do not constitute public debt.

We may, if necessary, issue new debt securities in U.S. dollars, Japanese yen, euros, pounds sterling or Swiss francs, among other currencies; these securities may be issued with fixed or floating rates and with maturities of one or more years, including perpetual debt securities, depending on market conditions and funding requirements. We may issue securities in the Mexican domestic market, these securities may vary in tenor, amount and type of interest rate. Commercial bank syndicated loans may be established with single or multiple tranches with varying maturities. Bilateral loans may vary in tenor and range, which may be of one year or more. Finally, we may consider the implementation and development of alternative financing mechanisms that do not constitute public debt. See also "—*Financing Activities*" below.

2023 Financing Activities

Financing activities as of December 31, 2022 and 2021, as well as those between January 1, 2023 and the date of this annual report are disclosed in Notes 16 and 28 to our consolidated financial statements included herein.

Indebtedness

During 2022, our total debt decreased by 7.0%, from Ps. 2,249.7 billion on December 31, 2021 to Ps. 2,091.5 billion at December 31, 2022, primarily due to the appreciation of the peso against the U.S. dollar and the payments made during the year . See Note 16 to our consolidated financial statements included herein for more information.

As of December 31, 2022 and as of the date of this annual report, we were not in default on any of our financing agreements.

The following table sets forth the analysis of our total indebtedness (not including accrued interest) as of December 31, 2022 based on short- and long-term debt and fixed or floating rates:

	In millions of U.S. dollars
Short-term debt	
Short-term bonds with floating interest rates	U.S.$ 816
Lines of credit with variable interest rates established under committed credit facilities with various international commercial banks	14,554
Lines of credit with fixed interest rates	6,602
Total short-term debt[1]	**U.S.$ 21,972**
Long-term debt	
Fixed rate instruments	
Instruments with fixed annual interest rates ranging from 0.54% to 9.5% and maturities ranging from 2024 to 2060 and perpetual bonds with no maturity date	77,974
Variable rate instruments	
Drawings under lines of credit based on LIBOR and other variable rates with maturities ranging from 2024 to 2031	5,398
Floating rate notes with maturities ranging from 2024 to 2025	356
Total variable rate instruments	**U.S.$ 5,754**
Total long-term debt	**U.S.$ 83,728**
Total indebtedness[1]	**U.S.$ 105,700**

Note: Numbers may not total due to rounding.

(1) Excludes U.S. $2,027.5 million Ps. 39,363.3 million of accrued interest and includes notes payable to contractors.

The table below sets forth our total indebtedness as of December 31 for each of the three years from 2020 to 2022.

Total Indebtedness

	As of December 31,[1]		
	2022	2021	2020
	(in millions of U.S. dollars)[2]		
Domestic debt in various currencies	U.S. $ 17,733	U.S. $ 15,484	U.S. $ 14,490
External debt in various currencies[3]			
Bonds	71,653	75,188	82,856
Direct loans	13,861	13,834	10,559
Project financing[4]	1,118	1,632	1,722
Capital lease and financing of infrastructure assets[5]	1,231	1,323	1,410
Notes payable to contractors	105	21	51
Total external debt	U.S. $ 87,967	U.S. $ 91,998	U.S. $ 96,598
Total indebtedness	**U.S. $105,700**	**U.S. $107,482**	**U.S. $111,088**

Note: Numbers may not total due to rounding.

(1) Figures do not include accrued interest. Accrued interest was U.S.$ 2,027.5 million, U.S. $1,814.0 million and U.S. $2,138.3 million at December 31, 2022, 2021 and 2020, respectively.

(2) Indebtedness payable in currencies other than U.S. dollars was first converted into pesos for accounting purposes at the exchange rates set by *Banco de México* and then converted from pesos to U.S. dollars at the following exchange rates: Ps. 19.4143 = $1.00 for 2022, Ps. 20.5835 = $1.00 for 2021 and Ps. 19.9487 = $1.00 for 2020 See Note 16 to our consolidated financial statements included herein.

(3) Indebtedness payable other than in pesos and owed to persons or institutions having their head offices or chief places of business outside of Mexico and payable outside the territory of Mexico.

(4) All credits included in this line are insured or guaranteed by export credit agencies.
(5) Figures only include financing of infrastructure assets and does not include financial leases due to the adoption of IFRS. Financial leases were reclassified to lease liabilities.

Results of Operations by Business Segment

This section presents the results of our operations by business segment, including our central corporate operations and the operations of the consolidated subsidiary companies.

Revenue by Business Segment

The following table sets forth our trade and intersegment net revenues by business segment for the fiscal years ended December 31, 2020, 2021 and 2022 as well as the percentage change in sales revenues for those years.

	Year Ended December 31,				
	2022	2021	2020	2022 vs. 2021	2021 vs. 2020
	(in millions of pesos)[1]			(%)	(%)
Exploration and Production					
Trade sales[2]	Ps. 580,809	Ps. 468,595	Ps. 301,527	23.9	55.4
Intersegment sales	717,367	460,573	242,455	55.8	90.0
Total net sales	1,298,176	929,168	543,982	39.7	70.8
Industrial Transformation [3]					
Trade sales[2]	Ps. 1,208,012	Ps. 705,135	Ps. 479,437	71.3	47.1
Intersegment sales	302,191	186,494	97,729	62.0	90.8
Total net sales	1,510,203	891,629	577,166	69.4	54.5
Logistics					
Trade sales[2]	Ps. 1,583	Ps. 2,949	Ps. 4,099	(46.3)	(28.1)
Intersegment sales	89,622	84,953	80,575	5.5	5.4
Total net sales	91,205	87,902	84,674	3.8	3.8
DPRLP [4]					
Trade sales[2]	Ps. 238,941	n.a.	n.a.	100.0	n.a.
Intersegment sales	29,194	n.a.	n.a.	100.0	n.a.
Total net sales	268,135	—	—	100.0	n.a.
Trading Companies					
Trade sales[2]	Ps. 336,538	Ps. 305,851	Ps. 160,016	10.0	91.1
Intersegment sales	819,994	400,866	280,924	104.6	42.7
Total net sales	1,156,532	706,717	440,940	63.6	60.3
Corporate					
Trade sales[2]	Ps. 1	Ps. 2	Ps. 3	(50.0)	(33.3)
Intersegment sales	80,180	83,781	78,459	(4.3)	6.8
Total net sales	80,181	83,783	78,462	(4.3)	6.8
Other operating subsidiary companies					
Trade sales[2]	Ps. 17,505	Ps. 13,097	Ps. 8,581	33.7	52.6
Intersegment sales and total eliminations	(2,038,549)	(1,216,667)	(780,142)	67.6	56.0
Total net sales	**(2,021,044)**	**(1,203,570)**	**(771,561)**	**67.9**	**56.0**
Total net revenues	**Ps. 2,383,388**	**Ps. 1,495,629**	**Ps. 953,663**	**59.4**	**56.8**

Note: Numbers may not total due to rounding.
(1) Figures for 2020, 2021 and 2022 are stated in nominal pesos.

(2) Trade sales represent sales to external customers. See "*Item 5—Operating and Financial Review and Prospects—Selected Financial Data*."
(3) On January 1, 2021, Pemex Fertilizers was merged into Pemex Industrial Transformation. For comparison purposes all operations for periods prior to the merger are presented in the Pemex Industrial Transformation segment.
(4) Beginning January 20, 2022, DPRLP information is now included as a separate business segment.

Source: PEMEX's consolidated financial statements, prepared in accordance with IFRS.

Income by Business Segment

The following table sets forth our net income (loss) by business segment for each year in the fiscal years ended December 31, 2020, 2021 and 2022, as well as the percentage change in income for the years 2020 to 2022.

	Year Ended December 31,				
	2022	2021	2020	2022 vs. 2021	2021 vs. 2020
	(in millions of pesos)[1]			(%)	(%)
Business Segment					
Exploration and Production	Ps. 261,241	Ps. (39,898)	Ps. (216,922)	(754.8)	(81.6)
Industrial Transformation[2]	(168,723)	(219,842)	(238,087)	(23.3)	(7.7)
Logistics	16,572	15,474	23,731	7.1	(34.8)
DPRLP	20,905	n.a.	n.a.	100.0	n.a.
Trading Companies	36,071	829	(682)	4251.1	(221.5)
Corporate	100,412	(294,532)	(508,879)	(134.1)	(42.1)
Other operating subsidiary companies [3]	47,507	(13,594)	(9,389)	(449.5)	44.8
Eliminations	(213,987)	256,787	441,177	(183.3)	(41.8)
Total net income (loss)	**Ps. 99,998**	**Ps. (294,776)**	**Ps. (509,051)**	**(133.9)**	**(42.1)**

Note: Numbers may not total due to rounding.
(1) Figures are stated in nominal pesos. See "*Item 5—Operating and Financial Review and Prospects—Selected Financial Data*."
(2) On January 1, 2021, Pemex Fertilizers was merged into Pemex Industrial Transformation. For comparison purposes all operations for periods prior to the merger are presented in the Pemex Industrial Transformation segment.
(3) Beginning January 20, 2022, DPRLP information is now included as a separate business segment.

Source: PEMEX's consolidated financial statements, prepared in accordance with IFRS.

2022 compared to 2021

We present below the results of our operations by business segment. For more information on our operating segments, see "*Item 4— Information on the Company—History and Development—Corporate Structure*" and Note 1 to our consolidated financial statements included herein. For a detailed description of the financial results of each segment, see Note 6 to our consolidated financial statements included herein.

Exploration and Production

In 2022, total revenue related to exploration and production activities increased by 39.7%, primarily due to the increase in crude oil export prices. The weighted average price of crude oil sold by our exploration and production segment for export was U.S. $65.85 in 2021 compared to U.S. $88.41 in 2022. Net losses related to exploration and production activities decreased by Ps. 301,139 million, from a loss of Ps. 39,898 million in 2021 to a Ps. 261,241 million income in 2022, primarily due to an increase in sales.

Industrial Transformation

In 2022, total revenue related to industrial transformation activities increased by 69.4%, from Ps. 891,629 million in 2021 to Ps. 1,510,203 million in 2022, primarily due to an increase in the average sales prices of petroleum products. In

2022, our net loss related to industrial transformation activities was Ps. 168,723 million, a decrease in net loss of Ps. 51,119 million as compared to the Ps. 219,842 million net loss recognized in 2021. The decrease in loss was due to an increase in domestic sales.

Logistics

In 2022, total revenue related to the logistics segment increased by 3.8%, from Ps. 87,902 million in 2021 to Ps. 91,205 million in 2022, primarily due to an increase in the services provided to Pemex Industrial Transformation. In 2022, our net income related to logistics activities was Ps. 16,572 million, an increase of Ps. 1,098 million in comparison to our net income of Ps. 15,474 million in 2021. This increase in net income was primarily the result of an increase in demand of pipeline transportation services and an increase in financing income.

Deer Park Refining Limited Partnership

Beginning January 20, 2022, information for Deer Park is now included as a separate business segment. During 2022 total revenue of Deer Park were Ps. 268,135 million. Net income related to Deer Park segment was Ps. 20,905 million in 2022. Until December 31, 2021, this segment was part of the subsidiary companies.

Trading Companies

In 2022, total revenue relating to the Trading Companies' exports of crude oil and petroleum products (including services income) increased by 63.6%, from Ps. 706,717 million in 2021 to Ps. 1,156,532 million in 2022, primarily as a result of an increase in average crude oil export prices from U.S. $65.85 in 2021 to U.S. $88.41 in 2022. In 2022, net income related to the Trading Companies increased Ps. 35,242 million, from a net income of Ps. 829 million in 2021 to a net income of Ps. 36,071 million in 2022, primarily as a result of an increase in sales.

Corporate

In 2022, total revenue relating to the corporate segment decreased by 4.3%, from Ps. 83,783 million in 2021 to Ps. 80,181 million in 2022, primarily as a result of lower services income. In 2022, net income related to the corporate segment increased Ps. 394,944 million, from a loss of Ps. 294,532 million in 2021 to a net income of Ps. 100,412 million in 2022, primarily as a result of the recognition of profits from the equity method from subsidiary entities.

Other Operating Subsidiary Companies

In 2022, total revenues relating to other subsidiary companies increased from Ps. 13,097 million in 2021 to Ps. 17,505 million in 2022, primarily due to an increase in total revenues. Net loss related to other subsidiary companies after inter-company eliminations decreased 449.5%, from a net loss of Ps. 13,594 million in 2021 to a net income of Ps. 47,507 million in 2022, primarily due to increase in total sales and a decrease in operating costs.

2021 compared to 2020

We present below the results of our operations by business segment. For more information on our operating segments, see "*Item 4— Information on the Company—History and Development—Corporate Structure*" and Note 1 to our consolidated financial statements included herein. For a detailed description of the financial results of each segment, see Note 6 to our consolidated financial statements included herein.

Exploration and Production

In 2021, total revenue increased by 70.8%, primarily due to the increase in crude oil export prices. The weighted average price of crude oil sold by our exploration and production segment for export was U.S. $35.47 in 2020 compared to U.S. $65.85 in 2021. Net loss related to exploration and production activities decreased by Ps. 177,024 million, from a Ps. 216,922 million loss in 2020 to a Ps. 39,898 million loss in 2021, primarily due to an increase in sales.

Industrial Transformation

In 2021, total revenue related to industrial transformation activities increased by 54.5%, from Ps. 577,166 million in 2020 to Ps. 891,629 million in 2021, primarily due to an increase in the average sales prices of petroleum products. In

2021, our net loss related to industrial transformation activities was Ps. 219,842 million, a decrease in net loss of Ps. 18,245 million as compared to the Ps. 238,087 million net loss recognized in 2020. The decrease in loss was due to an increase in domestic sales.

Logistics

In 2021, total revenue related to the logistics segment increased by 3.8%, from Ps. 84,674 million in 2020 to Ps. 87,902 million in 2021, primarily due to an increase in the services provided to Pemex Industrial Transformation. In 2021, our net income related to logistics activities was Ps. 15,4744 million, a decrease of Ps. 8,257 million in comparison to our net income of Ps. 23,731 million in 2020. This reduction in net income was primarily the result of an increase in demand of pipeline transportation services, a reduction in cost of sales and an increase in financing income.

Trading Companies

In 2021, total revenue relating to the Trading Companies' exports of crude oil and petroleum products to third parties (including services income) increased by 60.3%, from Ps. 440,940 million in 2020 to Ps. 706,717 million in 2021, primarily as a result of an increase in average crude oil export prices from U.S. $35.47 in 2020 to U.S. $65.85 in 2021. In 2021, net income related to the Trading Companies increased Ps. 1,511 million, from a net loss of Ps. 682 million in 2020 to a net income of Ps. 829 million in 2021, primarily as a result of an increase in sales.

Corporate

In 2021, total revenue relating to the corporate segment increased by 6.8%, from Ps. 78,462 million in 2021 to Ps. 83,783 million in 2022, primarily as a result of higher services income. In 2021, net loss related to the corporate segment decreased Ps. 214,347 million, from a loss of Ps. 508,879 million in 2020 to a net loss of Ps. 294,532 million in 2021, primarily as a result of the recognition of profits form the equity method from subsidiary entities.

Other Operating Subsidiary Companies

In 2021, total revenue relating to other subsidiary companies increased from Ps. 8,581 million in 2020 to Ps. 13,097 million in 2021, primarily due to an increase in total sales. Net loss related other subsidiary companies increased 44.8%, from a net loss of Ps. 9,389 million in 2020 to a net loss of Ps. 13,594 million in 2021, primarily due an increase in operating expenses.

Research and Development

Our research and development activities are focused on developing the Mexican energy sector through advancing products and solutions that are intended to be high quality, high performance and technologically efficient. These research and development activities are focused on the development of technologies not available in the international market and on the development of specialized human resources in the oil industry.

Created in 1965, the Mexican Petroleum Institute is a public research organization under the Ministry of Energy that is administered by the Mexican Government and has its own legal entity and resources, as well as technical, operative and administrative autonomy with respect to its decisions. The Mexican Petroleum Institute is the only public research center in Mexico that has carried out research, technological development, innovation, process and products improvement, as well as offered high value technological services focused on process optimization in hydrocarbon exploration and production, industrial transformation, and national and international commercialization.

We coordinate closely with the Mexican Petroleum Institute for the development of competitive and valuable solutions through technology transfer, technological services, project development, talent development and specialized training.

We continue to support different research projects. For one project, we have partnered with the Mexican Petroleum Institute's *Centro de Tecnologías para Exploración y Produccion* (Center for Exploration and Production Technologies) to analyze the role of qualified human resources in assimilating, generating and qualifying technologies for the efficient design, development and operation of oil fields. Another of these projects is the implementation of networks of oceanographic observations (physical, geochemical, ecological) for the generation of scenarios in the event of a possible hydrocarbon spill in the Gulf of Mexico with the *Centro de Investigación Científica y de Educación Superior de Ensenada* (Ensenada Center for Scientific Research and Higher Education or "CICESE").

Finally, we coordinate with other entities outside of Mexico. For example we are currently arranging Memorandum of Understandings with SINOPEC, ECOPETROL, INPEX and JOGMEC.

Recently Issued Accounting Standards

Certain of new accounting standards for which earlier application is permitted went into effect for annual periods beginning January 1, 2023. As of the date of this annual report, we have not adopted such new or amended standards in our consolidated financial statements included herein. The following amended standards and interpretations are not expected to have a significant impact on our consolidated financial statements:

i. Applicable as of January 1, 2023:

- Insurance Contracts (Amendments to IFRS 17)
- Classification of Liabilities as Current or Non-current (Amendments to IAS 1)
- Definition of Accounting Estimates (Amendments to IAS 8)
- Disclosure of Accounting Policies (Amendments to IAS 1 and IFRS Practice Statement 2)
- Deferred Tax related to Assets and Liabilities arising from a Single Transaction (Amendments to IAS 12)
-

ii. Applicable as of January 1, 2024

- Lease Liability in a Sale and Leaseback (Amendments to IFRS 16)

For more information about recently issued accounting standards see Note 4 to our consolidated financial statements included herein.

Item 6. Directors, Senior Management and Employees

Under the Petróleos Mexicanos Law, we are governed by a ten-member Board of Directors composed as follows:

- the Secretary of Energy, who serves as the Chairperson and has the right to cast a tie-breaking vote;
- the Secretary of Finance and Public Credit;
- three Mexican Government representatives, who are appointed by the President of Mexico; and
- five independent members, who are appointed by the President of Mexico, subject to ratification by the Senate. Independent members perform their duties on a part-time basis, are not public officials (i.e., individuals holding federal, state or municipal government positions in Mexico) and have not been employed by Petróleos Mexicanos or any of the subsidiary entities during the two years prior to their appointment.

The Petróleos Mexicanos Law authorizes only the Secretary of Energy and the Secretary of Finance and Public Credit to designate an alternate to serve in his or her place, provided that the alternate is a public official at the undersecretary level, at minimum. This alternate may attend meetings of the Board of Directors of Petróleos Mexicanos and otherwise assume the duties of the director, except that the Chairperson's designated alternate may not cast a tie-breaking vote. In addition, any ministry-level secretary serving as a member of the Board of Directors of Petróleos Mexicanos may designate an alternate to attend meetings on his or her behalf, provided that such alternate is a public official at the undersecretary level, at minimum.

Under the Petróleos Mexicanos Law, all public officials serving as members of the Board of Directors of Petróleos Mexicanos are required to act impartially and for the benefit and in the best interests of Petróleos Mexicanos, separating at all times the interests of the ministry or governmental entity for which they work from their duties as members of the Board of Directors.

The five independent members are appointed to staggered five-year terms, and may be appointed for an additional term of the same length. The remaining members of our Board of Directors are not appointed for a specific term.

Under the Petróleos Mexicanos Law, each of the boards of directors of our subsidiary entities will consist of not less than five and no more than seven members. The majority of the members of each of the board of directors shall be appointed by and represent the Board of Directors of Petróleos Mexicanos. The Ministry of Energy and the Ministry of Finance and Public Credit may also appoint members to each board of directors of the subsidiary entities, subject to approval by the Board of Directors of Petróleos Mexicanos.

The structure, organizational basis and functions of the administrative units of Petróleos Mexicanos and each of the subsidiary entities are established in the *Estatuto Orgánico* (Organic Statute) approved by the Board of Directors of each entity.

The following tables set forth certain information with respect to directors and executive officers of Petróleos Mexicanos and each of the subsidiary entities as of April 28, 2023:

Petróleos Mexicanos—Directors and Executive Officers

Name	Position with Petróleos Mexicanos	Year Appointed
Ms. Norma Rocío Nahle García	Chairperson of the Board of Directors of Petróleos Mexicanos and Secretary of Energy *Born*: 1964 *Business experience*: Senator of the LXIV Legislature; Federal Deputy of the LXIII Legislature; Advisor to the Energy Commission of the Chamber of Deputies of the LIX; Legislature and of the Senate of the LXII Legislature. *Other board memberships*: CFE (Chairperson); Centro Nacional de Control de Energía (Chairperson); CENAGAS (Chairperson); Instituto Nacional de Investigaciones Nucleares (Chairperson); IMP (Chairperson); Fondo Mexicano del Petróleo; and Litio para México (Chairperson). *Family relations*: None.	2018

Mr. Miguel Ángel Maciel Torres	Alternate Board Member of Petróleos Mexicanos and Undersecretary of Hydrocarbons of the Ministry of Energy *Born*: 1960 *Business experience*: Deputy Director of Businesses Development for Exploration and Extraction of Petróleos Mexicanos; Deputy Director of Alliances Management of Pemex Exploration and Production; and Deputy Director of Field Development of Pemex Exploration and Production. *Other board memberships*: Centro Nacional de Control de Energía (Alternate); CENAGAS (Alternate); Instituto Nacional de Electricidad y Energías Limpias (Chairperson); and Instituto Nacional de Investigaciones Nucleares (Alternate); and IMP (Alternate). *Family relations*: None.	2019
Mr. Rogelio Ramírez de la O	Board Member of Petróleos Mexicanos and Secretary of Finance and Public Credit *Born*: 1948 *Business experience*: Board Member of Peña Verde, S.A.B.; Independent Board Member of Reaseguradora Patria, S.A.; and Independent Board Member of Grupo Modelo, S.A. de C.V.	2021

Other board memberships: Centro de Investigación y Seguridad Nacional; Casa de Moneda de México (Chairperson); Comisión Nacional para la Protección y Defensa de los Usuarios de Servicios Financieros (CONDUSEF) (Chairperson); Financiera Nacional de Desarrollo Agropecuario, Rural, Forestal y Pesquero (Chairperson); Instituto para la Protección al Ahorro Bancario (Chairperson); Lotería Nacional para la Asistencia Pública (Chairperson); Pronósticos para la Asistencia Pública (Chairperson); Servicio de Administración y Enajenación de Bienes (SAE) (Chairperson); Agroasemex, S.A. (Chairperson); Banco del Bienestar, S.N.C. (Chairperson); Banco Nacional de Comercio Exterior, S.N.C. (BANCOMEXT) (Chairperson); Banco Nacional de Obras y Servicios Públicos, S.N.C. (BANOBRAS) (Chairperson); Banco Nacional del Ejército, Fuerza Aérea y Armada, S.N.C. (BANJERCITO) (Chairperson); Nacional Financiera, S.N.C. (NAFIN) (Chairperson); Seguros de Crédito a la Vivienda SHF, S.A. de C.V. (SCV) (Chairperson); Sociedad Hipotecaria Federal, S.N.C. (SHF) (Chairperson); Fondo de Operación y Financiamiento Bancario a la Vivienda; CNBV; Comisión Nacional de Seguros y Fianzas (CNSF); Comisión Nacional del Sistema de Ahorro para el Retiro (CONSAR) (Chairperson); Servicio de Administración Tributaria (Tax Administration Service, or the SAT) (Chairperson); Instituto Nacional de las Personas Adultas Mayores; Consejo Nacional para el Desarrollo y la Inclusión de las Personas con Discapacidad; Coordinación Nacional de PROSPERA, Programa de Inclusión Social; Comisión Nacional Forestal; Instituto Mexicano de Tecnología del Agua; Instituto Nacional de Ecología y Cambio Climático (INECC); Comisión Nacional del Agua; ASEA; Aeropuertos y

Servicios Auxiliares; Caminos y Puentes Federales de Ingresos y Servicios Conexos (CAPUFE); Servicio Postal Mexicano (SEPOMEX); Telecomunicaciones de México (TELECOMM); Consejo Nacional de Fomento Educativo; Fondo de Cultura Económica; Instituto Mexicano de la Radio; Instituto Nacional para la Educación de los Adultos; Fideicomiso de los Sistemas Normalizado de Competencia Laboral y de Certificación de Competencia Laboral; Instituto del Fondo Nacional para el Consumo de los Trabajadores (INFONACOT); Instituto Nacional de Ciencias Penales; Comisión Nacional para el Desarrollo de los Pueblos Indígenas; Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado (ISSSTE); Instituto del Fondo Nacional de la Vivienda para los Trabajadores (INFONAVIT);

Instituto Mexicano del Seguro Social (IMSS); Instituto Nacional de las Mujeres (INMUJERES); CFE; Comisión de Política Gubernamental en materia de Derechos Humanos; Comisión Intersecretarial de Cambio Climático; Comisión Intersecretarial para el Desarrollo del Gobierno Electrónico; Comisión Intersecretarial de Gasto Público, Financiamiento y Desincorporación; Comisión Intersecretarial para el Conocimiento y Uso de la Biodiversidad; Comisión Intersecretarial para el Otorgamiento de Concesiones y Permisos previstos en la Ley de Aeropuertos; Comisión Intersecretarial para la Instrumentación del Programa de Integración del Registro Nacional de Población; Comisión Intersecretarial para la Prevención y Combate a la Economía Ilegal; Consejo Nacional de Educación para la Vida y el Trabajo; Consejo Nacional para las Comunidades Mexicanas en el Exterior; Comisión Coordinadora para la Negociación de Precios de Medicamentos y Otros Insumos para la Salud; Comisión Intersecretarial de Compras y Obras de la Administración Pública Federal a la Micro, Pequeña y Mediana Empresa; Comisión Intersecretarial de Bioseguridad y Organismos Genéticamente Modificados; Comisión Intersecretarial de Desarrollo Social; Comisión Intersecretarial para el Desarrollo de los Bioenergéticos; Comisión Intersecretarial para la Atención de Sequías e Inundaciones; Comisión Intersecretarial para la Instrumentación de la Cruzada contra el Hambre; Comisión Intersecretarial para la Prevención Social de la Violencia y la Delincuencia; Comisión de Cambios (Chairperson); Comisión Nacional de Inversiones Extranjeras; Comisión Nacional de Inversiones Extranjeras; Comisión Ambiental Metropolitana; Consejo de Estabilidad del Sistema Financiero; Consejo de Seguridad Nacional; Technical Committee of the Fondo Mexicano del Petróleo para la Estabilización y el Desarrollo; Consejo Nacional para la Competitividad de la Micro, Pequeña y Mediana Empresa; Consejo Nacional para la Prevención y Control de las

Enfermedades Crónicas No Transmisibles; Comité Técnico Especializado en Información sobre Discapacidad del Sistema Nacional de Información Estadística y Geográfica; Comité Nacional de Productividad; Comité Nacional de Seguridad Aeroportuaria; Consejo Nacional de Protección Civil; Litio para Mexico.

Family relations: None.

Mr. Gabriel Yorio González	Alternate Board Member of Petróleos Mexicanos and Undersecretary of Finance and Public Credit of the Ministry of Finance and Public Credit	2019

Born: 1976

Business experience: Head of the Public Credit Unit of the Ministry of Finance and Public Credit; Public Sector Specialist at the World Bank; and Financial Management Specialist at the World Bank.

Other board memberships: Agencia Mexicana de Cooperación Internacional para el Desarrollo; Casa de Moneda de México; CONDUSEF (Alternate); Financiera Nacional de Desarrollo Agropecuario, Rural, Forestal y Pesquero; Instituto para la Protección al Ahorro Bancario (Alternate); Lotería Nacional para la Asistencia Pública (Alternate); Pronósticos para la Asistencia Pública (Alternate); SAE; Agroasemex, S.A.; Banco del Bienestar, S.N.C.; BANCOMEXT; BANOBRAS; BANJERCITO; NAFIN; SCV; SHF; Fondo de Capitalización e Inversión del Sector Rural; Fondo de Garantía y Fomento para la Agricultura, Ganadería y Avicultura; Fondo de Garantía y Fomento para Actividades Pesqueras; Fondo de Operación y Financiamiento Bancario a la Vivienda; CNBV; CNSF; CONSAR; SAT (Alternate); CENAGAS; Centro Nacional de Control de la Energía; ISSSTE; CFE (Alternate); Comisión de Fomento del as Actividades de las Organizaciones de la Sociedad Civil; Comisión Intersecretarial para el Desarrollo de los Bioenergéticos; Comisión Intersecretarial para la Transición Digital; Comisión de Cambios; Comisión Permanente de Servicios de Salud a la Comunidad; Comisión de Comercio Exterior; Comisión Tripartita encargada de la Evaluación y Seguimiento de las Disposiciones establecidas en la Ley de Ayuda Alimentaria para los Trabajadores; Comité Interinstitucional para la Aplicación del Estímulo Fiscal a Proyectos de Inversión en la Producción Teatral Nacional; Comité Interinstitucional para la Aplicación del Estímulo Fiscal a Proyectos de Inversión en la Producción Cinematográfica Nacional; Comisión Nacional de Inversiones Extranjeras (Alternate);

	Consejo de Estabilidad del Sistema Financiero; Consejo de Salubridad General; Consejo Nacional de Armonización Contable; Technical Committee of the Fondo Mexicano del Petróleo para la Estabilización y el Desarrollo (Alternate); Consejo Consultivo Nacional del Sistema Nacional de Información Estadística y Geográfica; Comité Nacional de Productividad (Alternate); and Comisión to which Article 15 of the Ley de Ayuda Alimentaria para los Trabajadores (Law of Food Assistance for Workers). *Family relations*: None.	
Ms. Raquel Buenrostro Sánchez	Secretary of Economy *Born*: 1970 *Business experience*: Head of the Tax Administration Service; Head Official at the Ministry of Finance and Public Credit; and Manager Responsible for the Liquidation Process of Pemex Cogeneration and Services. *Other board memberships*: CFE Telecomunicaciones e Internet para Todos: Fideicomiso de Fomento Minero (Chairperson); Exportadora de Sal, S.A. de C.V. (Chairperson); Grupo Aeroportuario Turístico Mexicano, S.A. de C.V.; Grupo Aeroportuario de la Ciudad de México, S.A. de C.V.; Aeropuerto Internacional de la Ciudad de Mexico, S.A. de C.V.; Servicios Aeroportuarios de la Ciudad de Mexico, S.A. de C.V.; Sistema Portuario Nacional Lázaro Cardenas, S.A. de C.V.; Sistema Portuario Nacional Puerto Vallarta, S.A. de C.V.; DICOSA, S.A. de C.V.; LICONSA, S.A. de C.V.; Banco Nacional de Comercio Exterior, S.N.C.; Nacional Financiera, S.N.C.; and Litio para México. *Family relations*: None	2022

Mr. Luis Abel Romero López	Undersecretary for Industry and Commerce of the Secretary of Economy *Born*: 1979 *Business experience*: Undersecretary of Industry and Commerce; General Administrator of Collection; Head of Unit at the Ministry of Finance and Public Credit; Technical Coordinator of Programming and Budgetary Control at the Mexican Institute of Social Security. *Other board memberships*: ESSA, S.A. de C.V.; and Banco del Bienestar, S.N.C. (Alternate). *Family relations*: None.	2022
Ms. María Luisa Albores González	Board Member of Petróleos Mexicanos and Secretary of Environment and Natural Resources *Born*: 1976 *Business experience*: Secretary of Welfare; and Advisor of Regional Agricultural and Livestock Cooperative Company Tosepan Titataniske. *Family relations*: None.	2020

Alonso Jiménez Reyes	Undersecretary of Environmental Regulations of the Secretary of Environment and Natural Resources	2022

Born: 1980

Business experience: Undersecretary of Environmental Promotion and Regulations of the Ministry of the Environment and Natural Resources; Coordinator of Institutional Strategy of the Ministry of the Environment and Natural Resources; and Head of the Administration and Finance Unit of the Ministry of the Environment and Natural Resources.

Other board memberships: Comisión Nacional del Agua (Alternate Chairman), Consejo Técnico para el Manejo del Fondo de Recuperación, Conservación y Mantenimiento de Playas; Agencia Nacional de Seguridad Industrial y de Protección al Medio Ambiente (Alternate Chairperson); Instituto Mexicano de Petró1eo; Grupo Aeroportuario de la Ciudad de México, S.A. de C.V.; Centro Nacional de Metrología; Comisión Ejecutiva de Turismo; Comité Consultivo Nacional de Normalización de Medio Ambiente y Recursos Naturales (Chairperson); Comité Técnico de Normalización Nacional de Medio Ambiente y Recursos Naturales (Chairperson); Comisión Nacional de Infraestructura de la Calidad; Comisión de Comercio Exterior; Comité Consultivo Nacional de Normalización de Seguridad Industrial y Operativa y Protección al Medio Ambiente del Sector Hidrocarburos; Comité Consultivo Nacional de Normalización de Transporte Ferroviario; Consejo Directivo del Centro Nacional de Metrología; Comisión Intersecretarial de Gasto Publico, Financiamiento y Desincorporación (Alternate); Comité Nacional de Facilitación del Comercio; Comité Consultivo Nacional de Normalización de la Secretaria de Marina; Comisión Ambiental de la Megalópolis (Alternate).

Family relations: None

Mr. Manuel Bartlett Díaz	Board Member of Petróleos Mexicanos and General Director of CFE *Born*: 1936 *Business experience*: Senator of the LXIII and LXII Legislatures; and Governor of the State of Puebla. *Other board memberships*: CFE Generación I (Chairperson); CFE Generación II (Chairperson); CFE Generación III (Chairperson); CFE Generación IV (Chairperson); CFE Generación V (Chairperson); CFE Generación VI (Chairperson); CFE Transmisión (Chairperson); CFE Distribución (Chairperson); CFE Suministrador de Servicios Básicos (Chairperson); CFE Telecomunicaciones e Internet Para Todos (Chairperson); CFE Calificados, S.A. de C.V. (Chairperson); CFEnergía, S.A. de C.V. (Chairperson); and CFE International, LLC. (Chairperson). *Family relations*: None.	2018
Mr. Juan José Paullada Figueroa	Independent Board Member of Petróleos Mexicanos *Born*: 1951 *Business experience*: Partner Director of Paullada, Guevara y Asociados, S.C.; Fiscal Attorney Officer of the Federation; and General Director of the Fideicomiso Liquidador de Instituciones y Organizaciones Auxiliares de Crédito. *Other board memberships*: Grupo Machado (Independent Board Member). *Family relations*: None.	2019

Mr. José Eduardo Beltrán Hernández	Independent Board Member of Petróleos Mexicanos *Born*: 1942 *Business experience*: President of the Political and Social Sciences of the Academia Mexicana de Ciencias, Tecnologías y Humanidades; Federal Deputy; President of the Energy Commission of the LIII Legislature of the Chamber of Deputies; and General Secretary of Government of the State of Tabasco. *Family relations*: None.	2019
Ms. Laura Itzel Castillo Juárez	Independent Board Member of Petróleos Mexicanos *Born*: 1957 *Business experience*: General Director of Sistema de Movilidad 1 of the Government of Mexico City; Federal Deputy of the LXI Legislature; and Secretary of Urban Development and Housing. *Other board memberships*: Director of Fundación Heberto Castillo Martínez, A.C. *Family relations*: None.	2020
Mr. Humberto Domingo Mayans Canabal	Independent Board Member of Petróleos Mexicanos *Born*: 1949 *Business experience*: Senator of the LXII and LXIII Legislatures; Coordinator for Migration Affairs in the Southern Border of the Ministry of the Interior; and General Secretary of Government of the State of Tabasco. *Family relations*: None.	2019
Mr. Lorenzo Mauricio Meyer Falcón	Independent Board Member of Petróleos Mexicanos *Born:* 1978 *Business experience:* Founding member for Mexico and Latin America of the United Nations: International Centers of Excellence on Sustainable Resource Management; Director General of PRODENER MX, S.A.P.I. de C.V.; and General Director of Liaison of CRE. *Family relations:* None	2022

Mr. Octavio Romero Oropeza	Chief Executive Officer/General Director *Born*: 1959 *Business experience*: President of the Movimiento de Regeneración Nacional (MORENA); Political State Council of Tabasco; Head Official of the Government of Mexico City; and Federal Deputy of the LVI Legislature. *Other board memberships*: CFE. *Family relations*: None.	2018
Mr. Carlos Fernando Cortez González	Acting Chief Financial Officer /Acting Corporate Director of Finance and Deputy Director of Treasury *Born*: 1971 *Business experience*:Deputy Director of Budget and Accounting of Petróleos Mexicanos; Associate Managing Director of Programming and Financial Analysis of Petróleos Mexicanos; and Deputy Manager of Income and Operation Results of Petróleos Mexicanos. *Family relations*: None.	2022
Mr. Marcos Manuel Herrería Alamina	Corporate Director of Management and Services *Born*: 1967 *Business experience*: General Director of Management of the Ministry of Finance of Mexico City; Private Secretary of the Head Official of the Government of Mexico City; and Administrative Coordinator of the Procuraduría General de Justicia of Mexico City. *Family relations*: None.	2019

Mr. Víctor Manuel Navarro Cervantes	Corporate Director of Planning, Coordination and Performance *Born*: 1963 *Business experience*: Managing Director of Urvian Servicios de Consultoría para la Administración Pública; General Coordinator of Administrative Modernization of the Administrative Office of the Government of Mexico City; and General Director of Management and Finance of the Sistema de Transporte Colectivo of Mexico City. *Family relations*: None.	2018
Ms. Luz María Zarza Delgado	Legal Director *Born*: 1968 *Business experience*: Deputy Director of Legal Consulting and Substitute in the Absence of the Head of Legal Director of Petróleos Mexicanos; General Counsel of the Universidad Autónoma del Estado de México; Legal Counsel of the State of Mexico; and Magistrate of the Electoral Court of the State of Mexico. *Family relations*: None.	2019
Mr. Juan Torres Gurrola	Head of Internal Auditing *Born*: 1957 *Business experience*: Head of the Internal Control Body of the Presidency of Mexico; Advisor of the Finance Secretary of the National Executive Committee of the Movimiento de Regeneración Nacional (MORENA); and Advisor of the Human Resources Deputy Office of the Ministry of Social Development of the Mexico City Government. *Family relations*: None.	2022

Pemex Exploration and Production—Directors and Executive Officers

Name	Position with Pemex Exploration and Production	Year Appointed
Mr. Octavio Romero Oropeza	Chairperson of the Board of Pemex Exploration and Production (refer to Petróleos Mexicanos)	2018

Mr. Jorge Luis Basaldúa Ramos	Board Member of Pemex Exploration and Production and General Director of Pemex Industrial Transformation *Born*: 1964 *Business experience*: Undersecretary of Human Capital and Management in the Government of Mexico City; General Manager in the Social Security Fund of the Preventive Police of Mexico City; and General Director of the Social Security Fund of the Auxiliary Police of Mexico City. *Other board memberships*: Administración Portuaria Integral Dos Bocas; and IMP (Alternate). *Family relations*: None.	2020
Mr. Javier Núñez López	Board Member of Pemex Exploration and Production and Deputy Director of Supply of Petróleos Mexicanos *Born*: 1965 *Business experience*: Acting Operative Director of Procurement and Supply of Petróleos Mexicanos; Director of Management of Xalapa, Veracruz; Chief of Staff of the LXII Legislature of the State of Tabasco Congress; and Director of Management of the Secretaría de Salud of the State of Tabasco. *Family relations*: None.	2019
Mr. Carlos Fernando Cortez González	Board Member of Pemex Exploration and Production (refer to Petróleos Mexicanos)	2022

Mr. Jorge Alberto Arévalo Villagrán	Board Member of Pemex Exploration and Production and General Director of Exploration and Extraction of Hydrocarbons of the Ministry of Energy *Born*: 1961 *Business experience*: Professor in Engineering of Universidad Nacional Autónoma de México; Technical Director of Special Projects of Soluciones en Software Especializado Némesis, S.A. de C.V.; and Associate Managing Director of Strategies and Plans of Pemex Exploration and Production. *Other board memberships*: Instituto Nacional de Investigaciones Nucleares (Alternate). *Family relations*: None.	2018
Mr. Gabriel Yorio González	Board Member of Pemex Exploration and Production and Acting Undersecretary of Income of the Ministry of Finance and Public Credit (refer to Petróleos Mexicanos)	2019
Mr. Ángel Cid Munguía	Board Member of Pemex Exploration and Production and General Director of Pemex Exploration and Production *Born*: 1961 *Business experience*: Executive Coordinator of the General Director's Office of Pemex Exploration and Production; Manager of Specialized Technical Resources of Pemex Exploration and Production; and Administrator of Activo Integral de Producción Bloque S03 of Pemex Exploration and Production. *Family relations*: None.	2021

Pemex Industrial Transformation—Directors and Executive Officers

Name	Position with Pemex Industrial Transformation	Year Appointed
Mr. Octavio Romero Oropeza	Chairperson of the Board of Pemex Industrial Transformation (refer to Petróleos Mexicanos)	2018
Mr. Marcos Manuel Herrería Alamina	Board Member of Pemex Industrial Transformation (refer to Petróleos Mexicanos)	2019

Mr. Víctor David Palacios Gutiérrez	Board Member of Pemex Industrial Transformation and General Director of Natural Gas and Petrochemicals of the Secretary of Energy *Born*: 1954 *Business experience*: Acting Associate Managing Director of Gas Processing Complex La Cangrejera of Pemex Gas and Basic Petrochemicals; Deputy Manager of Production of Pemex Gas and Basic Petrochemicals; and Project Leader for Maximizing the Impact of Technology in Gas Processing Complex La Cangrejera of Pemex Petrochemicals. *Other board memberships*: CENAGAS (Alternate); and Centro Nacional de Metrología. *Family relations*: None.	2019
Mr. Carlos Fernando Cortez González	Board Member of Pemex Industrial Transformation (refer to Petróleos Mexicanos)	2021
Mr. Ángel Cid Munguía.	Board Member of Pemex Industrial Transformation (refer to Pemex Exploration and Production)	2021
Mr. Gabriel Yorio González	Board Member of Pemex Industrial Transformation and Acting Undersecretary of Income of the Ministry of Finance and Public Credit (refer to Petróleos Mexicanos)	2019
Mr. Jorge Luis Basaldúa Ramos	Board Member of Pemex Industrial Transformation and General Director of Pemex Industrial Transformation (refer to Pemex Exploration and Production)	2020

Pemex Logistics—Directors and Executive Officers

Name	Position with Pemex Logistics	Year Appointed
Mr. Octavio Romero Oropeza	Chairperson of the Board of Pemex Logistics (refer to Petróleos Mexicanos)	2018
Mr. Marcos Manuel Herrería Alamina	Board Member of Pemex Logistics (refer to Petróleos Mexicanos)	2019
Ms. Brenda Fierro Cervantes	Board Member of Pemex Logistics and Deputy Director of Information Technology of Petróleos Mexicanos *Born*: 1974 *Business experience*: Deputy Director of Technologic Alliance of Petróleos Mexicanos; Project Leader of Lingo Systems, S.A. de C.V.; Director of New Technologies of the Government of Mexico City; and Deputy Director of Programming and Design of the Government of Mexico City. *Family relations*: None.	2019

Mr. Guillermo Alejandro Perabeles Garza	Board Member of Pemex Logistics and Deputy Director of Strategic Planning and Regulatory Analysis of Petróleos Mexicanos *Born*: 1948 *Business experience*: Deputy Manager of Strategy Optimization at Petróleos Mexicanos; Executive Director of Regulations Proposal of the Government of Mexico City; and Director of Administrative Regulation of the Government of Mexico City. *Family relations*: None.	2019
Mr. Antonio López Velarde Loera	Board Member of Pemex Logistics and Deputy Director of Risk Management and Reinsurance of Petróleos Mexicanos *Born*: 1976 *Business experience*: Acting Chief Financial Officer /Acting Corporate Director of Finance of Petróleos Mexicanos; Associate Managing Director of Financial Risk Management of Petróleos Mexicanos; Deputy Manager of Capital Markets and Derivatives of Petróleos Mexicanos; and Deputy Manager of Derivative Transactions of Petróleos Mexicanos. *Family relations*: None.	2019
Mr. José María del Olmo Blanco	Board Member of Pemex Logistics and Acting Deputy Director of Budget and Accounting of Petróleos Mexicanos *Born*: 1971 *Business experience*: Acting Director of Budget Control of Petróleos Mexicanos;Associate Managing Director of Budget Control of Petróleos Mexicanos; Deputy Manager of Budget Regulations of Petróleos Mexicanos; and Deputy Manager of Liaison and Supervisory Control of Petróleos Mexicanos. *Family relations*: None.	2022
Ms. Leticia del Carmen Gómez García	Board Member of Pemex Logistics and Coordinator of Procurement and Supply for Pemex Industrial Transformation *Born*: 1970 *Business experience*: Administrative Deputy Director of the Regional Hospital of High Specialization “Dr. Gustavo Rovirosa Perez”; Assistant Manager of Technical Cases Monitoring, Collegiate Bodies and Control of Petróleos Mexicanos; Manager of Process Improvement, Liaison and Planning of Petróleos Mexicanos. *Family relations*: None.	2022

Pemex Logistics—Directors and Executive Officers

Name	Position with Pemex Logistics	Year Appointed
Vacant	Board Member of Pemex Logistics and Deputy Director of Risk Management and Reinsurance of Petróleos Mexicanos	

Mr. Javier Emiliano González del Villar	General Director of Pemex Logistics	2018

Born: 1972

Business experience: Associate Managing Director of Pipelines Transportation, Maintenance and Services of Petróleos Mexicanos; General Inspector of the Federal Police; and Advisor of the National Commissioner of the Comisión Nacional contra las Adicciones.

Family relations: None.

Compensation of Directors and Officers

For the year ended December 31, 2022, the aggregate compensation of executive officers of Petróleos Mexicanos and the existing subsidiary entities (15 people) paid or accrued in that year for services in all capacities was Ps. 35.9 million. Except in the case of the independent members, the members of the Board of Directors of Petróleos Mexicanos and the boards of directors of the existing subsidiary entities do not receive compensation for their services. The compensation paid or accrued during 2022 to the independent members of the Board of Directors of Petróleos Mexicanos was Ps. 7.6 million. See "Item 7—Major Shareholders and Related Party Transactions—Related Party Transactions" for information about the salary advances that we offer to our executive officers as an employee benefit.

Board Practices

Except in the case of the independent members with respect to the Board of Directors of Petróleos Mexicanos, neither the members of the boards of directors nor the executive officers of Petróleos Mexicanos or the productive state-owned subsidiaries are appointed for a specific term. The length of the terms of the Secretary of Energy and the Secretary of Finance and Public Credit is, however, limited by the length of their respective positions in the Mexican Government. The five independent members of the Board of Directors of Petróleos Mexicanos will be appointed for five-year terms, and may be appointed for an additional term of the same length.

The Mexican Government representatives that serve as members of the boards of directors of Petróleos Mexicanos and each of the existing subsidiary entities may be removed at the discretion of the President of Mexico. The independent members of the Board of Directors of Petróleos Mexicanos may be removed for cause, including failure to carry out the duties and obligations set forth in the Petróleos Mexicanos Law, by the President of Mexico upon Senate approval.

The Board of Directors of Petróleos Mexicanos appoints members to and convened the five committees established in accordance with the Petróleos Mexicanos Law to support its work. Unless otherwise specified in the Petróleos Mexicanos Law, the memberships of these committees must consist of at least three, but no more than five, members of the Board of Directors of Petróleos Mexicanos. Each of these committees must include two independent members of the Board of Directors of Petróleos Mexicanos, with the exception of the Audit Committee, which must include three independent members. Each of the Secretary of Energy, the Secretary of Finance and Public Credit and any ministry-level secretary serving as a member of the Board of Directors of Petróleos Mexicanos may designate one or more alternates to take his or her place at committee meetings, provided that these alternates are public officials whose positions are not more than two levels below such secretary's position in the Mexican Government.

The committees may authorize a representative of the General Director to attend their meetings as a guest with the right to participate, but not vote, when deemed advisable for the performance of their duties.

Audit Committee

The Audit Committee of the Board of Directors of Petróleos Mexicanos is required to, among other duties, oversee our management, evaluate our financial and operational performance, monitor the status of our internal control systems, as well as nominate our external auditors, whose appointments are approved by the Board of Directors of Petróleos Mexicanos. See "*Item 16C—Principal Accountant Fees and Services.*"

Each of the three members of the Audit Committee is "independent" of Petróleos Mexicanos within the meaning of Rule 10A-3 under the Exchange Act. In accordance with the Petróleos Mexicanos Law, the Audit Committee consists of

three independent members of the Board of Directors of Petróleos Mexicanos, each of whom will serve as the chair of the committee on a rotating, annual basis, as determined by the Board of Directors of Petróleos Mexicanos.

The Audit Committee consists of the following members:

- Ms. Laura Itzel Castillo Juárez, independent member of the Board of Directors of Petróleos Mexicanos and Chairperson of the Audit Committee;
- Mr. Juan José Paullada Figueroa, independent member of the Board of Directors of Petróleos Mexicanos; and
- Mr. José Eduardo Beltrán Hernández, independent member of the Board of Directors of Petróleos Mexicanos.

A representative of the General Director, the Head of the Internal Auditing Area, the Legal Director or any other person may attend the Audit Committee's meetings as a guest with the right to participate, but not vote, when deemed advisable and appropriate given the subject matter to be discussed.

Human Resources and Compensation Committee

The Human Resources and Compensation Committee is chaired by an independent member of the Board of Directors of Petróleos Mexicanos and includes the Secretary of Finance and Public Credit as a permanent member. The duties of the Human Resources and Compensation Committee include, among others, proposing the compensation of the General Director and other members of senior management of Petróleos Mexicanos within three levels of the General Director, as well as proposing hiring policies, performance management guidelines and the compensation of all other employees of Petróleos Mexicanos.

The Human Resources and Compensation Committee of Petróleos Mexicanos consists of the following members:

- Mr. Humberto Domingo Mayans Canabal, independent member of the Board of Directors of Petróleos Mexicanos and Chairperson of the Human Resources and Compensation Committee;
- Mr. José Eduardo Beltrán Hernández, independent member of the Board of Directors of Petróleos Mexicanos;
- Ms. Laura Itzel Castillo Juárez, independent member of the Board of Directors of Petróleos Mexicanos;
- Mr. Rogelio Eduardo Ramírez de la O, member of the Board of Directors of Petróleos Mexicanos;
- Ms. Raquel Buenrostro Sánchez, member of the Board of Directors of Petróleos Mexicanos.

Strategy and Investment Committee

The Strategy and Investment Committee is chaired by an independent member of the Board of Directors of Petróleos Mexicanos on a rotating annual basis and is required to, among other duties, analyze our business plan and assist the Board of Directors of Petróleos Mexicanos in the approval of guidelines, priorities and general policies related to investments made by Petróleos Mexicanos.

The Strategy and Investment Committee of Petróleos Mexicanos consists of the following members:

- Mr. Juan José Paullada Figueroa, independent member of the Board of Directors of Petróleos Mexicanos and Chairperson of the Strategy and Investments Committee;
- Ms. Laura Itzel Castillo Juárez, independent member of the Board of Directors of Petróleos Mexicanos;
- Mr. Lorenzo Mauricio Meyer Falcón, independent member of the Board of Directors of Petróleos Mexicanos;
- Ms. Norma Rocío Nahle García, member of the Board of Directors of Petróleos Mexicanos; and
- Mr. Rogelio Eduardo Ramírez de la O, member of the Board of Directors of Petróleos Mexicanos.

Acquisitions, Leasing, Public Works and Services Committee

The Acquisitions, Leasing, Public Works and Services Committee, among other duties, reviews, evaluates, monitors and develops recommendations regarding the annual programs of Petróleos Mexicanos for acquisition, construction and services contracts, and determines whether an exception to the public bidding process is applicable in specific cases.

The Acquisitions, Leasing, Public Works and Services Committee of Petróleos Mexicanos consists of the following members:

- Mr. Lorenzo Mauricio Meyer Falcón , independent member of the Board of Directors of Petróleos Mexicanos and Chairperson of the Acquisitions, Leasing, Public Works and Services Committee;
- Mr. Humberto Domingo Mayans Canabal, independent member of the Board of Directors of Petróleos Mexicanos;
- Mr. Juan José Paullada Figueroa, independent member of the Board of Directors of Petróleos Mexicanos;
- Ms. Norma Rocío Nahle García, member of the Board of Directors of Petróleos Mexicanos; and
- Mr. Rogelio Eduardo Ramírez de la O, member of the Board of Directors of Petróleos Mexicanos.

External Businesses Committee

The External Businesses Committee, among other duties, assists the Board of Directors of Petróleos Mexicanos in issuing policies, guidelines, procedures and other provisions related to the operation, surveillance, performance evaluation and monitoring of the operating and business results of our affiliates.

The External Businesses Committee of Petróleos Mexicanos consists of the following members:

- Mr. José Eduardo Beltrán Hernández, independent member of the Board of Directors of Petróleos Mexicanos and Chairperson of the External Businesses Committee;
- Mr. Lorenzo Mauricio Meyer Falcón, independent member of the Board of Directors of Petróleos Mexicanos;
- Mr. Humberto Domingo Mayans Canabal, independent member of the Board of Directors of Petróleos Mexicanos;
- Ms. Norma Rocío Nahle García, member of the Board of Directors of Petróleos Mexicanos; and
- Mr. Rogelio Eduardo Ramírez de la O, member of the Board of Directors of Petróleos Mexicanos.

Sustainability Committee

On December 3, 2022, the Board of Directors of Petróleos Mexicanos approved the creation of the Sustainability Committee. This Committee, among other duties, make recommendations to the Board of Directors to implement the best practices related to environmental, social and governance matters, and any other matter related to sustainability.

The Sustainability Committee of Petróleos Mexicanos consists of the following members:

- Mr. Lorenzo Mauricio Meyer Falcón, independent member of the Board of Directors of Petróleos Mexicanos and Chairperson of the Sustainability Committee.
- Mr. Juan José Paullada Figueroa, independent member of the Board of Directors of Petróleos Mexicanos
- Ms. Laura Itzel Castillo Juárez, independent member of the Board of Directors of Petróleos Mexicanos; and
- Ms. María Luisa Albores González; member of the Board of Directors of Petróleos Mexicanos; and
- Mr. Rogelio Eduardo Ramírez de la O, member of the Board of Directors of Petróleos Mexicanos.

Employees

Excluding employees employed by us on a temporary basis, at December 31, 2022, Petróleos Mexicanos, its subsidiary entities and subsidiary companies had 120,054 employees, as compared to 123,842 at December 31, 2021. During 2022, Petróleos Mexicanos and the productive state-owned subsidiaries employed an average of 7,071 temporary employees.

The following table sets forth our employee numbers for the five years ended December 31, 2022:

Year	Petróleos Mexicanos and Subsidiary Entities	Subsidiary Companies	Total
2018	124,818	3,203	128,021
2019	122,646	3,089	125,735
2020	120,936	2,963	123,899
2021	120,798	3,044	123,842
2022	116,063	3,991	120,054

Source: Petróleos Mexicanos and the subsidiary companies.

As of December 31, 2022, the Petroleum Workers' Union represented 81.5% of the work force of Petróleos Mexicanos and the productive state-owned subsidiaries. The members of the Petroleum Workers' Union are PEMEX employees and they elect their own leadership from among their ranks. Our relationship with our employees is regulated by the *Ley Federal de Trabajo* (which we refer to as the Federal Labor Law), a collective bargaining agreement between Petróleos Mexicanos and the Petroleum Workers' Union and the *Reglamento de Trabajo del Personal de Confianza de Petróleos Mexicanos y Empresas Subsidiarias* (Employment Regulation for White Collar Employees of PEMEX and Subsidiary Entities). The collective bargaining agreement is subject to renegotiation every two years, although salaries are reviewed annually. Since the Petroleum Workers' Union was officially established in 1938, we have not experienced labor strikes; we have experienced work stoppages for short periods of time, but none of these stoppages had a material adverse effect on our operations.

On September 30, 2021, Petróleos Mexicanos and the Petroleum Workers' Union amended their collective bargaining agreement. The amendment became effective on August 1, 2021. The amended agreement provides for a 4.00% increase in wages and a 2.25% increase in benefits and will regulate their labor relations until July 31, 2023.

In accordance with the Federal Labor Law and collective bargaining agreement in effect as of December 31, 2022, Petróleos Mexicanos and the productive state-owned subsidiaries are under an obligation to pay seniority premiums to retiring employees and pensions to retired employees, as well as death benefits and pensions to certain survivors of retired employees. Retirees are entitled to receive increases in their pensions, of at least the increase in NCPI from July 2022 to July 2023 and up to a maximum of the increase granted to salaries, whenever salary increases are granted to current employees. We also provide health and medical benefits to employees, retired employees and their beneficiaries and, subject to our overall budgetary constraints, we provide an interest-rate subsidy on employees' mortgage loans.

As of December 31, 2022 and 2021, the Mexican Government local bonds (the "Government Bonds") consist of 17 series of development bonds (D Bonds, M Bonds and UDI Bonds) issued by the Ministry of Finance and Public Credit with maturities between 2023 and 2026, at nominal value of Ps. 102,492,032 and Ps. 913,482 in UDIs. The resources from the Government Bonds will be exclusively transferred to the *Fondo Laboral Pemex* (Pemex Labor Fund, or "FOLAPE") for the obligation payment related to its pension and retirement plan obligation. For further information about Government Bonds, see Note 15-B to our consolidated financial statements included herein.

As of November 11, 2015, pursuant to an agreement with the Petroleum Workers' Union, the retirement age for employees with less than 15 years of service is 60 (compared to 55 for employees with more than 15 years of service). Employees must serve for at least 30 years in order to be eligible to receive full retirement benefits. New employees hired as of that date receive individual defined contributions retirement plans. Employees who began serving prior to that date are permitted and incentivized to opt into the defined contributions retirement plans from their existing defined benefits retirement plans.

On December 24, 2015, the Ministry of Finance and Public Credit published in the Official Gazette of the Federation the General provisions regarding the assumption by the Mexican Government of the payment obligations related to pensions and retirement plans of Petróleos Mexicanos and its productive state-owned subsidiaries. On August 3, 2016, the Ministry of Finance and Public Credit informed us that the Mexican Government would assume Ps. 184.2 billion in payment liabilities related to our pensions and retirement plans, and accordingly replaced the Ps. 50.0 billion promissory note issued to us on December 24, 2015 with Ps. 184.2 billion in promissory notes.

On November 5, 1997, the Ministry of Finance and Public Credit and the Board of Directors of Petróleos Mexicanos authorized the formation of a trust called the Pemex Labor Fund. This fund is a vehicle to fund labor liabilities, current pension payments and seniority premiums. We have designed a contribution plan to increase the funds held in this trust and to continue paying labor liabilities and pensions. Our contributions to the plan assets for our retirement benefits totaled Ps. Ps. 68,475 million in 2022 and Ps. 64,128 million in 2021. As of December 31, 2022 and 2021, the balance of the Pemex Labor Fund was Ps. 167.0 and Ps. 30.4 million, respectively.

Item 7. Major Shareholders and Related Party Transactions

Major Shareholders

Petróleos Mexicanos and the subsidiary entities have no shareholders because they are public entities of the Mexican Government. The Mexican Government controls us and incorporates the consolidated annual budget and financing program of Petróleos Mexicanos and the subsidiary entities into its budget, which must be approved by the Chamber of Deputies each year. Any adjustment proposed by the Board of Directors of Petróleos Mexicanos to change our annual financial balance goal or increase the limit on our wage and salary expenditures budget or our financing program must be approved by the Chamber of Deputies. See “Item 4—Information on the Company—General Regulatory Framework” for more information about the Mexican Government’s authority with respect to our budget. Our operations in the oil and gas sector are also regulated by the Mexican Government and its ministries.

Mexican Government officials hold five of the ten seats on the Board of Directors of Petróleos Mexicanos, and the Secretary of Energy is the Chairperson of the Board of Directors of Petróleos Mexicanos with the power to cast a tie-breaking vote. An additional five seats on the Board of Directors are held by independent members appointed by the President of Mexico and ratified by the Senate. The General Director of Petróleos Mexicanos is a member of the President of Mexico’s cabinet. See also “Item 3—Key Information—Risk Factors—Risk Factors Related to our Relationship with the Mexican Government.”

Related Party Transactions

Directors and employees of Petróleos Mexicanos and the Subsidiary Entities are subject to regulations addressing conflicts of interest, including the *Petróleos Mexicanos Law*, *Ley Federal de Responsabilidades Administrativas de los Servidores Públicos* (Federal Law of Administrative Responsibilities of Public Officials) and the Anti-corruption Policies and Guidelines for Petróleos Mexicanos, its productive subsidiary entities and, where applicable, affiliated companies. Under these provisions, directors and employees of Petróleos Mexicanos are obligated to “recuse themselves from intervening in any way in the attention to, processing or resolution of matters in which they might have personal, family or business interest, including those where some benefit can result for themselves, their spouse, blood or affinity relatives up to the fourth degree, or civil relatives, or for third parties with which they have professional, labor or business relations, or for partners or partnerships where the public officials or the persons referred above are or have been members thereof.”

The Board of Directors of Petróleos Mexicanos, including the independent members who are not public officials, are subject to the duties of loyalty and diligence. In accordance with the Petróleos Mexicanos Law, an independent member of the Board of Directors of Petróleos Mexicanos may be removed from his or her position for, among other causes: (1) utilizing for personal benefit or for the benefit of any third party the information made available to him or her in connection with the exercise of his or her duties as a board member; (2) disclosing such information in violation of applicable law; or (3) not recusing him or herself from discussion of and voting on matters in respect of which he or she has a conflict of interest. A member of the Board of Directors of Petróleos Mexicanos or of the board of directors of an existing subsidiary entity who acts in contravention of the Petróleos Mexicanos Law may be held liable for any damages that he or she caused to Petróleos Mexicanos or an existing subsidiary entity.

As an employee benefit, we offer salary advances to all of our eligible Petroleum Workers’ Union and non-union workers, including our executive officers, pursuant to the programs set forth in the collective bargaining agreement and in the Employment Regulation of White Collar Employees of Petróleos Mexicanos and Subsidiary Entities, respectively. The salary advances, which are non-interest bearing, are offered to each eligible employee in an amount up to a maximum of four months’ salary and are repaid through salary deductions in equal installments over a period of either one or two years, as elected by the employee. Most of our employees take advantage of this benefit. The largest amount of salary advances outstanding to executive officers at any one time during 2022 was Ps. 0.6 million. As of March 31, 2023, the aggregate amount of salary advances outstanding to our executive officers was Ps. 1.0 million. For further information about compensation of Directors and Officers, see Note 25 to our consolidated financial statements included herein.

Additionally, Mr. Manuel Bartlett Díaz, one of the members of the Board of Directors of Petróleos Mexicanos, is also the Chief Executive Officer of CFE and due to the several purchase agreements that CFE has entered with our subsidiary, Pemex Industrial Transformation, we consider this a related party transaction. For further information about this related party transaction, see Note 25 to our consolidated financial statements included herein.

Item 8. Financial Information Consolidated Statements and Other Financial Information

See Item 18. "Financial Statements."

Legal Proceedings

Labor-Related Proceedings

We are a party to various legal actions involving labor claims of former and present employees. These labor disputes relate to severance payments, life insurance benefits, extensions of labor contracts, level of wages, improper termination and employee housing. We do not expect these lawsuits to have a material adverse effect on our financial condition or future results of operations.

For information on our negotiations with the Petroleum Workers' Union and collective bargaining agreements, see "*Item 6—Directors, Senior Management and Employees—Employees*."

Governmental Investigations and Other Monitoring Activities

The *Auditoría Superior de la Federación* (Superior Audit Office of the Federation, or the "ASF"), pursuant to the Petróleos Mexicanos Law, has the authority to annually review Petróleos Mexicanos and its subsidiary entities. The ASF reports directly to the Mexican Congress and prepares reports of its observations based on its review. These reports are subject to our analysis and, if necessary, our clarification and explanation of any issues raised during the audit. Discrepancies in amounts spent may expose our officials, as public servants, to legal sanctions. However, in most instances, any observed issues are clarified and resolved.

The public officers of Petróleos Mexicanos and the subsidiary entities are subject to the General Law of Administrative Liabilities. The Liabilities Unit at Petróleos Mexicanos, which is part of the *Secretaría de la Función Pública* (Ministry of Public Function, or the "SFP"), is responsible for receiving complaints and investigating violations of the General Law of Administrative Liabilities, conducting investigations and administrative liability procedures, as well as imposing administrative penalties in accordance with applicable law.

We are subject to Mexican and international anti-corruption, anti-bribery and anti-money laundering laws. We maintain a corporate compliance program that includes policies and processes intended to comply with these laws, such as our internal control system. Our internal control system aims to prevent risks, anticipate any weaknesses arising from our operations or internal control over financial reporting and promote information exchange and communication. However, we are subject to the risk that our management, employees, contractors or any person doing business with us may (i) engage in fraudulent activity, corruption or bribery, (ii) circumvent or override our internal controls and procedures or (iii) misappropriate or manipulate our assets to our detriment. This risk is heightened by the fact that we have a large number of complex and significant contracts with local and foreign third parties. Although we have systems and internal policies in place for identifying, monitoring and mitigating these risks, such systems and policies have failed in the past and may not be effective in the future. Furthermore, we cannot ensure that these compliance policies and processes will prevent intentional or reckless or negligent acts committed by our management, employees, contractors or any person doing business with us. See "*Item 3—Key Information—Risk Factors—Risk Factors Related to Our Operations—We are subject to Mexican and international anti-corruption, anti-bribery and anti-money laundering laws. Our failure to comply with these laws could result in penalties, which could harm our reputation and have an adverse effect on our business, results of operations and financial condition*."

As a matter of policy, we cooperate with investigations by Mexican, U.S. and other government authorities from time to time. In addition, we periodically monitor our compliance with applicable laws and regulations to enhance our compliance program. Further, the SFP conducts administrative reviews and, in the past, it and other government entities have brought proceedings against our senior managers and employees for activities detrimental to our business. We are committed to collaborating with competent authorities to pursue and combat illicit activities and to protect our interests and reputation. We have a zero-tolerance policy regarding acts of bribery and corruption.

Actions Against the Illicit Market in Fuels

The illicit market in fuels in Mexico primarily involves the theft, adulteration and illegal transport, storage, distribution and commercialization of the hydrocarbons that we and other companies produce. This criminal activity mainly consists of the following:

- Illegal tapping of our pipelines, which threatens the integrity of our pipeline system, thereby increasing the associated risks for personnel, facilities, the general population and the environment. The illegal tapping of our pipelines has caused volumetric deviations of products, explosions, loss of life, injuries and environmental damages, some of which have been material, such as the explosion that occurred on June 28, 2022, in San Cristóbal Tepatlaxco, Puebla, which resulted in injuries to seven minors and two adults, as well as the destruction or damage to homes and other buildings near the site of the incident.
- Theft and illegal trade in fuels, which reduces our revenues by the amount that would have been generated from the sale of the stolen products and reduces our net income because the production cost of stolen product is included in our cost of sales. The increase in surveillance, as well as the actions taken against illegal trade in fuels, have allowed us to protect 12.4 million liters of hydrocarbons in 2022.
- Tampering with the quality of the products we produce and transport, which negatively impacts consumers and our reputation.

During 2022, we experienced an increase in theft of and illegal trade in the fuels that we produce. We estimate that the average theft of fuel amounted to approximately 12.6 thousand barrels per day in 2022, an increase of 250.0% as compared to 3.6 thousand barrels per day in 2021. For the years ended December 31, 2022 and 2021, losses resulting from fuel theft amounted to Ps. 19,891.2 million and Ps. 6,791.4 million, respectively.

Given the sophistication and breadth of illegal networks, in recent years we have implemented several initiatives to develop a sustainable operating model to safeguard our workers, facilities, assets and values. These initiatives have sought to:

- Strengthen our *Salvaguardia Estratégica* (Strategic Safeguard) strategy, which allows us to respond in a timely manner to risks of illegal activity. This strategy likewise relies on federal laws and regulations designed to prevent and punish crimes relating to fuel theft.
- Strengthen coordination and collaboration between Petróleos Mexicanos and our subsidiary entities, as well as government authorities, which include, among others, the *Fiscalía General de la República* (Office of the Federal Attorney General), *Procuraduría Federal del Consumidor* (Federal Consumer's Office), *Servicio de Administración Tributaria* (Tax Administration Service, or the "SAT"), federal, state and municipal police, the *Secretaría de la Defensa Nacional* (Ministry of National Defense) and the Mexican Navy, the *Secretaría de Seguridad Pública y Protección Ciudadana* (Ministry of Public Security and Citizen Protection), the Ministry of Energy, the Ministry of Finance and Public Credit, the *Guardia Nacional* (National Guard) and the *Servicio de Protección Federal* (Federal Protective Service).
- Strengthen monitoring of leak detection system in our pipelines.
- Increase safety in and around pipelines, ground transportation and company facilities.
- Incorporate best practices for industrial safety, civil protection and environmental preservation in Strategic Safeguard works.
- Optimize our human capital and modernize our technology.
- Modernize our information systems to improve our strategic decision making and our response time.

The *Plan Conjunto de Atención a Instalaciones Estratégicas de Pemex* (Joint Plan for Attention to Strategic Facilities of Pemex), implemented in January 2019, is aimed at preventing and decreasing the illicit fuel market, through the strategy to combat the illicit hydrocarbon market which is part of the National Public Security Strategy implemented in this Joint Plan. This Joint Plan contemplates governmental actions channeled through general and special crime prevention. As a result, during 2022 and 2021 we observed 13,946 illegal pipeline taps in 2022, compared to 11,037 illegal pipeline taps in 2021, representing an increase of 26.4%. During 2022 we observed an increase in the volumetric deviation of hydrocarbon products, from an average of 3.6 thousand barrels per day in 2021 to 6.1 thousand barrels per day in 2022, while in 2021, we observed a decrease from an average of 4.8 thousand barrels per day in 2020 to 3.6 thousand barrels per day in 2021.

The principal actions of this plan are:

- Increase the security of our pipelines, land transport and facilities by establishing collaboration agreements with the *Fuerzas Armadas de México* (Mexican Armed Forces), the *Guardia Nacional* (National Guard) and the *Servicio de Protección Federal* (Federal Protective Service).
- Strengthen our Strategic Safeguard strategy through the implementation of four principal measures related to hydrocarbon theft, transport, storage and marketing, together with an ancillary measure focused on prosecution and enforcement.
- Increase monitoring of leak detection systems installed in our pipelines.
- Report and remove of personnel who have been identified as participants in illicit activities related to the theft of hydrocarbons.
- Attention to facilities identified as priority such as refineries, storage and dispatch terminals, maritime terminals and pumping and repumping stations.
- Strengthen fuel distribution capacity through alternative means of transportation to the pipeline.
- Reactivate the pipelines that were out of operation since 2018 and 2019, due to the high index of theft, which involved carrying out the actions with *Secretaría de la Defensa Nacional* (The Ministry of Defense or "SEDENA"), in order to establish a deployment of troops for the surveillance and patrolling of the pipeline transport systems.
- Evaluate 92 strategic facilities, 36 of which are classified as “AAA," 13 as “AA” and 43 as “A”. This classification is based on the importance of the facility and its impact on the production chain, the environment and the population.
- Conduct operational deployments to reinforce the safeguarding of pipelines located in those areas that have the highest incidence of crime in terms of the illicit hydrocarbons market.

Our continued focus on the detection of illegal pipeline taps in 2022, together with the strict application of ground transportation protocols, enabled us to collect more information and develop more effective strategies to combat fuel theft, which in turn improved our ability to deploy ground patrol for the immediate identification and sealing of pipeline taps and avoid additional extraction of our hydrocarbon products.

Additionally, some of our personnel have been implicated for their involvement in organized fuel theft and trade. It is our policy to inform the Liabilities Unit at Petróleos Mexicanos when we become aware of information related to the illicit market in fuels that involves our personnel. The Liabilities Unit has the authority to investigate, undertake administrative proceedings, impose penalties against employees or former employees in connection with this issue and file criminal complaints.

Civil Actions

In the ordinary course of our business, we are a party to a number of lawsuits of various types. We evaluate the merit of each claim and assess the likely outcome, accruing a contingent liability when an unfavorable decision is probable and the amount is reasonably estimable. As of December 31, 2022 and 2021, we had accrued a reserve of Ps. 10.5 billion and Ps. 11.1 billion, respectively, for our contingent liabilities in connection with these lawsuits. Our material legal proceedings are described in Note 20 to our consolidated financial statements included in this report, and those descriptions are incorporated by reference under this Item 8.

Trade Dispute

On July 20, 2022, the United States of America and Canada each requested dispute settlement consultations with Mexico regarding Mexico's energy and oil policies. Such consultations argue that certain actions taken by Mexico are inconsistent with its commitments under the USMCA, particularly, those aimed at opening Mexico's electricity and oil markets to foreign investors. On December 12, 2022, Mexico presented a working plan aimed at resolving the dispute settlement consultations amicably. Under the working plan, Mexico proposed creating a technical working group to answer the questions in connection with the consultations, as well as working groups to address the legal status of Mexico's *Ley de la Industria Eléctrica* (Electric Power Industry Law), protections of companies, the transition to ultra-low sulfur diesel and the status of pipelines established in the north of Mexico.

Dividends

Pursuant to the Petróleos Mexicanos Law, effective January 1, 2016, Petróleos Mexicanos and its subsidiary entities are subject to a dividend policy that requires them to pay a state dividend to the Mexican Government on an annual basis. In accordance with the Federal Revenue Law for the applicable year, we were not required to pay a state dividend in 2017 through 2022, and we will not be required to pay a state dividend in 2023. For more information, see "*Item 4—Taxes, Duties and Other Payments to the Mexican Government—Fiscal Regime for PEMEX—Other Payments to the Mexican Government.*"

Item 9. The Offer and Listing

Trading in the debt securities issued by Petróleos Mexicanos takes place primarily in the over-the-counter (OTC) market. All the debt securities issued by Petróleos Mexicanos that are registered pursuant to the U.S. Securities Act of 1933 (which we refer to as the Securities Act) are also listed on the Luxembourg Stock Exchange and traded on the Euro MTF market of the Luxembourg Stock Exchange.

Item 10. Additional Information

Memorandum and Articles of Association

The Mexican Congress established Petróleos Mexicanos by a decree dated June 7, 1938, effective July 20, 1938. None of Petróleos Mexicanos or the subsidiary entities has bylaws or articles of association. Petróleos Mexicanos and the subsidiary entities, are public entities of the Mexican Government and each is a legal entity empowered to own property and carry-on business in its own name.

The activities of Petróleos Mexicanos and the subsidiary entities are regulated by the Mexican Constitution, the Petróleos Mexicanos Law, Regulations to the Petróleos Mexicanos Law, the Hydrocarbons Law and other federal laws and regulations. See "Item 4—Information on the Company—History and Development." In accordance with the Petróleos Mexicanos Law, the Board of Directors of Petróleos Mexicanos has the following committees: the Audit Committee, the Human Resources and Compensation Committee, the Strategy and Investment Committee, the Acquisitions, Leasing, Public Works and Services Committee and the External Businesses Committee. See "Item 6—Directors, Senior Management and Employees."

Under the Petróleos Mexicanos Law and the Regulations to the Petróleos Mexicanos Law, our directors are obligated to abstain from voting on a proposal, arrangement or contract in which they have a personal, family or business interest. Our directors do not have the power to vote compensation to themselves or any other member of the board. Except in the case of the independent board members, our directors do not receive compensation for their services as members of the boards of directors of Petróleos Mexicanos and the subsidiary entities. Under the Petróleos Mexicanos Law, our directors must perform their duties without obtaining or attempting to obtain any benefits greater than those granted by law. Therefore, our directors do not have borrowing powers exercisable by themselves. There is no requirement for early retirement for our directors.

Material Contracts

As of December 31, 2022 and 2021, we have entered into contracts with various contractors for Ps. 156,425 million and Ps. 505,636 million, respectively. These contracts are for the development of investment projects. See Note 26 to our consolidated financial statements included herein.

On January 27, 2009, we entered into an indenture with Deutsche Bank Trust Company Americas, as Trustee. This agreement provides for our issuance from time to time of unsecured debt securities. On the same date, we entered into a

distribution agreement with Calyon Securities (USA) Inc. (now known as Crédit Agricole Securities (USA) Inc.), Citigroup Global Markets Inc., Citigroup Global Markets Limited, HSBC Securities (USA) Inc. and Santander Investment Securities Inc. pursuant to which we established a U.S. $7.0 billion medium-term note, Series C, program. Pursuant to the 1996 guaranty agreement referred to above, our obligations under all notes issued under this program are jointly and severally guaranteed by Pemex-Exploration and Production, Pemex-Refining and Pemex-Gas and Basic Petrochemicals. In December 2010, we appointed Credit Suisse Securities (USA) LLC as an agent under the 2009 distribution agreement referred to above. In each of December 2010 and January 2010, we increased the size of this program to U.S. $12.0 billion and U.S. $22.0 billion, respectively. We issued U.S. $3.5 billion of notes and bonds under this program in 2011. In 2012, we issued U.S. $5.3 billion of notes and bonds under this program. In 2013, we increased the size of this program to U.S. $32.0 billion and issued U.S. $6.9 billion of notes and bonds under it. In 2014, we increased the size of this program to U.S. $42.0 billion and issued U.S. $7.9 billion of notes and bonds under it. In 2017, we increased the size of this program to U.S. $92.0 billion and issued €4.3 billion, U.S. $5.0 billion and £450.0 million of notes and bonds under it. In 2018, we increased the size of this program to U.S. $102.0 billion and issued U.S. $6.0 billion, €3.15 billion and Swiss francs 365.0 million of notes and bonds under it. In 2019, we issued U.S. $14.8 billion of notes and bonds under this program. In 2020, we issued U.S. $6.5 billion of notes and bonds under this program. In 2021, we issued U.S. $6.8 billion of notes and bonds under this program and we increased the size of this program to U.S. $125.0 billion. In 2022, we issued U.S. $2.0 billion of notes and bonds under this program. See "*Item 5—Operating and Financial Review and Prospects—Liquidity and Capital Resources—Financing Activities.*"

Exchange Controls

Mexico has had a free market for foreign exchange since 1991, and the Mexican Government has allowed the peso to float freely against the U.S. dollar since December 1994. We have no control over or influence on this exchange rate policy. The Mexican Government has announced that it does not intend to change its floating exchange rate policy, but there is no guarantee that the Mexican Government will not change this policy.

Taxation

The 1997 Securities, the 1999 Securities, the 2003 Securities, the 2004 Securities, the 2006 Securities, the 2008 Securities, the 2009 Securities, the 2010 Securities, the 2011 Securities, the 2012 Securities, the 2013 Securities, the 2014 Securities, the 2016 Securities, the 2018 Securities, the 2020 Securities and the 2022 Securities.

As of the date of this annual report, we have registered the following securities with the Securities and Exchange Commission.

Pursuant to a registration statement on Form F-4 (File No. 333-7796), which was declared effective by the SEC on October 17, 1997, Petróleos Mexicanos, Pemex-Exploration and Production, Pemex-Refining and Pemex-Gas and Basic Petrochemicals registered pursuant to the Securities Act up to U.S. $400,000,000 of 9.50% Global Guaranteed Bonds due 2027, which we refer to as the 1997 Securities. In December 2004 and February 2006, an aggregate amount of U.S. $376,250,000 of the 1997 Securities were exchanged for bonds issued by the Pemex Project Funding Master Trust (which we refer to as the Master Trust).

Pursuant to a registration statement on Form F-4 (File No. 333-10706), which was declared effective by the SEC on October 1, 1999, Petróleos Mexicanos, Pemex-Exploration and Production, Pemex-Refining and Pemex-Gas and Basic Petrochemicals registered pursuant to the Securities Act up to U.S. $500,000,000 of 9.50% Puttable or Mandatorily Exchangeable Securities (POMESSM) due 2027, which we refer to as the 1999 Securities. In December 2004 and February 2006, an aggregate amount of U.S. $421,522,000 of the 1999 Securities were exchanged for POMESSM issued by the Master Trust. All outstanding 1999 Securities of Petróleos Mexicanos were, on March 16, 2006, mandatorily exchanged for 9.50% Global Guaranteed Bonds due 2027 issued by Petróleos Mexicanos, thereby increasing the outstanding amount of the 1997 Securities.

Pursuant to a registration statement on Form F-4 (File No. 333-103197), which was declared effective by the SEC on February 24, 2003, the Master Trust, Petróleos Mexicanos, Pemex-Exploration and Production, Pemex-Refining and Pemex-Gas and Basic Petrochemicals registered pursuant to the Securities Act up to U.S. $500,000,000 of 8.625% Bonds due 2022. Pursuant to a registration statement on Form F-4 (File No. 333-107905), which was declared effective by the SEC on August 21, 2003, the Master Trust, Petróleos Mexicanos, Pemex-Exploration and Production, Pemex-Refining and Pemex-Gas and Basic Petrochemicals registered pursuant to the Securities Act up to U.S. $510,154,000 of 8.625% Bonds due 2022. We refer to the securities registered in 2003 under these registration statements as the 2003 Securities.

Pursuant to a registration statement on Form F-4 (File No. 333-118373), which was declared effective by the SEC on August 31, 2004, the Master Trust, Petróleos Mexicanos, Pemex-Exploration and Production, Pemex-Refining and Pemex-Gas and Basic Petrochemicals registered pursuant to the Securities Act up to U.S. $47,085,000 of 8.625% Bonds due 2022. We refer to the securities registered in 2004 as the 2004 Securities.

Pursuant to a registration statement on Form F-4 (File No. 333-126941), which was declared effective by the SEC on January 13, 2006, the Master Trust, Petróleos Mexicanos, Pemex-Exploration and Production, Pemex-Refining and Pemex-Gas and Basic Petrochemicals registered pursuant to the Securities Act up to U.S. $228,735,000 of 8.625% Bonds due 2023, U.S. $354,477,000 of 9.500% Bonds due 2027, U.S. $403,746,000 of POMESSM due 2027 and U.S. $500,000,000 of 6.625% Guaranteed Bonds due 2035. Pursuant to a registration statement on Form F-4 (File No. 333-126948), which was declared effective by the SEC on January 13, 2006, the Master Trust, Petróleos Mexicanos, Pemex-Exploration and Production, Pemex-Refining and Pemex-Gas and Basic Petrochemicals registered pursuant to the Securities Act up to U.S. $21,265,000 of 8.625% Bonds due 2023, U.S. $45,523,000 of 9.500% Bonds due 2027 and U.S. $96,254,000 of POMESSM due 2027. All outstanding POMES registered under these registration statements were, on March 15, 2006, mandatorily exchanged for 9.500% Bonds due 2027. Pursuant to a registration statement on Form F-4 (File No. 333-136674), which was declared effective by the SEC on November 3, 2006, the Master Trust, Petróleos Mexicanos, Pemex-Exploration and Production, Pemex-Refining and Pemex-Gas and Basic Petrochemicals registered pursuant to the Securities Act up to U.S. $751,995,000 of 6.625% Guaranteed Bonds due 2035. We refer to the securities registered in 2006 under these registration statements as the 2006 Securities.

Pursuant to a registration statement on Form F-4 (File No. 333-152486), which was declared effective by the SEC on December 18, 2008, the Master Trust, Petróleos Mexicanos, Pemex-Exploration and Production, Pemex-Refining and Pemex-Gas and Basic Petrochemicals registered pursuant to the Securities Act up to U.S. $501,000,000 of 6.625% Guaranteed Bonds due 2035 and up to U.S. $500,000,000 of 6.625% Guaranteed Bonds due 2038. We refer to the securities registered in 2008 as the 2008 Securities.

Effective as of September 30, 2009, Petróleos Mexicanos assumed, as primary obligor, all of the Master Trust's obligations as issuer of the 2001 Securities, the 2003 Securities, the 2004 Securities, the 2006 Securities and the 2008 Securities. As a result, effective as of September 30, 2009, Petróleos Mexicanos is the issuer of all Registered Securities (as defined below).

Pursuant to a registration statement on Form F-4 (File No. 333-168326), which was declared effective by the SEC on August 31, 2010, Petróleos Mexicanos, Pemex-Exploration and Production, Pemex-Refining and Pemex-Gas and Basic Petrochemicals registered pursuant to the Securities Act up to U.S. $63,314,000 of 8.00% Notes due 2019, up to U.S. $1,000,000,000 of 6.000% Notes due 2020, up to U.S. $2,000,000,000 of 5.500% Notes due 2021 and up to U.S. $1,000,000,000 of 6.625% Bonds due 2035. We refer to the securities registered in 2010 as the 2010 Securities.

Pursuant to a registration statement on Form F-4 (File No. 333-175821), which was declared effective by the SEC on August 31, 2011, Petróleos Mexicanos, Pemex-Exploration and Production, Pemex-Refining and Pemex-Gas and Basic Petrochemicals registered pursuant to the Securities Act up to U.S. $1,000,000,000 of 5.500% Notes due 2021 and up to U.S. $1,250,000,000 of 6.500% Bonds due 2041. We refer to the securities registered in 2011 as the 2011 Securities.

Pursuant to a registration statement on Form F-4 (File No. 333-182553), which was declared effective by the SEC on July 23, 2012, Petróleos Mexicanos, Pemex-Exploration and Production, Pemex-Refining and Pemex-Gas and Basic Petrochemicals registered pursuant to the Securities Act up to U.S. $2,100,000,000 of 4.875% Notes due 2022 and up to U.S. $1,750,000,000 of 5.500% Bonds due 2044. We refer to the securities registered in 2012 as the 2012 Securities.

Pursuant to a registration statement on Form F-4/A (File No. 333-189852), which was declared effective by the SEC on July 25, 2013, Petróleos Mexicanos, Pemex-Exploration and Production, Pemex-Refining and Pemex-Gas and Basic Petrochemicals registered pursuant to the Securities Act up to U.S. $2,100,000,000 of 3.500% Notes due 2023, up to U.S. $1,000,000,000 of 4.875% Notes due 2024, up to U.S. $500,000,000 of 6.500% Bonds due 2041 and up to U.S. $1,000,000,000 of 5.50% Bonds due 2044. We refer to the securities registered in 2013 as the 2013 Securities.

Pursuant to a registration statement on Form F-4 (File No. 333-198588), which was declared effective by the SEC on September 22, 2014, Petróleos Mexicanos, Pemex-Exploration and Production, Pemex-Refining and Pemex-Gas and Basic Petrochemicals registered pursuant to the Securities Act up to U.S. $500,000,000 of 4.875% Notes due 2024 and up to U.S. $3,000,000,000 of 6.375% Bonds due 2045. We refer to the securities registered in 2014 as the 2014 Securities.

Pursuant to a registration statement on Form F-4 (File No. 333-205763), which was declared effective by the SEC on February 22, 2016, Petróleos Mexicanos, Pemex Exploration and Production, Pemex Industrial Transformation, Pemex Drilling and Services and Pemex Logistics registered pursuant to the Securities Act up to U.S. $1,500,000,000 of 3.500% Notes due 2020, up to U.S. $1,000,000,000 of 4.250% Notes due 2025, $1,500,000,000 of 4.500% Notes due 2026, up to U.S. $1,500,000,000 of 5.50% Bonds due 2044 and up to U.S. $3,000,000,000 of 5.625% Bonds due 2046. Pursuant to a registration statement on Form F-4 (File No. 333-213351), which was declared effective by the SEC on November 11, 2016, Petróleos Mexicanos, Pemex Exploration and Production, Pemex Industrial Transformation, Pemex Drilling and Services and Pemex Logistics registered pursuant to the Securities Act up to U.S. $1,250,000,000 of 6.375% Notes due 2021, up to U.S. $2,069,302,000 of 4.625% Notes due 2023, up to U.S $3,000,000,000 of 6.875% Notes due 2026, and up to U.S. $3,500,000,000 of 6.750% Notes due 2047. We refer to the securities registered in 2016 as the 2016 Securities.

Pursuant to a registration statement on Form F-4 (File No. 333-220721), which was declared effective by the SEC on February 22, 2018, Petróleos Mexicanos, Pemex Exploration and Production, Pemex Industrial Transformation, Pemex Drilling and Services and Pemex Logistics registered pursuant to the Securities Act up to U.S. $1,500,000,000 5.375% Notes due 2022, up to U.S. $1,000,000,000 Floating Rate Notes due 2022, up to U.S. $5,500,000,000 6.500% Notes due 2027 and up to U.S. $2,500,000,000 6.750% Bonds due 2047. Pursuant to a registration statement on Form F-4/A (File No. 333-227508), which was declared effective by the SEC on November 16, 2018, Petróleos Mexicanos, Pemex Exploration and Production, Pemex Industrial Transformation, Pemex Drilling and Services and Pemex Logistics registered pursuant to the Securities Act up to U.S. $2,500,000,000 5.350% Notes due 2028, up to U.S. $2,000,000,000 6.500% Notes due 2029 and up to U.S. $3,328,663,000 6.350% Bonds due 2048. We refer to the securities registered in 2018 as the 2018 Securities.

Pursuant to a registration statement on Form F-4 (File No. 333-239722), which was declared effective by the SEC on September 11, 2020, Petróleos Mexicanos, Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics registered pursuant to the Securities Act up to U.S. $2,360,430,000 6.490% Notes due 2027, U.S. $4,420,831,000 6.840% Notes due 2030, US $3,800,000,000 5.950% Notes due 2031, U.S. $8,066,405,000 7.690% Bonds due 2050 and U.S. $3,800,000,000 6.950% Bonds due 2060. We refer to the securities registered in 2020 as the 2020 Securities.

Pursuant to a registration statement on Form F-4 (File No. 333-259870), which was declared effective by the SEC on February 28, 2022, Petróleos Mexicanos, Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics registered pursuant to the Securities Act up to U.S. $1,500,000,000 6.875% Notes due 2025 and U.S. $6,813,567,000 6.700% Notes due 2032. Pursuant to a registration statement on Form F-4 (File No. 333-267299), which was declared effective by the SEC on September 21, 2022, Petróleos Mexicanos, Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics registered pursuant to the Securities Act up to $1,984,688,699 8.750% Notes due 2029. We refer to the securities registered in 2022 as the 2022 Securities and, together with the 1997 Securities, the 2003 Securities, the 2004 Securities, the 2006 Securities, the 2008 Securities, the 2009 Securities, the 2010 Securities, the 2011 Securities, the 2012 Securities, the 2013 Securities, the 2014 Securities, the 2016 Securities, the 2018 Securities and the 2020 Securities as the Registered Securities.

Taxation Generally

The following summary contains a description of the principal Mexican and U.S. federal income tax consequences of the ownership and disposition of the Registered Securities, but it does not purport to be a comprehensive description of all of the tax considerations that may be relevant to a decision to invest in, or dispose of, the Registered Securities.

This summary is based on the federal tax laws of Mexico and the United States in force on the date of this Form 20-F, including the provisions of the income tax treaty between the United States and Mexico together with related protocols (the "Tax Treaty") (which are subject to change), and does not describe any tax consequences arising under the laws of any state or municipality in Mexico, the United States or any other jurisdiction, or the laws of any taxing jurisdiction other than the federal laws of Mexico and the United States.

Mexico has also entered into, or is negotiating, tax treaties with various countries that may have effects on holders of Registered Securities. This report does not discuss the consequences (if any) of such treaties.

Each holder or beneficial owner of Registered Securities should consult its tax advisor as to the Mexican, United States or other tax consequences of the ownership and disposition of those securities, including the effect of any foreign, state or municipal tax laws, and the consequences of the application of any tax treaty to which Mexico is a party.

Mexican Taxation

This summary of certain Mexican federal tax considerations refers only to holders of Registered Securities that are not residents of Mexico for Mexican tax purposes and that will not hold the Registered Securities or a beneficial interest therein through a permanent establishment for tax purposes (we refer to any such non-resident holder as a Foreign Holder). For purposes of Mexican taxation, an individual is a resident of Mexico if he/she has established his/her domicile in Mexico. When an individual also has a place of residence in another country, that individual will be considered a resident of Mexico for tax purposes, if such individual has his/her center of vital interest in Mexico. An individual would be deemed to have his/her center of vital interest in Mexico if, among other things: (a) more than 50% of his/her total income for the year were derived from Mexican sources, or (b) his/her principal center of professional activities were located in Mexico.

A legal entity is a resident of Mexico if:

- it maintains the principal administration of its business in Mexico; or
- it has established its effective management in Mexico.

A Mexican national is presumed to be a resident of Mexico unless such person can demonstrate the contrary. If a legal entity or individual has a permanent establishment in Mexico, such permanent establishment shall be required to pay taxes in Mexico on income attributable to such permanent establishment in accordance with Mexican federal tax law.

Taxation of Interest. Under the Mexican Income Tax Law and rules issued by the Ministry of Finance and Public Credit applicable to us, payments of interest (which are deemed to include any amounts paid in excess of the original issue price of the relevant securities), made by a Mexican issuer (including Petróleos Mexicanos) in respect of notes or bonds and other debt securities to a Foreign Holder will generally be subject to a Mexican withholding tax assessed at a rate of 4.9%, if the following requirements are met:

- notice relating to the offering of such notes or bonds is given to the CNBV as required under the Securities Market Law and evidence of such notice is timely filed with the Ministry of Finance and Public Credit;
- such notes or bonds are placed outside of Mexico through banks or brokerage houses in a country that is party to a treaty to avoid double taxation with Mexico; and
- the issuer duly complies with the information requirements established in the general rules issued by the Ministry of Finance and Public Credit for such purposes.

If the effective beneficiaries, directly or indirectly, individually or jointly with related parties, receive more than 5% of the interest paid on such notes or bonds and are holders, directly or indirectly, individually or jointly, with related parties of more than 10% of the voting stock of the issuer or entities 20% or more of whose stock is owned directly or indirectly, individually or jointly, by parties related to the issuer, the withholding tax rate applicable to payment of interest on such notes or bonds may be significantly higher.

Payments of interest made by Petróleos Mexicanos or the subsidiary entities, except for Pemex Fertilizers and Pemex Ethylene, in respect of the Registered Securities to non-Mexican pension or retirement funds will be exempt from Mexican withholding taxes, provided that:

- such fund is duly organized pursuant to the laws of its country of origin and is the effective beneficiary of the interest payment;
- the income from such interest payment is exempt from income tax in its country of residence; and
- such fund delivers certain information as per rules issued by the Ministry of Finance and Public Credit.

Additional Amounts. Petróleos Mexicanos and the subsidiary entities, except for Pemex Fertilizers and Pemex Ethylene, have agreed, subject to specified exceptions and limitations, to:

- pay Additional Amounts (as defined in the indenture dated as of September 18, 1997, as supplemented, between Petróleos Mexicanos and Deutsche Bank) to the holders of the 1997 Securities in respect of the Mexican withholding taxes mentioned above;
- pay Additional Amounts (as defined in the indenture dated as of August 7, 1998, as supplemented, between Petróleos Mexicanos and Deutsche Bank) to the holders of the 1998 Securities in respect of the Mexican withholding taxes mentioned above;

- pay Additional Amounts (as defined in the indenture dated as of July 31, 2000, as supplemented, between Petróleos Mexicanos and Deutsche Bank) to the holders of the 2003 Securities and the 2004 Securities in respect of the Mexican withholding taxes described above;
- pay Additional Amounts (as defined in the indenture dated as of December 30, 2004, as supplemented, between Petróleos Mexicanos and Deutsche Bank) to the holders of the 2006 Securities and the 2008 Securities in respect of the Mexican withholding taxes described above; and
- pay Additional Amounts (as defined in the indenture dated as of January 27, 2009, as supplemented, between Petróleos Mexicanos and Deutsche Bank) to the holders of the 2009 Securities, the 2010 Securities, the 2011 Securities, the 2012 Securities, the 2013 Securities, the 2014 Securities and the 2016 Securities in respect of the Mexican withholding taxes described above.

If Petróleos Mexicanos pays Additional Amounts in respect of such Mexican withholding taxes, any refunds received with respect to such Additional Amounts will be for the account of Petróleos Mexicanos.

Holders or beneficial owners of the Registered Securities may be required to provide certain information or documentation necessary to enable Petróleos Mexicanos and the subsidiary entities to apply the appropriate Mexican withholding tax rate applicable to holders or beneficial owners of the Registered Securities. In the event that the specified information or documentation concerning such holder or beneficial owner, if requested, is not provided on a timely basis, the obligation of Petróleos Mexicanos and the subsidiary entities to pay Additional Amounts may be limited.

Taxation of Dispositions. Capital gains resulting from the sale or other disposition of the Registered Securities by a Foreign Holder will not be subject to Mexican income or withholding taxes.

Other Mexican Tax Considerations. Under the Mexican Income Tax Law, any discount received by a non-resident upon purchase of the notes or bonds from a Mexican resident or a non-resident with a permanent establishment in Mexico is deemed interest income, and therefore, subject to taxes in Mexico. Such interest income results from the difference between the face value (plus accrued interest not subject to withholding) and the purchase price of such notes or bonds.

Transfer and Other Taxes. There are no Mexican stamp, registration or similar taxes payable by a Foreign Holder in connection with the purchase, ownership or disposition of the Registered Securities. A Foreign Holder of the Registered Securities will not be liable for Mexican estate, succession, gift, inheritance or similar tax with respect to such securities.

United States Taxation

This summary of certain U.S. federal income tax considerations deals principally with persons that hold the Registered Securities as capital assets and whose functional currency is the U.S. dollar. As used in this section "Taxation," the term "United States Holder" means a beneficial owner of a Registered Security that is an individual who is a citizen or resident of the United States, a U.S. domestic corporation or any other person that is subject to U.S. federal income taxation on a net income basis in respect of its investment in the Registered Securities.

This summary does not purport to be a comprehensive description of all the tax considerations that may be relevant to any particular investor, including tax considerations that arise from rules of general application or that are assumed to be known to investors. This summary generally does not address the tax treatment of holders that may be subject to special tax rules, such as banks, insurance companies, tax-exempt organizations, dealers in securities or currencies, certain short-term holders of Registered Securities, traders in securities electing to mark-to-market, or persons that hedge their exposure in the Registered Securities or hold the Registered Securities as a position in a "straddle" for tax purposes or as part of a "synthetic security" or a "hedging" or "conversion" transaction or other integrated investment comprised of such Registered Securities and one or more other investments, nonresident aliens present in the United States for more than 182 days in a taxable year, U.S. expatriates, entities taxed as partnerships or the partners therein, persons that have a "functional currency" other than the U.S. dollar, nor does it address the tax treatment of holders that did not acquire the Registered Securities at their issue price as part of the initial distribution. Investors who purchased the Registered Securities at a price other than the issue price should consult their tax advisor as to the possible applicability to them of the amortizable bond premium or market discount rules.

In addition, this summary does not discuss the application of state, local, or foreign tax laws, U.S. federal estate or gift tax laws, the Medicare contribution tax on net investment income, the alternative minimum tax or special timing rules prescribed under section 451(b) of the United States Internal Revenue Code of 1986, as amended (the "Code"). United

States Holders should consult their own tax advisers concerning the U.S. federal, state, local, foreign and other tax consequences of purchasing, owning, and disposing of a Registered Security in their particular circumstances.

Taxation of Interest and Additional Amounts. A United States Holder will treat the gross amount of stated interest and Additional Amounts (*i.e.*, without reduction for Mexican withholding taxes) as ordinary interest income in respect of the Registered Securities.

Subject to generally applicable limitations and conditions, Mexican interest withholding tax paid at the appropriate rate applicable to the United States Holder may be eligible for credit against such United States Holder's U.S. federal income tax liability. These generally applicable limitations and conditions include new requirements recently adopted by the Internal Revenue Service ("IRS") and any Mexican tax will need to satisfy these requirements in order to be eligible to be a creditable tax for a United States Holder. In the case of a United States Holder that is eligible for, and properly elects, the benefits of the Tax Treaty, the Mexican tax on interest will be treated as meeting the new requirements and therefore as a creditable tax. In the case of all other United States Holder, the application of these requirements to the Mexican tax on interest is uncertain and we have not determined whether these requirements have been met. If the Mexican interest tax is not a creditable tax for a United States Holder or the United States Holder does not elect to claim a foreign tax credit for any foreign income taxes paid or accrued in the same taxable year, the United States Holder may be able to deduct the Mexican tax in computing such United States Holder's taxable income for U.S. federal income tax purposes. Interest and Additional Amounts will constitute income from sources without the United States and, for United States Holder that elect to claim foreign tax credits, generally will constitute "passive category income" for foreign tax credit purposes. The availability and calculation of foreign tax credits and deductions for foreign taxes depend on a United States Holder's particular circumstances and involve the application of complex rules to those circumstances. United States Holders should consult their own tax advisors regarding the application of these rules to their particular situations.

Original Issue Discount. Where a Registered Security is issued at a discount from its principal amount, and the discount is equal to, or more than de minimis OID (the "Original Issue Discount Notes"), United States Holders generally will be subject to the special tax accounting rules for obligations issued with OID under the Code and certain regulations promulgated thereunder (the "OID Regulations"). United States Holders should be aware that, as described in greater detail below, they generally must include OID in ordinary gross income for U.S. federal income tax purposes as it accrues, generally in advance of the receipt of cash attributable to that income.

In general, each United States Holder of Original Issue Discount Notes, whether such holder uses the cash or the accrual method of tax accounting, will be required to include in ordinary gross income the sum of the "daily portions" of OID on the Original Issue Discount Note for all days during the taxable year that the United States Holder owns the Original Issue Discount Note. The daily portions of OID on an Original Issue Discount Note are determined by allocating to each day in any accrual period a ratable portion of the OID allocable to that accrual period. Accrual periods may be any length and may vary in length over the term of an Original Issue Discount Note; provided that no accrual period is longer than one year and each scheduled payment of principal or interest occurs on either the final day or the first day of an accrual period. In the case of an initial holder, the amount of OID on an Original Issue Discount Note allocable to each accrual period generally is determined by (a) multiplying the "adjusted issue price" (as defined below) of the Original Issue Discount Note at the beginning of the accrual period by the yield to maturity of such Original Issue Discount Note (appropriately adjusted to reflect the length of the accrual period) and (b) subtracting from that product the amount (if any) of qualified stated interest (as defined below) allocable to that accrual period. The yield to maturity of an Original Issue Discount Note is the discount rate that causes the present value of all payments on the Original Issue Discount Note as of its original issue date to equal the issue price of such Note. The "adjusted issue price" of an Original Issue Discount Note at the beginning of any accrual period will generally be the sum of its issue price (generally including accrued interest, if any) and the amount of OID allocable to all prior accrual periods, reduced by the amount of all payments other than payments of qualified stated interest (if any) made with respect to such Original Issue Discount Note in all prior accrual periods. The term "qualified stated interest" generally means stated interest that is unconditionally payable in cash or property (other than debt instruments of the issuer) at least annually during the entire term of a Note at a single fixed rate of interest or, subject to certain conditions, based on one or more interest indices. As a result of this "constant-yield" method of including OID in income, the amounts includible in income by a United States Holder in respect of an Original Issue Discount Note generally are lesser in the early years and greater in the later years than the amounts that would be includible on a straight-line basis. All payments on an Original Issue Discount Note (other than payments of qualified stated interest) will generally be viewed first as payments of previously-accrued OID (to the extent thereof), with payments attributed first to the earliest-accrued OID, and then as payments of principal.

A United States Holder generally may make an irrevocable election to include in its income its entire return on an

Original Issue Discount Note (i.e., the excess of all remaining payments to be received on the Original Issue Discount Note, including payments of qualified stated interest, over the amount paid by such United States Holder for such Original Issue Discount Note) under the constant-yield method described above. For Original Issue Discount Notes purchased at a premium or bearing market discount in the hands of the United States Holder, a United States Holder making such election will also be deemed to have made the election (discussed below in "*—Premium and Market Discount*") to amortize premium or to accrue market discount in income currently on a constant-yield basis.

A United States Holder that purchases the Original Issue Discount Notes at a cost less than its remaining redemption amount (as defined below) generally will be required to include in gross income the daily portions of OID, calculated as described above. However, if the United States Holder acquires the Original Issue Discount Notes at a price greater than its adjusted issue price, such holder may reduce its periodic inclusions of OID income to reflect the premium paid over the adjusted issue price. The "remaining redemption amount" for an Original Issue Discount Note is the total of all future payments to be made on the Original Issue Discount Note other than payments of qualified stated interest.

Premium and Market Discount. A United States Holder of a Registered Security that purchases the Registered Security at a cost greater than its remaining redemption amount (as defined above) will be considered to have purchased the Registered Security at a premium and may elect to amortize such premium (as an offset to interest income), using a constant-yield method, over the remaining term of the Registered Security. Such election, once made, generally applies to all bonds held or subsequently acquired by the United States Holder on or after the first taxable year to which the election applies and may not be revoked without the consent of the IRS. A United States Holder that elects to amortize such premium must reduce its tax basis in a Registered Security by the amount of the premium amortized during its holding period. Original Issue Discount Notes purchased at a premium will not be subject to the OID rules described above. With respect to a United States Holder that does not elect to amortize bond premium, the amount of bond premium will be included in the United States Holder's tax basis when the Registered Security matures or is disposed of by the United States Holder. Therefore, a United States Holder that does not elect to amortize such premium and that holds the Registered Security to maturity generally will be required to treat the premium as capital loss when the Registered Security matures.

If a United States Holder of a Registered Security purchases the Registered Security at a price that is lower than its remaining redemption amount, or in the case of an Original Issue Discount Note, its adjusted issue price, by at least 0.25% of its remaining redemption amount multiplied by the number of remaining whole years to maturity, the Registered Security will be considered to have "market discount" in the hands of such United States Holder. In such case, gain realized by the United States Holder on the disposition of the Registered Security generally will be treated as ordinary income to the extent of the market discount that accrued on the Note while held by such United States Holder. In addition, the United States Holder could be required to defer the deduction of a portion of the interest paid on any indebtedness incurred or maintained to purchase or carry the Registered Security. In general terms, market discount on a Registered Security will be treated as accruing ratably over the term of such Registered Security, or, at the election of the holder, under a constant-yield method.

A United States Holder may elect to include market discount in income on a current basis as it accrues (on either a ratable or constant-yield basis), in lieu of treating a portion of any gain realized on a sale of a Registered Security as ordinary income. If a United States Holder elects to include market discount on a current basis, the interest deduction deferral rule described above will not apply. Any such election, if made, applies to all market discount bonds acquired by the taxpayer on or after the first day of the first taxable year to which such election applies and is revocable only with the consent of the IRS.

Taxation of Dispositions. Upon the sale, exchange or retirement of a Registered Security, a United States Holder will generally recognize a gain or loss equal to the difference between the amount realized (less any amounts attributable to accrued and unpaid interest not previously includible in gross income, which will be taxable as ordinary income) and the holder's tax basis in such security. A United States Holder's basis in a Registered Security generally will equal to the cost of the Registered Security to the United States Holder increased by any amounts includible in income by the holder as original issue discount and market discount and reduced by amortized premium and any payments on the Registered Security other than qualified stated interest. Except as discussed above with respect to market discount, gain or loss recognized by a United States Holder on the sale, redemption or other disposition of the Registered Securities generally will be long-term capital gain or loss if, at the time of disposition, the securities have been held for more than one year. Long-term capital gain realized by an individual United States Holder is generally taxed at lower rates than short-term capital gains or ordinary income. The deduction of capital losses is subject to limitations.

Where a Registered Security is issued at a discount from its principal amount, and the discount is less than the product of one-fourth of one percent (0.25 percent) of the principal amount of such Registered Security multiplied by the number of full years to maturity ("de minimis OID"), a United States Holder generally will include the de minimis OID in

income as stated principal payments are made. The amount includible in income with respect to each principal payment equals the product of the total amount of de minimis OID on the Registered Security and a fraction, the numerator of which is the amount of the principal payment made and the denominator is the stated principal amount of the Registered Security. Any amount of de minimis OID included in income by a United States Holder is treated as gain recognized on the retirement of the Registered Security.

Capital gain or loss recognized by a United States Holder on the sale or other disposition of the Registered Securities generally will be U.S. source gain or loss for U.S. foreign tax credit purposes. Under the new foreign tax credit requirements recently adopted by the IRS, any Mexican tax imposed on the sale or other disposition of the Registered Securities generally will not be treated as a creditable tax for U.S. foreign tax credit purposes except in the case of a United States Holder that is eligible for, and properly elects to claim, the benefits of the Tax Treaty. If the Mexican tax is not a creditable tax or claimed as a credit by the United States Holder pursuant to the Tax Treaty, the tax would reduce the amount realized on the sale or other disposition of the Registered Securities even if the United States Holder has elected to claim a foreign tax credit for other taxes in the same year. United States Holder should consult their own tax advisors regarding the application of the foreign tax credit rules to a sale or other disposition of the Registered Securities and any Mexican tax imposed on such sale or disposition.

Backup Withholding and Information Reporting. Information returns may be filed with the IRS with respect to payments made to certain United States Holders of the Registered Securities. In addition, certain United States Holders may be subject to a backup withholding tax in respect of such payments, unless they (1) provide their accurate taxpayer identification numbers to the principal paying agent and certify that they are not subject to backup withholding or (2) otherwise establish an exemption from the backup withholding tax. Backup withholding is not an additional tax. Non-United States Holders may be required to comply with applicable certification procedures to establish that they are not United States Holders in order to avoid the application of such information reporting requirements and backup withholding tax. The amount of any backup withholding from a payment to a United States Holder or non-United States Holder will be allowed as a credit against the holder's U.S. federal income tax liability and may entitle the holder to a refund, provided that the required information is timely furnished to the IRS.

Specified Foreign Financial Assets. Certain United States Holders that own "specified foreign financial assets" with an aggregate value in excess of U.S. $50,000 on the last day of the taxable year or U.S. $75,000 at any time during the taxable year are generally required to file an information statement along with their tax returns, currently on IRS Form 8938, with respect to such assets. "Specified foreign financial assets" include any financial accounts held at a non-U.S. financial institution, as well as securities issued by a non-U.S. issuer (which would include the Registered Securities) that are not held in accounts maintained by financial institutions. Higher reporting thresholds apply to certain individuals living abroad and to certain married individuals. Regulations extend this reporting requirement to certain entities that are treated as formed or availed of to hold direct or indirect interests in specified foreign financial assets based on certain objective criteria. United States Holders who fail to report the required information could be subject to substantial penalties. In addition, the statute of limitations for assessment of tax would be suspended, in whole or part. Prospective investors should consult their own tax advisors concerning the application of these rules to their investment in the Registered Securities, including the application of the rules to their particular circumstances.

Documents on Display

We are subject to the information requirements of the Exchange Act. In accordance with these requirements, we file reports, including annual reports on Form 20-F, and other information with the SEC. Any filings we make electronically with the SEC will be available to the public over the Internet at the SEC's website at http://www.sec.gov. We maintain an Internet site at the following location: http://www.pemex.com (this website address is for information only and is not intended to be an active link or to incorporate any website information into this annual report).

Item 11. Quantitative and Qualitative Disclosures About Market Risk

QUALITATIVE DISCLOSURE

Policies for Risk Management and the Use of Derivative Financial Instruments

We face market risk caused by the volatility of hydrocarbon prices, exchange rates and interest rates, credit risk associated with investments and financial derivatives, as well as liquidity risk. In order to monitor and manage these risks, we have approved general provisions relating to financial risk management, which are comprised of policies and guidelines

that promote an integrated framework for risk management, regulate the use of Derivative Financial Instruments ("DFIs"), and guide the development of risk mitigation strategies.

This regulatory framework establishes that DFIs should be used only for the purpose of mitigating financial risk. The use of DFIs for any other purpose must be approved in accordance with our current internal regulation. We have a Financial Risk Working Group ("FRWG"), which is a specialized working group with decision-making authority over financial risk exposure, financial risk mitigation schemes, DFIs trading of Petróleos Mexicanos and the subsidiary entities and, where applicable, the subsidiary companies.

Approved DFIs are mainly traded on the over-the-counter ("OTC") market; however, exchange traded instruments may also be used. In the case of PMI Trading, DFIs are traded on CME ClearPort.

The different types of DFIs that we trade are described below in the subsections corresponding to each risk type and as related to the applicable trading markets. See Note 18 to our consolidated financial statements included herein.

One of our policies is to minimize the impact that unfavorable changes in financial risk factors have on our financial results by promoting an adequate balance between incoming cash flows from operations and outgoing cash flows related to our liabilities.

As part of the regulatory framework for financial risk management, we have established the eligible counterparties with which we may trade DFIs and other financial instruments.

In addition, certain PMI Subsidiaries have implemented a regulatory framework for risk management with respect to its activities, which consists of policies, guidelines and procedures to manage the market risk associated with its commodity trading activities in accordance with industry best practices, such as: (1) the use of DFIs for financial risk mitigation purposes; (2) the segregation of duties; (3) valuation and monitoring mechanisms, such as the generation of a daily portfolio risk report, value at risk ("VaR") computation; and (4) VaR limits, both at a global and business unit level and the implementation of stop loss mechanisms.

Given that our outstanding DFIs have been entered into for risk mitigation purposes, particularly with economic hedging purposes, there is no need to establish and monitor market risk limits.

For those portfolios with an open market risk exposure, our financial risk management regulatory framework establishes the implementation and monitoring of market risk metrics and limits (such as VaR, among others).

We have also established credit guidelines for DFIs that Pemex Industrial Transformation offers to its domestic customers, which include the use of guarantees and credit lines. For exchange traded DFIs, we trade under the margin requirements of the corresponding exchange market, and therefore, do not have internal policies for these DFIs.

DFIs held with financial counterparties do not require collateral exchange clauses. Notwithstanding, our regulatory framework promotes credit risk mitigation strategies, such as collateral exchange.

We do not have an independent third party to verify compliance with these internal standards; however, we have internal control procedures that certify compliance with existing policies and guidelines.

Description about Valuation Techniques

Fair Value of DFIs

We periodically evaluate our exposure to international hydrocarbon prices, interest rates and foreign currencies and use derivative instruments as a mitigation mechanism when potential sources of market risk are identified.

We monitor the fair value of our DFI portfolio on a periodic basis. The fair value represents the price at which one party would assume the rights and obligations of the other and is calculated for DFIs through models commonly used in the international financial markets, based on inputs obtained from major market information systems and price providers. Therefore, we do not have an independent third party to value our DFIs.

We calculate the fair value of our DFIs through the tools developed by our market information providers, and through valuation models implemented in software packages used to integrate all of our business areas and accounting, such as System Applications Products ("SAP").

Our DFI portfolio is composed primarily of swaps, for which fair value, or Mark-to-Market ("MtM"), is estimated by projecting future cash flows and discounting them with the corresponding discount factor. For currency and interest rate options, this is performed through the Black and Scholes model, and for crude oil options, through the Levy model for Asian options.

According to IFRS 13 "Fair Value Measurement", the MtM value of DFIs must reflect the creditworthiness of the parties. Consequently, the fair value of a DFI takes into account the risk that either party may default on its obligation. Due to the above, we apply the credit value adjustment ("CVA") method to calculate the fair value of our DFIs.

Given that our hedges are cash flow hedges, their effectiveness is preserved regardless of variations in the underlying assets or reference variables since over time asset flows are offset by liabilities flows. Therefore, we do not believe it is necessary to measure or monitor the hedges' effectiveness.

Fair value hierarchy

We value our DFIs using standard methodologies commonly applied in the financial markets. The fair-value assumptions and inputs utilized are classified in the three levels of the fair value hierarchy for market participant assumptions, as described below.

The fair values determined by Level 1 inputs utilize quoted prices in financial markets for identical assets or liabilities. Fair values determined by Level 2 inputs are based on quoted prices for similar assets or liabilities in financial markets, and inputs other than quoted prices that are observed for assets or liabilities. Fair values determined by Level 3 inputs are unobservable inputs for the assets or liabilities, and include situations where there is little, if any, market activity for the assets or liabilities. Management uses appropriate valuation techniques based on the available inputs to measure the fair values of our applicable assets and liabilities.

When available, we measure fair value using Level 1 inputs, because they generally provide the most reliable evidence of fair value.

The fair value assumptions and inputs utilized in the valuation of our DFIs' fair value, fall under Level 2 of the fair value hierarchy.

Liquidity Sources

Liquidity Risk

Our main internal source of liquidity comes from our operations. Additionally, through our debt planning and the purchase and sale of U.S. dollars, we currently preserve a cash balance at a level of liquidity in domestic currency and U.S. dollars that is considered adequate to cover our investment and operating expenses, as well as other payment obligations, such as those related to DFIs.

In addition, as of December 31, 2022, we have acquired committed revolving credit lines in order to mitigate liquidity risk, two of which provide access to Ps. 9,000 million and Ps. 20,500 million with expiration dates in November 2023 and November 2025, respectively, and another that provides access to U.S. $5,500 million with an expiration date in June 2024. As of December 31, 2022, these credit lines have been fully used. For more information, see Note 16 to our consolidated financial statements included herein.

During 2022, we entered into FX Forwards MXN/USD in order to preserve an adequate level of liquidity in U.S. dollars. As of December 31, 2022, all DFIs of this type have expired.

Finally, the investment strategies of our portfolios are structured by selecting time horizons that consider each currency's cash flow requirements in order to preserve liquidity.

Certain PMI Subsidiaries mitigate their liquidity risk through several mechanisms, the most important of which is our centralized treasury, which provides access to two syndicated credit facilities for up to U.S. $664 million and U.S. $1,500 million (the latter was transferred from Petróleos Mexicanos to PMI during December 2020) and cash surplus capacity in the custody of the centralized structure. In addition, certain PMI Subsidiaries have access to bilateral credit lines from financial institutions for up to U.S. $130 million.

These companies monitor their cash flow on a daily basis and protect their creditworthiness in the financial markets. Liquidity risk is mitigated by monitoring certain financial ratios as set forth in the policies approved by each company's board of directors.

Changes in Exposure to Main Risks

Market Risk

(i) Interest Rate Risk

We are exposed to fluctuations in floating interest rate liabilities. We are exposed to U.S. dollar LIBOR, U.S. dollar SOFR and to Mexican peso TIIE. As of December 31, 2022, 18.7% of our total net debt outstanding (including DFIs) consisted of floating rate debt.

Moreover, we invest in pesos and U.S. dollars in compliance with applicable internal regulations, through portfolios that have different purposes that seek an adequate return subject to risk parameters that reduce the probability of capital losses. The objective of the investments made through these portfolios is to meet our obligations payable in pesos and U.S. dollars.

The investments made through our portfolios are exposed to domestic and international interest rate risk and credit spread risk derived from government and corporate securities, and inflation risk arising from the relationship between Unidades de Inversión ("UDIs") and pesos. However, these risks are mitigated by established limits on exposure to market risk.

Interest Rate Swaps

Occasionally, for strategic reasons or in order to offset the expected inflows and outflows, we have entered into interest rate swaps and options. Through the swap agreements, we become obligated to make payments based on a fixed interest rate in exchange for receiving payments referenced to a floating interest rate. On the other hand, under the option agreements, we acquire protection against possible increases in the floating interest rates of some of our liabilities.

As of December 31, 2022, we were a party to four interest rate swap agreements denominated in U.S. dollars for an aggregate notional amount of U.S. $511.25 million at a weighted average fixed interest rate of 2.34% and a weighted average term of 2.5 years.

Similarly, in order to eliminate the volatility associated with variable interest rates of long-term financing operations, PMI NASA has also executed two interest rate swap agreements denominated in U.S. dollars for an aggregate notional amount of U.S. $1.378 million, at a weighted average fixed interest rate of 3.80% and a weighted average term of 0.17 years.

IBOR reference rates transition

As a result of the decision made by the Financial Stability Board (FSB), the Interbank Offered Rates (IBORs), such as the LIBOR in dollars (over-night "O/N", one week "1W", two months "2M" and twelve months "12M") or the EURIBOR in Euros, ceased being published in 2022 and must be replaced by alternative reference rates, based on risk-free rates obtained from market operations.

The discontinuation of the publication of these rates was originally scheduled for December 2021. Nevertheless, on November 2020, the ICE Benchmark Administration Limited (ICE) announced an extension until June 2023 for the publication of the most common LIBOR rates in dollars (over-night "O/N", one month "1M", three months "3M", six months "6M" and twelve months "12M").

Therefore, we have identified, and we are reviewing contracts expiring after the applicable cessation dates, that could be impacted by the change in the aforementioned rates.

As of December 31, 2022, we have a reduced number of financial instruments referenced to floating rates in U.S. dollars with maturity and interest rate fixation after June 2023. This portfolio of financial instruments is composed of debt instruments and DFIs as shown below:

	Reference Rate	**Notional Amount As of December 31, 2022 (in millions of each currency)*
Debt	LIBOR 1M U.S.$	472
	LIBOR 3M U.S.$	344
	LIBOR 6M U.S.$	787
DFI	LIBOR 1M U.S.$	2,500
	LIBOR 3M U.S.$	156
	LIBOR 6M U.S.$	244

*Note: Notional amounts with maturity after June 30, 2023.

We have a financial instrument denominated in euros with the EURIBOR 3M as a reference rate. Said reference will continue to be published, by agreement of the European financial authorities, so the current contract does not require any amendment.

In the event that TIIE ceases to be published, the portfolio of financial instruments referenced to these floating rates is composed of debt instruments and DFIs as shown below:

	Reference Rate	**Notional Amount As of December 31, 2022 (in millions of each currency)*
Debt	TIIE 28D MXN	66,951
	TIIE 91D MXN	20,393
DFI	TIIE 28D MXN	31,734

*Note: Notional amounts with maturity after December 31, 2022.

Our portfolio also consists of additional debt instruments and DFIs referenced at fixed rates, which are not listed in the tables above since our fixed rate portfolio will not be impacted by the IBOR transition.

Currently, we have been in constant communication with our counterparties, in order to carry out this transition in the most efficient way possible. In addition, as a result of the transition, we are working on any amendments to our contracts that may be required and we are monitoring the evolution of the IBORs transition in the market, in order to anticipate any negative impact that these changes may have.

As a result of the transition to the alternative reference rates based on risk-free rates (RFR), we have adopted a policy of not entering into new DFIs referenced to IBOR rates. Additionally, some of the discount curves that we use to obtain the fair value of our DFIs already reflect the corresponding currency referenced to the new RFR.

Pursuant to our policy of not entering into new financing operations at floating rates referenced to IBOR, during 2021 and 2022, we contracted financing operations in U.S. dollars at floating rates linked to the new RFR rates.

The credit agreements of PMI Trading include flexible provisions that would help realize an orderly transition to an alternative rate in the event that the LIBOR rates ceased to be published. As of the date of this annual report, PMI Trading's negotiations to adopt the new benchmark rate have concluded and PMI Trading has agreed to the new

benchmark of Secured Overnight Funding Rate (SOFR) starting on July 1, 2023, or on any previous date, once LIBOR ceases to be available.

(ii) Exchange Rate Risk

Most of our revenues are denominated in U.S. dollars, a significant amount of which is derived from exports of crude oil and petroleum products, which are priced and payable in U.S. dollars. Additionally, our revenues from domestic sales of gasoline and diesel net of IEPS Tax, tax duties, incentives, and other related taxes, as well as domestic sales of natural gas and its byproducts, LPG and petrochemicals, are referenced to international U.S. dollar-denominated prices.

Our expenses related to hydrocarbon duties are calculated based on international U.S. dollar-denominated prices and the cost of hydrocarbon imports that we acquire for resale in Mexico or use in our facilities are indexed to international U.S. dollar-denominated prices. By contrast, our capital expenditure and operating expenses are established in pesos.

As a result of this cash flow structure, the depreciation of the peso against the U.S. dollar increases our financial balance and the appreciation of the peso relative to the U.S. dollar has the opposite effect. We manage this risk without the need for hedging instruments because the impact on our revenues of fluctuations in the exchange rate between the U.S. dollar and the peso is offset in whole or in part by its impact on our obligations.

Cross-Currency Swaps

We prioritize debt issuances denominated in U.S. dollars. However, this is not always achievable, hence non-U.S. dollar-denominated debt issued in international currencies is hedged through DFIs to mitigate its exchange rate exposure, either by swapping it into U.S. dollars or through other derivative structures. The rest of the debt is denominated in pesos or in UDIs, and for the debt denominated in UDIs, it has been converted into pesos through DFIs in order to eliminate the inflationary risk exposure.

As a consequence of the above, our debt issued in international currencies other than U.S. dollars has exchange rate risk mitigation strategies. We have selected strategies that further seek to reduce our cost of funding by leaving, in some cases, part of this exchange rate exposure unhedged when assessed as appropriate.

The underlying currencies of our DFIs are the euro, Swiss franc, Japanese yen and pounds sterling against the U.S. dollar and UDIs against the peso.

As of December 31, 2022, we did not enter into any DFIs, as no debt in currencies other than U.S. dollars or pesos was issued.

During 2021, we carried out the restructure of five cross-currency swaps, two of which included a recouponing clause. These DFIs hedged the exchange rate exposure of a €1,000 million debt with maturity in 2026, a €100 million debt with maturity in 2030 and 10% of a €1,250 million debt with maturity in 2027. As part of this restructuring, we replaced the existing cross-currency swaps with two new instruments, without incurring additional cost. The two new instruments consisted of a new cross-currency swap and the sale of a call option, which guaranteed complete protection up to a certain exchange rate and partial protection above that level. These DFIs maintained the original contractual clauses. Once this restructure was carried out, 25% of the issue with maturity in 2026 remained hedged with two cross-currency swaps.

For the years ended December 31, 2022, 2021 and 2020, we recorded a total net foreign exchange gain (loss) of Ps. 129,690.1 million, Ps. (45,675.0) million and Ps. (128,949.3) million, respectively. These amounts included the unrealized foreign exchange gain (loss) associated with debt of Ps. 121,255.1 million, Ps. (40,751.3) million and Ps. (122,099.1) million for the years ended December 31, 2022, 2021 and 2020, respectively. Unrealized foreign exchange gains and losses do not impact our cash flows. The appreciation of the peso during 2022 caused a total net foreign exchange gain because a significant part of our debt, 85.08% (principal only) as of December 31, 2022, is denominated in currencies other than the peso. Due to the cash flow structure described above, the depreciation of the peso relative to the U.S. dollar does not affect our ability to meet U.S. dollar-denominated financial obligations and it improves our ability to meet peso-denominated financial obligations. On the other hand, the appreciation of the peso relative to the U.S. dollar may increase our peso-denominated debt service costs on a U.S. dollar basis.

Certain of the PMI Subsidiaries face market risks generated by fluctuations in foreign exchange rates. In order to mitigate these risks, the boards of directors of several of these companies have authorized a policy which stipulates that financial assets must be denominated in our functional currency, unless the company owes a duty or expected payment in a currency other than our functional one.

A significant amount of PMI Trading's income and expenses, including the cost of sales and related sales costs, is derived from the trade of refined products, petrochemicals and gas liquids to our subsidiaries and third parties, whose prices are determined and are payable in U.S. dollars. PMI Trading's exposure to foreign currency risk results primarily from the need to fund tax payments denominated in domestic currency, as well as from certain related sales costs denominated in domestic currency.

PMI Trading believes it can adequately manage the risk created by the payment of taxes in domestic currency without the need to enter into hedging instruments because the exposure to this risk is marginal relative to the total flows of U.S. dollars. In addition, in the event that a potential foreign exchange risk arises in connection with a commercial transaction, PMI Trading may implement risk mitigation measures by entering into DFIs.

(iii) Hydrocarbon Price Risk

We periodically assess our revenues and expenditures structure in order to identify the main market risk factors that our cash flows are exposed to in connection with international hydrocarbon prices. Based on this assessment, we monitor our exposure to the most significant risk factors and quantify their impact on our financial balance.

Our exports and domestic sales are directly or indirectly related to international hydrocarbon prices. Therefore, we are exposed to fluctuations in these prices. In terms of crude oil and natural gas, part of this risk is transferred to the Mexican Government under our current fiscal regime.

Our exposure to hydrocarbon prices is partly mitigated by natural hedges between our inflows and outflows.

Additionally, we continuously evaluate the implementation of risk mitigation strategies, including those involving the use of DFIs, taking into consideration their operative and budgetary feasibility.

Commodity Derivatives

In 2017, the Board of Directors of Petróleos Mexicanos approved the establishment of the Programa Anual de Coberturas Petroleras (Annual Oil Hedging Program). Since then, we have implemented hedging strategies to partially protect our cash flows from falls in the Mexican crude oil basket price below the one established in the Federal Revenue Law.

In 2020, we entered into a crude oil hedge for the first half of fiscal year 2021, pursuant to which we hedged 332.5 thousand barrels per day for the period between December 2020 and June 2021, for U.S. $119.9 million.

During the first half of 2021, we entered into a crude oil hedge for the second half of fiscal year 2021, pursuant to which we hedged 218 thousand barrels per day on average, for the period between July 2021 and December 2021, for U.S. $39.4 million.

During the second half of 2021 and the first half of 2022, we entered into a crude oil hedge for the fiscal year 2022, pursuant to which we hedged 309 thousand barrels per day on average, for the period between January 2022 and December 2022, for U.S. $159.0 million.

Finally, during the second half of 2022 we entered into the crude oil hedge for the fiscal year 2023, pursuant to which we hedged 100 thousand barrels per day on average for the period between January 2023 and December 2023, for U.S. $ 69.6 million.

Additionally, our cash flows are exposed to crack spread movements as these determine the refining margin.

During the fourth quarter of 2022, we began the implementation of a hedging strategy to protect our cash flows exposed to diesel crack spread from decrements below the level established in the Federal Revenue Law for the fiscal year 2023. This is a zero-cost strategy.

In addition to supplying natural gas, Pemex Industrial Transformation can offer DFIs to its domestic customers in order to provide them with support to mitigate the risk associated with the volatility of natural gas prices.

Since 2017, when this service is offered, Pemex Industrial Transformation must enter into DFIs with Petróleos Mexicanos under the opposite position to those DFIs offered to our customers in order to mitigate the market risk it would bear under such offered DFIs. Petróleos Mexicanos then transfers the related price risk derived from the DFI position held with Pemex Industrial Transformation to financial counterparties by entering into these opposite position DFIs with such parties. As of December 31, 2022, there were no DFIs since all the DFIs of its portfolios expired in 2019. In case of entering into new trades, Pemex Industrial Transformation DFI portfolios have VaR and Capital at Risk (CaR) limits in order to limit market risk exposure.

PMI Trading faces market risk generated by the terms of the purchase and sale of refined products and natural gas liquids, as well as the volatility of oil prices. Accordingly, it frequently enters into DFIs in order to mitigate this risk, thereby reducing the volatility of its financial results.

In accordance with the risk management regulatory framework that PMI Trading has implemented, VaR and the change in profit and loss by portfolio are calculated daily and compared to the maximum applicable limits in order to implement risk mitigation mechanisms as necessary.

Counterparty or Credit Risk

When the fair value of a DFI is favorable to us, we face the risk that the counterparty will not be able to meet its obligations. We monitor our counterparties' creditworthiness and calculate the credit risk exposure for our DFIs. As a risk mitigation strategy, we only enter into DFIs with major financial institutions with a minimum credit rating of BBB-. These ratings are issued and revised periodically by risk rating agencies. Furthermore, we seek to maintain a diversified portfolio of counterparties.

In order to estimate our credit risk exposure to each financial counterparty, the potential future exposure is calculated by projecting the risk factors used in the valuation of each DFI in order to estimate the MtM value for different periods, taking into account any credit risk mitigation provisions.

Moreover, we have entered into various long-term cross-currency swaps agreements with "recouponing" provisions (pursuant to which the payments on the swaps are adjusted when the MtM exceeds the relevant threshold specified in the swap), thereby limiting the exposure to our counterparties to a specific threshold amount, as well as the counterparties' exposure to us. The specified thresholds were reached in four cross-currency swaps during 2022, which were used to hedge the exchange rate exposure to the euro, and in one cross-currency swap during 2021, which was used to hedge the exchange rate exposure to the pound sterling.

This resulted in the cash settlement of such swaps and the resetting of swap terms to return their MtM value to zero. During 2022, we did not enter into any new cross-currency swap with these characteristics.

Additionally, during 2022 we carried out a voluntary recouponing of a MXN/UDI cross-currency swap, which hedges an UDI 722 million debt with maturity in 2028.

According to IFRS 13 "Fair Value Measurement," the fair value or MtM value of DFIs must reflect the creditworthiness of the parties. Consequently, the fair value of a DFI takes into account the risk that either party may default on its obligation. Due to the above, we apply the CVA method to calculate the fair value of our DFIs.

For each DFI, the CVA is calculated by determining the difference between the MtM and the estimated MtM adjusted for credit risk. In determining the credit risk, the CVA method takes into account the current market perception about the credit risk of both counterparties, using the following inputs: (a) the MtM projection for each payment date based on forward yield curves; (b) the implied default probability obtained from both our and the counterparty's credit default swaps, at each payment date; and (c) the default recovery rates of each counterparty.

Furthermore, by means of its credit guidelines for DFI operations, Pemex Industrial Transformation significantly reduces its credit risk exposure related to the DFIs.

In order to qualify for these DFIs, Pemex Industrial Transformation's customers must be party to a current natural gas supply contract and sign a domestic master derivative agreement.

Additionally, according to the credit guidelines, DFIs with these customers must be initially secured by cash deposits, letters of credit or other collateral provisions, as required. The credit guidelines indicate that Pemex Industrial Transformation may offer DFIs with an exemption from collateral requirements up to a certain amount, through a credit line approved by the credit committee, based on an internal financial and credit assessment. Moreover, if the credit line is insufficient to cover each client's exposure, the client is obligated to deposit collateral.

In accordance with these guidelines, in the event that a client does not meet its payment obligations, DFIs related to this client would be terminated, rights to any available collateral would be exercised and, if the collateral were insufficient to cover the fair value, or in the absence of collateral, natural gas supply would be suspended until the payment is made.

As of December 31, 2022, Pemex Industrial Transformation had no DFIs since all the DFIs of its portfolios expired in 2019. As such, once the operations were fully settled, the exempt credit lines were extinguished, and the collateral deposited by the clients was returned in full.

PMI Trading's credit risk associated with DFI transactions is mitigated by the use of futures and standardized instruments that are cleared through CME-ClearPort.

Accounting Standards Applied and the Impact on Results

We enter into derivatives transactions with the sole purpose of hedging financial risks related to our operations, firm commitments, planned transactions and assets and liabilities recorded on our statement of financial position. Nonetheless, some of these transactions do not qualify for hedge accounting treatment because they do not meet the requirements of the accounting standards for designation as hedges. They are therefore recorded in the consolidated financial statements as instruments entered into for trading purposes, despite the fact that their cash flows are offset by the cash flows of the positions (assets or liabilities) to which they relate. As a result, the changes in their fair value are recognized in the "Derivative financial instruments (cost) income, net" line item in the consolidated statement of comprehensive income.

As of December 31, 2022 and 2021, the net fair value of our DFIs (including both DFIs that have not reached maturity and those that have reached maturity but have not been settled), recognized in our consolidated statement of financial position, were Ps. (9,486.5) million and Ps. (1,162.1) million, respectively. As of December 31, 2022, and 2021, we did not have any DFIs designated as hedges. See Note 18 to our consolidated financial statements included herein.

For the years ended December 31, 2022, 2021 and 2020, we recognized a net (loss) gain of Ps. (22,863.0) million, Ps. (25,224.2) million and Ps. 17,096.1 million, respectively, in the "Derivative financial instruments (cost) income, net" line item with respect to DFIs treated as instruments entered into for trading purposes.

In accordance with established accounting policies, we have analyzed the different contracts that we have entered into and have determined that, according to the terms thereof, none of these agreements meet the criteria to be classified as embedded derivatives. Accordingly, as of December 31, 2022, and 2021, we did not recognize any embedded derivatives, either foreign currency or index.

QUANTITATIVE DISCLOSURE

Fair Value

The following tables show our cash flow maturities, as well as the fair value of our debt and DFI portfolios as of December 31, 2022. It should be noted that:

- For debt obligations, these tables present principal cash flow and the weighted average interest rates for fixed rate debt.
- For interest rate swaps, interest rate options, cross-currency swaps and currency options, these tables present notional amounts and weighted average interest rates by expected (contractual) maturity dates.

- Weighted average variable rates are based on implied forward rates obtained from the interbank market yield curve at the reporting date.
- For crude oil and crack spread, volumes are presented in millions of barrels, and fixed average and strike prices are presented in U.S. dollars per barrel.
- DFIs' fair value includes CVA and is calculated based on market quotes obtained from market sources such as Bloomberg, Proveedor Integral de Precios, S.A. de C.V. ("PIP"), among others.
- For PMI Trading, the prices used in commercial transactions and DFIs are published by reputable sources that are widely used in international markets, such as CME-NYMEX, Platts and Argus, among others.
- Fair value is calculated internally, either by discounting cash flows with the corresponding zero-coupon yield curve in the original currency, or through other standard methodologies commonly used in financial markets for specific instruments.
- For all instruments, the tables are based on the contract terms in order to determine the future cash flows that are categorized by expected maturity dates.

Quantitative Disclosure of Debt Cash Flow Maturities as of December 31, 2022[1] [2] [3]

	Year of expected maturity date															
	2023		2024		2025		2026		2027		2028 Thereafter		Total Carrying Value		Fair Value	
Liabilities																
Outstanding debt																
Fixed rate (U.S. dollars)	Ps.	49,003,377	Ps.	22,392,384	Ps.	34,634,833	Ps.	74,001,164	Ps.	116,556,308	Ps.	895,763,628	Ps.	1,192,351,694	Ps.	1,011,100,409
Average interest rate (%)		—		—		—		—		—		—		6.59%		
Fixed rate (Japanese yen)		4,410,000		—		—		11,747,618		—		—		16,157,618		14,691,136
Average interest rate (%)		—		—		—		—		—		—		1.35%		
Fixed rate (pound sterling)		—		—		10,479,479		—		—		—		10,479,479		9,441,285
Average interest rate (%)		—		—		—		—		—		—		3.75%		
Fixed rate (pesos)		38,129,345		118,930,168		—		31,135,724		—		—		188,195,237		182,158,536
Average interest rate (%)		—		—		—		—		—		—		7.76%		
Fixed rate (UDIs)		—		—		—		24,060,801		—		14,024,600		38,085,401		37,120,498
Average interest rate (%)		—		—		—		—		—		—		4.09%		
Fixed rate (euros)		28,979,202		25,859,165		34,142,241		20,714,535		25,865,189		53,510,465		189,070,797		173,811,236
Average interest rate (%)		—		—		—		—		—		—		4.30%		
Fixed rate (Swiss francs)		7,659,500		—		—		—		—		—		7,659,500		7,475,294
Average interest rate (%)		—		—		—		—		—		—		1.75		
Total fixed rate debt	**Ps.**	**128,181,424**	**Ps.**	**167,181,717**	**Ps.**	**79,256,553**	**Ps.**	**161,659,842**	**Ps.**	**142,421,497**	**Ps.**	**963,298,693**	**Ps.**	**1,641,999,726**	**Ps.**	**1,435,798,394**
Variable rate (U.S. dollars)		204,537,935		57,417,565		5,739,676		2,398,477		2,487,239		6,104,457		278,685,349		272,536,429
Variable rate (euros)		13,415,342		—		—		—		—		—		13,415,342		13,497,422
Variable rate (pesos)		80,449,683		25,456,403		7,790,683		1,213,716		1,200,252		1,889,545		118,000,282		131,589,540
Total variable rate debt	**Ps.**	**298,402,960**	**Ps.**	**82,873,968**	**Ps.**	**13,530,359**	**Ps.**	**3,612,193**	**Ps.**	**3,687,491**	**Ps.**	**7,994,002**	**Ps.**	**410,100,973**	**Ps.**	**417,623,391**
Total debt	**Ps.**	**426,584,384**	**Ps.**	**250,055,685**	**Ps.**	**92,786,912**	**Ps.**	**165,272,035**	**Ps.**	**146,108,988**	**Ps.**	**971,292,695**	**Ps.**	**2,052,100,699**	**Ps.**	**1,853,421,785**

Note: Numbers may not total due to rounding.

(1) The information in this table has been calculated using exchange rates at December 31, 2022, of: Ps. 19.4143 = U.S. $1.00; Ps. 0.1470 = 1.00 Japanese yen; Ps. 23.3496 = 1.00 pound sterling; Ps. 7.646804 = 1.00 UDI; Ps. 20.7083 = 1.00 euro; and Ps. 20.9791 = 1.00 Swiss franc.

(2) Amounts in thousands of Mexican pesos.

(3) The amounts shown do not include accrued interest.

Quantitative Disclosure of Cash Flow Maturities from Derivative Financial Instruments Held or Issued for Purposes Other than Trading as of December 31, 2022[1][2]

	Year of expected maturity date							
	2023	2024	2025	2026	2027	2028 Thereafter	Total Carrying Value	Fair Value (3)
Hedging Instruments								
Interest Rate DFI (2)(4)								
Interest Rate Swaps (U.S. dollars)								
Variable to fixed	Ps. 4,346,428	Ps. 3,227,627	Ps. 2,378,252	Ps. —	Ps. —	Ps. —	Ps. 9,952,307	Ps. 409,459
Average pay rate	2.37%	2.35%	2.31%	—%	0.00%	0.00%	N.A.	N.A.
Average receive rate	5.45%	5.07%	4.34%	—%	0.00%	0.00%	N.A.	N.A.
Interest Rate Options								
Buy Cap, Sell Floor on floating in U.S. dollar LIBOR 1M	Ps. —	Ps. 48,535,750	Ps. —	Ps. —	Ps. —	Ps. —	Ps. 48,535,750	Ps. 2,263,382
Currency DFI								
Cross-currency swaps								
Receive euros/Pay U.S. dollars	Ps. 45,303,255	Ps. 25,853,538	Ps. 37,200,560	Ps. 21,259,267	Ps. 26,074,861	Ps. 56,631,520	Ps. 212,323,001	Ps. (11,745,814)
Receive Japanese yen/Pay U.S. dollars	4,685,672	—	—	—	—	—	4,685,672	(231,855)
Receive pounds sterling/ Pay U.S. dollars	—	—	11,486,665	—	—	—	11,486,665	(1,123,000)
Receive UDI/Pay pesos	—	—	3,063,181	17,076,001	—	11,594,491	31,733,673	6,147,449
Receive Swiss francs/Pay U.S. dollars	7,086,220	—	—	—	—	—	7,086,220	620,453
Currency Options								
Buy Put, Sell Put and Sell Call on Japanese yen	Ps. —	Ps. —	Ps. —	Ps. 11,845,210	Ps. —	Ps. —	Ps. 11,845,210	Ps. (461,140)
Buy Call, Sell Call and Sell Put on euros	—	25,978,760	15,067,681	—	—	25,978,760	67,025,201	(4,750,485)
Sell Call on pounds sterling	—	—	10,556,234	—	—	—	10,556,234	(2,835)
Sell Call on Swiss francs	7,664,921	—	—	—	—	—	7,664,921	(1,617)
Sell Call on Euros	13,508,955	—	13,508,955	15,587,256	25,978,760	28,057,061	96,640,987	(375,031)
FX Forwards								
Receive U.S. dollars / Pay pesos	Ps. —	Ps. —	Ps. —	Ps. —	Ps. —	Ps. —	Ps. —	Ps. —

n.a. = not applicable.
Numbers may not total due to rounding.

(1) The information in this table has been calculated using exchange rates at December 31, 2022, of: Ps. 19.4143 = U.S. $1.00 and Ps. 20.7083= 1.00 euro.

(2) Our management uses these DFIs to hedge market risk; however, these DFIs do not qualify for accounting purposes as hedges and are recorded in the financial statements as entered into for trading purposes.

(3) Positive numbers represent a favorable fair value to us.

(4) PMI's risk management policies and procedures establish that DFIs should be used only for hedging purposes; however, DFIs are not recorded as hedges for accounting purposes.

Quantitative Disclosure of Cash Flow Maturities from Derivative Financial Instruments (Petroleum Products) Held or Issued for Purposes Other than Trading as of December 31, 2022[1]

	Year of maturity							
	2023	2024	2025	2026	2027	2028 Thereafter	Total Volume	Fair Value [2]
	(in millions of barrels)							(in thousands of nominal pesos)
Hedging Instruments								
Exchange-traded futures[3] [5]	(1.48)	—	—	—	—	—	(1.48)	Ps. (263,060)
Exchange-traded swaps[4] [5]	(2.27)	—	—	—	—	—	(2.27)	146,828

Note: Numbers may not total due to rounding.

(1) The information in this table has been calculated using the exchange rate at December 31, 2022 of: Ps. 19.4143 = U.S. $1.00.

(2) Positive fair value numbers mean favorable amounts for PMI Trading.

(3) Net position.

(4) Swaps registered in CME ClearPort are included in these figures.

(5) The balance of these instruments is presented as part of cash and cash equivalents as they are considered fully liquid.

Sensitivity Analysis

We have entered into DFIs to mitigate the market risk for specific flows or predetermined volumes associated with our operations. Our DFIs have the same characteristics (e.g., underlying assets, payment dates, amounts or volumes) as the hedged position, but with the opposite exposure to the market risk factors. As a result of these mitigation strategies, we have a minor sensitivity to the hedged market risk factors. See Note 18 from our consolidated financial statements included herein.

Given that our hedges are cash flow hedges, their effectiveness is preserved regardless of variations in the underlying assets or reference variables since, over time, asset flows are offset by liabilities flows. Therefore, it is not considered necessary to measure the hedge's effectiveness or to monitor them.

The natural gas DFIs that Pemex Industrial Transformation has offered to its domestic customers have been reported as transactions with trading purposes. However, such operations were fully compensated by the operations entered into with financial counterparties, maintaining a negligible or even null exposure to market risk (due to this back-to-back mechanism). As of December 31, 2022, Pemex Industrial Transformation did not have any DFI to report, since all the DFIs of our portfolios expired in 2019. As such, it is not necessary to conduct either a sensitivity analysis or to measure or monitor the hedge effectiveness.

Other DFIs seek to hedge the changes in the price of the commercialized products, such that the DFIs' underlying assets have correlations with the prices of the products involved in commercialization. PMI Trading estimates the VaR of these DFIs. Notably, DFIs of PMI Trading (all of them related to petroleum derivatives), are classified under cash and cash equivalents for accounting purposes due to their liquidity.

Item 12. Description of Securities Other than Equity Securities

Not applicable.

PART II

Item 13. Defaults, Dividend Arrearages and Delinquencies

None.

Item 14. Material Modifications to the Rights of Security Holders and Use of Proceeds

None.

Item 15. Controls and Procedures

(a) Disclosure Controls and Procedures

We carried out an evaluation under the supervision and with the participation of our management, including our *Director General* (Chief Executive Officer or CEO) and our *Director Corporativo de Finanzas* (Chief Financial Officer or CFO), of the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) of the Exchange Act) as of December 31, 2022. There are inherent limitations to the effectiveness of any system of disclosure controls and procedures, including the possibility of human error and the circumvention or overriding of controls and procedures. Accordingly, effective disclosure controls and procedures can provide only reasonable assurance of achieving their control objectives.

Based on our evaluation, our CEO and CFO concluded that our disclosure controls and procedures as of December 31, 2022 were effective to provide reasonable assurance that information required to be disclosed in the reports we file and submit under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our CEO and CFO, as appropriate, to allow timely decisions regarding required disclosures.

(b) Management's Annual Report on Internal Control over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) of the Exchange Act). Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with IFRS. Our internal control over financial reporting includes those policies and procedures that:

1. Pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets;

2. Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with IFRS and with Item 18 of Form 20-F, and that our receipts and expenditures are being made only in accordance with authorizations of management and directors of the relevant entity; and

3. Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on our consolidated financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness for future periods are subject to the risk that the related controls may become inadequate because of changes in conditions, or that the degree of compliance with policies or procedures may deteriorate.

Our management, with participation of the CEO and CFO, under the oversight of our Board of Directors, evaluated the effectiveness of our internal control over financial reporting as of December 31, 2022 using the framework in Internal Control - Integrated Framework (2013), issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on that evaluation, management concluded that our internal control over financial reporting was effective as of December 31, 2022.

Remediation

We previously reported a material weakness in internal control over financial reporting in our annual reports on Form 20-F for the years ended December 31, 2021 and 2020. As described further below, our management has concluded that this material weakness was remediated.

Our management concluded that, as of December 31, 2021 and 2020, there was a material weakness in our internal control over financial reporting related to the estimation of impairment of long-lived assets. Specifically, the review controls over the application of key inputs used to measure impairment were not designed with a sufficient degree of precision, and there were no controls early in the process, to effectively identify errors in the impairment assessment and determine that the calculation of the value in use for the cash-generating units complies with IAS-36. This was due to insufficient knowledge and experience of our staff responsible for the impairment assessment and the fact that we did not perform an effective risk assessment to identify and assess the relevant risks of material misstatement associated with the impairment of long-lived assets in accordance with IAS-36. Our monitoring controls were also ineffective in identifying these deficiencies in a timely manner.

The control deficiencies resulted in an immaterial misstatement to impairment and to wells, pipelines, properties, plant and equipment, net. Furthermore, the control deficiencies described above created a reasonable possibility that a material misstatement in the consolidated financial statements for the years ended December 31, 2021 and 2020 would not be prevented or detected on a timely basis.

In order to remediate the material weakness, our management designed a remediation plan that included the following main stages, which we executed during fiscal years 2021 and 2022:

a. Identification, strengthening and design of control activities;

b. Implementation of control activities; and

c. Monitoring and testing of operational effectiveness.

Our remediation plan included the following actions:

1. Enhance risk assessment and prioritize remediation activities that most significantly reduce the risk that a material misstatement to the consolidated financial statements would not be prevented or detected on a timely basis;

2. Update the internal procedures related to the calculations of value in use that are aligned with the approach and requirements of the corresponding regulations;

3. Design and implement controls that ensure that the cost figures for operating distributions to be considered in the discounted cash flow calculations correspond to those provided by cost management;

4. Reinforce the process of periodic evaluation of the controls designed and implemented;

5. Update the corresponding internal procedures in which we identify the variables to be considered in the determination of the cash flows for the impairment calculation; and

6. Report regularly to the audit committee on the progress and results of the remediation plan, including the identification, status, and resolution of internal control deficiencies.

In carrying out this remediation plan, management evaluated the effectiveness of the specific controls implemented to address the material weakness and defined as control objectives the review of key inputs, as well as integrity, completeness and accuracy in the calculation, in order to effectively identify errors in the assessment of impairment of long-lived assets in accordance with IAS-36. In doing so, we targeted the following main controls:

- Cash Inflows: (i) regarding revenues: the estimate of future production and its sales prices; (ii) regarding hydrocarbon reserve profiles: the determination of costs for the exploitation of hydrocarbon reserves and economic evaluations;

- Cash Outflows: targeted at operating expenses and production costs, tests of the accuracy of allocations of certain costs to allocations that integrate cash generating units, integration tests of certain costs, gas purchases, and integration tests of certain investments (i.e., well interventions and works and infrastructure);

- Fixed Assets: the control of fixed asset database figures and fixed asset distributions to allocations;

- Discount Rate: identification of controls associated with inputs to determine the discount rate used in the calculation of impairment;

- Discounted Net Cash Flows: the review of the completeness of the projected information, the review of the accuracy of the discounted net cash flows;

- Determination and Record: review of the reasonableness of the calculations by comparing the value in use to the net book value, and their adequate accounting recording.

As a result of the above actions, in the preparation of our audited consolidated financial statements as of and for the year ended December 31, 2022, management concluded that the controls identified, designed and implemented for the process of applying IAS 36 “Calculation of impairment of long-lived assets” were effective in achieving the established control objectives, and therefore the identified material weakness no longer exists.

(c) Attestation Report of the Independent Registered Public Accounting Firm

Not applicable.

(d) Changes in Internal Control over Financial Reporting

There has been no change in our internal control over financial reporting during 2022 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting, except for the remediation of the material weakness described above.

Item 16A. Audit Committee Financial Experts

Mr. Juan José Paullada Figueroa and Mr. José Eduardo Beltrán Hernández, members of the Audit Committee of Petróleos Mexicanos, qualify as "audit committee financial experts" within the meaning of this Item 16A, and are independent, as defined in Rule 10A-3 under the Exchange Act.

Item 16B. Code of Ethics

In accordance with the Petróleos Mexicanos Law, in November 2016, we issued the Code of Ethics for Petróleos Mexicanos, its productive subsidiary entities and affiliates, a code of ethics as defined in Item 16B of Form 20-F under the Exchange Act.

On November 26, 2019, the Board of Directors of Petróleos Mexicanos approved and issued an updated Code of Ethics. An updated Code of Ethics was published in the Official Gazette of the Federation on December 24, 2019.

Our Code of Ethics applies to the members of the Board of Directors of Petróleos Mexicanos and the subsidiary entities and all our employees, including our General Director (Chief Executive Officer), Chief Financial Officer, Chief Accounting Officer and all other employees performing similar functions, as well as other individuals and companies whose actions may affect our reputation. The Code of Ethics is a key component of our ethics and integrity program, aimed at eradicating corruption. The Code of Ethics defines values such as respect, non-discrimination, honesty, loyalty, responsibility, legality, impartiality, integrity, inclusivity and human rights, among others, that we expect will help us achieve our goals and which should be reflected in the daily behavior of our employees.

Our Code of Ethics is available on our website at http://www.pemex.com. Waivers cannot be granted to the provisions of this Code. Any amendment to the provisions of the Code of Ethics, will be disclosed on our website at the same address.

On December 7, 2016, our Ethics Committee was formed to monitor the implementation and enforcement of the Code of Ethics. See "*Item 4—Information on the Company—Business Overview—PEMEX Corporate Matters—Ethics Committee*" for more information.

In addition, on November 11, 2019 the new Code of Conduct for Petróleos Mexicanos, its productive subsidiary entities and, where applicable, affiliated companies, was published into the Official Gazette of the Federation. This Code of Conduct delineates behaviors expected of and banned for our employees, in accordance with the values established in the Code of Ethics approved by the Board of Directors of Petróleos Mexicanos and contemplates data protection and transparency related matters.

On September 11, 2017, the Anti-corruption Policies and Guidelines for Petróleos Mexicanos, its productive subsidiary entities and, where applicable, affiliated companies and the Policies and Guidelines to carry out Due Diligence in Petróleos Mexicanos, its productive subsidiary entities and, where applicable, affiliated companies, in Ethics and Corporate Integrity Matters became effective. These Policies and Guidelines were updated and published in the Official Gazette of the Federation on July 21, 2021. The purpose of these regulations is to take action to prevent acts of corruption, as well as provide means for executives and employees to identify, manage, mitigate and confront our own risks as well as third-party risks that may affect the attainment of our objectives with respect to corruption, corporate integrity or our involvement in illicit acts of any kind.

Additionally, we have an ethics tip line and a telephone number available on our website, as a mechanism to provide advice to address questions on ethics and integrity issues within PEMEX and to facilitate receipt of complaints about possible violations to our Code of Ethics or of our Code of Conduct. The information received is channeled to the Ethics Committee and the appropriate areas authorized to investigate and, if applicable, pursue cases in accordance with the applicable laws.

We believe that the regulations and mechanisms mentioned above, along with the legal framework applicable to us, will allow us to improve our ability to mitigate our exposure to bribery and corruption risks in our relationships with third parties. See "*Item 3—Key Information—Risk Factors—Risk Factors Related to Our Operations—We are subject to Mexican and international anti-corruption, anti-bribery and anti-money laundering laws. Our failure to comply with these laws could result in penalties, which could harm our reputation and have an adverse effect on our business, results of operations and financial condition*."

Item 16C. Principal Accountant Fees and Services

In its meeting held on June 21, 2022 and June 24, 2022, the Board of Directors of Petróleos Mexicanos appointed KPMG Cárdenas Dosal, S.C. as external auditor of Petróleos Mexicanos, its productive state-owned subsidiaries and subsidiary companies for the fiscal years 2022 and 2023 based on the proposal of the audit committee. See "*Item 6—Directors, Senior Management and Employees—Audit Committee*."

Audit and Non-Audit Fees

The following table sets forth the aggregate fees paid by us and billed to us for the fiscal years 2022 and 2021 by KPMG Cárdenas Dosal, S.C., our independent registered public accounting firm for the years ended December 31, 2022 and 2021.

	Year ended December 31,	
	2022	2021
	(in thousands of nominal pesos)	
Audit fees	Ps. 141,341	Ps. 115,324
Audit-related fees	5,435	13,470
Tax Fees	6,239	7,363
Total fees	**Ps. 153,015**	**Ps. 136,157**

Audit fees in the table above are the aggregate fees billed by KPMG Cárdenas Dosal, S.C., in each case for services provided in connection with the audits of our consolidated financial statements and statutory audit, as well as limited reviews of interim financial information and reviews of documents related to offerings of securities, comfort and consent letters.

Audit-related fees in the table above are the aggregate fees billed by KPMG Cárdenas Dosal, S.C., in each case for services included other attestation services.

Audit Committee Approval Policies and Procedures

In accordance with the Petróleos Mexicanos Law, the audit committee nominates the external auditor for approval by the Board of Directors of Petróleos Mexicanos and issues an opinion regarding the external auditor's report on our consolidated financial statements. See "*Item 6—Directors, Senior Management and Employees—Audit Committee*."

Item 16D. Exemptions from the Listing Standards for Audit Committees

Not applicable.

Item 16E. Purchases of Equity Securities by the Issuer and Affiliated Purchasers

Not applicable.

Item 16F. Change in Registrant's Certifying Accountant

Not applicable.

Item 16G. Corporate Governance

Not applicable.

Item 16H. Mine Safety Disclosure

Not applicable.

Item 16I. Disclosure Regarding Foreign Jurisdiction that Prevents Inspections

Not applicable.

Item 16J. Insider Trading Policies

Not applicable.

PART III

Item 17. Financial Statements

Not applicable.

Item 18. Financial Statements

Our audited consolidated financial statements are included in this annual report beginning on page F-1.

Item 19. Exhibits

Documents filed as exhibits to this Form 20-F:

1.1	*Ley de Petróleos Mexicanos* (Petróleos Mexicanos Law), effective October 7, 2014 (English translation) (previously filed as Exhibit 1.1 to Petróleos Mexicanos' annual report on Form 20-F (File No. 0-99) on April 30, 2015 and incorporated by reference herein).
1.2	*Reglamento de la Ley de Petróleos Mexicanos* (Regulations to the Petróleos Mexicanos Law), effective November 1, 2014 and, as amended, as of February 9, 2015 (English translation) (previously filed as Exhibit 1.2 to Petróleos Mexicanos' annual report on Form 20-F (File No. 0-99) on April 30, 2015 and incorporated by reference herein).
1.3	*Acuerdo de Creación de la Empresa Productiva del Estado Subsidiaria de Petróleos Mexicanos, denominada Pemex Exploración y Producción* (Creation Resolution of the Productive State-Owned Subsidiary of Petróleos Mexicanos, denominated Pemex Exploration and Production), effective June 1, 2015 (English translation) (previously filed as Exhibit 3.4 to the Petróleos Mexicanos Registration Statement on Form F-4 (File No. 333-205763) on July 21, 2015 and incorporated by reference herein).
1.4	*Acuerdo de Creación de la Empresa Productiva del Estado Subsidiaria de Petróleos Mexicanos, denominada Pemex Cogeneración y Servicios* (Creation Resolution of the Productive State-Owned Subsidiary of Petróleos Mexicanos, denominated Pemex Cogeneration and Services), effective June 1, 2015 (English translation) (previously filed as Exhibit 3.5 to the Petróleos Mexicanos Registration Statement on Form F-4 (File No. 333-205763) on July 21, 2015 and incorporated by reference herein).
1.5	*Acuerdo de Creación de la Empresa Productiva del Estado Subsidiaria de Petróleos Mexicanos, denominada Pemex Perforación y Servicios* (Creation Resolution of the Productive State-Owned Subsidiary of Petróleos Mexicanos, denominated Pemex Drilling and Services), effective August 1, 2015 (English translation) (previously filed as Exhibit 3.5 to Amendment No. 1 to the Petróleos Mexicanos Registration Statement on Form F-4 (File No. 333-205763) on February 8, 2016 and incorporated by reference herein).
1.6	*Acuerdo de Creación de la Empresa Productiva del Estado Subsidiaria de Petróleos Mexicanos, denominada Pemex Logística* (Creation Resolution of the Productive State-Owned Subsidiary of Petróleos Mexicanos, denominated Pemex Logistics), effective October 1, 2015 (English translation) (previously filed as Exhibit 3.6 to Amendment No. 1 to the Petróleos Mexicanos Registration Statement on Form F-4 (File No. 333-205763) on February 8, 2016 and incorporated by reference herein).
1.7	*Acuerdo de Creación de la Empresa Productiva del Estado Subsidiaria de Petróleos Mexicanos, denominada Pemex Transformación Industrial* (Creation Resolution of the Productive State-Owned Subsidiary of Petróleos Mexicanos, denominated Pemex Industrial Transformation), effective November 1, 2015 (English translation) (previously filed as Exhibit 3.7 to Amendment No. 1 to the Petróleos Mexicanos Registration Statement on Form F-4 (File No. 333-205763) on February 8, 2016 and incorporated by reference herein).

1.8	*Adecuación al Acuerdo de Creación de la Empresa Productiva del Estado Subsidiaria de Petróleos Mexicanos, denominada Pemex Exploración y Producción* (Amendment to Creation Resolution of the Productive State-Owned Subsidiary of Petróleos Mexicanos, denominated Pemex Exploration and Production), effective December 29, 2015 (English Translation) (previously filed as Exhibit 3.4 to the Petróleos Mexicanos Registration Statement on Form F-4 (File No. 333-220721) on September 29, 2017 and incorporated by reference herein).
1.9	*Adecuación al Acuerdo de Creación de la Empresa Productiva del Estado Subsidiaria de Petróleos Mexicanos, denominada Pemex Exploración y Producción* (Amendment to Creation Resolution of the Productive State-Owned Subsidiary of Petróleos Mexicanos, denominated Pemex Exploration and Production), effective May 12, 2016 (English translation) (previously filed as Exhibit 3.4 to the Petróleos Mexicanos Registration Statement on Form F-4 (File No. 333-213351) on November 30, 2016 and incorporated by reference herein).
1.10	*Adecuación al Acuerdo de Creación de la Empresa Productiva del Estado Subsidiaria de Petróleos Mexicanos, denominada Pemex Exploración y Producción* (Amendment to Creation Resolution of the Productive State-Owned Subsidiary of Petróleos Mexicanos, denominated Pemex Exploration and Production), effective July 1, 2019 (English translation).
1.11	*Adecuación al Acuerdo de Creación de la Empresa Productiva del Estado Subsidiaria de Petróleos Mexicanos, denominada Pemex Logística* (Amendment to Creation Resolution of the Productive State-Owned Subsidiary of Petróleos Mexicanos, denominated Pemex Logistics), effective July 1, 2019 (English translation).
1.12	*Adecuación al Acuerdo de Creación de la Empresa Productiva del Estado Subsidiaria de Petróleos Mexicanos, denominada Pemex Transformación Industrial* (Amendment to Creation Resolution of the Productive State-Owned Subsidiary of Petróleos Mexicanos, denominated Pemex Industrial Transformation), effective July 1, 2019 (English translation).
1.13	*Adecuación al Acuerdo de Creación de la Empresa Productiva del Estado Subsidiaria de Petróleos Mexicanos, denominada Pemex Transformación Industrial* (Amendment to Creation Resolution of the Productive State-Owned Subsidiary of Petróleos Mexicanos, denominated Pemex Industrial Transformation), effective January 1, 2021 (English translation).
1.14	*Declaratoria de Liquidación y Extinción de la Empresa Productiva del Estado Subsidiaria de Petróleos Mexicanos, denominada Pemex Cogeneración y Servicios (Declaration of Liquidation and Extinction of Pemex Cogeneration and Services),* effective July 27, 2018 (English translation) (previously filed as Exhibit 1.10 to the Petróleos Mexicanos Annual Report on Form 20-F (File No. 0-99) on April 30, 2019 and incorporated by reference herein).
1.15	*Declaratoria de Extinción de la Empresa Productiva del Estado Subsidiaria de Petróleos Mexicanos, denominada Pemex Perforación y Servicios* (Declaration of Extinction of Pemex Drilling and Services), effective July 1, 2019 (English translation).
2.1	Indenture, dated as of September 18, 1997, between Petróleos Mexicanos and Deutsche Bank Trust Company Americas (formerly known as Bankers Trust Company) (previously filed as Exhibit 4.1 to the Petróleos Mexicanos Registration Statement on Form F-4 (File No. 333-7796) on October 17, 1997 and incorporated by reference herein). (P)
2.2	Indenture, dated as of August 7, 1998, between Petróleos Mexicanos and Deutsche Bank Trust Company Americas (formerly known as Bankers Trust Company) (previously filed as Exhibit 4.1 to the Petróleos Mexicanos Registration Statement on Form F-4 (File No. 333-9310) on August 24, 1998 and incorporated by reference herein). (P)
2.3	Indenture, dated as of July 31, 2000, among the Pemex Project Funding Master Trust, Petróleos Mexicanos and Deutsche Bank Trust Company Americas (formerly known as Bankers Trust Company) (previously filed as Exhibit 2.5 to the Petróleos Mexicanos Annual Report on Form 20-F (File No. 0-99) on June 28, 2001 and incorporated by reference herein). (P)
2.4	First supplemental indenture dated as of September 30, 2009, between Petróleos Mexicanos and Deutsche Bank Trust Company Americas, to the indenture dated as of July 31, 2000 (previously filed as Exhibit 2.4 to the Petróleos Mexicanos Annual Report on Form 20-F (File No. 0-99) on June 29, 2010 and incorporated by reference herein).
2.5	Indenture, dated as of December 30, 2004, among the Pemex Project Funding Master Trust, Petróleos Mexicanos and Deutsche Bank Trust Company Americas (previously filed as Exhibit 2.7 to Petróleos Mexicanos' Annual Report on Form 20-F (File No. 0-99) on June 30, 2005 and incorporated by reference herein).

2.6	First supplemental indenture dated as of September 30, 2009, between Petróleos Mexicanos and Deutsche Bank Trust Company Americas, to the indenture dated as of December 30, 2004 (previously filed as Exhibit 2.6 to the Petróleos Mexicanos Annual Report on Form 20-F (File No. 0-99) on June 29, 2010 and incorporated by reference herein).
2.7	Indenture, dated as of January 27, 2009, between Petróleos Mexicanos and Deutsche Bank Trust Company Americas (previously filed as Exhibit 2.5 to the Petróleos Mexicanos Annual Report on Form 20-F (File No. 0-99) on June 30, 2009 and incorporated by reference herein).
2.8	Fiscal Agency Agreement between Petróleos Mexicanos and Deutsche Bank Trust Company Americas (formerly known as Bankers Trust Company), dated as of June 16, 1993, and amended and restated as of February 26, 1998 (previously filed as Exhibit 3.1 to the Petróleos Mexicanos Annual Report on Form 20-F (File No. 0-99) on June 29, 2000 and incorporated by reference herein). (P)
2.9	Trust Agreement, dated as of November 10, 1998, among The Bank of New York, The Bank of New York (Delaware) and Petróleos Mexicanos (previously filed as Exhibit 3.1 to the Petróleos Mexicanos Annual Report on Form 20-F (File No. 0-99) on June 30, 1999 and incorporated by reference herein). (P)
2.10	Amendment No. 1, dated as of November 17, 2004, to the Trust Agreement among The Bank of New York, The Bank of New York (Delaware) and Petróleos Mexicanos dated as of November 10, 1998 (previously filed as Exhibit 2.10 to the Petróleos Mexicanos Annual Report on Form 20-F (File No. 0-99) on June 30, 2005 and incorporated by reference herein).
2.11	Amendment No. 2, dated as of December 22, 2004, to the Trust Agreement among The Bank of New York, The Bank of New York (Delaware) and Petróleos Mexicanos dated as of November 10, 1998 (previously filed as Exhibit 2.11 to the Petróleos Mexicanos Annual Report on Form 20-F (File No. 0-99) on June 30, 2005 and incorporated by reference herein).
2.12	Amendment No. 3, dated as of August 17, 2006, to the Trust Agreement among The Bank of New York, The Bank of New York (Delaware) and Petróleos Mexicanos dated as of November 10, 1998 (previously filed as Exhibit 3.4 to the Petróleos Mexicanos Registration Statement on Form F-4/A (File No. 333-136674) on October 27, 2006 and incorporated by reference herein).
2.13	Assignment and Indemnity Agreement, dated as of November 10, 1998, among Petróleos Mexicanos, Pemex-Exploración y Producción, Pemex-Refinación,Pemex-Gas y Petroquímica Básica and the Pemex Project Funding Master Trust (previously filed as Exhibit 3.2 to the Petróleos Mexicanos Annual Report on Form 20-F (File No. 0-99) on June 30, 1999 and incorporated by reference herein). (P)
2.14	Amendment No. 1, dated as of August 17, 2006, to the Assignment and Indemnity Agreement among Petróleos Mexicanos, Pemex-Exploración y Producción, Pemex-Refinación, Pemex-Gas y Petroquímica Básica, Pemex-Petroquímica, and the Pemex Project Funding Master Trust dated as of November 10, 1998 (previously filed as Exhibit 4.7 to the Petróleos Mexicanos Registration Statement on Form F-4/A (File No. 333-136674-04) on October 27, 2006 and incorporated by reference herein).
2.15	Guaranty Agreement, dated July 29, 1996, among Petróleos Mexicanos, Pemex-Exploración y Producción, Pemex-Refinación and Pemex-Gas y Petroquímica Básica (previously filed as Exhibit 4.4 to the Petróleos Mexicanos Registration Statement on Form F-4 (File No. 333-7796) on October 17, 1997 and incorporated by reference herein). (P)
2.16	Amendment Agreement dated as of June 24, 2014, between Petróleos Mexicanos and Deutsche Bank Trust Company Americas, amending the terms and conditions of the Petróleos Mexicanos 8.625% Bonds due 2023 issued pursuant to the Fiscal Agency Agreement between Petróleos Mexicanos and Deutsche Bank Trust Company (as amended and restated) (previously filed as Exhibit 4.9 to the Petróleos Mexicanos Registration Statement on Form F-4 (File No. 333-198588) on September 5, 2014 and incorporated by reference herein).
2.17	First supplemental indenture dated as of June 24, 2014, between Petróleos Mexicanos and Deutsche Bank Trust Company Americas, to the indenture dated as of September 18, 1997 (previously filed as Exhibit 4.10 to the Petróleos Mexicanos Registration Statement on Form F-4 (File No. 333-198588) on September 5, 2014 and incorporated by reference herein).
2.18	First supplemental indenture dated as of June 24, 2014, between Petróleos Mexicanos and Deutsche Bank Trust Company Americas, to the indenture dated as of August 7, 1998 (previously filed as Exhibit 4.11 to the Petróleos Mexicanos Registration Statement on Form F-4 (File No. 333-198588) on September 5, 2014 and incorporated by reference herein).

2.19	Second supplemental indenture dated as of June 24, 2014, between Petróleos Mexicanos and Deutsche Bank Trust Company Americas, to the indenture dated as of July 31, 2000 (previously filed as Exhibit 4.12 to the Petróleos Mexicanos Registration Statement on Form F-4 (File No. 333-198588) on September 5, 2014 and incorporated by reference herein).
2.20	Second supplemental indenture dated as of June 24, 2014, between Petróleos Mexicanos and Deutsche Bank Trust Company Americas, to the indenture dated as of December 30, 2004 (previously filed as Exhibit 4.13 to the Petróleos Mexicanos Registration Statement on Form F-4 (File No. 333-198588) on September 5, 2014 and incorporated by reference herein).
2.21	Fourth supplemental indenture dated as of June 24, 2014, between Petróleos Mexicanos and Deutsche Bank Trust Company Americas, to the indenture dated as of January 27, 2009 (previously filed as Exhibit 4.14 to the Petróleos Mexicanos Registration Statement on Form F-4 (File No. 333-198588) on September 5, 2014 and incorporated by reference herein).
2.22	Third supplemental indenture dated as of September 10, 2014, between Petróleos Mexicanos and Deutsche Bank Trust Company Americas, to the indenture dated as of July 31, 2000 (previously filed as Exhibit 2.22 to Petróleos Mexicanos' annual report on Form 20-F (File No. 0-99) on April 30, 2015 and incorporated by reference herein).
2.23	Fifth supplemental indenture dated as of October 15, 2014, between Petróleos Mexicanos and Deutsche Bank Trust Company Americas, to the indenture dated as of January 27, 2009 previously filed as Exhibit 2.23 to Petróleos Mexicanos' annual report on Form 20-F (File No. 0-99) on April 30, 2015 and incorporated by reference herein).
2.24	Sixth supplemental indenture dated as of December 8, 2015 between Petróleos Mexicanos and Deutsche Bank Trust Company Americas, to the indenture dated as of January 27, 2009 (previously filed as Exhibit 4.17 to Amendment No. 1 to the Petróleos Mexicanos Registration Statement on Form F-4 (File No. 333-205763) on February 8, 2016 and incorporated by reference herein).
2.25	Seventh supplemental indenture dated as of June 14, 2016 between Petróleos Mexicanos and Deutsche Bank Trust Company Americas, to the indenture dated as of January 27, 2009 (previously filed as Exhibit 4.18 to Amendment No. 1 to the Petróleos Mexicanos Registration Statement on Form F-4 (File No. 333-213351) on August 26, 2016 and incorporated by reference herein).
2.26	Eighth supplemental indenture dated as of February 16, 2018 between Petróleos Mexicanos and Deutsche Bank Trust Company Americas, to the indenture dated as of January 27, 2009. (previously filed as Exhibit 2.26 to Petroleos Mexicanos' annual report on Form 20-F (File No. 0-99) on May 17, 2021 and incorporated by reference herein).
2.27	Ninth Supplemental Indenture dated as of June 4, 2018 between Petróleos Mexicanos and Deutsche Bank Trust Company Americas, to the indenture dated as of January 27, 2009. (previously filed as Exhibit 2.27 to Petroleos Mexicanos' annual report on Form 20-F (File No. 0-99) on May 17, 2021 and incorporated by reference herein).

The registrant agrees to furnish to the U.S. Securities and Exchange Commission, upon request, copies of any instruments that define the rights of holders of long-term debt of the registrant that are not filed as exhibits to this report.

8.1	For a list of subsidiaries, their jurisdiction of incorporation and the names under which they do business, see "Consolidated Structure of PEMEX" on page 3.
12.1	CEO Certification pursuant to Rule 13a-14(a)/15d-14(a).
12.2	CFO Certification pursuant to Rule 13a-14(a)/15d-14(a).
13.1	Certification pursuant to Rule 13a-14(b)/15d-14(b) and 18 U.S.C. §1350.
15.1	Consent letters of GLJ Ltd.
15.2	Reports on Reserves Data by GLJ Ltd., Independent Qualified Reserves Evaluator or Auditor, as of December 31, 2022.
15.3	Consent letter of DeGolyer and MacNaughton.
15.4	Report on Reserves Data by DeGolyer and MacNaughton, Independent Qualified Reserves Evaluator or Auditor, as of January 1, 2023.
15.5	Consent letter of Sproule International Ltd.
15.6	Reports on Reserves Data by Sproule International Ltd., Independent Qualified Reserves Evaluator or Auditor, as of December 31, 2022.
15.7	Consent letters of Ryder Scott Company L.P.
15.8	Reports on Reserves Data by Ryder Scott Company L.P., Independent Qualified Reserves Evaluator or Auditor, as of December 31, 2022.
17.1	Subsidiary Guarantors and Issuers of Guaranteed Securities.
101.INS	Inline XBRL Instance Document.
101.SCH	Inline XBRL Taxonomy Extension Schema Document.
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document.
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document.
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

(P) Filed via paper.

SIGNATURE

The registrant hereby certifies that it meets all of the requirements for filing on Form 20-F and that it has duly caused and authorized the undersigned to sign this annual report on its behalf.

PETRÓLEOS MEXICANOS

By: /s/ Carlos Fernando Cortez González

Name: Carlos Fernando Cortez González

Title: Acting Chief Financial Officer/Acting Corporate Director of Finance

Date: April 28, 2023

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Report of Independent Registered Public Accounting Firm

To the Board of Directors of
Petróleos Mexicanos

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated statements of financial position of Petróleos Mexicanos, Productive State-Owned Subsidiaries and Subsidiary Companies (PEMEX) as of December 31, 2022, and 2021, the related consolidated statements of comprehensive income, changes in equity (deficit), and cash flows for each of the years in the three-year period ended December 31, 2022, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of PEMEX as of December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2022, in conformity with International Financial Reporting Standard (IFRS) as issued by the International Accounting Standards Board.

Going Concern

The accompanying consolidated financial statements have been prepared assuming that PEMEX will continue as a going concern. As discussed in Note 22F to the consolidated financial statements, PEMEX has suffered recurring losses from operations and has a net equity deficiency. These factors raise substantial doubt about its ability to continue as a going concern. Management's plans in regard these matters are also described in Note 22 F. The consolidated financial statements do not include any adjustments that might result from the outcome of this uncertainty.

Basis for Opinion

These consolidated financial statements are the responsibility of PEMEX's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to PEMEX in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.
We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. PEMEX is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of PEMEX's internal control over financial reporting. Accordingly, we express no such opinion.

(Continued)

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Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

The impact of estimated proved oil and gas reserves on depreciation and amortization expenses related to producing oil and gas properties. (000's mxp)

As discussed in notes 3E iii) and 13 to the consolidated financial statements, PEMEX reported depreciation and amortization expenses related to producing oil and gas properties of $139,771,815 for the year ended December 31, 2022. PEMEX calculates depreciation and amortization expenses related to producing oil and gas properties using the unit of production method. Under this method, the capitalized costs of producing oil and gas properties, along with support equipment and facilities, are depreciated or amortized to profit or loss in proportion to the production of the proved oil and gas reserves. On an annual basis PEMEX's internal petroleum reservoir engineers use geological and engineering data as well as commercial and market information and estimates of development and production costs to estimate the proved oil and gas reserves. PEMEX engages external petroleum reservoir engineering specialists to evaluate these estimates.

We identified the impact of estimated proved oil and gas reserves on the depreciation and amortization expenses related to producing oil and gas properties as a critical audit matter. Complex auditor judgement was required to evaluate PEMEX's estimate of proved oil and gas reserves, which is the most significant judgmental input to the depreciation and amortization expenses calculation. The process for evaluating the proved oil and gas reserves is highly complex, involves a number of subjective assumptions and requires specialized skills and knowledge.

(Continued)

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The following are the primary procedures we performed to address this critical audit matter. We evaluated the design of certain internal controls related to the determination of the estimate of proved oil and gas reserves, including controls related to the forecasted production of proved oil and gas reserves. We assessed the methodology used by PEMEX's internal petroleum reservoir engineers to estimate proved oil and gas reserves. We evaluated the professional qualifications and the knowledge, skills, and ability of PEMEX'S internal petroleum reservoir engineers and the external petroleum reservoir engineering specialists engaged by PEMEX. We obtained the proved oil and gas reserves reports from the external petroleum reservoir engineering specialists and compared the information with that used by the internal petroleum reservoir engineers. We read the findings of the external petroleum reservoir engineering specialist's review of the methods and procedures used by PEMEX in estimating the proved reserves to assess compliance with industry and regulatory standards.

Impairment of exploration and production and industrial transformation cash generating units. (000's mxp)

As discussed in notes 3H and 13 to the consolidated financial statements, PEMEX recognized a net impairment expense of $ 86,053,421 in the exploration and production and industrial transformation ("upstream") cash generating units (CGUs) for the year ended December 31, 2022. At the end of each reporting period PEMEX assesses each of its CGUs for indicators of impairment and also assesses whether there is an indication that previously recognized impairment losses, except those related to goodwill, have reversed. When there is an indication of impairment and the carrying amount of a CGU exceeds its recoverable amount, PEMEX records an impairment charge in profit or loss. Impairment losses are reversed in subsequent periods if there is an indication that the impairment loss no longer exists or may have decreased and there has been an increase in the recoverable amount since the recognition of the impairment expense. The recoverable amount of a CGU is defined as the higher of its fair value minus the cost of disposal, and its value in use. The value in use is the present value of the estimated future net cash flows expected to arise from the continuing use of a CGU and from its disposal at the end of its useful life; discounted by applying a pre-tax discount rate. For the upstream CGUs, the recoverable amount was determined as the value in use and required the use of a number of assumptions, including the forecasted production of oil and gas proved and probable reserves, estimate of future operating and development costs for the exploration and production CGUs and the discount rate for all upstream CGUs.

We identified the assessment of certain assumptions used to determine the recoverable amount of the upstream CGUs as a critical audit matter. The estimation of the recoverable amount of these CGUs requires the use of highly subjective, significant assumptions in relation to the forecasted production of oil and gas proved and probable reserves, the future operating and development costs for the exploration and production CGUs and the discount rate for both the exploration and production and the industrial transformation CGUs. It required a high degree of subjective auditor judgment to evaluate these significant, judgmental assumptions.

(Continued)

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The following are the primary procedures we performed to address this critical audit matter. We evaluated the design of certain internal controls related to the impairment assessment process, including controls related to the forecasted production of oil and gas proved and probable reserves, estimate of future operating and development costs and the discount rate. We evaluated the competence, capabilities and objectivity of PEMEX's internal petroleum reservoir engineers, who forecast the production of oil and gas proved and probable reserves. We compared the future production quantities forecast by PEMEX's internal petroleum reservoir engineers to the production used in the estimate of future net cash flows. We developed our independent correlation calculations based on PEMEX's historical data and compared to PEMEX's correlation factors. We compared the future production costs and expenses used in the estimate of future net cash flows to historical data. In addition, we involved a valuation professional with specialized skills and knowledge, who assisted in evaluating PEMEX's discount rate, by comparing it against a discount rate range that was independently developed using publicly available market data for comparable entities.

/s/ KPMG Cárdenas Dosal, S.C.

We have served as PEMEX's auditor since 2018.
Mexico City, Mexico
April 28, 2023

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Petróleos Mexicanos,
Productive State-Owned Subsidiaries and Subsidiary Companies

Consolidated statements of financial position
As of December 31, 2022 and December 31, 2021
(Figures stated in thousands, except as noted)

Assets	Note	**2022**	**2022**	**2021**
		(Unaudited; U.S. dollars)		
Current assets:				
Cash and cash equivalents	8,9	$ 3,317,890	Ps. 64,414,511	76,506,447
Customers, net	7,8,10-A	5,517,435	107,117,145	101,259,081
Other financing receivables	7,8,10-B	2,319,960	45,040,403	40,787,153
Other non-financing receivables	7,8,10-B	6,321,218	122,722,019	136,350,115
Inventories	11	6,491,009	126,018,397	86,113,142
Government Bonds	15-B	2,396,494	46,526,257	1,253,451
Derivative financial instruments	8,18	657,019	12,755,568	12,473,967
Other current assets	8	170,002	3,300,478	3,650,688
Total current assets	6	27,191,027	527,894,778	458,394,044
Non-current assets:				
Investments in joint ventures and associates	8,12	105,281	2,043,966	2,254,952
Wells, pipelines, properties, plant and equipment, net	13	70,502,199	1,368,750,850	1,274,532,607
Rights of use assets	17	2,550,741	49,520,847	54,283,458
Long-term notes receivable, net of current portion	8,15-C	68,719	1,334,126	1,646,290
Government Bonds	15-B	3,278,679	63,653,260	109,601,905
Deferred income taxes and duties	21	8,840,523	171,632,558	92,255,839
Intangible assets, net	14	1,546,537	30,024,934	20,016,146
Other assets	15-D	1,581,449	30,702,725	39,112,930
Total non-current assets	6	88,474,128	1,717,663,266	1,593,704,127
Total assets		$ 115,665,155	Ps. 2,245,558,044	2,052,098,171

The accompanying notes are an integral part of these consolidated financial statements.

Liabilities	Note	2022	2022	2021
		(Unaudited; U.S. dollars)		
Short-term debt and current portion of long-term debt	8,16	$ 24,000,231	Ps. 465,947,683	492,283,613
Short-term leases	8,17	344,101	6,680,488	7,902,874
Suppliers	8	14,538,008	282,245,250	264,056,358
Income taxes and duties payable	21	3,647,484	70,813,355	112,753,591
Accounts and accrued expenses payable	8,18	4,213,823	81,808,426	32,015,808
Derivative financial instruments	8,18	1,145,653	22,242,056	13,636,086
Total current liabilities	6	47,889,300	929,737,258	922,648,330
Long-term liabilities:				
Long-term debt, net of current portion	8,16	83,727,784	1,625,516,313	1,757,412,281
Long-term leases, net of current portion	8,17	2,289,605	44,451,087	51,448,775
Employee benefits	19	67,315,673	1,306,886,675	1,384,071,648
Provisions for sundry creditors	20	4,591,805	89,146,685	92,397,666
Other liabilities		606,625	11,777,226	10,778,904
Deferred income taxes	21	353,607	6,865,025	3,341,350
Total long-term liabilities	6	158,885,099	3,084,643,011	3,299,450,624
Total liabilities		$ 206,774,399	Ps.4,014,380,269	4,222,098,954
Equity (deficit)	6,22			
Controlling interest:				
Certificates of Contribution “A”		53,032,677	1,029,592,293	841,285,576
Mexican Government contributions		3,437,188	66,730,591	43,730,591
Legal reserve		51,618	1,002,130	1,002,130
Accumulated other comprehensive result		2,664,912	51,737,388	(38,139,514)
Accumulated deficit:				
From prior years		(155,452,840)	(3,018,008,068)	(2,723,475,900)
Net income (loss) for the year		5,172,067	100,412,051	(294,532,168)
Total controlling interest		(91,094,378)	(1,768,533,615)	(2,170,129,285)
Total non-controlling interest		(14,866)	(288,610)	128,502
Total equity (deficit)		(91,109,244)	(1,768,822,225)	(2,170,000,783)
Total liabilities and equity (deficit)		$ 115,665,155	Ps.2,245,558,044	2,052,098,171

The accompanying notes are an integral part of these consolidated financial statements.

Petróleos Mexicanos,
Productive State-Owned Subsidiaries and Subsidiary Companies

Consolidated statements of comprehensive income
For the years ended December 31, 2022, 2021 and 2020
(Figures stated in thousands, except as noted)

	Note	2022	2022	2021	2020
		(Unaudited; U.S. dollars)			
Net revenues					
Domestic	6,7	$ 61,434,830	Ps. 1,192,714,214	762,114,551	503,712,031
Incentive for automotive fuels	7-E	5,761,936	111,863,956	—	—
Export	6,7	55,290,419	1,073,424,789	728,540,828	445,234,329
Services income	6,7	277,391	5,385,350	4,973,241	4,715,484
Total revenues		122,764,576	2,383,388,309	1,495,628,620	953,661,844
(Impairment) of wells, pipelines, properties, plant and equipment, net	6,13-E	(4,302,912)	(83,538,021)	(1,210,595)	(36,353,700)
Cost of sales	6,23	87,490,305	1,698,563,022	1,066,650,702	832,614,690
Gross income	6	30,971,359	601,287,266	427,767,323	84,693,454
Distribution, transportation and sale expenses	6,23	839,847	16,305,036	15,038,550	12,436,242
Administrative expenses	6,23	7,926,068	153,879,066	150,432,311	145,894,444
Other revenues	6,24-A	2,057,302	39,941,073	17,600,466	11,768,846
Other expenses	6,24-B	(1,317,872)	(25,585,553)	(50,969,096)	(1,194,714)
Operating income (loss)	6	22,944,874	445,458,684	228,927,832	(63,063,100)
Financing income [1]	6	1,402,470	27,227,965	28,906,784	16,742,048
Financing cost [2]	6	(8,225,065)	(159,683,880)	(164,571,647)	(161,765,242)
Derivative financial instruments (cost) income, net	6,18	(1,177,635)	(22,862,951)	(25,224,243)	17,096,141
Foreign exchange income (loss), net	6,18	6,680,132	129,690,090	(45,675,050)	(128,949,304)
Sum of financing (costs) net, derivative instruments (cost) and foreign exchange income (loss), net		(1,320,098)	(25,628,776)	(206,564,156)	(256,876,357)
Profit (loss) sharing in joint ventures and associates	6,12	17,997	349,401	(3,088,107)	(3,540,533)
(Impairment) in joint ventures	6,12	—	—	(6,703,324)	—
Income (loss) before duties, taxes and other		21,642,773	420,179,309	12,572,245	(323,479,990)
Profit sharing duty, net	21	20,161,432	391,420,083	306,827,282	154,609,136
Income tax (benefit) expense	21	(3,669,422)	(71,239,244)	520,840	30,962,939
Total duties, taxes and other	6	16,492,010	320,180,839	307,348,122	185,572,075
Net income (loss)	6	$ 5,150,763	Ps. 99,998,470	(294,775,877)	(509,052,065)
Other comprehensive results:					
Items that will be reclassified subsequently:					
Currency translation effect		(1,726,096)	(33,510,936)	7,740,186	7,876,961
Items that will not be reclassified:					
Actuarial gains (losses) - employee benefits, net of taxes		6,355,331	123,384,307	205,407,809	(19,182,373)
Total other comprehensive results		4,629,235	89,873,371	213,147,995	(11,305,412)
Total comprehensive income (loss)		$ 9,779,998	Ps. 189,871,841	(81,627,882)	(520,357,477)
Net income (loss) attributable to:					
Controlling interest		5,172,067	100,412,051	(294,532,168)	(508,878,813)
Non-controlling interest		(21,304)	(413,581)	(243,709)	(173,252)
Net income (loss)		5,150,763	99,998,470	(294,775,877)	(509,052,065)
Other comprehensive results attributable to:					
Controlling interest		4,629,418	89,876,902	213,145,476	(11,206,400)
Non-controlling interest		(183)	(3,531)	2,519	(99,012)
Total other comprehensive results		4,629,235	89,873,371	213,147,995	(11,305,412)
Comprehensive (loss) income:					
Controlling interest		9,801,485	190,288,953	(81,386,692)	(520,085,213)
Non-controlling interest		(21,487)	(417,112)	(241,190)	(272,264)
Total comprehensive income (loss)		$ 9,779,998	Ps. 189,871,841	(81,627,882)	(520,357,477)

The accompanying notes are an integral part of these consolidated financial statements

(1) Includes financing income from investments and gain on discount rate of plugging of wells in 2022, 2021 and 2020.
(2) Mainly interest on debt.

Petróleos Mexicanos,
Productive State-Owned Subsidiaries and Subsidiary Companies

Consolidated statements of changes in equity (deficit)
For the years ended December 31, 2022, 2021 and 2020
(Figures stated in thousands, except as noted) (See Note 22)

	Controlling interest									
	Accumulated other comprehensive income (loss)					Accumulated deficit				
	Certificates of Contribution "A"	Mexican Government contributions	Legal reserve	Cumulative currency translation effect	Actuarial (losses) gains on employee benefits effect	For the year	From prior years	Total	Non-controlling interest	Total Equity (deficit)
Balance as of December 31, 2019	**478,675,447**	**43,730,591**	**1,002,130**	**43,229,070**	**(283,307,660)**	**(281,490,302)**	**(1,933,106,785)**	**(1,931,267,509)**	**(141,793)**	**(1,931,409,302)**
Transfer to accumulated deficit	—	—	—	—	—	281,490,302	(281,490,302)	—	—	—
Increase in Certificates of Contribution "A"	46,256,000	—	—	—	—	—	—	46,256,000	—	46,256,000
Non-controlling divestment	—	—	—	—	—	—	—	—	783,749	783,749
Total comprehensive loss	—	—	—	7,972,187	(19,178,587)	(508,878,813)	—	(520,085,213)	(272,264)	(520,357,477)
Balance as of December 31, 2020	**524,931,447**	**43,730,591**	**1,002,130**	**51,201,257**	**(302,486,247)**	**(508,878,813)**	**(2,214,597,087)**	**(2,405,096,722)**	**369,692**	**(2,404,727,030)**
Transfer to accumulated deficit	—	—	—	—	—	508,878,813	(508,878,813)	—	—	—
Increase in Certificates of Contribution "A"	316,354,129	—	—	—	—	—	—	316,354,129	—	316,354,129
Total comprehensive loss	—	—	—	7,744,468	205,401,008	(294,532,168)	—	(81,386,692)	(241,190)	(81,627,882)
Balances as of December 31, 2021	**841,285,576**	**43,730,591**	**1,002,130**	**58,945,725**	**(97,085,239)**	**(294,532,168)**	**(2,723,475,900)**	**(2,170,129,285)**	**128,502**	**(2,170,000,783)**
Transfer to accumulated deficit	—	—	—	—	—	**294,532,168**	**(294,532,168)**	—	—	—
Increase in Certificates of Contribution "A"	188,306,717	—	—	—	—	—	—	188,306,717	—	188,306,717
Proceeds from the Fondo Nacional de Infraestructura (FONADIN) grants	—	23,000,000	—	—	—	—	—	23,000,000	—	23,000,000
Total comprehensive (loss) income	—	—	—	(33,508,515)	123,385,417	100,412,051	—	190,288,953	(417,112)	189,871,841
Balances as of December 31, 2022	**1,029,592,293**	**66,730,591**	**1,002,130**	**25,437,210**	**26,300,178**	**100,412,051**	**(3,018,008,068)**	**(1,768,533,615)**	**(288,610)**	**(1,768,822,225)**
(Unaudited: U.S. Dollars)	53,032,677	3,437,188	51,618	1,310,231	1,354,681	5,172,067	(155,452,840)	(91,094,378)	(14,866)	(91,109,244)

The accompanying notes are an integral part of these consolidated financial statements

Petróleos Mexicanos,
Productive State-Owned Subsidiaries and Subsidiary Companies

Consolidated statements of cash flows
For the years ended December 31, 2022, 2021 and 2020
(Figures stated in thousands, except as noted)

	2022	2022	2021	2020
	(Unaudited; U.S. dollars)			
Operating activities:				
Net (loss) income	$ 5,150,763	Ps. 99,998,470	(294,775,877)	(509,052,065)
Income taxes and duties	16,492,010	320,180,839	307,348,122	185,572,075
Depreciation and amortization of wells, pipelines, properties, plant and equipment	7,199,426	139,771,815	133,431,365	129,631,820
Amortization of intangible assets	26,596	516,342	403,295	478,988
Impairment of wells, pipelines, properties, plant and equipment	4,302,912	83,538,021	1,210,595	36,353,700
Capitalized unsuccessful wells	366,234	7,110,169	9,730,391	10,947,702
Unsuccessful wells from intangible assets	716,559	13,911,491	12,565,711	8,404,284
Loss from derecognition of disposal of wells, pipelines, properties, plant and equipment	1,221,951	23,723,321	47,299,622	5,297,562
Depreciation of rights of use	307,185	5,963,778	6,407,871	7,229,231
Reversal of impairment of rights of use	—	—	(87,025)	—
Impairment of joint ventures	—	—	6,703,324	—
Loss from derecognition of intangible assets	—	—	—	396,118
Cancellation of leases	(41,588)	(807,396)	(432,906)	(1,101,987)
Unrealized foreign exchange loss (income) of reserve for well abandonment	239,370	4,647,200	4,454,106	4,555,692
Reclassification of translation effect	(534,827)	(10,383,296)	—	—
(Gains) on bargain purchase of business acquisition	(65,477)	(1,271,188)	—	(707,533)
(Profit) loss sharing in joint ventures and associates, net	(17,997)	(349,401)	3,088,107	3,540,533
Unrealized foreign exchange (income) loss	(6,621,169)	(128,545,369)	44,485,347	132,466,243
Interest expense	8,225,065	159,683,880	164,571,647	161,765,242
Interest income	(1,402,470)	(27,227,965)	(28,906,784)	(16,742,048)
Funds from operating activities	35,564,543	690,460,711	417,496,911	159,035,557
Profit-sharing duty and income tax paid	(22,223,052)	(431,444,989)	(265,883,549)	(172,369,522)
Derivative financial instruments	428,775	8,324,369	17,792,097	(21,783,819)
Customers and accounts receivable	(3,198,140)	(62,089,654)	(48,408,683)	(20,353,395)
Inventories	(1,814,100)	(35,219,475)	(7,960,924)	17,009,543
Accounts payable and accrued expenses	2,564,739	49,792,617	1,306,311	4,654,346
Suppliers	864,815	16,789,777	(5,614,192)	23,030,055
Provisions for sundry creditors	50,350	977,512	6,184,831	2,222,492
Employee benefits	2,795,629	54,275,187	67,886,654	59,170,346
Other taxes and duties	3,336,290	64,771,737	6,435,856	14,678,059
Net cash flows from operating activities	18,369,849	356,637,792	189,235,312	65,293,662
Investing activities				
Business acquisition, net of cash acquired	(1,545,896)	(30,012,487)	—	—
Interest collected	105,362	2,045,526	458,536	936,350
Resources from the sale of subsidiary companies	—	—	—	134,716
Proceeds from FONADIN - grants deferred income	—	—	4,399,765	—
Other assets	(231,633)	(4,496,986)	(31,687,825)	(3,592,553)
Acquisition of wells, pipelines, properties, plant and equipment	(15,727,341)	(305,335,318)	(209,591,816)	(114,977,051)
Acquisition of intangible assets	(1,809,780)	(35,135,611)	(25,814,218)	(23,641,105)
Net cash flows (used in) investing activities	(19,209,288)	(372,934,876)	(262,235,558)	(141,139,643)
Financing activities:				
Increase in equity due to Certificates of Contribution “A”	9,699,382	188,306,717	316,354,129	46,256,000
Proceeds from FONADIN grants	1,184,694	23,000,000	—	—
Collections from the Mexican Government	—	—	15,788,696	4,102,622
Interest collected from the Mexican Government	384,032	7,455,715	7,126,559	1,698,318
Lease payments	(379,240)	(7,362,686)	(7,622,403)	(7,979,972)
Interest of lease paid	(168,646)	(3,274,137)	(3,646,028)	(2,030,829)
Loans obtained from financial institutions	54,814,205	1,064,179,416	1,636,216,843	1,288,129,868
Debt payments, principal only	(57,028,030)	(1,107,159,280)	(1,707,581,580)	(1,151,962,147)
Interest paid	(7,930,066)	(153,956,690)	(157,256,625)	(130,989,150)
Net cash flows from financing activities	576,331	11,189,055	99,379,591	47,224,710
Net (decrease) increase in cash and cash equivalents	(263,108)	(5,108,029)	26,379,345	(28,621,271)
Effects of foreign exchange on cash balances	(359,729)	(6,983,907)	10,137,321	7,989,421
Cash and cash equivalents at the beginning of the year	3,940,727	76,506,447	39,989,781	60,621,631
Cash and cash equivalents at the end of the year (Note 9)	$ 3,317,890	Ps. 64,414,511	76,506,447	39,989,781

The accompanying notes are an integral part of these consolidated financial statements

Petróleos Mexicanos
Productive State-Owned Subsidiaries and Subsidiary Companies

Notes to the consolidated financial statements

(Figures stated in thousands, except as noted)

NOTE 1. STRUCTURE AND BUSINESS OPERATIONS OF PETRÓLEOS MEXICANOS, SUBSIDIARY ENTITIES AND SUBSIDIARY COMPANIES

Petróleos Mexicanos was created by a decree issued by the Mexican Congress on June 7, 1938. The decree was published in the Diario Oficial de la Federación ("Official Gazette of the Federation") on July 20, 1938 and came into effect on that date. On December 20, 2013, the *Decreto por el que se reforman y adicionan diversas disposiciones de la Constitución Política de los Estados Unidos Mexicanos, en Materia de Energía* (Decree that amends and supplements various provisions of the Mexican Constitution relating to energy matters), was published in the Official Gazette of the Federation. This Decree came into effect on December 21, 2013 and includes transitional articles setting forth the general framework and timeline for implementing legislation relating to the energy sector.

On August 11, 2014, the *Ley de Petróleos Mexicanos* (the "Petróleos Mexicanos Law") was published in the Official Gazette of the Federation. The Petróleos Mexicanos Law became effective on October 7, 2014, except for certain provisions. On December 2, 2014, the *Secretaría de Energía* ("Ministry of Energy") published in the Official Gazette of the Federation the declaration pursuant to which the special regime governing Petróleos Mexicanos' activities relating to productive state-owned subsidiaries, affiliates, compensation, assets, administrative liabilities, state dividend, budget and debt came into effect. On June 10, 2015, the *Disposiciones Generales de Contratación para Petróleos Mexicanos y sus Empresas Productivas Subsidiarias* (General Contracting Provisions for Petróleos Mexicanos and its productive state-owned subsidiaries) was published in the Official Gazette of the Federation and the following day the special regime for acquisitions, leases, services and public works matters came into effect.

Once the Petróleos Mexicanos Law came into effect, Petróleos Mexicanos was transformed from a decentralized public entity to a productive state-owned company. Petróleos Mexicanos is a legal entity empowered to own property and carry on business in its own name with the purpose of carrying out exploration and extraction of crude oil and other hydrocarbons in the United Mexican States ("Mexico"), as well as refining, processing, storing, transporting, selling and trading in these products.

The Subsidiary Entities, *Pemex Exploración y Producción* ("Pemex Exploration and Production"), *Pemex Transformación Industrial* ("Pemex Industrial Transformation") and *Pemex Logística* ("Pemex Logistics") are productive state-owned subsidiaries empowered to own property and carry on business in their own name, subject to the direction and coordination of Petróleos Mexicanos (the "Subsidiary Entities").

The Subsidiary Entities and their primary purposes, are as follows:

- Pemex Exploration and Production: This entity is in charge of the exploration and extraction of crude oil and solid, liquid or gaseous hydrocarbons in Mexico, in the exclusive economic zone of Mexico and abroad, as well as drilling services and repair and services of wells;
- Pemex Industrial Transformation: This entity performs activities related to refining, transformation, processing, importing, exporting, trading and the sale of hydrocarbons, petroleum products, natural gas and petrochemicals, as well as commercializes, distributes and trades methane, ethane and propylene, directly or through others; and
- Pemex Logistics: This entity provides transportation, storage and related services for crude oil, petroleum products and petrochemicals to PEMEX (as defined below) and other companies, through pipelines and maritime and terrestrial means, and provides guard and management services.

The principal distinction between the Subsidiary Entities and the Subsidiary Companies (as defined below) is that the Subsidiary Entities are productive state-owned entities, whereas the Subsidiary Companies are affiliate companies that were formed in accordance with the applicable laws of each of the respective jurisdictions in which they were incorporated.

Petróleos Mexicanos
Productive State-Owned Subsidiaries and Subsidiary Companies

Notes to the consolidated financial statements

(Figures stated in thousands, except as noted)

The "Subsidiary Companies" are defined as those companies which are controlled, directly or indirectly, by Petróleos Mexicanos.

"Associates," as used herein, means those companies in which Petróleos Mexicanos has significant influence but not control or joint control over its financial and operating policies. Petróleos Mexicanos, the Subsidiary Entities and the Subsidiary Companies are referred to collectively herein as "PEMEX".

PEMEX's address and its principal place of business is: Av. Marina Nacional No. 329, Col. Verónica Anzures, Alcaldía Miguel Hidalgo, 11300, Ciudad de México, México.

NOTE 2. AUTHORIZATION AND BASIS OF PREPARATION

Authorization

On April 21, 2023, these consolidated financial statements and the notes hereto were authorized for issuance by the following officers: Mr. Octavio Romero Oropeza, Chief Executive Officer, Lic. Carlos Fernando Cortez Gonzalez, Acting Chief Financial Officer, Mr. Jose Maria del Olmo Blanco, Deputy Director of Budgeting and Accounting, and Mr. Oscar René Orozco Piliado, Associate Managing Director of Accounting.

These consolidated financial statements and the notes hereto are issued pursuant to the terms of Article 13 Fraction VI of the Petróleos Mexicanos Law, Article 104 Fraction III, paragraph a, of the *Ley del Mercado de Valores* (Securities Market Law), and of Article 33 Fraction I, paragraph a, section 3 and Article 78 of the *Disposiciones de carácter general aplicables a las emisoras de valores y a otros participantes del mercado de valores* ("General provisions applicable to securities' issuers and other participants of the securities market").

Basis of preparation

A. Statement of compliance

PEMEX prepared its consolidated financial statements as of December 31, 2022 and 2021, and for the years ended December 31, 2022, 2021 and 2020, in accordance with International Financial Reporting Standards ("IFRS") as issued by the International Accounting Standards Board ("IASB").

B. Basis of accounting

These consolidated financial statements have been prepared using the historical cost basis method, with the exception of the following items, which have been measured using an alternative basis.

ITEM	BASIS OF MEASUREMENT
Derivative Financial Instruments ("DFIs")	Fair Value
Employee Benefits	Fair Value of plan assets less present value of the obligation (defined benefit plan)

C. Going concern

The consolidated financial statements have been prepared on a going concern basis, which assumes that PEMEX will be able to continue its operations and can meet its payment obligations for a reasonable period (See Note 22-F).

Petróleos Mexicanos
Productive State-Owned Subsidiaries and Subsidiary Companies

Notes to the consolidated financial statements

(Figures stated in thousands, except as noted)

D. Functional and reporting currency

These consolidated financial statements are presented in Mexican pesos, which is both PEMEX's functional currency and reporting currency, due to the following:

i. The economic environment in which PEMEX operates is Mexico, where the legal currency is the Mexican peso;

ii. The budget through which Petróleos Mexicanos and its Subsidiary Entities operate as entities of the Mexican Government, including the ceiling for personnel services, is elaborated, approved and exercised in Mexican pesos;

iii. Employee benefits provision was 33% and 33% of PEMEX's total liabilities as of December 31, 2022 and 2021, respectively. This provision is computed, denominated and payable in Mexican pesos; and

iv. Cash flows for payment of general expenses, taxes and duties are realized in Mexican pesos.

Although the sales prices of certain products are based on international U.S. dollar-indices, final domestic selling prices are governed by the economic and financial policies established by the Mexican Government. Accordingly, cash flows from domestic sales are generated and received in Mexican pesos.

With regards to PEMEX's foreign currency (export sales, borrowings, etc.), Mexico's monetary policy regulator, the Banco de México ("Mexican Central Bank"), requires that Mexican Government entities other than financial entities sell their foreign currency to the Mexican Central Bank in accordance with its terms, receiving Mexican pesos in exchange, which is the currency of legal tender in Mexico.

Terms definition

References in these consolidated financial statements and the related notes to "pesos" or "Ps." refers to Mexican pesos, "U.S. dollars" or "U.S.$" refers to dollars of the United States of America, "yen" or "¥" refers to Japanese yen, "euro" or "€" refers to the legal currency of the European Economic and Monetary Union, "pounds sterling" or "£" refers to the legal currency of the United Kingdom and "Swiss francs" or "CHF" refers to the legal currency of the Swiss Confederation. Figures in all currencies are presented in thousands of the relevant currency unit, except exchange rates and product and share prices.

E. Use of judgments and estimates

The preparation of the consolidated financial statements in accordance with IFRS requires the use of estimates and assumptions made by PEMEX's management that affect the recorded amounts of assets and liabilities and the disclosures of contingent assets and liabilities as of the date of these consolidated financial statements, as well as the recorded amounts of income, costs and expenses during the year. Actual results may differ from these estimates.

Significant estimates and underlying assumptions are reviewed, and the effects of such revisions are recognized in the years in which any estimates are revised and in any future periods affected by such revision.

Information about estimates, assumptions and critical accounting policies that have the most significant effects on the amounts recognized in the consolidated financial statements are described in the following notes:

i. Judgments, assumptions and estimation uncertainties

- Note 3-A-i Basis of consolidation – Business combination
- Note 3-C Financial instruments – Fair Value and expected credit losses.
- Note 3-E Wells, pipelines, properties, plant and equipment – Useful lives.
- Note 3-F Intangible assets, wells not assigned to a reserve and oil and natural gas exploration and license, appraisal and development expenditure – successful efforts method.

- Note 3-H Impairment of non-financial assets – fair values, cash flow estimates and discount rates determination.
- Note 3-I Leases – Early cancellation or renewal options.
- Note 3-J Provisions – Environmental liabilities and retirement of assets.
- Note 3-K Employee benefits – Actuarial assumptions.
- Note 3-L Income taxes, duties and royalties – Recoverability assessment of deferred tax assets.
- Note 3-M Contingencies – Probability assessment.
- Note 3-P – Revenue from contracts with customers

ii. Measurement of fair values

Some of PEMEX's accounting policies and disclosures require the measurement of the fair values of financial assets and liabilities, as well as non-financial assets and liabilities.

PEMEX has an established control framework with respect to the measurement of fair values. This includes a valuation team that has overall responsibility for overseeing all significant fair value measurements, including Level 3 fair values.

The valuation team regularly reviews significant unobservable inputs and valuation adjustments. If third party information, such as broker quotes or pricing services, is used to measure fair values, then the valuation team assesses the evidence obtained from the third parties to support the conclusion that these valuations meet the requirements of IFRS, including the level in the fair value hierarchy in which the valuations should be classified.

When measuring the fair value of an asset or a liability, PEMEX uses market observable data as far as possible. Fair values are categorized into different levels in a fair value hierarchy based on the inputs used in the valuation techniques as follows.

- Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2: inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly (i.e., as prices) or indirectly (i.e., derived from prices).
- Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs).

If the inputs used to measure the fair value of an asset or a liability might be categorized in different levels of the fair value hierarchy, then the fair value measurement is categorized in its entirety in the same level of the fair value hierarchy as the lowest level input that is significant to the entire measurement.

PEMEX recognizes transfers between levels of the fair value hierarchy at the end of the reporting period during which the change has occurred.

F. Convenience translations

These consolidated financial statements are presented in Mexican pesos (reporting currency), which is the same as the recording currency and the functional currency of PEMEX. The U.S. dollar amounts shown in the consolidated statements of financial position, the consolidated statements of comprehensive income, the consolidated statements of changes in equity (deficit) and the consolidated statements of cash flows have been included solely for the convenience of the reader and are unaudited. Such amounts have been translated from amounts in pesos, as a matter of arithmetic computation only, at the exchange rate for the settlement of obligations in foreign currencies provided by the Mexican Central Bank and the *Secretaría de Hacienda y Crédito Público* ("Ministry of Finance and Public Credit" or "SHCP") at December 31, 2022 of Ps. 19.4143 per U.S. dollar. Translations herein should not be construed as a representation that the peso amounts have been or could be converted into U.S. dollars at the foregoing or any other rate.

Petróleos Mexicanos
Productive State-Owned Subsidiaries and Subsidiary Companies

Notes to the consolidated financial statements

(Figures stated in thousands, except as noted)

NOTE 3. SIGNIFICANT ACCOUNTING POLICIES

PEMEX has consistently applied the following accounting policies to each of the periods presented in the preparation of its consolidated financial statements.

Below is a summary of the principal accounting policies:

A. Basis of consolidation

The consolidated financial statements include the financial statements of Petróleos Mexicanos and those of its subsidiaries over which it has control.

i. Business combinations

PEMEX accounts for business combinations using the acquisition method when the acquired set of activities and assets meets the definition of a business and control is transferred to PEMEX. In determining whether a particular set of activities and assets is a business, PEMEX assesses whether the set of assets and activities acquired includes, at a minimum, an input and substantive process and whether the acquired set could produce outputs.

PEMEX has an option to apply a 'concentration test' that permits a simplified assessment of whether an acquired set of activities and assets is not a business. The optional concentration test is met if substantially all of the fair value of the gross assets acquired is concentrated in a single identifiable asset or group of similar identifiable assets.

The consideration transferred in the acquisition is generally measured at fair value, as are the identifiable net assets acquired. Any goodwill that arises is tested annually for impairment. Any gain on a bargain purchase is recognized in profit or loss immediately. Transaction costs are expensed as incurred, except if related to the issue of debt or equity securities.

Any contingent consideration is measured at fair value at the date of acquisition. If an obligation to pay contingent consideration that meets the definition of a financial instrument is classified as equity, then it is not remeasured and settlement is accounted for within equity. Otherwise, other contingent consideration is remeasured at fair value at each reporting date and subsequent changes in the fair value of the contingent consideration are recognized in profit or loss.

ii. Subsidiaries

Subsidiaries are entities controlled by PEMEX. PEMEX "controls" an entity when it is exposed to, or has rights to, variable returns from its involvement with the entity and could affect those returns through its power over the entity. The financial statements of subsidiaries are included in the consolidated financial statements from the date on which control commences until the date on which control ceases.

For more information about the Subsidiary Companies, see Note 5.

iii. Non-controlling interests (NCI)

NCI are measured initially at their proportionate share of the acquiree's identifiable net assets at the date of acquisition. Changes in the ownership interest in a subsidiary that do not result in a loss of control are accounted for as equity transactions.

iv. Loss of control

When PEMEX loses control over a subsidiary, it derecognizes the assets and liabilities of the subsidiary, and any related NCI and other components of equity. Any resulting gain or loss is recognized in profit or loss. Any interest retained in the former subsidiary is measured at fair value when control is lost.

v. Interests in equity-accounted investees

PEMEX's interests in equity-accounted investees comprise interests in associates and a joint venture.

Associates are those entities in which PEMEX has significant influence, but not control or joint control, over the financial and operating policies. A joint venture is an arrangement in which PEMEX has joint control, whereby PEMEX has rights to the net assets of the arrangement, rather than rights to its assets and obligations for its liabilities (joint operation).

Interests in associates and the joint venture are accounted for using the equity method. They are initially recognized at cost, which includes transaction costs. Subsequent to initial recognition, the consolidated financial statements include PEMEX's share of the profit or loss and other comprehensive income (OCI) of equity accounted investees, until the date on which significant influence or joint control ceases. Upon loss of significant influence over the associate or joint control over the joint venture, PEMEX measures and recognizes any retained investment at its fair value. Any difference between the carrying amount of the associate or joint venture upon loss of significant influence or joint control and the fair value of the retained investment and proceeds from disposal is recognized in profit or loss.

When the value of the share of losses exceeds the value of PEMEX's investment in an associate or joint venture, the carrying value of the investment, including any long-term investment, is reduced to zero and PEMEX ceases to recognize additional losses, except in cases where PEMEX is liable for obligations incurred by those associates and joint ventures. For more information about joint ventures and associates, see Note 12.

vi. Transactions eliminated on consolidation

Intra-group balances and transactions, and any unrealized income and expenses arising from intra-group transactions, are eliminated. Unrealized gains arising from transactions with equity-accounted investees are eliminated against the investment to the extent of the PEMEX interest in the investee. Unrealized losses are eliminated in the same way as unrealized gains, but only to the extent that there is no evidence of impairment.

B. Foreign currency

i. Foreign currency transactions

Transactions in foreign currencies are translated into the respective functional currencies of PEMEX companies at the exchange rates at the dates of the transactions.

Monetary assets and liabilities denominated in foreign currencies are translated into the functional currency at the exchange rate at the reporting date. Non-monetary assets and liabilities that are measured at fair value in a foreign currency are translated into the functional currency at the exchange rate when the fair value was determined. Non-monetary items that are measured based on historical cost in a foreign currency are translated at the exchange rate at the date of the transaction. Foreign currency differences are generally recognized in consolidated statements of comprehensive income and presented within foreign exchange.

ii. Foreign operation

The financial statements of foreign subsidiaries and associates are translated into the reporting currency by first identifying if the functional currency is different from the currency for recording the foreign operations, and, if so, the recording currency is translated into the functional currency and then into the reporting currency using the year-end exchange rate of each period for assets and liabilities reported in the consolidated statements of financial position; the historical exchange rate at the date of the transaction for equity items; and the exchange rate at the date of the transaction for income and expenses reported in the consolidated statement of comprehensive income.

Foreign currency differences are recognized in OCI and accumulated in the currency translation effect, except to the extent that the translation difference is allocated to NCI.

When a foreign operation is disposed of in its entirety or partially such that control, significant influence or joint control is lost, the cumulative amount in the translation reserve related to that foreign operation is reclassified to the consolidated statement of comprehensive income as part of the gain or loss on disposal. If PEMEX disposes of part of its interest in a subsidiary but retains control, then the relevant proportion of the cumulative amount is reattributed to NCI. When PEMEX disposes of only part of an associate or joint venture while retaining significant influence or joint control, the relevant proportion of the cumulative amount is reclassified to profit or loss.

C. Financial instruments

i. Recognition and initial measurement

Financial assets and liabilities are initially recognized when these assets are contractually originated or acquired, or when these liabilities are contractually issued or assumed.

Financial assets and financial liabilities (unless it is an account receivable or account payable without a significant financing component) are measured and initially recognized at fair value, in the case of financial assets or liabilities not measured at fair value with changes through OCI, plus the transaction costs directly attributable to acquisition or issuance, when subsequently measured at amortized cost. An account receivable or account payable without a significant financing component is initially measured at the transaction price. If PEMEX determines that the fair value at the initial recognition differs from the transaction price, PEMEX shall recognize the difference between the fair value at initial the recognition and the transaction price in the consolidated statements of comprehensive income.

ii. Classification and subsequent measurement

Financial Assets

On initial recognition, a financial asset is classified as measured at: Amortized Cost; Fair Value Through Other Comprehensive Income (“FVTOCI”)–debt investment; FVTOCI–equity investment; or Fair Value Through Profit or Loss (“FVTPL”).

Financial assets are not reclassified subsequent to their initial recognition unless PEMEX changes its business model for managing financial assets, in which case all affected financial assets are reclassified on the first day of the first reporting period following the change in the business model.

FINANCIAL ASSETS	MEASUREMENT
Amortized cost	A financial asset is measured at amortized cost if it meets both of the following conditions and is not designated as at FVTPL: • it is held within a business model that has the objective of holding assets to collect contractual cash flows; and • its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.
Debt investment	A debt instrument is measured at FVTOCI only if it meets both of the following conditions and is not designated as at FVTPL: • it is held within a business model that has the objective of both collecting contractual cash flows and selling financial assets; and • its contractual terms give rise on specified dates to cash flows that are solely payments of principal and interest on the principal amount outstanding.
Equity investment	On initial recognition of an equity investment that is not held for trading, PEMEX may irrevocably elect to present subsequent changes in fair value in OCI. This election is made on an investment-by-investment basis.

All financial assets not classified as measured at amortized cost or FVTOCI (as described above) are measured at FVTPL. This includes all derivative financial assets (see Note 18). On initial recognition, PEMEX may irrevocably designate a financial asset that otherwise meets the requirements to be measured at amortized cost or at FVOCI as FVTPL, if doing so eliminates or significantly reduces an accounting mismatch that would otherwise arise.

Financial assets: Business model assessment

PEMEX assesses the objective of the business model in which a financial asset is held at a portfolio level because this best reflects the way the business is managed and information is provided to management. The information considered includes:

- the stated policies and objectives for the portfolio and the operation of those policies in practice, which include whether management's strategy focuses on earning contractual interest income, maintaining a particular interest rate profile, matching the duration of the financial assets to the duration of any related liabilities or expected cash outflows or realizing cash flows through the sale of the assets;
- how the performance of the portfolio is evaluated and reported to PEMEX management;
- the risk that affects the performance of the business model (and the financial assets held within that business model) and how those risks are managed;
- how managers of the business are compensated (e.g., whether compensation is based on the fair value of the assets managed or the contractual cash flows collected); and
- the frequency, volume and timing of sales in prior periods, the reasons for such sales and expectations about future sales activity.

Transfers of financial assets to third parties in transactions that do not qualify for derecognition are not considered sales for this purpose, consistent with PEMEX's continuing recognition of the assets.

Financial assets that are held for trading or managed and the performance of which is evaluated on a fair value basis are measured at FVTPL.

Financial Asset: Assessment whether contractual cash flows are solely payments of principal and interest

For the purposes of this assessment, principal is defined as the fair value of the financial assets on initial recognition. Interest is defined as consideration for the time value of money and for the credit risk associated with the principal amount outstanding during the relevant period of time and for the basic lending risks and costs (e.g., liquidity risk and administrative costs), as well as profit margin.

In assessing whether the contractual cash flows are solely payments of principal and interest, PEMEX considers the contractual terms of the instrument, which includes assessing whether the financial asset contains a contractual term that could change the timing or amount of contractual cash flows such that it would not meet this condition. In making this assessment, PEMEX considers:

- contingent events that would change the amount or timing of cash flows;
- terms that may adjust the contractual coupon rate, including variable rate features;
- prepayment and extension features; and
- terms that limit PEMEX's claim to cash flows from specified assets (for example, non-recourse features).

A prepayment feature is consistent solely with the payments of principal and interest criterion if the prepayment amount substantially represents unpaid amounts of principal and interest on the principal amount outstanding, which may include reasonable additional compensation for early termination of the contract. Additionally, for a financial asset acquired at a significant discount or premium to its contractual par amount, a feature that permits or requires prepayment at an amount that substantially represents the contractual par amount plus accrued (but unpaid) contractual interest (which may also include reasonable additional compensation for early termination) is treated as consistent with this criterion if the fair value of the prepayment feature is insignificant at initial recognition.

Financial assets: Subsequent measurement and gain and losses

Financial assets at FVTPL	Financial assets at FVTPL are measured at fair value and changes therein, including any interest or dividend income, are recognized in profit or loss.
Financial assets at amortized cost	These assets are subsequently measured at amortized cost using the effective interest method. The amortized cost is reduced by impairment losses. Interest income, foreign exchange gains and losses and impairment are recognized in profit or loss. Any gain or loss on derecognition is recognized in profit or loss.
Debt investments at FVOCI	These assets are subsequently measured at fair value. Interest income calculated using the effective interest method, foreign exchange gains and losses and impairment are recognized in profit or loss. Other net gains and losses are recognized in OCI. On derecognition, gains and losses accumulated in OCI are reclassified to profit or loss.
Equity investments at FVOCI	These assets are subsequently measured at fair value. Dividends are recognized as income in profit or loss unless the dividend clearly represents a recovery of part of the cost of the investment. Other net gains and losses are recognized in OCI and are never reclassified to profit or loss.

Financial liabilities: Classification, subsequent measurement and gains and losses

Financial liabilities are classified as measured at amortized cost or FVTPL. A financial liability is classified as FVTPL if it is classified as held-for-trading, it is a derivative or it is designated as such on initial recognition. Financial liabilities at

FVTPL are measured at fair value and net gains and losses, including any interest expense, are recognized in profit or loss. Other financial liabilities are subsequently measured at amortized cost using the effective interest method.

Interest expense and foreign exchange gains and losses are recognized in profit or loss. Any gain or loss on derecognition is also recognized in profit or loss.

iii. Derecognition

Financial assets

PEMEX derecognizes a financial asset when the contractual rights to the cash flows from the financial asset expire, or it transfers the rights to receive the contractual cash flows in a transaction in which substantially all of the risks and rewards of ownership of the financial asset are transferred or in which PEMEX neither transfers nor retains substantially all of the risks and rewards of ownership and it does not retain control of the financial asset.

PEMEX enters into transactions whereby it transfers assets recognized in its statement of financial position but retains either all or substantially all of the risks and rewards of the transferred assets. In these cases, the transferred assets are not derecognized.

Financial liabilities

PEMEX derecognizes a financial liability when its contractual obligations are discharged, cancelled or expired. PEMEX also derecognizes a financial liability when its terms are modified and the cash flows of the modified liability are substantially different, in which case a new financial liability based on the modified terms is recognized at fair value.

On derecognition of a financial liability, the difference between the carrying amount extinguished and the consideration paid (including any non-cash assets transferred or liabilities assumed) is recognized in profit or loss.

Interest rate benchmark reform

When the basis for determining the contractual cash flows of a financial asset or financial liability measured at amortized cost changed as a result of interest rate benchmark reform, PEMEX updated the effective interest rate of the financial asset or financial liability to reflect the change that is required by the reform. A change in the basis for determining the contractual cash flows is required by interest rate benchmark reform if the following conditions are met:

- the change is necessary as a direct consequence of the reform; and
- the new basis for determining the contractual cash flows is economically equivalent to the previous basis – i.e., the basis immediately before the change.

When changes are made to a financial asset or financial liability in addition to changes to the basis for determining the contractual cash flows required by interest rate benchmark reform, PEMEX first updates the effective interest rate of the financial asset or financial liability to reflect the change that is required by interest rate benchmark reform. After that, PEMEX applies the policies on accounting for modifications to the additional changes.

iv. Offsetting

Financial assets and financial liabilities are offset, and the net amount is presented in the statement of financial position when, and only when, PEMEX has a legally enforceable right to set off the amounts and it intends either to settle them on a net basis or to realize the asset and settle the liability simultaneously.

v. Derivative financial instruments and hedge accounting

PEMEX uses DFIs to hedge the risk exposure in foreign currency, interest rate and the price of commodities related to its products. Embedded derivatives are separated from the host contract and accounted for separately if the host contract is not a financial asset and certain criteria are met.

These contracts are not accounted as designated hedging instruments. DFIs are accounted for as financial assets when the fair value is positive and as a financial liability when the fair value is negative.

vi. Impairment

Financial instruments and contract assets

PEMEX recognizes loss allowances for Estimated Credit Losses ("ECLs") on:

- financial assets measured at amortized cost;
- debt investments measured at FVOCI; and
- contract assets.

PEMEX measures loss allowances at an amount equal to lifetime ECL, except for the following, which are measured as 12-month ECLs:

- debt securities that are determined to have low credit risk at the reporting date; and
- other debt securities and bank balances for which credit risk (i.e., the risk of default occurring over the expected life of the financial instrument) has not increased significantly since initial recognition.

PEMEX considers a financial asset to be in default when the debtor is unlikely to pay its credit obligations to PEMEX in full, without recourse by PEMEX to actions such as guarantee redemption (if any is held). PEMEX considers that a debt instrument has a low credit risk, when its credit rating is classified as "investment grade."

The investment grade classification is based on minimum credit ratings of Baa3 (Moody's) and BBB- (S&P and Fitch), as well as its equivalent in other rating agencies.

Lifetime ECLs are the credit losses that result from all possible default events over the expected life of a financial instrument.

12-month ECLs are the portion of ECLs that result from default events that are possible within the 12 months after the reporting date (or a shorter period if the expected life of the instrument is less than 12 months).

The maximum period considered when estimating ECLs is the maximum contractual period over which PEMEX is exposed to credit risk.

Measurement of ECLs

ECLs are a probability-weighted estimate of credit losses. Credit losses are measured as the present value of all cash shortfalls (for example, the difference between the cash flows due to the entity in accordance with the contract and the cash flows that PEMEX expects to receive).

ECLs are discounted at the effective interest rate of the financial asset.

Credit-impaired financial assets

At each reporting date, PEMEX assesses whether financial assets carried at amortized cost and debt securities at FVOCI are credit-impaired. A financial asset is 'credit-impaired' when one or more events that have a detrimental impact on the estimated future cash flows of the financial asset have occurred.

Evidence that a financial asset is credit-impaired includes the following observable data:

- significant financial difficulty of the borrower or issuer;
- a breach of contract such as a default or being more than 90 days past due;
- the restructuring of a loan or advance by PEMEX on terms that it would not consider otherwise;
- it is probable that the borrower will enter bankruptcy or other financial reorganization; or
- the disappearance of an active market for a security because of financial difficulties.

Presentation of allowance for ECL in the statement of financial position

Loss allowances for financial assets measured at amortized cost are deducted from the gross carrying amount of the assets.

Write-off

The gross carrying amount of a financial asset is written off when PEMEX has no reasonable expectation of recovering a financial asset in its entirety or a portion thereof. In the case of individual customers, PEMEX's policy is to cancel the gross carrying amount when the financial asset has met the uncollectibility report as established in the *Políticas Generales y Procedimientos para Cancelar Adeudos* (Procedure to Write-Off Financial Assets). For corporate customers, PEMEX individually makes an assessment with respect to the timing and amount of write-off based on whether there is a reasonable expectation of recovery. However, financial assets that are written off could still be subject to enforcement activities in order to comply with the PEMEX's procedures for recovery of amounts due.

D. Inventories and cost of sales

Inventories are valued at the lower of cost or net realizable value. Cost is determined based on the cost of production or acquisition of inventory and other costs incurred in transporting such inventory to its present location and in its present condition, using the average cost method. Net realizable value is the estimated selling price in the ordinary course of business less the estimated costs of completion and the estimated selling costs. The estimate takes into consideration, among other things, the decrease in the value of inventories due to obsolescence.

Cost of sales represents the cost of production or acquisition of inventories at the time of sale, increased, where appropriate, by declines in net realizable value of inventories during the year.

Advance payment to suppliers for inventory purchases are recognized as part of inventory when the risks and benefits of the ownership of the inventory have been transferred to PEMEX.

E. Wells, pipelines, properties, plant and equipment

i. Recognition and measurement

Items of wells, pipelines, properties, plant and equipment are recorded at acquisition or construction cost, which includes capitalized borrowing cost, less accumulated depreciation and accumulated impairment losses.

Initial costs of wells, pipelines, properties, plant and equipment are initially recorded at cost, which includes their original purchase price or construction cost, any costs attributable to bringing the assets to a working condition for their intended

use and the costs of dismantling and removing the items and restoring the site on which they are located, including the estimated cost of plugging and abandoning wells.

The cost of financing projects that require large investments and financing incurred for projects, net of interest revenues from the temporary investment of these funds, is recognized as part of wells, pipelines, properties, plant and equipment when the cost is directly attributable to the construction or acquisition of a qualifying asset. The capitalization of these costs is suspended during periods in which the development of construction is interrupted, and its capitalization ends when the activities necessary for the use of the qualifying asset are substantially completed. All other financing costs are recognized in the consolidated statements of comprehensive income in the period in which they are incurred.

The cost of self-constructed assets includes the cost of materials and direct labor, interest on financing and any other costs directly attributable to start up. In some cases, the cost also includes costs of plugging of wells and removal at present value.

Expenditures related to the construction of wells, pipelines, properties, plant and equipment during the stage prior to commissioning are stated at cost as intangible assets or construction in progress, in accordance with the characteristics of the asset. Once the assets are ready for use, they are transferred to the respective component of wells, pipelines, properties, plant and equipment and depreciation or amortization begins.

If significant parts of an item of wells, pipelines, properties, plant and equipment have different useful lives, then they are accounted for as separate items (major components) of property, plant and equipment.

Any gain or loss on disposal of an item of wells, pipelines, properties, plant and equipment is recognized in profit or loss.

Advance payments for the acquisition of pipelines, properties, plant and equipment are also recognized in the line item of wells, pipelines, properties, plant and equipment when the risks and benefits of the ownership have been transferred to PEMEX.

ii. Subsequent expenditure

The costs of major maintenance or replacement of a significant component of an item of wells, pipelines, properties, plant and equipment are recognized in the carrying amount of the item if it is probable that the future economic benefits embodied within the component will flow to PEMEX and its cost can be measured reliably. The costs of recurring maintenance, repairs and renovations of wells, pipelines, properties, plant and equipment carried out to maintain the facilities in normal operation conditions are recognized in profit or loss as incurred.

iii. Depreciation

Depreciation and amortization of capitalized costs in wells are determined based on the estimated economic life of the field to which the wells belong, considering the relationship between the production of barrels of oil equivalent for the period and proved developed reserves of the field, as of the beginning of the period, with quarterly updates for new development investments.

Depreciation of other elements of pipelines, properties, plant and equipment is recognized in profit or loss on a straight-line basis over the estimated useful life of the asset, beginning as of the date that the asset is available for use, or in the case of construction, from the date that the asset is completed and ready for use.

The estimated useful lives of wells, pipelines, properties, plant and equipment for current and comparative periods are described in Note 13. Estimated useful lives of items of properties, plant and equipment are reviewed and updated prospectively if expectations differ from previous estimates.

F. Intangible assets and oil and natural gas exploration and license, appraisal and development expenditure

i. Intangible assets

Intangible assets acquired separately are measured at initial recognition at their acquisition cost. After the initial recognition, intangible assets are valued at their acquisition cost, less: (i) accumulated amortization, under the straight-line method during the estimated useful life of the intangible asset and (ii) accumulated impairment losses.

Subsequent expenditure is capitalized only when it increases the future economic benefits embodied in the specific asset to which it relates. All other expenditure is recognized in profit or loss as incurred.

Amortization is calculated to write off the cost of intangible assets less their estimated residual values using the straight-line method over their estimated useful lives and is generally recognized in profit or loss.

Software licenses are amortized over the lesser of their contract period or the remaining life of the asset to which they are associated.

The estimated useful lives of elements of intangible assets for current and comparative periods are described in Note 14.

The estimated useful lives and residual values of intangible assets are reviewed at each reporting date and adjusted if appropriate.

ii. Wells not assigned to a reserve, oil and natural gas exploration, appraisal and development expenditure

a. Wells not assigned to a reserve

Wells not assigned to a reserve mainly include drilling, evaluation and development costs for oil and natural gas, and rights-of-way.

b. Oil and natural gas exploration, appraisal and development expenditures

Oil and natural gas exploration, evaluation and development expenses are accounted for using the principles of the successful efforts method of accounting, as described below:

Successful Efforts Method

Pemex Exploration and Production applies IFRS 6 - Exploration and Evaluation of Mineral Resources, which allows an entity to develop an accounting policy for exploration and evaluation assets. Therefore, Pemex Exploration and Production uses the method of successful efforts, which requires a cause-and-effect relationship between the costs incurred and the recognition of specific reserves. Generally, if a cost is incurred without an identifiable future benefit, it is charged to expenses.

Before PEMEX is able to determine the accounting treatment of a cost, it must be classified as a property acquisition, exploration, development or production cost.

Exploration and appraisal expenditure

Geological and geophysical exploration costs including topographic costs, geological studies, property access rights, remuneration and expenses of geologists and geophysicists are charged to expenses as incurred.

Costs directly associated with an exploration well, other than the costs mentioned in the preceding paragraph, are initially capitalized as an intangible asset (wells not assigned to a reserve) until the drilling of the well is complete and the results have been evaluated. These costs include employee compensation, materials and fuel used, platform costs and payments made to contractors.

If potentially commercial quantities of hydrocarbons are not found, the exploration well costs are written off against profit or loss. If hydrocarbons are found and, subject to additional assessment activity, are likely to be capable of commercial development, the costs continue to be carried as an asset. If it is determined that development will not occur, then the costs are expensed against profit or loss.

Costs directly associated with the evaluation activity performed to determine the size, characteristics and commercial potential of a reserve after the initial hydrocarbon discovery, including the costs of evaluation of wells where no hydrocarbons were found, are initially capitalized as an intangible asset (wells not assigned to a reserve). When proved reserves of oil and natural gas are determined and development is approved by management, the relevant expenditure is transferred to wells, pipelines, properties, plant and equipment.

Exploration wells more than 12 months old are recognized as an expense unless: (a)(i) they are in an area requiring major capital expenditure before production can begin, (ii) commercially productive quantities of reserves have been found, and (iii) they are subject to further exploration or appraisal activity, in that, either drilling or additional exploration wells are underway or firmly planned for the near future or (b) proved reserves are viable within 12 months of completion of the exploratory drilling.

Development expenditure

Expenditure on the construction, installation and completion of infrastructure facilities such as platforms, pipelines and the drilling of development wells, including service and unsuccessful development or delineation wells, is capitalized within wells, pipelines, properties, plant and equipment and is depreciated from the commencement of production as described in the accounting policy for wells, pipelines, properties, plant and equipment.

Exploration

Exploration includes all expenses related to the search for oil and / or gas reserves, including depreciation and applicable costs of supporting equipment and facilities, and the costs of drilling exploratory wells and exploratory stratigraphic wells. Some exploration costs are charged directly to expenses when they occur, such as the costs of maintaining unexploited properties, since such costs do not increase the possibilities that said lands contain proven reserves. The costs of geologists, topographers and geophysicists, including wages and other related expenses, are also charged directly to expenses when they occur because they do not represent the acquisition of an identifiable asset since these studies represent research expenses.

All costs for drilling exploratory wells are capitalized and classified as wells, pipelines, property, plant and equipment, not associated with a reserve, until it is determined whether or not a well has proven reserves. Once the exploratory wells are completed, the future treatment of these costs is determined.

Development

Development costs are associated with previously discovered proven reserves, with previously known future benefits. Therefore, all costs incurred in development activities must be capitalized. Development includes all costs incurred in creating a system of productive wells, related equipment, and facilities in proven reserves so that oil and / or gas can be extracted. Developmental costs are related to specific proven reserves. The cost of building roads to gain access to proven reserves is a development cost, as is the cost of providing facilities for the extraction, treatment, collection and storage of oil and / or gas. Developmental costs also include depreciation and operating costs of equipment and facilities used in developmental activities. Likewise, non-productive development wells are capitalized, since they are considered as a cost of creating the total production system for proven reserves.

Production

Production includes the costs incurred to raise oil and / or gas to the surface, its collection, treatment, processing and field storage.

The production function ends in the storage tank of the production field or, in exceptional circumstances, at the first point of delivery of the oil and / or gas to the main line, refinery, marine terminal or common transport.

G. Crude oil and natural gas reserves

Under Mexican law, all crude oil and other hydrocarbon reserves located in the subsoil of Mexico are owned by the Mexican nation and not by PEMEX. In accordance with the aforementioned and based on the applicable regulation as of the date of these consolidated financial statements, the reserves assigned to PEMEX by the Mexican Government are not registered for accounting purposes because they are not PEMEX's property. PEMEX estimates total proved oil and natural gas reserve volumes in accordance with the definitions, methods and procedures established in Rule 4-10(a) of Regulation S-X ("Rule 4-10(a)") of the U.S. Securities and Exchange Commission ("SEC"), as amended, and where necessary, in accordance with the Standards Pertaining to the Estimating and Auditing of Oil and Gas Reserves Information promulgated by the Society of Petroleum Engineers (the "SPE") as of February 19, 2007. These procedures are consistent with international reserves reporting practice. The estimation of these reserves depends on assumptions made and the interpretation of the data available and may vary among analysts. The results of drilling activities, test wells and production after the date of estimation are utilized in future revisions of reserves estimates.

Although PEMEX does not own the oil and other hydrocarbon reserves within Mexico, these procedures allow PEMEX to record the effects that such oil and other hydrocarbon reserves have on its consolidated financial statements, including, for example, in the depreciation and amortization line item.

H. Impairment of non-financial assets

The carrying amounts of PEMEX's non-financial assets, other than inventories and deferred taxes, are assessed for indicators of impairment at the end of each reporting period. If the net carrying value of the asset or its cash-generating unit exceeds the recoverable amount, PEMEX records an impairment charge in profit or loss.

A cash-generating unit is the smallest identifiable group of assets which can generate cash flows independently from other assets or groups of assets.

The recoverable amount of an asset or a Cash-Generating Unit ("CGU") is defined as the higher of its fair value minus the costs of disposal and its value in use. The value in use is the discounted present value of the net future cash flows expected to arise from the continuing use of an asset and from its disposal at the end of its useful life. In measuring value in use, the discount rate applied is the pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the asset. Fair value is calculated using discounted cash flows determined by the assumptions that market participants would apply in order to estimate the price of an asset or CGU, assuming that such participants were acting in their best economic interest.

In the case of cash-generating assets or items dedicated to the exploration and evaluation of hydrocarbons reserves, the recoverable amount is determined using the value in use based on the proved reserves and probable reserves, in some cases, for the risk factor associated with such reserves.

Both impairment losses and reversals are recognized in the statement of comprehensive income in the costs and expenses line items in which the depreciation and amortization are recognized. Impairment losses may not be presented as part of the costs that have been capitalized in the value of any asset. Impairment losses related to inventories are recognized as part of cost of sales. Impairment losses on investments in associates, joint ventures and other investments are recognized as profit (loss) sharing in associates.

An impairment loss shall be reversed if there has been a change in the estimates used since the date when the impairment loss was recognized. These reversals will not exceed the carrying value of the asset as though no impairment had been recognized. Impairment losses and reversals are presented in a separate line item in the consolidated statement of comprehensive income.

Petróleos Mexicanos
Productive State-Owned Subsidiaries and Subsidiary Companies

Notes to the consolidated financial statements

(Figures stated in thousands, except as noted)

I. Leases

At the inception of a contract, PEMEX assesses whether a contract is, or contains, a lease. A contract is, or contains, a lease if the contract conveys the right to control the use of an identified asset for a period of time in exchange for consideration. To assess whether a contract conveys the right to control the use of an identified asset, PEMEX uses the definition of a lease in IFRS 16.

i. As a lessee

At commencement or on modification of a contract that contains a lease component, PEMEX allocates the consideration in the contract to each lease component on the basis of its relative stand-alone prices. However, PEMEX has elected for some leases not to separate non-lease components and to account for the lease and non-lease components as a single lease component.

PEMEX recognizes a right-of-use asset and a lease liability at the lease commencement date. The right-of-use asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for any lease payments made at or before the commencement date, plus any initial direct costs incurred and an estimate of costs to dismantle and remove the underlying asset or to restore the underlying asset or the site on which it is located, less any lease incentives received.

The right-of-use asset is subsequently depreciated using the lesser of the straight-line method and the hours of use method, from the commencement date to the end of the lease term, unless the lease transfers ownership of the underlying asset to PEMEX by the end of the lease term or the cost of the right-of-use asset reflects that PEMEX will exercise a purchase option. In that case, the right-of-use asset will be depreciated over the useful life of the underlying asset, which is determined on the same basis as those of property and equipment. In addition, the right-of-use asset is periodically reduced by impairment losses, if any, and adjusted for certain remeasurements of the lease liability. Useful lives are shown in Note 17.

The lease liability is initially measured at the present value of the lease payments that are not paid at the commencement date, discounted using the interest rate implicit in the lease or, if that rate cannot be readily determined, PEMEX's incremental borrowing rate. Generally, PEMEX uses its incremental borrowing rate as the discount rate.

PEMEX determines its incremental borrowing rate by obtaining interest rates from various external financing sources and makes certain adjustments to reflect the terms of the lease and type of the asset leased.

Lease payments included in the measurement of the lease liability comprise the following:

- fixed payments, including in-substance fixed payments;
- variable lease payments that depend on an index or a rate, initially measured using the index or rate as at the commencement date;
- amounts expected to be payable under a residual value guarantee; and
- the exercise price under a purchase option that PEMEX is reasonably certain to exercise, lease payments in an optional renewal period if PEMEX is reasonably certain to exercise an extension option, and penalties for early termination of a lease unless PEMEX is reasonably certain not to terminate early.

The lease liability is measured at amortized cost using the effective interest method. It is remeasured when there is a change in future lease payments arising from a change in an index or rate, if there is a change in PEMEX's estimate of the amount expected to be payable under a residual value guarantee, if PEMEX changes its assessment of whether it will exercise a purchase, extension or termination option or if there is a revised in-substance fixed lease payment.

When the lease liability is remeasured in this way, a corresponding adjustment is made to the carrying amount of the right-of-use asset or is recorded in profit or loss if the carrying amount of the right-of-use asset has been reduced to zero.

From January 1, 2021, PEMEX began remeasuring its lease liability by discounting the revised lease payments using the revised discount rate that reflects the change to an alternative benchmark interest rate. This change reflects the requirements of the interest rate benchmark reform, which adjusted the basis for determining future lease payments.

PEMEX presents separately the right-of-use assets and lease liabilities in the statement of financial position.

Short-term leases and leases of low-value assets

PEMEX has elected not to recognize right-of-use assets and lease liabilities for leases of low-value assets and short-term leases. PEMEX recognizes the lease payments associated with these leases as an expense on a straight-line basis over the lease term.

ii. As a lessor

At inception or upon modification of a contract that contains a lease component, PEMEX allocates the consideration in the contract to each lease component on the basis of their relative stand-alone prices.

When PEMEX acts as a lessor, it determines at lease inception whether each lease is a finance lease or an operating lease.

To classify each lease, PEMEX makes an overall assessment of whether the lease transfers substantially all of the risks and rewards incidental to ownership of the underlying asset. If this is the case, then the lease is a finance lease; if not, then it is an operating lease. As part of this assessment, PEMEX considers certain indicators such as whether the lease is for the major part of the economic life of the asset.

If an arrangement contains lease and non-lease components, then PEMEX applies IFRS 15 to allocate the consideration in the contract.

PEMEX applies the derecognition and impairment requirements in IFRS 9 to the net investment in the lease. Further, PEMEX regularly reviews estimated unguaranteed residual values used in calculating the gross investment in the lease.

PEMEX recognizes lease payments received under operating leases as income on a straight-line basis over the lease term as part of “other revenue.”

J. Provisions

Provisions are determined by discounting the expected future cash flows at a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the liability. The unwinding of the discount is recognized as finance cost.

PEMEX recognizes provisions when, as a result of a past event, PEMEX has incurred a legal or assumed present obligation for which a future disbursement is probable and the value of such disbursement is reasonably estimable. In certain cases, such amounts are recorded at their present value.

Increases in ongoing legal expense liabilities are recognized in the Consolidated Statement of Comprehensive Income in the “Other expenses” line item.

Environmental liabilities

In accordance with applicable legal requirements and accounting practices, an environmental liability is recognized when the cash outflows are probable and the amount is reasonably estimable. Disbursements related to the conservation of the environment that are linked to revenue from current or future operations are accounted as expenses or assets, depending on the circumstances of each disbursement. Disbursements related to past operations, which no longer contribute to current or future revenues, are accounted for as current period expenses.

The accrual of a liability for a future disbursement occurs when an obligation related to environmental remediation, for which PEMEX has the information necessary to determine a reasonable estimated cost, is identified. Increases in environmental liabilities are recognized in the Consolidated Statement of Comprehensive Income in the "Cost of sales" line item.

Retirement of assets

The obligations associated with the future retirement of assets, including those related to the retirement of wells, pipelines, properties, plant and equipment and their components are recognized at the date that the retirement obligation is incurred, based on the discounted cash flow method. The determination of the fair value is based on existing technology and regulations. If a reliable estimation of fair value cannot be made at the time the obligation is incurred, the accrual will be recognized when there is sufficient information to estimate the fair value.

The obligations related to the costs of future retirement of assets associated with the principal refining processes for gas and petrochemicals are not recognized. These assets are considered to have an indefinite useful life due to the potential for maintenance and repairs.

The abandonment costs related to wells currently in production and wells temporarily closed are recorded in the statement of comprehensive income based on the units of production method. Total cost of abandonment and plugging for non-producing wells is recognized in the statement of comprehensive income at the end of each period. All estimations are based on the useful lives of the wells, considering their discounted present value. Salvage values are not considered, as these values commonly have not traditionally existed. Increases in retirement of assets liabilities are recognized as part of the cost of completed wells in fixed assets.

K. Employee benefits

i. Short-term employee benefits

Short-term employee benefits are expensed as the related service is provided. A liability is recognized for the amount expected to be paid if PEMEX has a present legal or constructive obligation to pay this amount as a result of past service provided by the employee and the obligation can be estimated reliably.

ii. Defined contribution plans

Obligations for contributions to defined contribution plans are expensed as the related service is provided. Prepaid contributions are recognized as an asset to the extent that a cash refund or a reduction in future payments is available.

iii. Defined benefit plan

PEMEX's net obligation in respect of defined benefit plans is calculated separately for each plan by estimating the amount of future benefit that employees have earned in the current and prior periods, discounting that amount and deducting the fair value of any plan assets.

The calculation of defined benefit obligations is performed annually by a qualified actuary using the projected unit credit method. When the calculation results in a potential asset for PEMEX, the recognized asset is limited to the present value of economic benefits available in the form of any future refunds from the plan or reductions in future contributions to the plan. To calculate the present value of economic benefits, consideration is given to any applicable minimum funding requirements.

New remeasurements of the net defined benefit liability, which comprise actuarial gains and losses, the return on plan assets (excluding interest) and the effect of the asset ceiling (if any, excluding interest), are recognized immediately in OCI. PEMEX determines the net interest expense (income) on the net defined benefit liability (asset) for the period by applying the discount rate used to measure the defined benefit obligation at the beginning of the annual period to the net defined

benefit liability (asset) at such time, considering any changes in the net defined benefit liability (asset) during the period as a result of contributions and benefit payments. Net interest expense and other expenses related to defined benefit plans are recognized in profit or loss.

When the benefits of a plan are changed or when a plan is curtailed, the resulting change in benefit that relates to past service or the gain or loss on curtailment is recognized immediately in profit or loss. PEMEX recognizes gains and losses from the settlement of a defined benefit plan when the settlement occurs.

iv. Other long-term employee benefits

PEMEX's net obligation in respect of long-term employee benefits is the amount of future benefit that employees have earned in return for their service in the current and prior periods. That benefit is discounted to determine its present value. New remeasurements are recognized in profit or loss in the period in which they arise.

v. Termination benefits

Termination benefits are expensed at the earlier of when PEMEX can no longer withdraw its offer of those benefits and when PEMEX recognizes costs for a restructuring. If benefits are not expected to be settled in full within 12 months of the reporting date, then they are discounted.

L. Income taxes, duties and royalties

Income tax expense comprises current and deferred tax. It is recognized in profit or loss except to the extent that it relates to a business combination, or items recognized directly in equity or in OCI.

The interest and penalties related to income taxes, including uncertain tax treatments, do not meet the definition of income taxes, and are therefore accounted for under IAS 37 "Provisions, Contingent Liabilities and Contingent Assets."

i. Current income tax

Current income tax comprises the expected tax payable or receivable on the taxable income or loss for the year and any adjustment to the tax payable or receivable in respect of previous years. The amount of current tax payable or receivable is the best estimate of the tax amount expected to be paid or received that reflects uncertainty related to income taxes, if any. It is measured using tax rates enacted or substantively enacted at the reporting date. Current tax also includes any tax arising from dividends.

Current tax assets and liabilities are offset only if certain criteria are met.

ii. Deferred income tax

Deferred income tax is recognized in respect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. Deferred tax is not recognized for:

- temporary differences on the initial recognition of assets or liabilities in a transaction that is not a business combination and that affects neither accounting nor taxable profit or loss;
- temporary differences related to investments in subsidiaries, associates and joint arrangements to the extent that PEMEX is able to control the timing of the reversal of the temporary differences and it is probable that they will not reverse in the foreseeable future; and
- taxable temporary differences arising from the initial recognition of goodwill.

Temporary differences in relation to a right-of-use asset and a lease liability for a specific lease are regarded as a net package (the lease) for the purpose of recognizing deferred tax.

Deferred tax assets are recognized for unused tax losses, unused tax credits and deductible temporary differences to the extent that it is probable that future taxable profits will be available against which they can be used. Future taxable profits are determined based on the reversal of relevant taxable temporary differences. If the amount of taxable temporary differences is insufficient to recognize a deferred tax asset in full, then future taxable profits, adjusted for reversals of existing temporary differences, are considered, based on the business plans of PEMEX. Deferred tax assets are reviewed at each reporting date and are reduced to the extent that it is no longer probable that the related tax benefit will be realized. Such reductions are reversed when the probability of future taxable profits improves.

Unrecognized deferred tax assets are reassessed at each reporting date and recognized to the extent that it has become probable that future taxable profits will be available against which they can be used.

Deferred tax is measured at the tax rates that are expected to be applied to temporary differences when they reverse, using tax rates enacted or substantively enacted at the reporting date.

The measurement of deferred tax reflects the tax consequences that would follow from the manner in which PEMEX expects, at the reporting date, to recover or settle the carrying amount of its assets and liabilities.

Deferred tax assets and liabilities are offset only if certain criteria are met.

iii. Duties, royalties and considerations

Duties

PEMEX is subject to taxes and special duties, which are based on the value of hydrocarbons extracted, with certain deductions.

These taxes and duties are recognized in accordance with IAS 12 “Income Taxes” (IAS 12) when they have the characteristics of income tax, which occurs when such taxes are set by a government authority and are determined based on a formula that considers the balance of income (or extraction valued at a selling price) less expenses. Taxes and duties that meet these criteria are recognized for current and deferred income tax based on the above paragraphs.

Taxes and duties that do not meet these criteria are recognized in costs and expenses relating to the transactions that gave rise to them.

Royalties and considerations

Royalties and considerations are payable pursuant to license agreements. These royalties are recognized as liabilities and affect the items of costs and expenses related to the operations that gave rise to them.

M. Contingencies

Contingency losses are recorded when it is probable that a liability has been incurred and the amount thereof can be reasonably estimated. When a reasonable estimation cannot be made, qualitative disclosure is provided in the notes to the consolidated financial statements. Contingent assets are not recognized until realization is assured.

N. Government grants (Revenues from FONADIN)

Government grants related to assets are initially recognized as deferred income at fair value if there is reasonable assurance that they will be received and PEMEX will comply with the conditions associated with the grant. Grants related to the acquisition of assets are recognized in profit or loss as other income on a systematic basis over the useful life of the asset.

Grants that compensate expenses incurred are recognized in profit or loss as other income on a systematic basis in the periods in which the expenses are recognized, unless the conditions for receiving the grant are met after the related expenses have been recognized. In this case, the grant is recognized when it becomes receivable.

O. Fair value

'Fair value' is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date in the principal or, in its absence, the most advantageous market to which PEMEX has access at that date. The fair value of a liability reflects its non-performance risk.

A number of PEMEX accounting policies and disclosures require the measurement of fair values, for both financial and non-financial assets and liabilities (see Note 8).

When one is available, PEMEX measures the fair value of an instrument using the quoted price in an active market for that instrument. A market is regarded as 'active' if transactions for the asset or liability take place with sufficient frequency and volume to provide pricing information on an ongoing basis.

If there is no quoted price in an active market, then PEMEX uses valuation techniques that maximize the use of relevant observable inputs and minimize the use of unobservable inputs. The chosen valuation technique incorporates all of the factors that market participants would take into account in pricing a transaction.

If an asset or a liability measured at fair value has a bid price and an ask price, then PEMEX measures assets and long positions at the bid price and liabilities and short positions at the ask price.

The best evidence of the fair value of a financial instrument on initial recognition is normally the transaction price (i.e., the fair value of the consideration given or received in a third-party transaction). If PEMEX determines that the fair value on initial recognition differs from the transaction price and the fair value is evidenced neither by a quoted price in an active market for an identical asset or liability nor based on a valuation technique for which any unobservable inputs are judged to be insignificant in relation to the measurement, then the financial instrument is initially measured at fair value, adjusted to defer the difference between the fair value on initial recognition and the transaction price. Subsequently, that difference is recognized in profit or loss on an appropriate basis over the life of the instrument but no later than when the valuation is fully supported by observable market data or the transaction is closed out.

P. Revenue from contracts with customers

Revenue is measured based on the consideration specified in a contract with a customer. PEMEX recognizes revenue when it transfers control over a good or service to a customer. The transaction price is established at the time of sale, including the estimate of the variable consideration (see Note 7).

Q. Operating segments

Operating segments are identifiable components of PEMEX that pursue business activities from which PEMEX earns revenues and incurs expenses and for which information is available to management on a segmented basis and is assessed by the Board of Directors in order to allocate resources and assess the profitability of the segments.

R. Presentation of consolidated statements of comprehensive income

Costs and expenses shown in PEMEX's consolidated statements of income are presented based on their function, which allows for a better understanding of the components of PEMEX's operating income. This classification allows for a comparison to the industry to which PEMEX belongs.

i. Operating profit

Operating profit is the result generated from the continuing principal revenue-producing activities of PEMEX as well as other income and expenses related to operating activities. Operating profit excludes net finance costs, share of profit of equity-accounted investees and income taxes and duties.

Revenues

Represents revenues from the sale of products or services.

Cost of sales

Cost of sales represents the acquisition and production costs of inventories, depreciation, amortization, salaries, wages and benefits, a portion of the cost of the reserve for employee benefits and operating expenses related to the production process, production taxes and duties, impairment, exploration costs, non-operating costs, among others.

Other revenues and other expenses

Other revenues and other expenses consist primarily of income and expenses that are not related directly to the operation of PEMEX.

Transportation, distribution and sale expenses

Transportation, distribution and sale expenses are costs in connection with the storage, sale and delivery of products, such as the depreciation and operating expenses associated with these activities.

Administrative expenses

Administrative expenses are costs related to PEMEX's areas that provide administrative support.

ii. Financing income and financing cost and derivative financial instruments income (cost), net

Financing income

Financing income is comprised of interest income, financial income and other income from financial operations between PEMEX and third parties.

Financing cost

Financing cost is comprised of interest expenses, commissions and other expenses related to PEMEX's financing operations less any portion of the financing cost that is capitalized.

When calculating interest income and expenses, the effective interest rate is applied to the gross carrying amount of the asset (when the asset has no credit impairment), to the amortized cost of the liability or to the present value lease liabilities. However, for financial assets with credit impairment after initial recognition, interest income is calculated by applying the effective interest rate at the amortized cost of the financial asset. If the asset ceases to be impaired, the interest income calculation returns to the gross base.

Derivative financial instruments (cost) income, net

Includes the result of changes in the fair value of derivative financial instruments (see note 18).

S. Incentive for automotive fuels

On March 3, 2022, the federal government issued a decree that established a tax incentive applicable to entities subject to the *Impuesto Especial sobre Producción y Servicios* (Special Tax on Production and Services). Pursuant to this stimulus, PEMEX can recover the difference between the international reference price of gasoline and the price at which the gasoline is traded in the domestic market. This stimulus is known as the "automotive incentive."

The decree quantifies the automotive incentive based on the volume of fuel sold by applying a rate issued by the SHCP on a weekly basis. The decree also refers to the general rules issued by the SHCP that dictate the procedures to request the amount of the automotive incentive. The automotive incentive is measured based on the volume sold and the rates authorized in accordance with the decree and is recognized as income when the customer obtains control of the fuel when it is delivered to its facilities. At the same time, a revenue and an account receivable from the SHCP are recognized. The application for the automotive incentive is generally submitted during the first 17 days of the month following the month in which the automotive incentive was generated and is recovered during the 30 days following the application. Pemex Industrial Transformation does not have any performance obligations to comply with in order to qualify for the automotive incentive, except for the sale of fuel to third parties, which is what gives rise to the incentive under the decree. Since fuel returns are not accepted, the automotive incentive does not require these considerations in its quantification.

Pursuant to the decree, the automotive incentive is not subject to the *Impuesto sobre la Renta* (Income Tax Law), and therefore it is considered non-cumulative income for the purposes of the Income Tax Law.

T. Renewable fuels obligation

PEMEX is required to comply with the Renewable Fuel Standard implemented by the U.S. Environmental Protection Agency (“EPA”), which sets annual quotas for the quantity of renewable fuels (such as ethanol) that must be blended into motor fuels consumed in the United States. PEMEX’s renewable fuels obligations are based on a percentage of domestic product shipments as established by the EPA. PEMEX is required to purchase Renewable Identification Numbers (“RINs”). To the extent PEMEX is unable to blend the required amount of biofuels to satisfy its RINs obligations, PEMEX must purchase RINs on the open market to avoid penalties and fines. PEMEX accounts for its renewable fuels obligations on a net basis in Accrued expenses when its RINs liability is greater than the amount of RINs purchased in a given period and in Prepaid and other current assets when the amount of RINs earned and purchased is greater than the RINs obligations accrued during the year.

NOTE 4. NEW STANDARDS RECENTLY ISSUED

A number of new standards are effective for annual periods beginning after January 1, 2023 and earlier application is permitted; however, PEMEX has not early adopted the new or amended standards in preparing these consolidated financial statements.

The following amended standards and interpretations are not expected to have a significant impact on the PEMEX’s consolidated financial statements:

i. Applicable as of January 1, 2023

- Insurance Contracts (Amendments to IFRS 17)
- Classification of Liabilities as Current or Non-current (Amendments to IAS 1)

- Definition of Accounting Estimates (Amendments to IAS 8)
- Disclosure of Accounting Policies (Amendments to IAS 1 and IFRS Practice Statement 2)
- Deferred Tax related to Assets and Liabilities arising from a Single Transaction (Amendments to IAS 12)

ii. Applicable as of January 1, 2024

- Lease Liability in a Sale and Leaseback (Amendments to IFRS 16)

NOTE 5. SUBSIDIARY ENTITIES AND SUBSIDIARY COMPANIES

As of December 31, 2022 and 2021, the Subsidiary Entities consolidated in these financial statements include Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics. Former Subsidiary Entity, Pemex Fertilizers, was also consolidated in these financial statements until December 31, 2020.

As of December 31, 2022 and 2021, the consolidated Subsidiary Companies are as follows:

- P.M.I. Holdings, B.V. ("PMI HBV") [(i)(iii)(x)(xi)]
- P.M.I. Trading DAC ("PMI Trading") [(i)(iii)(vii)]
- P.M.I. Holdings Petróleos España, S.L.U. ("HPE") [(i)(iii)(v)]
- P.M.I. Services North America, Inc. ("PMI SUS") [(i)(iii)(vi)]
- P.M.I. Norteamérica, S.A. de C.V. ("PMI NASA") [(i)(iii)(iv)]
- P.M.I. Comercio Internacional, S. A. de C. V. ("PMI CIM") [(i)(ii)(iv)]
- PMI Campos Maduros SANMA, S. de R. L. de C. V. ("SANMA") [(iii)(iv)]
- Pro-Agroindustria, S.A. de C. V. ("AGRO") [(iii)(iv)]
- PTI Infraestructura de Desarrollo, S.A. de C.V. ("PTI ID") [(iii)(iv)]
- P.M.I. Servicios Portuarios Transoceánico, S.A. de C.V. ("PMI SP") [(i)(iii)(iv)]
- Pemex Procurement International, Inc. ("PPI") [(iii)(vi)]
- Pemex Finance Limited ("FIN") [(iii)(ix)]
- Mex Gas Internacional, S.L. ("MGAS") [(iii)(iv)]
- Pemex Desarrollo e Inversión Inmobiliaria, S.A. de C.V. ("PDII") [(iii)(iv)]
- KOT Insurance Company, AG. ("KOT") [(iii)(viii)]
- PPQ Cadena Productiva, S.L.U. ("PPQCP") [(iii)(iv)]
- I.I.I. Servicios, S.A. de C.V. ("III Servicios") [(iii)(iv)]
- PMI Ducto de Juárez, S. de R.L. de C.V. ("PMI DJ") [(i)(iii)(iv)]
- PMX Fertilizantes Holding, S.A de C.V. ("PMX FH") [(iii)(iv)]
- PMX Fertilizantes Pacífico, S.A. de C.V. ("PMX FP") [(iii)(iv)]
- Grupo Fertinal, S.A. de C.V. ("GP FER") [(iii)(iv)]
- Compañía Mexicana de Exploraciones, S.A. de C.V. ("COMESA") [(ii)(iv)]
- P.M.I. Trading México, S.A. de C.V. ("TRDMX") [(i)(iii)(iv)]
- Holdings Holanda Services, B.V. ("HHS") [(iii)(xi)]
- Deer Park Refining Limited Partnership ("Deer Park" or "DPRLP") [(vi)(xii)]

(i) Member Company of the "PMI Subsidiaries."

(ii) Non-controlling interest company (98.33% in PMI CIM and 60.0% in COMESA).

(iii) Petróleos Mexicanos owns 100.0% of the interests in this Subsidiary Company.

(iv) Operates in Mexico.

(v) Operates in Spain.

(vi) Operates in United States of America.

(vii) Operates in Ireland.

(viii) Operates in Switzerland.

(ix) Operates in Cayman Islands.

(x) This company was liquidated in December 2021.

(xi) Operates in Netherlands.

(xii) This company is consolidated as of January 2022.

NOTE 6. SEGMENT FINANCIAL INFORMATION

PEMEX's primary business is the exploration and production of crude oil and natural gas, as well as the production, processing, marketing and distribution of petroleum and petrochemical products. As of December 31, 2022, and 2021, PEMEX's operations were conducted through seven and six business segments, respectively: Exploration and Production, Industrial Transformation, Logistics, DPRLP (beginning January 20, 2022), the Trading Companies, Corporate and Other operating Subsidiary Companies. Until December 31, 2020, PEMEX's operations were also conducted through the additional business segment, Fertilizers (merged into the Industrial Transformation segment as of January 1, 2021). Due to PEMEX's structure, there are significant amounts of inter-segment sales among the reporting segments, which are made at market prices.

The primary sources of revenue for PEMEX's business segments are as described below:

- The exploration and production segment earns revenues from domestic sales of crude oil and natural gas, and from exporting crude oil through certain of the Trading Companies. Crude oil export sales are made through the agent subsidiary company PMI CIM, to 17 major customers in various foreign markets. Approximately half of PEMEX's crude oil is sold to Pemex Industrial Transformation. Additionally, it receives income from drilling services, and servicing and repairing wells.
- The industrial transformation segment earns revenues from sales of refined petroleum products and derivatives, mainly to third parties within the domestic market. This segment also sells a significant portion of the fuel oil it produces to the *Comisión Federal de Electricidad* (Federal Eletricity Commission, or "CFE") and a significant portion of jet fuel produced to the *Aeropuertos y Servicios Auxiliares* (Airports and Auxiliary Services Agency or "ASA"). The refining segment's most important products are different types of gasoline and diesel.
- The industrial transformation segment also earns revenues from domestic sources generated by sales of natural gas, liquefied petroleum gas, naphtha, butane and ethane and certain other petrochemicals such as methane derivatives, ethane derivatives, aromatics, ammonia, fertilizers and its derivatives.
- The logistics segment earns income from transportation and storage of crude oil, petroleum products and petrochemicals, as well as related services, which it provides by employing pipelines and offshore and onshore resources, and from providing services related to the maintenance, handling, guarding and management of these products.
- Effective January 20, 2022, the Deer Park segment includes DPRLP's operations, whose operating results and performance are currently and regularly reviewed as a separate business by PEMEX's Board of Directors. DPRLP generates revenues from sales of distillates and gasoline in the U.S. market.

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Notes to the consolidated financial statements

(Figures stated in thousands, except as noted)

- The trading companies segment, which consist of PMI CIM, PMI NASA, PMI Trading and MGAS (the "Trading Companies"), earns revenues from trading crude oil, natural gas and petroleum and petrochemical products in international markets.
- The segment related to corporate provides administrative, financing and consulting services to PEMEX's subsidiary entities and companies.
- The segment related to the Subsidiary Companies provides administrative, financing, consulting and logistical services, as well as economic, tax and legal advice and re-insurance services to PEMEX's subsidiary entities and companies.

The following tables present the condensed financial information of these segments, after elimination of unrealized intersegment gain (loss), and include only select line items. The columns before intersegment eliminations include unconsolidated figures. As a result, the line items presented below may not total. These reporting segments are those which PEMEX's management evaluates in its analysis and on which it bases its decision-making. These reporting segments are presented in PEMEX's reporting currency.

As of/for the year ended December 31, 2022	Exploration and Production	Industrial Transformation	Logistics	DPRLP [3]	Trading Companies	Corporate	Other Operating Subsidiary Companies	Intersegment eliminations	Total
Sales:									
Trade	Ps.580,722,599	1,206,916,270	—	238,510,433	334,364,847	—	17,488,810	—	Ps. 2,378,002,959
Intersegment	717,367,392	302,190,952	89,622,240	29,193,820	819,994,494	80,179,770	73,050,303	(2,111,598,971)	—
Services income	86,348	1,096,095	1,582,712	430,512	2,173,075	867	15,741	—	5,385,350
(Impairment) of wells, pipelines, properties, plant and equipment, net	(60,438,070)	(25,615,351)	2,121,045	—	394,355	—	—	—	(83,538,021)
Cost of sales	599,574,788	1,577,012,772	78,006,637	243,355,903	1,146,203,099	1,188,124	83,905,905	(2,030,684,206)	1,698,563,022
Gross income	638,163,481	(92,424,806)	15,319,360	24,778,862	10,723,672	78,992,513	6,648,949	(80,914,765)	601,287,266
Distribution, transportation and sale expenses	413,551	20,000,274	284,725	—	693,982	51,637	91,625	(5,230,758)	16,305,036
Administrative expenses	64,390,637	60,136,092	18,374,788	1,000,038	2,768,334	75,097,855	7,613,971	(75,502,649)	153,879,066
Other revenue	10,630,959	9,632,988	333,558	29,832	11,538,185	906,823	6,868,728	—	39,941,073
Other expenses	(21,104,328)	(665,656)	554,533	(1,550,862)	(925,859)	(770,526)	(1,409,589)	286,734	(25,585,553)
Operating income (loss)	562,885,924	(163,593,840)	(2,452,062)	22,257,794	17,873,682	3,979,318	4,402,492	105,376	445,458,684
Financing income	86,983,763	448,537	12,494,966	241,369	454,991	177,776,910	561,083	(251,733,654)	27,227,965
Financing cost	(150,663,974)	(31,341,752)	(545,053)	(1,381,250)	(3,389,376)	(222,446,318)	(1,544,435)	251,628,278	(159,683,880)
Derivative financial instruments (cost) income, net	(12,618,664)	(27,846)	—	—	(1,870,306)	(8,346,135)	—	—	(22,862,951)
Foreign exchange income (loss), net	104,112,481	27,124,384	112,618	—	(258,955)	(2,577,191)	1,176,753	—	129,690,090
Profit (loss) sharing in joint ventures and associates	(649,968)	(1,332,437)	(254)	—	22,757,389	149,613,112	43,949,040	(213,987,481)	349,401
Total duties, taxes and other	328,808,439	—	(6,962,217)	212,621	(504,023)	(2,412,355)	1,038,374	—	320,180,839
Net income (loss)	Ps.261,241,123	(168,722,954)	16,572,432	20,905,292	36,071,448	100,412,051	47,506,559	(213,987,481)	99,998,470
Total current assets	915,532,623	296,527,986	251,070,455	31,935,985	208,042,447	1,548,257,534	101,716,681	(2,825,188,933)	527,894,778
Total non-current assets	886,317,756	502,433,210	160,667,832	32,675,568	104,756,605	431,460,970	407,146,635	(807,795,310)	1,717,663,266
Total current liabilities	519,212,766	1,078,322,279	79,817,063	10,287,103	163,897,630	1,856,611,334	46,619,334	(2,825,030,251)	929,737,258
Total long-term liabilities	1,968,555,771	614,563,455	75,200,326	4,153,387	513,730	1,891,640,785	42,864,055	(1,512,848,498)	3,084,643,011
Total equity (deficit)	(685,918,158)	(893,924,538)	256,720,899	50,171,062	148,387,691	(1,768,533,615)	419,379,927	704,894,507	(1,768,822,225)
Depreciation and amortization of wells, pipelines, properties, plant and equipment	113,656,994	15,173,731	5,938,265	2,457,584	350,789	554,672	1,639,780	—	139,771,815
Depreciation of rights of use	390,857	3,845,374	539,608	—	694,369	402,661	90,909	—	5,963,778
Net periodic cost of employee benefits	36,284,710	52,521,311	8,387,099	—	8,504	32,090,167	42,021	—	129,333,812
Interest income [1]	190,684	399,495	61,685	110,031	56,852	10,107,959	288,783	—	11,215,489
Interest cost [2]	(96,942)	4,083,467	532,791	1,362,760	2,978,799	129,328,297	1,338,907	—	139,528,079

(1) Included in financing income.

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(Figures stated in thousands, except as noted)

(2) Included in financing cost.
(3) Beginning January 20, 2022, DPRLP information is now included as a separate business segment.

As of/for the year ended December 31, 2021	Exploration and Production	Industrial Transformation	Logistics	Trading Companies	Corporate	Other Operating Subsidiary Companies	Intersegment eliminations	Total
Sales:								
Trade	468,417,239	704,624,236	—	304,536,717	—	13,077,187	—	1,490,655,379
Intersegment	460,572,660	186,494,071	84,952,786	400,866,433	83,781,482	29,314,136	(1,245,981,568)	—
Services income	177,607	510,999	2,949,047	1,314,183	1,700	19,705	—	4,973,241
(Impairment) of wells, pipelines, properties, plant and equipment, net	34,562,831	(32,153,192)	(3,161,108)	(459,126)	—	—	—	(1,210,595)
Cost of sales	461,811,648	984,150,631	56,139,574	690,088,452	939,331	38,237,316	(1,164,716,250)	1,066,650,702
Gross income (loss)	501,918,689	(124,674,517)	28,601,151	16,169,755	82,843,851	4,173,712	(81,265,318)	427,767,323
Distribution, transportation and sales expenses	308,466	16,967,684	121,109	1,349,800	(43,465)	155,920	(3,820,964)	15,038,550
Administrative expenses	68,609,035	55,094,836	18,926,235	2,102,321	77,099,162	6,014,313	(77,413,591)	150,432,311
Other revenue	8,374,912	4,547,927	238,613	649,315	3,152,076	637,623	—	17,600,466
Other expenses	(48,624,108)	(1,518,540)	(363,276)	(42,633)	(166,638)	(234,410)	(19,491)	(50,969,096)
Operating income (loss)	392,751,992	(193,707,650)	9,429,144	13,324,316	8,773,592	(1,593,308)	(50,254)	228,927,832
Financing income	74,733,941	294,144	6,285,126	389,888	168,666,374	234,490	(221,697,179)	28,906,784
Financing cost	(143,814,194)	(18,879,599)	(308,502)	(2,050,801)	(220,409,508)	(856,474)	221,747,431	(164,571,647)
Derivative financial instruments (cost) income, net	(21,076,343)	(20,346)	—	(1,624,762)	(2,502,792)	—	—	(25,224,243)
Foreign exchange (loss), net	(33,902,009)	(5,627,711)	99	(21,490)	(5,185,616)	(938,323)	—	(45,675,050)
(Loss) profit sharing in joint ventures and associates	(452,617)	(1,900,487)	(118)	(423,658)	(246,891,433)	(10,206,963)	256,787,169	(3,088,107)
(Impairment) of joint ventures	—	—	—	(6,703,324)	—	—	—	(6,703,324)
Taxes, duties and other	308,139,256	—	(68,168)	2,061,302	(3,017,215)	232,947	—	307,348,122
Net (loss) income	(39,898,486)	(219,841,649)	15,473,917	828,867	(294,532,168)	(13,593,525)	256,787,167	(294,775,877)
Total current assets	875,933,631	252,372,772	219,321,008	244,042,561	1,970,621,443	71,425,922	(3,175,323,293)	458,394,044
Total non-current assets	837,915,816	418,907,482	154,076,115	40,872,714	448,667,108	220,334,642	(527,069,750)	1,593,704,127
Total current liabilities	495,444,322	776,564,748	62,569,320	189,834,560	2,538,932,073	34,183,077	(3,174,879,770)	922,648,330
Total non-current liabilities	2,203,155,765	657,020,316	77,857,852	792,646	2,050,485,763	27,632,466	(1,717,494,184)	3,299,450,624
Equity (deficit), net	(984,750,640)	(762,304,810)	232,969,951	94,288,069	(2,170,129,285)	229,945,021	1,189,980,911	(2,170,000,783)
Depreciation and amortization	108,323,352	16,271,506	5,867,292	266,764	926,413	1,776,038	—	133,431,365
Depreciation of rights of use	386,412	4,235,223	268,824	884,797	518,108	114,507	—	6,407,871
Net periodic cost of employee benefits	38,215,687	54,997,753	11,661,937	48,093	35,102,165	189,769	—	140,215,404
Interest income [1]	175,149	245,596	46,414	105,464	14,060,450	83,330	—	14,716,403
Interest cost [2]	2,643,655	4,924,651	267,546	1,839,455	141,368,154	669,607	—	151,713,068

(1) Included in financing income.
(2) Included in financing cost.

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As of/for the year ended December 31, 2020	Exploration and Production	Industrial Transformation	Logistics	Trading Companies	Corporate	Other Operating Subsidiary Companies	Intersegment eliminations	Total
Sales:								
Trade	301,393,451	479,244,968	—	159,786,736	—	8,521,205	—	948,946,360
Intersegment	242,454,754	97,728,702	80,575,471	280,924,383	78,459,074	19,992,520	(800,134,904)	—
Services income	133,315	191,667	4,099,000	229,140	2,582	59,780	—	4,715,484
(Impairment) reversal of wells, pipelines, properties, plant and equipment, net	35,031,541	(71,854,015)	426,560	42,214	—	—	—	(36,353,700)
Cost of sales	391,513,815	658,688,191	43,614,768	430,672,407	982,895	26,553,326	(719,410,712)	832,614,690
Gross income (loss)	187,499,246	(153,376,869)	41,486,263	10,310,066	77,478,761	2,020,179	(80,724,192)	84,693,454
Distribution, transportation and sales expenses	251,625	14,823,740	107,691	1,277,980	79,072	130,604	(4,234,470)	12,436,242
Administrative expenses	72,457,241	52,116,760	15,762,946	2,106,780	75,738,889	4,183,772	(76,471,944)	145,894,444
Other revenue	2,162,510	4,106,298	513,076	874,412	264,856	3,847,694	—	11,768,846
Other expenses	(896,526)	(124,722)	(7,445)	(86,960)	(93,966)	(19,624)	34,529	(1,194,714)
Operating (loss) income	116,056,364	(216,335,793)	26,121,257	7,712,758	1,831,690	1,533,873	16,751	(63,063,100)
Financing income	77,700,999	469,222	3,340,622	307,229	161,678,495	1,122,880	(227,877,399)	16,742,048
Financing cost	(164,419,519)	(12,166,577)	(450,802)	(812,552)	(210,316,330)	(1,460,106)	227,860,644	(161,765,242)
Derivative financial instruments (cost) income, net	24,939,748	22,862	—	(1,794,243)	(6,072,226)	—	—	17,096,141
Foreign exchange (loss), net	(116,528,387)	(9,060,800)	(442,139)	(750,041)	(1,778,916)	(389,021)	—	(128,949,304)
(Loss) profit sharing in joint ventures and associates	(61,956)	(1,016,062)	3,813	(1,931,323)	(433,417,288)	(8,294,278)	441,176,561	(3,540,533)
Taxes, duties and other	154,609,136	—	4,842,171	3,413,999	20,804,231	1,902,538	—	185,572,075
Net (loss) income	(216,921,887)	(238,087,148)	23,730,580	(682,171)	(508,878,806)	(9,389,190)	441,176,557	(509,052,065)
Depreciation and amortization	101,126,295	19,744,860	5,917,668	317,241	1,066,178	1,459,578	—	129,631,820
Depreciation of rights of use	313,008	4,715,238	460,957	992,148	644,836	103,044	—	7,229,231
Net periodic cost of employee benefits	35,356,366	51,845,677	8,927,651	(1,156)	32,646,614	33,388	—	128,808,540
Interest income [1]	61,001	469,019	38,972	80,245	12,483,256	307,731	—	13,440,224
Interest cost [2]	3,343,074	5,340,096	364,871	195,249	132,594,376	1,280,290	—	143,117,956

(1) Included in financing income.
(2) Included in financing cost.

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(Figures stated in thousands, except as noted)

Supplemental geographic information

	For the years ended December 31,		
	2022	**2021**	**2020**
Domestic sales:			
Domestic sales	Ps. 1,192,714,214	Ps. 762,114,551	Ps. 503,712,031
Incentive for automotive fuels (see Notes 3-S and 7-E)	111,863,956	—	—
Total domestic sales	1,304,578,170	762,114,551	503,712,031
Export sales:			
United States	847,736,491	503,358,963	304,344,028
Canada, Central and South America	3,946,692	2,888,992	2,105,703
Europe	77,239,046	69,011,487	45,254,008
Other countries	144,502,560	153,281,386	93,530,590
Total export sales	1,073,424,789	728,540,828	445,234,329
Services income [1]	5,385,350	4,973,241	4,715,484
Total revenues	**Ps. 2,383,388,309**	**Ps. 1,495,628,620**	**Ps. 953,661,844**

[1] Services income as of December 31, 2022, 2021 and 2020 represent approximately 85%, 99% and 97%, from domestic sales, respectively.

As of December 31, 2022, PEMEX has Ps. 29,840,282 of significant long-lived assets outside of Mexico, related to the DPRLP segment (see Note 12-B).

Revenue by product

	For the years ended December 31,		
	2022	**2021**	**2020**
Domestic sales:			
Refined petroleum products and derivatives (primarily gasolines)	Ps. 1,155,023,948	Ps.622,091,842	Ps. 409,240,569
Gas	123,754,373	113,103,547	79,176,837
Petrochemical products	25,799,849	26,919,162	15,294,625
Total domestic sales	Ps. 1,304,578,170	Ps.762,114,551	Ps. 503,712,031
Export sales:			
Crude oil	Ps. 583,740,941	Ps.468,219,964	Ps. 301,199,114
Refined petroleum products and derivatives (primarily gasolines)	445,703,884	172,389,717	107,391,773
Gas	17,429,517	76,144,006	32,192,334
Petrochemical products	26,550,447	11,787,141	4,451,108
Total export sales	**Ps. 1,073,424,789**	**Ps.728,540,828**	**Ps. 445,234,329**

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(Figures stated in thousands, except as noted)

NOTE 7. REVENUE

As of December 31, 2022, 2021 and 2020, the revenues were as follows:

A. Revenue disaggregation

For the year ended December 31,	Exploration and Production	Industrial Transformation [1]	Logistics	DPRLP [2]	Trading Companies	Corporate	Other Operating Subsidiary Companies	Total
Geographical market								
2022								
United States	Ps. 370,279,490	—	—	238,940,945	237,373,418	—	1,573,151	848,167,004
Other	137,931,414	—	—	—	6,861,495	—	3,656,343	148,449,252
Europe	72,285,406	—	—	—	4,953,641	—	—	77,239,047
Local	312,637	1,096,148,409	1,582,712	—	87,349,368	867	12,275,057	1,197,669,050
Incentive for automotive fuels [3]	—	111,863,956	—	—	—	—	—	111,863,956
Total	**Ps. 580,808,947**	**1,208,012,365**	**1,582,712**	**238,940,945**	**336,537,922**	**867**	**17,504,551**	**2,383,388,309**
2021								
United States	Ps. 258,726,545	—	—	—	240,012,752	—	4,619,666	503,358,963
Other	141,904,248	—	—	—	13,141,852	—	1,124,425	156,170,525
Europe	67,589,171	—	—	—	1,422,317	—	—	69,011,488
Local	374,882	705,135,235	2,949,047	—	51,273,979	1,700	7,352,801	767,087,644
Total	**Ps. 468,594,846**	**705,135,235**	**2,949,047**	**—**	**305,850,900**	**1,700**	**13,096,892**	**1,495,628,620**
2020								
United States	Ps. 171,640,991	—	—	—	131,653,920	—	1,049,117	304,344,028
Other	85,271,096	—	—	—	8,259,494	—	2,124,601	95,655,191
Europe	44,287,027	—	—	—	966,982	—	—	45,254,009
Local	327,652	479,436,635	4,099,000	—	19,135,480	2,582	5,407,267	508,408,616
Total	**Ps. 301,526,766**	**479,436,635**	**4,099,000**	**—**	**160,015,876**	**2,582**	**8,580,985**	**953,661,844**
Major products and services								
2022								
Crude oil	Ps. 580,496,310	—	—	—	3,244,632	—	—	583,740,942
Gas	226,289	122,981,393	—	12,419,661	104,994,293	—	—	240,621,636
Refined petroleum products	—	959,816,508	—	210,402,816	225,508,913	—	—	1,395,728,237
Incentive for automotive fuels [3]	—	111,863,956	—	—	—	—	—	111,863,956
Other	—	12,254,413	—	15,687,956	617,009	—	17,488,810	46,048,188
Services	86,348	1,096,095	1,582,712	430,512	2,173,075	867	15,741	5,385,350
Total	**Ps. 580,808,947**	**1,208,012,365**	**1,582,712**	**238,940,945**	**336,537,922**	**867**	**17,504,551**	**2,383,388,309**
2021								
Crude oil	Ps. 468,219,964	—	—	—	—	—	—	468,219,964
Gas	197,275	112,906,272	—	—	76,144,006	—	—	189,247,553
Refined petroleum products	—	572,490,831	—	—	221,990,729	—	—	794,481,560
Other	—	19,227,133	—	—	6,401,982	—	13,077,187	38,706,302
Services	177,607	510,999	2,949,047	—	1,314,183	1,700	19,705	4,973,241
Total	**Ps. 468,594,846**	**705,135,235**	**2,949,047**	**—**	**305,850,900**	**1,700**	**13,096,892**	**1,495,628,620**
2020								
Crude oil	Ps. 301,199,114	—	—	—	—	—	—	301,199,114
Gas	194,337	60,076,159	—	—	51,098,675	—	—	111,369,171
Refined petroleum products	—	409,240,569	—	—	107,391,773	—	—	516,632,342
Other	—	9,928,240	—	—	1,296,288	—	8,521,205	19,745,733
Services	133,315	191,667	4,099,000	—	229,140	2,582	59,780	4,715,484
Total	**Ps. 301,526,766**	**479,436,635**	**4,099,000**	**—**	**160,015,876**	**2,582**	**8,580,985**	**953,661,844**
Timing of revenue recognition								
2022								
Products transferred at a point in time	Ps. 580,722,599	1,150,738,488	1,582,712	238,510,433	334,364,846	—	17,488,810	2,323,407,888
Products and services transferred over the time	86,348	57,273,877	—	430,512	2,173,076	867	15,741	59,980,421
Total	**Ps. 580,808,947**	**1,208,012,365**	**1,582,712**	**238,940,945**	**336,537,922**	**867**	**17,504,551**	**2,383,388,309**
2021								
Products transferred at a point in time	Ps. 468,417,239	651,854,339	2,949,047	—	304,536,717	—	13,077,187	1,440,834,529
Products and services transferred over the time	177,607	53,280,896	—	—	1,314,183	1,700	19,705	54,794,091
Total	**Ps. 468,594,846**	**705,135,235**	**2,949,047**	**—**	**305,850,900**	**1,700**	**13,096,892**	**1,495,628,620**
2020								
Products transferred at a point in time	Ps. 301,526,766	479,244,968	4,099,000	—	159,786,736	—	8,521,205	953,178,675
Products and services transferred over the time	—	191,667	—	—	229,140	2,582	59,780	483,169
Total	**Ps. 301,526,766**	**479,436,635**	**4,099,000**	**—**	**160,015,876**	**2,582**	**8,580,985**	**953,661,844**

(1) On January 1, 2021, Pemex Fertilizers was merged into Pemex Industrial Transformation. For comparison purposes all operations for periods prior to the merger are presented in the Pemex Industrial Transformation segment.

(2) Beginning January 20, 2022 DPRLP information is now included as a separate business segment.

(3) For more information on the incentive for automotive fuels, see Note 3-S and Note 7-E below.

Nature, performance obligations and timing of revenue recognition-

Revenue is measured based on the consideration specified in a contract with a customer. PEMEX recognizes revenue when it transfers control over a good or service to a customer.

The following table provides information about the nature and timing of the satisfaction of performance obligations in contracts with customers, including significant payment terms and the related revenue.

Products / services	Nature, performance obligations	Timing of revenue recognition
Crude oil sales	Export sales of crude oil are based on delivery terms established in contracts or orders. All sales are performed by the Free on Board International commercial term ("FOB" Incoterm). Crude oil sale contracts consider possible customers' claims due to product quality, volume or delays in boarding, which are estimated in the price of the transaction. For orders that have variations in price, revenue is adjusted on the closing date of each period. The subsequent variations in the fair value at the different reporting dates are recognized according to IFRS 9. The price of the product is determined based on a market components formula and the sale of crude oil.	Revenue is recognized at a point in time when control of the crude oil has transferred to the customer, which occurs when the product is delivered at the point of shipping. Invoices are generated at that time and are mostly payable within the deadlines established in contracts or orders. Payments in respect of crude oil sold and delivered shall be made within 30 days after the date of the bill of lading therefor. For international market crude oil sales, revenue is recognized with a provisional price, which undergoes subsequent adjustments until the product has arrived at the port of destination. There may be a period of up to two months in determining the final sale price, such as in the case of sales to some regions. Revenue is measured initially estimating variables such as quality and volume claims, delays in boarding, etc.
Sale of petroleum products	For all petroleum products, there is only one performance obligation that includes transport and handling services to the point of delivery. The price is determined based on the price at the point of delivery, adding the price of the services rendered (freight, handling of jet fuel, etc.) with the provisions and terms established by the *Comisión Reguladora de Energía* (Energy Regulatory Commission or "CRE").	Revenue is recognized at a point in time when control is transferred to the customer, which occurs either at the point of shipping or when it is delivered at the customer's facilities. Therefore, transportation fees can be included in the price of sale of the product and are considered part of a single performance obligation since transportation is rendered before control is transferred. Revenue is initially measured by estimating variables such as quality and volume claims, etc. Invoices are usually payable within 30 days.

Sales of natural gas	There is only one performance obligation that includes transport and handling services to the point of delivery. The transaction price is established at the time of sale, including the estimation of variable considerations such as capacity, penalties, adjustments for quality or volume claims, and incentives for the purchase of products; which are known days after the transaction. Such variable consideration is recognized to the extent that it is probable that it will not be reversed in a future period.	Revenue is recognized at a point in time when control is transferred to the customer, which occurs when it is delivered at the customer's facilities. Therefore, transportation fees can be included in the price of sale of the product and are considered part of a single performance obligation since transportation is rendered before control is transferred. Revenue initially is measured estimating variables as quality and volume claims, etc. Invoices are usually payable within 30 days.
Services	In cases where within the same service order there are transportation and storage services, there could exist more than one performance obligation, depending on the term of the service. When there is a performance obligation, the price is not distributed, but if it is considered that there is more than one performance obligation, the price of the transaction is considered based on the prices established in the service orders and which also include penalties such as quality and volume claims.	Income is recognized over time as the service is rendered. Invoices are usually payable within 22 days.
Other products	There is only one performance obligation that includes transportation for delivery to destination. The sale and delivery of the product are made at the same time and because they are FOB, transportation fees are included in the price of sale of the product. The transaction price is established at the time of sale, including the estimation of variable considerations such as capacity, penalties, extraordinary sales not included in contracts, adjustments for quality or volume claims, and incentives for the purchase of products; which are known days after the transaction.	The price of the product is estimated on the date of sale and considers variables such as quality and volume claims, etc. Invoices are usually payable within 30 days.

B. Accounts receivable in the statement of financial position

As of December 31, 2022 and 2021, PEMEX had accounts receivable derived from customer contracts in the amounts of Ps. 107,117,145 and Ps. 101,259,081, respectively (see Note 10). As of December 31, 2022 and 2021, advance of

customers was Ps. 39,465,014 and Ps. 7,495,198, respectively of which Ps. 4,530,614 and Ps. 7,623,880, respectively, were recognized as revenue.

C. Practical expedients

i. Significant financial component, less than one year

PEMEX does not need to adjust the amount committed in consideration for goods and services to account for the effects of a significant financing component, since the transfer and the time of payment of a good or service committed to the customer is less than one year.

ii. Practical expedient

PEMEX applied the practical expedient, so disclosure about remaining performance obligations that conclude in less than one year is not needed.

When PEMEX is entitled to consideration for an amount that directly corresponds to the value of the performance that PEMEX has completed, it may recognize an income from ordinary activities for the amount to which it has the right to invoice.

D. Notable External Events

i. COVID-19 pandemic impacts

In 2020, the effects of the COVID-19 pandemic led to a worldwide economic slowdown, and a resulting decrease in global demand for crude oil and derivatives. In addition, on March 6, 2020, the Organization of the Petroleum Exporting Countries (“OPEC”), led by Saudi Arabia, Russia and other groups of petroleum producers, did not come to an agreement to reduce crude oil production in order to support crude oil prices, which resulted in a significant drop in global crude oil prices. On April 20, 2020, the Mexican crude oil export price reached an unprecedented low of negative U.S.$ 2.37 per barrel. This drastic drop in price was due to low oil demand as a result of COVID-19 and the lack of oil storage. Principally as a result of these factors, PEMEX's total sales decreased by 32% during 2020 as compared to 2019.

During 2021, 2022 and as of the date of these Consolidated Financial Statements, all of PEMEX’s operations have continued without interruptions related to COVID-19.

During 2021 and 2022, international crude oil and natural gas prices have remained volatile but largely recovered, primarily due to geopolitical events unrelated to COVID-19, reducing possible adverse effects on PEMEX’s results of operation and financial situation.

The extent to which COVID-19 or other health pandemics or epidemics may continue to impact Mexico, the Mexican economy and the global economy and, in turn, PEMEX's business, results of operations and financial condition is highly uncertain and will depend on numerous evolving factors that cannot be predicted.

ii. Russian activities in Ukraine and the related destabilization of the world energy markets

As a result of the ongoing military conflict involving Russia and Ukraine, the prices of oil and natural gas remain extremely volatile. PEMEX’s revenues and profitability are heavily dependent on the prices it receives from sales of oil and natural gas. Oil prices are particularly sensitive to actual and perceived threats to global political stability and to changes in production from OPEC and OPEC+ member states and other oil-producing nations. Destabilization of global oil and gas prices could reduce PEMEX’s sales and adversely affect PEMEX’s results and profitability. Increases in oil and

gas prices may not persist and could be followed by price decreases based on factors beyond our control, including geopolitical event.

During 2022, the price of the Mexican crude oil export mix increased by U.S.$22.56 or 34.3%, from U.S.$65.85 per barrel in 2021 to U.S.$88.41 per barrel in 2022, which was reflected in the increase in the value of PEMEX's revenues.

Total revenues increased by 59.4% or Ps. 887,759,689 in 2022, from Ps. 1,495,628,620 in 2021 to Ps. 2,383,388,309 in 2022, mainly due to increases in the sales prices of gasoline, diesel, fuel oil, jet fuel, natural gas and natural gas liquids.

E. The Automotive Incentive

On March 4, 2022, the Mexican Government published a decree in the Official Gazette of the Federation establishing a tax incentive pursuant to which PEMEX can recover the difference between the international reference price of gasoline and the price at which the gasoline is traded in the domestic market, effective until December 31, 2024. For the twelve-month period ended December 31, 2022, this complementary incentive amounted Ps. 111,863,956, which is included as a separate line item in total sales in the Statement of Comprehensive Income (see Note 3-S).

NOTE 8. FINANCIAL INSTRUMENTS

A. Accounting classifications and fair values of financial instruments-

The following tables present information about PEMEX's carrying amounts and fair values of financial assets and financial liabilities, including their levels in the fair value hierarchy, as of December 31, 2022, and 2021. It does not include fair value information for financial assets and financial liabilities not measured at fair value if the carrying amount is a reasonable approximation of fair value.

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Additionally, as of December 31, 2022, and 2021, the disclosure of the fair value for the lease obligations is not required.

	Carrying amount						Fair value hierarchy			
As of December 31, 2022	FVTPL	FVOCI – debt instruments	FVOCI – equity instruments	Financial assets at amortized cost	Other financial liabilities	Total carrying amount	Level 1	Level 2	Level 3	Total
Financial assets measured at fair value										
Derivative financial instruments	12,755,568	—	—	—	—	12,755,568	—	12,755,568	—	12,755,568
Equity instruments [1]	—	—	370,317	—	—	370,317	—	370,317	—	370,317
Total	12,755,568	—	370,317	—	—	13,125,885				
Financial assets not measured at fair value										
Cash and cash equivalents	—	—	—	64,414,511	—	64,414,511	—	—	—	—
Customers	—	—	—	107,117,145	—	107,117,145	—	—	—	—
Officials and employees	—	—	—	4,965,645	—	4,965,645	—	—	—	—
Sundry debtors	—	—	—	40,074,758	—	40,074,758	—	—	—	—
Investments in joint ventures and associates	—	—	—	2,043,966	—	2,043,966	—	—	—	—
Notes receivable	—	—	—	1,334,126	—	1,334,126	—	—	—	—
Mexican Government Bonds	—	—	—	110,179,517	—	110,179,517	108,062,414	—	—	108,062,414
Other assets	—	—	—	4,602,021	—	4,602,021	—	—	—	—
Total	—	—	—	334,731,689	—	334,731,689				
Financial liabilities measured at fair value										
Derivative financial instruments	(22,242,056)	—	—	—	—	(22,242,056)	—	(22,242,056)	—	(22,242,056)
Total	(22,242,056)	—	—	—	—	(22,242,056)				
Financial liabilities not measured at fair value										
Suppliers	—	—	—	—	(282,245,250)	(282,245,250)	—	—	—	—
Accounts and accrued expenses payable	—	—	—	—	(81,808,426)	(81,808,426)	—	—	—	—
Leases	—	—	—	—	(51,131,575)	(51,131,575)	—	—	—	—
Debt	—	—	—	—	(2,091,463,996)	(2,091,463,996)	—	(1,853,421,785)	—	(1,853,421,785)
Total	—	—	—	—	(2,506,649,247)	(2,506,649,247)				

(1) Refers to the participation in TAG Pipelines Sur, S. de R.L. de C.V.

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	Carrying amount						Fair value hierarchy			
As of December 31, 2021	FVTPL	FVOCI – debt instruments	FVOCI – equity instruments	Financial assets at amortized cost	Other financial liabilities	Total carrying amount	Level 1	Level 2	Level 3	Total
Financial assets measured at fair value										
Derivative financial instruments	12,473,967	—	—	—	—	12,473,967	—	12,473,967	—	12,473,967
Equity instruments [1]	—	—	448,949	—	—	448,949	—	448,949	—	448,949
Total	12,473,967	—	448,949	—	—	12,922,916				
Financial assets not measured at fair value										
Cash and cash equivalents	—	—	—	76,506,447	—	76,506,447	—	—	—	—
Customers	—	—	—	101,259,081	—	101,259,081	—	—	—	—
Officials and employees	—	—	—	3,752,693	—	3,752,693	—	—	—	—
Sundry debtors	—	—	—	37,034,460	—	37,034,460	—	—	—	—
Investments in joint ventures and associates	—	—	—	2,254,952	—	2,254,952	—	—	—	—
Notes receivable	—	—	—	1,646,290	—	1,646,290	—	—	—	—
Mexican Government Bonds	—	—	—	110,855,356	—	110,855,356	109,124,514	—	—	109,124,514
Other assets	—	—	—	4,537,481	—	4,537,481	—	—	—	—
Total	—	—	—	337,846,759	—	337,846,759				
Financial liabilities measured at fair value										
Derivative financial instruments	(13,636,086)	—	—	—	—	(13,636,086)	—	(13,636,086)	—	(13,636,086)
Total	(13,636,086)	—	—	—	—	(13,636,086)				
Financial liabilities not measured at fair value										
Suppliers	—	—	—	—	(264,056,358)	(264,056,358)	—	—	—	—
Accounts and accrued expenses payable	—	—	—	—	(32,015,808)	(32,015,808)	—	—	—	—
Leases	—	—	—	—	(59,351,648)	(59,351,648)	—	—	—	—
Debt	—	—	—	—	(2,249,695,894)	(2,249,695,894)	—	(2,211,701,630)	—	(2,211,701,630)
Total	—	—	—	—	(2,605,119,708)	(2,605,119,708)				

(1) Refers to the participation in TAG Pipelines Sur, S. de R.L. de C.V.

As of December 31, 2022 and 2021, PEMEX has monetary assets and liabilities denominated in foreign currency as indicated below:

	As of December 31, 2022				
	Foreign currency				
	Assets	Liabilities	Net position Asset/(Liability)	Exchange rate	Equivalent to Mexican peso
U.S. dollar	10,362,175	111,567,112	(101,204,937)	19.4143	Ps. (1,964,823,008)
Euro	2,464	10,143,850	(10,141,386)	20.7083	(210,010,864)
Pounds sterling	4,467	450,285	(445,818)	23.3496	(10,409,672)
Japanese yen	—	110,180,315	(110,180,315)	0.1470	(16,196,506)
Swiss francs	—	365,554	(365,554)	20.9791	(7,668,994)
Total					**Ps. (2,209,109,044)**

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	As of December 31, 2021				
	Foreign currency				
	Assets	Liabilities	Net position Asset/(Liability)	Exchange rate	Equivalent to Mexican peso
U.S. dollar	14,268,352	97,614,622	(83,346,270)	20.5835	Ps. (1,715,557,949)
Euro	741,098	11,735,899	(10,994,801)	23.4086	(257,372,899)
Pounds sterling	2,085	469,032	(466,947)	27.8834	(13,020,070)
Japanese yen	—	110,178,061	(110,178,061)	0.1789	(19,710,855)
Swiss francs	—	365,348	(365,348)	22.5924	(8,254,088)
Total					**Ps. (2,013,915,861)**

Debt is valued and registered at amortized cost and the fair value of debt is estimated using quotes from major market sources which are then adjusted internally using standard market pricing models. As a result of relevant assumptions, the estimated fair value does not necessarily represent the actual terms at which existing transactions could be liquidated or unwound.

The information related to “Cash and cash equivalents”, “Customers and other accounts receivable”, “Investments in joint ventures and associates”, “Promissory notes issue, government bonds, long-term notes receivable and other assets”, “Debt”, “Leases” and “Derivative financial instruments” is described in the following notes, respectively:

- Note 9, Cash and cash equivalents.
- Note 10, Customers and other financing and non-financing accounts receivable.
- Note 12, Investments in joint ventures and associates.
- Note 15, Promissory notes issue, government bonds, long-term notes receivable, government bonds and other assets.
- Note 16, Debt.
- Note 17, Leases.
- Note 18, Derivative financial instruments.

B. Fair value hierarchy

PEMEX values the fair value of its financial instruments under standard methodologies commonly applied in the financial markets. PEMEX’s related assumptions and inputs therefore fall under the three Levels of the fair value hierarchy for market participant assumptions, as described below.

The fair values determined by Level 1 inputs utilize quoted prices in active markets for identical assets or liabilities. Fair values determined by Level 2 inputs are based on quoted prices for similar assets or liabilities in active markets, and inputs other than quoted prices that are observed for assets or liabilities. Level 3 inputs are unobservable inputs for the assets or liabilities, and include situations where there is little, if any, market activity for the assets or liabilities.

Management uses appropriate valuation techniques based on the available inputs to measure the fair values of PEMEX’s applicable financial assets and financial liabilities.

When available, PEMEX measures fair value using Level 1 inputs, because they generally provide the most reliable evidence of fair value.

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NOTE 9. CASH AND CASH EQUIVALENTS

As of December 31, 2022 and 2021, cash and cash equivalents were as follows:

	2022	2021
Cash on hand and in banks [1][2]	Ps. 41,316,304	Ps. 41,520,864
Highly liquid investments [3]	Ps. 23,098,207	Ps. 34,985,583
Total of cash and cash equivalents	**Ps. 64,414,511**	**Ps. 76,506,447**

(1) Cash on hand and in banks is primarily composed of cash in banks.
(2) As of December 31, 2021, includes Ps. 15,461,286 in cash allocated to the retirement plan of benefits to employees. These resources are obtained from the collection of Government Bonds that will be transferred exclusively to the Fideicomiso Fondo Laboral Pemex ("Pemex Labor Fund" or "FOLAPE") for the payment of obligations related to pensions and retirement plans.
(3) Mainly composed of short-term Mexican Government investments.

NOTE 10. CUSTOMERS AND OTHER FINANCING AND NON-FINANCING ACCOUNTS RECEIVABLE

As of December 31, 2022 and 2021, accounts receivable and other receivables were as follows:

A. Customers

	2022	2021
Domestic customers, net	Ps. 69,979,713	Ps. 54,031,475
Export customers, net	37,137,432	47,227,606
Total customers, net	**Ps.107,117,145**	**Ps.101,259,081**

Customers and other accounts receivable are presented separately in the statement of financial position to conform the financial position more clearly.

The following table shows a breakdown of accounts receivable based on their credit history at December 31, 2022 and 2021, as well as the relation between the breakdown and the impaired amount:

	Domestic customers	
	2022	2021
Current	Ps. 68,957,994	Ps. 53,653,649
1 to 30 days	1,386,538	876,782
31 to 60 days	876,493	384,335
61 to 90 days	527,907	46,924
More than 90 days	3,868,537	2,528,848
Total	75,617,469	57,490,538
Impaired (reserved)	(5,637,756)	(3,459,063)
Total	**Ps. 69,979,713**	**Ps. 54,031,475**

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	Export customers	
	2022	2021
Current	Ps. 34,697,823	Ps. 41,549,673
1 to 30 days	1,186,553	4,980,175
31 to 60 days	15,010	12,227
61 to 90 days	6,117	47,016
More than 90 days	1,422,708	921,432
Total	37,328,211	47,510,523
Impaired (reserved)	(190,779)	(282,917)
Total	**Ps. 37,137,432**	**Ps. 47,227,606**

As of December 31, 2022 and 2021, PEMEX has exposure to credit risk related to accounts receivable, see contractual payment terms in Note 7.

Additionally, the reconciliation for impaired accounts receivable is as follows:

	Domestic customers		
	2022	2021	2020
Balance at the beginning of the year	Ps. (3,459,063)	Ps. (1,182,729)	Ps. (1,100,186)
Impairment of accounts receivable	(2,178,693)	(2,276,334)	(82,543)
Balance at the end of the year	**Ps. (5,637,756)**	**Ps. (3,459,063)**	**Ps. (1,182,729)**

	Export customers		
	2022	2021	2020
Balance at the beginning of the year	Ps. (282,917)	Ps. (211,363)	Ps. (182,823)
(Increase) cancellation	143,689	(72,761)	(20,353)
Translation effects	(51,551)	1,207	(8,187)
Balance at the end of the year	**Ps. (190,779)**	**Ps. (282,917)**	**Ps. (211,363)**

Methodology to determine the estimation of the impairment of the accounts receivable

PEMEX allocates each exposure to a credit risk grade based on data that is determined to be predictive of the risk of loss (including but not limited to, audited financial statements, management accounts and cash flow projections and available information about customers) and applying experienced credit judgment. Credit risk grades are defined using qualitative and quantitative factors that are indicative of the risk of default. Exposures within each credit risk grade are segmented by each Subsidiary Entity and its commercial business lines, so the expected credit loss rate is calculated for each segment based on actual credit loss experienced over the past two years. These rates are multiplied by scale factors to reflect differences between the economic conditions during the period over which historical data has been collected, current conditions and PEMEX's view of economic conditions over the expected lives of the receivables.

As of December 31, 2022, the expected percentage of credit loss for accounts receivable for each Subsidiary Entity and Subsidiary Company was: 7.36% for Pemex Industrial Transformation, 3.87% for Pemex Corporate, 0.88% for Pemex Logistics, 0.16% for PMI CIM and 0.13% for PMI TRD. As of December 31, 2021, the expected percentage of credit loss for accounts receivable for each Subsidiary Entity and Subsidiary Company was: 5.09% for Pemex Industrial Transformation, 2.99% for Pemex Corporate, 0.58% for Pemex Logistics, 0.01% for PMI CIM and 0.80% for PMI TRD.

The amount of (impairment) of domestic and export customers recognized in the statement of comprehensive income for 2022, 2021 and 2020 was Ps. (2,035,004), Ps. (2,349,095) and Ps. (102,896), respectively.

B. Other financial and non-financial accounts receivable

	2022	2021
Financial assets:		
Sundry debtors [1]	Ps. 40,074,758	Ps. 37,034,460
Employees and officers	4,965,645	3,752,693
Total financial assets	**Ps. 45,040,403**	**Ps. 40,787,153**
Non-financial assets:		
Taxes to be recovered and prepaid taxes	Ps. 44,597,094	Ps. 80,581,955
Special Tax on Production and Services	75,213,134	53,176,800
Other accounts receivable	2,911,791	2,591,360
Total non-financial assets:	**Ps. 122,722,019**	**Ps.136,350,115**

[1] Includes Ps. (251,086) and Ps. (210,672) of impairment, as of December 31, 2022 and 2021, respectively.

NOTE 11. INVENTORIES

As of December 31, 2022 and 2021, inventories were as follows:

	2022	2021
Refined and petrochemicals products	Ps. 60,838,241	Ps. 40,359,715
Products in transit	25,345,696	21,614,227
Crude oil	32,971,427	18,540,376
Materials and products in stock	6,171,040	5,036,587
Materials in transit	393,964	313,899
Gas and condensate products	298,029	248,338
	Ps.126,018,397	**Ps. 86,113,142**

Ps. 1,115,363,647, Ps. 500,000,961 and Ps. 315,288,507 of PEMEX's inventories were recognized as cost of sales as of December 31, 2022, 2021 and 2020, respectively.

NOTE 12. INVESTMENTS IN JOINT VENTURES AND ASSOCIATES

A. The investments in joint ventures and associates as of December 31, 2022 and 2021 were as follows:

	Percentage of investment	December 31, 2022	December 31, 2021
Deer Park Refining Limited [1]	49.995%	Ps. —	Ps. 6,703,324
Sierrita Gas Pipeline LLC	35.00%	1,051,626	1,187,170
Frontera Brownsville, LLC.	50.00%	410,097	456,503
Texas Frontera, LLC.	50.00%	185,967	195,814
CH 4 Energía, S. A. de C.V.	50.00%	170,188	174,321
Administración Portuaria Integral de Dos Bocas, S. A. de C.V.	40.00%	91,537	110,344
Other, net	Various	134,551	130,800
Total		2,043,966	8,958,276
(Impairment) in joint venture DPRLP [2]		—	(6,703,324)
Total		**Ps. 2,043,966**	**Ps. 2,254,952**

(1) As of December 31, 2021, PEMEX owned 49.995% interest in DPRLP, accordingly DPRLP was recognized through the equity method in the financial statements of PEMEX. As of December 31, 2022, PEMEX owns 100.00% interest in DPRLP and has control of the company. Accordingly, DPRLP is consolidated in the financial statements of PEMEX (see Note 12-B *Acquisition of the joint venture*).

(2) As of December 31, 2021, the investment in Deer Park was totally impaired (see Note 12-B).

Profit (loss) sharing in joint ventures and associates:

	December 31, 2022	2021	2020
Deer Park Refining Limited [1][2]	Ps. —	Ps. (3,374,314)	Ps. (4,056,037)
Administración Portuaria Integral de Dos Bocas, S.A. de C.V.	(18,807)	(97,809)	42,782
Sierrita Gas Pipeline LLC	188,329	200,260	182,805
Frontera Brownsville, LLC.	18,632	34,670	55,738
CH4 Energía S.A. de C.V.	39,367	32,983	21,224
Texas Frontera, LLC.	19,321	20,892	34,486
Other, net	102,559	95,211	178,469
Profit (loss) sharing in joint ventures and associates, net	**Ps. 349,401**	**Ps. (3,088,107)**	**Ps. (3,540,533)**

(1) As of December 31, 2021, PEMEX recognized an impairment in Deer Park of Ps. (6,703,324) (see Note 12-B).

(2) DPRLP's activity before business combination was recognized as a commission fee between the joint venture parties and now, the core business activity is the sale of refined products to third parties.

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The following tables show condensed financial information of major investments recognized under the equity method as of December 31, 2022 and 2021 and for the years ended December 31, 2022, 2021 and 2020:

i. Joint venture

Condensed statements of financial position

Deer Park Refining Limited	
	December 31, 2021 [1]
Cash and cash equivalents	Ps. 16,961
Other current assets	2,747,712
Current assets	2,764,673
Non-current assets	43,991,962
Total assets	**46,756,635**
Current financial liabilities	20,056,315
Other current liabilities	1,040,825
Current liabilities	21,097,140
Non-current financial liabilities	11,000,707
Other liabilities	1,250,799
Non-current liabilities	12,251,506
Total liabilities	33,348,646
Total equity	13,407,989
Total liabilities and equity	**Ps. 46,756,635**

[1] Joint venture until January 2022 (see Note 12-B).

Condensed statements of comprehensive income

Deer Park Refining Limited		
	December 31,	
	2021[1]	**2020[2]**
Sales and other income	Ps. 10,706,417	Ps. 8,114,474
Costs and expenses	12,539,324	10,770,248
Depreciation and amortization	4,223,056	4,776,575
Interest paid	684,673	674,504
Income tax	8,660	6,028
Net result	**Ps. (6,749,296)**	**Ps. (8,112,881)**

[1] The net loss was due unexpected repairs in the main distillation and coking unit of the refinery and heavy snowfalls in the Texas area, which caused a decrease in the processing of crude oil in refined products.

[2] The net loss in 2020, was the result of the economic slowdown and the decline in consumption of refined products caused by COVID-19.

ii. Associates

Condensed statements of financial position

Sierrita Gas Pipeline, LLC	December 31, 2022	December 31, 2021
Current assets	Ps. 144,229	Ps. 134,266
Non-current assets	2,992,861	3,354,987
Total assets	**3,137,090**	**3,489,253**
Current liabilities	132,444	97,339
Total liabilities	132,444	97,339
Total equity	3,004,646	3,391,914
Total liabilities and equity	**Ps. 3,137,090**	**Ps. 3,489,253**

Condensed statements of comprehensive income

Sierrita Gas Pipeline, LLC	December 31, 2022	December 31, 2021	December 31, 2020
Sales and other income	Ps. 949,075	Ps. 957,549	Ps. 942,024
Costs and expenses	410,993	385,376	419,729
Net result	**Ps. 538,082**	**Ps. 572,173**	**Ps. 522,295**

B. Additional information about the significant investments in joint ventures and associates is presented below:

Joint venture

- *Deer Park*. On March 31, 1993, PMI NASA acquired 49.995% of the Deer Park Refinery. In its capacity as general partner of DPRLP, Shell was responsible for the operation and management of the Deer Park Refinery (installed capacity of approximately 340,000 barrels per day of crude oil).

  Management decisions were made jointly with respect to investment in or disposal of assets, distribution of dividends, indebtedness and equity operations. In accordance with the investment contract and the operation of the agreement, the participants had the rights to the net assets in the proportion of their participation. This joint venture was recorded under the equity method.

  The investment in Deer Park as of December 31, 2021 was Ps. 6,703,324, which represented PMI NASA's 49.995% interest in Deer Park (see subsection A.).

  COVID-19 negatively impacted the energy industry due to mobility restrictions and stoppages in several industries. For the Deer Park Refinery these impacts were observed in the reduction in refining margins due to lower demand in fuels. Therefore, at the beginning of 2021, Deer Park's partners decided to support the refinery financially, given problems with liquidity toward the end of 2020.

The support from Deer Park's partners allowed us to continue the operation of the refinery. During 2021, there were three material impacts on the results:

a. Low refining margins due to lower international demand as a result of the COVID-19 pandemic.

b. Winter Storm Suspension. In February 2021, industries within the Texas area were affected by heavy snowfall. For the Deer Park Refinery, this scenario resulted in a total emergency stoppage and the activities resumed by the last week of March 2021. However, repair activities were required and were completed in November 2021.

c. As established under the Renewable Fuel Standard Program of the Environmental Protection Agency of the United States of America, we are required to blend renewable products for transportation fuels, which led to an increase in renewable blending cost obligations from a higher price of "*Renewal Identification Numbers"*.

Acquisition of the joint venture

See accounting policy in Note 3-A(i) (Business combinations) and (v) (Interests in equity-accounted investees) of PEMEX's annual consolidated financial statements as of and for the year ended December 31, 2022.

As a result of the above mentioned, indications of impairment were identified, and at the end of 2021, impairment tests were carried out on the amount of the investment recognized in Deer Park, and the result was the recognition of a total impairment in the book value of the investment as of December 31, 2021 of Ps. 6,703,324, which is presented as a separate line item in the statement of comprehensive income.

In this observable transaction the value of the debt was agreed up to U.S.$1,192,000 as the fair value of the 100% of the interest in Deer Park, i.e., U.S.$596,000, equivalent to 50.005% of the interest.

On January 20, 2022, PMI SUS acquired the remaining 50.005% of participation and voting interest in Deer Park through a purchase agreement with Shell. Through this operation, PEMEX indirectly acquired control over Deer Park. As a result of the acquisition, this company is now consolidated in PEMEX's financial statements. Beginning January 20, 2022, DPRLP's business model changed from a company that obtained revenues from services for processing crude oil to a company that buys and processes crude oil and sells gasolines and distillates.

Deer Park is a limited partnership under the laws of Delaware, with operations in Deer Park, Texas. The purpose of the acquisition is to strengthen and increase the refining capacity under PEMEX's control. PEMEX has begun shipping products to Mexico from the refinery to strengthen the fuels supply.

Prior to the acquisition, the participation in Deer Park was recognized as a joint venture. As a result, the participation was recognized in PEMEX's consolidated financial statements using the equity method.

On November 3, 2021, the Board of Directors authorized PEMEX's capitalization of HHS and HPE up to the amount received from the *Fondo Nacional de Infraestructura* (National Infrastructure Fund or "FONADIN") as a non-recoverable contribution to enable HHS and HPE, in turn, to capitalize PMI NASA and PMI SUS. These capitalizations were used to meet financial commitments arising out of the acquisition of Shell's interest in Deer Park. During January 2022, the amount received and recorded from the FONADIN totaled Ps. 23,000,000 (U.S.$1,127,285). In addition, PEMEX entered into a borrowing of Ps. 8,974,406 (U.S.$436,000) due in one year.

In recognition of this transaction, PEMEX is applying the purchase method in accordance with International Financial Reporting Standard (IFRS) 3 "Business Combinations", accounting for the transaction as a business combination achieved in stages. The acquiree company included in the identifiable assets at the date of acquisition of DPRLP are inputs (mainly Properties, Plant and Equipment and inventories), production processes and workforce. PEMEX has determined that together the acquired inputs and processes significantly contribute to the ability to generate revenue. PEMEX has concluded that the acquired set is a business.

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Consideration transferred

PEMEX's purchase of control of Deer Park, through the 50.005% interest owned by Shell, included the following:

Cash paid to Shell	Ps.	8,597,743	U.S.$	421,396
Payment of debt to third parties		18,289,066		896,391
Payment of DPRLP's debt to company partners		3,496,054		171,350
Total consideration paid in cash	Ps.	30,382,863	U.S.$	1,489,137
Settlement of pre-existing relationship		6,663,803		326,609
Total consideration paid in cash and settlement of pre-existing relationship	**Ps.**	**37,046,666**	**U.S.$**	**1,815,746**

The settlement of the pre-existing relationship includes the payment of 100% of PMI NASA's Partners Loan (Ps. 1,227,383 or U.S.$60,157 with cash and Ps. 5,436,420 or U.S.$266,452 with equity) which Deer Park used for operative purposes, and which consisted of a principal of Ps. 6,630,975 (U.S.$325,000) and interest of Ps. 32,828 (U.S.$1,609). With this settlement, the account receivable registered on PMI NASA's books was capitalized. As the book value of this item was equal to its fair value and there were no cancellation clauses, no effects were recognized in the profit or loss of the period.

Acquisition-related costs

Acquisition-related costs for the 50.005% interest in Deer Park totaled Ps. 145,937 (U.S.$7,091) recognized in the administrative expenses line item in the profit or loss for the applicable period.

Identifiable assets acquired and liabilities assumed.

The following table summarizes the fair value of the identifiable assets acquired, including the recognized value of the PEMEX interest prior to the purchase.

Cash and cash equivalents	Ps.	1,597,759	U.S.$	78,310
Inventories		6,918,473		339,091
Other current assets		131,661		6,453
Total current Assets	Ps.	8,647,893	U.S.$	423,854
Property, Plant and Equipment		29,669,961		1,454,196
Total identifiable net assets acquired	**Ps.**	**38,317,854**	**U.S.$**	**1,878,050**

PEMEX carried out the valuation of the fair value of the business acquired under the market approach since it has information on an observable transaction between independent parties, is duly informed and is in a free competition market.

At the acquisition date, considering the amount of the value of the net assets and the consideration transferred, a gain at a bargain purchase was determined as follows:

Total consideration transferred	Ps.	37,046,666	U.S.$	1,815,746
Fair value of the identifiable net assets acquired		(38,317,854)		(1,878,050)
Gain on bargain purchase	**Ps.**	**(1,271,188)**	**U.S.$**	**(62,304)**

There was not any gain or loss in the previously held interest because the book value and the fair value of these items was zero at the acquisition date. The technique used for the measuring of the fair value of the previous held interest was the adjusted book value method.

The gain on bargain purchase was recognized in other income line item in the profit or loss of the period.

The gain of U.S.$62,304 (Ps. 1,271,188) was due to closing adjustments consisting of Shell's assumption of DPRLP's accrued expenses and taxes and the pro-rated cash.

From the acquisition date to December 31, 2022, DPRLP contributed Ps. 238,940,945 to PEMEX's total revenues and Ps. 20,905,292, to PEMEX's total income for the period.

As of December 31, 2022, PEMEX recognized Ps. (10,383,296) of currency translation effects from the investment in DPRLP into other income, as a result of derecognizing the equity method.

Associates

- *Sierrita Gas Pipeline LLC.* This company was created on June 24, 2013. Its main activity is the developing of projects related to the transportation infrastructure of gas in the United States. This investment is recorded under the equity method.
- *Frontera Brownsville, LLC*. Effective April 1, 2011, PMI SUS entered into a joint venture with TransMontaigne Operating Company L.P (TransMontaigne) to create Frontera Brownsville, LLC. Frontera Brownsville, LLC was incorporated in Delaware, United States, and has the corporate power to own and operate certain facilities for the storage and treatment of clean petroleum products. This investment is recorded under the equity method.
- *Texas Frontera, LLC*. This company was constituted on July 27, 2010, and its principal activity is the lease of tanks for the storage of refined product. PMI SUS, which owns 50% interest in Texas Frontera, entered into a joint venture with Magellan OLP, L.P. (Magellan), and together they are entitled to the results in proportion of their respective investment. The company has seven tanks with a capacity of 120,000 barrels per tank. This joint venture is recorded under the equity method.
- *CH4 Energía, S.A. de C.V.* This company was constituted on December 21, 2000. CH4 Energía engages in the purchase and sale of natural gas and in activities related to the trading of natural gas, such as transport and distribution in Valle de Toluca, México. This joint venture is recorded under the equity method.
- *Administración Portuaria Integral de Dos Bocas, S.A. de C.V.* This company was constituted on August 12, 1999. Its primary activity is administrating the Dos Bocas port, which is in Mexico's public domain, promoting the port's infrastructure and providing related port services. This investment is recorded under the equity method.

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NOTE 13. WELLS, PIPELINES, PROPERTIES, PLANT AND EQUIPMENT, NET

As of December 31, 2022 and 2021, wells, pipelines, properties, plant and equipment, net, is presented as follows:

	Plants	Drilling equipment	Pipelines	Wells	Buildings	Offshore platforms	Furniture and equipment	Transportation equipment	Construction in progress [1]	Land	Unproductive fixed assets	Total fixed assets
Investment												
Balances as of January 1, 2020	811,705,022	13,492,631	481,791,665	1,387,228,249	60,311,739	354,353,029	48,829,010	16,829,532	161,870,424	44,225,819	—	3,380,637,120
Acquisitions	16,202,848	57,182	4,008,698	31,584,832	287,710	4,630,358	974,167	326,998	122,214,783	57,092	—	180,344,668
Reclassifications	3,218,834	—	(507,065)	64,049	115	(2,931,778)	2,049	130,971	127,142	276,866	524,679	905,862
Impairment presentation [2]	113,522,135	(1,217)	24,292,290	121,070,386	9,817,972	67,305,005	(328,799)	6,303,440	36,777,946	—	—	378,759,158
Capitalization	8,292,881	—	3,923,149	43,076,120	294,044	4,659,693	152,540	5,235,745	(65,840,388)	206,216	—	—
Disposals	(1,455,531)	—	(18,032,858)	(95,061,066)	—	(12,131,094)	(318,412)	(292,249)	(1,714,397)	—	(524,679)	(129,530,286)
Balances as of December 31, 2021	**Ps. 951,486,189**	**13,548,596**	**495,475,879**	**1,487,962,570**	**70,711,580**	**415,885,213**	**49,310,555**	**28,534,437**	**253,435,510**	**44,765,993**	**—**	**3,811,116,522**
Acquisitions [3]	40,285,196	1,541,647	5,773,938	32,895,095	1,011,404	3,070,302	1,625,384	5,174,068	256,362,994	8,494,138		356,234,166
Reclassifications	44,338,725	—	2,137,001	1,972,298	410,847	2,859,195	(2,483,052)	(4,580,377)	4,805,227	—	—	49,459,864
Capitalization	30,301,243	—	13,363,116	71,078,360	2,330,895	3,353,495	3,449,069	1,136,196	(125,429,126)	416,752		—
Disposals	(6,351,833)	(249,248)	(22,967,437)	(7,500,609)	(71,787)	(4,804,995)	(560,452)	(706,237)	(3,646,240)	(402,694)	—	(47,261,532)
Translation effect	(6,222,641)	—	(98,865)	—	(527,227)	—	(531,847)	(260,670)	(11,502,781)	(148,894)	—	(19,292,925)
Balances as of December 31, 2022	**Ps. 1,053,836,879**	**14,840,995**	**493,683,632**	**1,586,407,714**	**73,865,712**	**420,363,210**	**50,809,657**	**29,297,417**	**374,025,584**	**53,125,295**	**—**	**4,150,256,095**
Accumulated depreciation and amortization												
Balances as of January 1, 2021	(520,582,198)	(5,902,442)	(200,976,329)	(1,081,366,803)	(39,893,540)	(204,238,464)	(43,336,870)	(8,210,953)	—	—	—	(2,104,507,599)
Depreciation and amortization	(39,126,110)	(395,756)	(16,731,217)	(56,070,192)	(1,846,486)	(16,627,864)	(2,008,187)	(625,553)	—	—	—	(133,431,365)
Reclassifications	(4,541,518)	15,413	(90,202)	(89,082)	5,701,953	51,568	59,141	103,085	(2,116,220)	—	—	(905,862)
Impairment presentation [2]	(113,522,135)	1,217	(24,292,290)	(121,070,386)	(9,817,972)	(67,305,005)	328,799	(6,303,440)	(36,777,946)	—	—	(378,759,158)
(Impairment)	(43,670,755)	—	(25,193,511)	(62,151,433)	—	(5,503,546)	—	(108,749)	(21,233,314)	—	—	(157,861,308)
Reversal of impairment	38,499,016	—	23,545,676	72,569,176	—	20,727,844	—	—	1,309,001	—	—	156,650,713
Disposals	453,965	—	7,300,538	65,307,692	—	8,820,911	261,910	85,648	—	—	—	82,230,664
Balances as of December 31, 2021	**Ps. (682,489,735)**	**(6,281,568)**	**(236,437,335)**	**(1,182,871,028)**	**(45,856,045)**	**(264,074,556)**	**(44,695,207)**	**(15,059,962)**	**(58,818,479)**	**—**	**—**	**(2,536,583,915)**
Depreciation and amortization	(37,384,421)	(547,660)	(15,409,615)	(65,167,740)	(1,830,509)	(15,680,102)	(2,852,884)	(898,884)	—	—	—	(139,771,815)
Reclassifications	(42,182,309)	—	(2,841,608)	(760,459)	(410,767)	(3,870,692)	734,738	(150,676)	21,909	—	—	(49,459,864)
(Impairment)	(108,615,658)	—	(31,883,718)	(41,479,729)	(23,573)	(33,606,850)	(18,121)	(4,244)	(1,937,358)	—	—	(217,569,251)
Reversal of impairment	73,048,067	—	11,943,309	25,541,788	—	20,099,267	—	—	3,398,799	—	—	134,031,230
Disposals	4,535,971	235,584	10,140,565	4,631,085	67,940	2,940,843	549,592	436,631	—	—	—	23,538,211
Translation effect	3,644,232	—	46,887	—	256,458	—	349,479	13,103	—	—	—	4,310,159
Balances as of December 31, 2022	**Ps. (789,443,853)**	**(6,593,644)**	**(264,441,515)**	**(1,260,106,083)**	**(47,796,496)**	**(294,192,090)**	**(45,932,403)**	**(15,664,032)**	**(57,335,129)**	**—**	**—**	**(2,781,505,245)**
Wells, pipelines, properties, plant and equipment—net as of December 31, 2021	**Ps. 268,996,454**	**7,267,028**	**259,038,544**	**305,091,542**	**24,855,535**	**151,810,657**	**4,615,348**	**13,474,475**	**194,617,031**	**44,765,993**	**—**	**1,274,532,607**
Wells, pipelines, properties, plant and equipment—net as of December 31, 2022	**Ps. 264,393,026**	**8,247,351**	**229,242,117**	**326,301,631**	**26,069,216**	**126,171,120**	**4,877,254**	**13,633,385**	**316,690,455**	**53,125,295**	**—**	**1,368,750,850**
Depreciation rates	3 to 5%	5%	2 to7%	—	3 to 7%	4%	3 to 10%	4 to 20%	—	—	—	—
Estimated useful lives	20 to 35	20	15 to 45	—	33 to 35	25	3 to 10	5 to 25	—	—	—	—

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(1) Mainly wells, pipelines and plants.

(2) To present the accumulated effect of impairment as part of the accumulated depreciation and amortization. This presentation does not affect the net value of wells, pipelines, properties, plant and equipment.

(3) On January 20, 2022, PEMEX acquired assets with a cost of Ps. 29,669,961, consisting mainly of plants. This amount includes assets acquired through a business combination (see Note 12).

A. As of December 31, 2022, 2021 and 2020, the financing cost identified with fixed assets in the construction or installation stage, capitalized as part of the value of such fixed assets, was Ps. 4,580,836, Ps. 3,106,007 and Ps. 3,893,248, respectively. Financing cost rates during 2022, 2021 and 2020 were 5.40% to 7.80%, 6.10% to 7.05% and 5.75% to 7.08%, respectively.

B. The combined depreciation of fixed assets and amortization of wells for the fiscal years ended December 31, 2022, 2021 and 2020, recognized in operating costs and expenses, was Ps. 139,771,815, Ps. 133,431,365 and Ps. 129,631,820, respectively. These figures include Ps. 113,656,994, Ps. 108,509,633 and Ps.101,339,417 for oil and gas production assets and costs related to plugging and abandonment of wells for the years ended December 31, 2022, 2021 and 2020 of Ps. 224,327, Ps. 143,779 and Ps. 2,731,317, respectively.

C. As of December 31, 2022 and 2021, provisions relating to future plugging of wells costs amounted to Ps. 66,699,388 and Ps. 70,144,756, respectively, and are presented in the “Provisions for plugging of wells” (see Note 20).

D. As of December 31, 2022, 2021 and 2020, acquisitions of property, plant and equipment include transfers from wells unassigned to a reserve for Ps. 10,630,314, Ps. 15,608,296 and Ps. 6,229,356, respectively (see Note 14).

E. As of December 31, 2022, 2021 and 2020, the translation effect of property, plant and equipment items from a different currency than the presentation currency was Ps. (14,982,766), Ps. 2,477,528 and Ps. 490,203, respectively, which was mainly plant.

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F. As of December 31, 2022, 2021 and 2020, PEMEX recognized a net impairment of Ps. (83,538,021), Ps. (1,210,595) and Ps. (36,353,700), respectively, which is presented as a separate line item in the consolidated statement of comprehensive income as follows:

	2022	2021	2020
	(Impairment) / Reversal of impairment, net		
Pemex Exploration and Production	**(60,438,070)**	**34,562,831**	**35,031,541**
Pemex Industrial Transformation	**(25,615,351)**	**(32,153,192)**	**(71,761,571)**
Pemex Logistics	**2,121,045**	**(3,161,108)**	**426,560**
PMI Azufre Industrial	—	—	**42,214**
Gas Bienestar	—	**(282,452)**	—
Pemex Fertilizers	—	—	**(92,444)**
MGAS	**394,355**	**(176,674)**	—
(Impairment) reversal of impairment, net	**(83,538,021)**	**(1,210,595)**	**(36,353,700)**

Cash-Generating Unit of Pemex Exploration and Production

As of December 31, 2022, 2021 and 2020, Pemex Exploration and Production recognized a net impairment, net reversal of impairment and net reversal of impairment of Ps. (60,438,070), Ps. 34,562,831, and Ps. 35,031,541, respectively, shown by GCUs as follows:

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	2022	2021	2020
Cantarell	(48,371,891)	(5,782,224)	3,477,189
Chuc	(6,517,953)	26,962,488	8,348,556
Ixtal - Manik	(6,042,806)	481,673	(481,672)
Antonio J. Bermúdez	(5,510,789)	(1,815,596)	(9,705,730)
Aceite Terciario del Golfo	(2,870,820)	13,493,508	29,954,187
Tamaulipas Constituciones	(2,333,354)	684,766	(2,819,337)
Santuario El Golpe	(1,454,789)	—	—
Cárdenas-Mora	(1,150,448)	—	—
Lakach	(648,846)	(705,781)	(1,269,083)
Cuenca de Macuspana	(281,770)	38,939	735,920
Burgos	10,447,135	(12,517,196)	9,659,028
Tsimin Xux	2,268,459	(4,600,480)	3,920,244
Ébano (CEE)	1,298,911	(1,281,396)	—
Ogarrio Magallanes	530,061	(530,061)	—
Misión (CEE)	200,830	(908,043)	(574,047)
Crudo Ligero Marino	—	20,238,977	(2,141,285)
Arenque	—	803,257	(803,256)
Ayin - Alux	—	—	(3,269,173)
Total	**Ps. (60,438,070)**	**34,562,831**	**35,031,541**

As of December 31, 2022, Pemex Exploration and Production recognized a net impairment of Ps. (60,438,070) mainly due to: (i) a decrease in production profiles volume in the barrel of crude oil equivalent generating a negative effect of Ps. 258,263,054, of which Ps. 160,892,540 are from the Cantarell CGU, Aceite Terciario del Golfo (“ATG”), Ixtal Manik, Antonio J. Bermúdez and Chuc CGUs; and (ii) the negative effect due to an exchange rate of Ps. 17,568,491, from Ps. 20.5835 = U.S. $1.00 as of December 31, 2021, to Ps. 19.4143 = U.S.$1.00 as of December 31, 2022. These effects were partially offset by (i) an increase in crude oil prices, generating a positive effect of Ps. 157,896,123 mainly Burgos, Ogarrio Magallanes and Crudo Ligero Marino CGUs; (ii) an increase in the discount rate of Ps. 52,553,703, from 6.89% in 2021 to 9.31% in 2022, due to the increase in the debt component in the Weighted Average Cost of Capital ("WAAC") derived from the rise in global interest rates, which impacted PEMEX's benchmark rates that oil and gas industry uses to determine these discount rates, mainly in the Cantarell CGU due to the 30.5%

reduction in proved reserves as of January 31, 2023, from 683.83 MMBPCE as of December 31, 2021 to 474.96 MMBPCE as of December 31, 2022; and (iii) a positive tax effect of Ps. 4,943,649, due to lower income in proved reserves as of January 1, 2023 mainly in the Cantarell, ATG and Ixtal Maniak CGUs.

As of December 31, 2021, Pemex Exploration and Production recognized a net reversal of impairment of Ps. 34,562,831 mainly due to: (i) an increase in crude oil prices, generating a positive effect of Ps. 143,823,094 mainly in ATG, Chuc, Crudo Ligero Marino and Ixtal Manik CGUs; (ii) the positive effect due to an exchange rate of Ps. 13,361,080, from Ps. 19.9478 = U.S.$1.00 as of December 31, 2020, to Ps. 20.5835 = U.S.$1.00 as of December 31, 2021; and (iii) a slight positive effect in the discount rate of Ps. 624,875, or in percentage terms, from 6.23% in 2020 to 6.89% in 2021. These effects were partially offset by (i) a decrease in production profiles volume in the barrel of crude oil equivalent of Ps. 34,944,968 and higher transportation and distribution costs of Ps. 67,992,525 mainly in Cantarell, Burgos, Antonio J. Bermúdez and Macuspana, CGUs; (ii) an increase in proven reserves in the new Ixachi, Quequi, Xikin, Jaatsul, Cheek, Uchbal, TetL, Teekit, Suuk, Pokche and Mulach fields; (iii) a negative tax effect of Ps. 18,119,284, due to higher income as a result of an increase in hydrocarbon prices, exchange rate and an increase in the discount rate with respect to December 31, 2020 mainly in ATG, Chuc, Crudo Ligero Marino and Tsimin Xux CGUs; and (iv) an impairment of Ps. 2,189,440 in Exploration and Extraction Contracts for Misión and Ébano CGUs.

As of December 31, 2020, Pemex Exploration and Production recognized a net reversal of impairment of Ps. 35,031,541, mainly due to: (i) an increase in crude oil prices, generating a positive effect of Ps. 50,763,557 mainly in the Cantarell and ATG CGUs (ii) an increase in the volume of barrels of crude oil equivalent, generating an effect of Ps. 33,784,306 mainly in the ATG, Burgos and Crudo Ligero Marino CGUs. Additionally, there were increases in proven reserves in new fields, including Ixachi, Xikin, Jaatsul, Cheek, Uchbal, Tetl, Teekit, Suuk, Pokche and Mulach; (iii) the positive effect due to an exchange rate of Ps. 21,067,337, mainly in Cantarell, ATG and Burgos CGUs, from Ps. 18.8452 = U.S.$1.00 as of December 31, 2019 to Ps. 19.9478 = U.S.$1.00 as of December 31, 2020; and (iv) an increase in taxes of Ps. 3,844,410 was recognized due to a lower income in the production and price profiles as compared to December 31, 2019, impacting Antonio J. Bermúdez, Chuc and Tsimin Xux CGUs, among others. These effects were partially offset by an increase in the discount rate of Ps. 74,428,069, or in percentage terms, from 6.18% in 2019 to 6.23% in 2020, which motivated the CGUs with higher revenues, sales volume, price and exchange rates to recognize this effect.

The CGUs of Pemex Exploration and Production are investment projects in productive fields with hydrocarbon reserves associated with proved reserves. These productive hydrocarbon fields contain varying degrees of heating power consisting of a set of wells and are supported by fixed assets associated directly with production, such as pipelines, production facilities, offshore platforms, specialized equipment and machinery.

Each project represents the smallest unit which can concentrate the core revenues, with clear costs and expenses that enable future cash flows (value in use) to be determined.

Pemex Exploration and Production determines the recoverable amount of fixed assets based on the long-term estimated prices for Pemex Exploration and Production's proved reserves. The recoverable amount on each asset is the value in use.

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To determine the value in use of long-lived assets associated to hydrocarbon extraction, the net present value of reserves is determined based on the following assumptions:

	2022	2021	2020
Average crude oil price	59.37 U.S.$/bl	56.60 U.S.$/bl	52.96 U.S.$/bl
Average gas price	4.98 U.S.$/mpc	4.66 U.S.$/mpc	5.21 U.S.$/mpc
Average condensates price	64.95 U.S.$/bl	65.50 U.S.$/bl	61.09 U.S.$/bl
After-tax discount rate	9.31% annual	6.89% annual	6.23% annual
Pre-tax discount rate	14.27% annual	10.68% annual	9.72% annual

For 2022, 2021 and 2020 the total forecast production, calculated with a horizon of 25 years, was 7,078 Billion barrels per day (Bbd), 7,341 Bbd and 6,731 Bbd per day of crude oil equivalent, respectively.

Pemex Exploration and Production, in compliance with practices observed in the industry, estimates the recovery value of an asset by determining its value in use, based on cash flows associated with proved reserves after taxes and using a discount rate, also after taxes. Cash flows related to plugging wells provision costs are excluded in this computation of discounted cash flows.

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As of December 31, 2022, 2021 and 2020, values in use for CGU with impairment or reversal of impairment are:

	2022	2021	2020
Chuc	Ps. 58,826,338	86,217,289	35,037,408
Aceite Terciario del Golfo	44,910,967	75,544,451	38,617,385
Tsimin Xux	42,487,962	29,336,464	21,703,642
Ogarrio Magallanes	29,222,531	25,089,823	—
Crudo Ligero Marino	27,993,723	34,424,670	11,455,311
Burgos	13,254,788	4,403,791	16,003,831
Ixtal - Manik	10,377,668	23,071,621	10,361,747
Antonio J. Bermúdez	10,090,851	18,666,302	23,717,426
Arenque	5,307,805	5,920,659	5,296,420
Ébano (CEE)	4,857,880	(7,573,109)	—
Tamaulipas Constituciones	3,000,177	5,878,883	4,971,235
Cuenca de Macuspana	82,209	722,874	899,838
Misión (CEE)	(493,897)	(101,442)	832,234
Lakach	(2,246,174)	(1,820,553)	(571,834)
Cárdenas-Mora	(3,909,463)	4,893,697	—
Santuario El Golpe	(4,082,727)	17,225,366	—
Cantarell	(13,106,589)	54,669,897	121,968,126
Poza Rica	—	—	6,276,904
Costero	—	—	5,335,394
Total	**Ps.226,574,049**	**376,570,683**	**301,905,067**

Cash-Generating Units of Pemex Industrial Transformation

As of December 31, 2022, 2021 and 2020, Pemex Industrial Transformation recognized a net impairment of Ps. (25,615,351), Ps. (32,153,192) and Ps. (71,761,571), respectively, shown by CGUs as follows:

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	2022	2021	2020
Minatitlán Refinery	(17,502,044)	(4,678,358)	(37,432,704)
Morelos Petrochemical Complex	(7,512,584)	365,522	(2,350,704)
Cangrejera Petrochemical Complex	(6,419,084)	(1,115)	—
Salamanca Refinery	(5,819,013)	(2,187,781)	(5,386,525)
Poza Rica Gas Processor Complex	(3,656,338)	—	—
Arenque Gas Processor Complex	(199,943)	—	—
Salina Cruz Refinery	(101,943)	(3,263,118)	—
Cadereyta Refinery	(68,460)	(2,195,115)	(2,083,755)
Tula Refinery	9,757,714	(6,446,357)	(2,820,750)
Madero Refinery	5,244,262	(13,216,073)	(18,412,688)
Cosoleacaque Petrochemical Complex	630,486	(726,631)	—
Pajaritos Petrochemical Complex	31,596	195,834	(1,484,489)
Nuevo Pemex Gas Processor Complex	—	—	(1,080,831)
Ciudad Pemex Gas Processor Complex	—	—	(709,125)
Total	**Ps. (25,615,351)**	**(32,153,192)**	**(71,761,571)**

As of December 31, 2022, the net impairment of Ps. (25,615,351) was mainly due to: (i) the negative effect due to an exchange rate, from Ps. 20.5835 = U.S.$1.00 as of December 31, 2021, to Ps. 19.4143 = U.S.$1.00 as of December 31, 2022, and (ii) a negative effect in the discount rate, from 9.45% in 2021 to 14.16% in 2022; and (iii) a projected decrease in revenues.

As of December 31, 2021, the net impairment of Ps. (32,153,192) was mainly the result of the following factors: (i) the inability to achieve the projected production rate due to operational issues; (ii) the Ultra-Low Sulfur Gasoline (ULSG) and Ultra-Low Sulfur Diesel (ULSD) projects have not received any resources for their continuation and no provision is made for the continuation of these works within the approved budget for 2022; and (iii) the total impairment in the Madero Refinery due to high operating costs and expenses. These effects were partially offset by (i) a projected increase in revenues due to the increase in sales prices for secondary petrochemical CGUs; (ii) an increase in the exchange rate of the peso against the U.S. dollar, from a peso/U.S. dollar exchange rate of Ps. 19.9487 = U.S.$1.00 as of December 31, 2020, to Ps. 20.5835 = U.S.$1.00 as of December 31, 2021; and (iii) a decrease in the discount rate from 10.83% in 2020 to 9.45% in 2021.

As of December 31, 2020, the impairment of Ps. (71,761,571) was mainly due to (i) lower production levels, mainly at the Madero, Minatitlan and Tula Refineries due to a lower crude oil processing rate than previously projected; (ii) decrease in the price of products; (iii) a decrease in the discount rate of CGUs of refined products and gas by 0.64% and 0.46%, respectively, and increase in petrochemicals by 1.15% and ethylene by 0.26%; and (iv) the depreciation of the peso against the U.S. dollar,

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from a peso/U.S. dollar exchange rate of Ps. 18.8452 = U.S.$1.00 as of December 31, 2019 to Ps. 19.9487 = U.S.$1.00 as of December 31, 2020, which are used as cash flows when U.S. dollars are taken as reference.

To determine the value in use of long-lived assets associated with the CGUs of Pemex Industrial Transformation, the net present value of cash flows was determined based on the following assumptions:

	As of December 31,													
	2022	2021	2020	2022	2021	2020	2022	2021	2020	2022	2021	2020	2022	2021
	Refining			Gas			Petrochemicals			Ethylene			Fertilizers	
Average crude oil Price (U.S.$)	68.79	60.4	48.89	N.A.			N.A.			N.A.			N.A	
Processed volume (1)	909 mbd	891 mbd	920 mbd	2,061 mmpcd of humid gas	2,148 mmpcd of humid gas	2,134 mmpcd of humid gas	Variable because the load inputs are diverse							
Rate of U.S.$	$19.4143	$20.5835	$19.9487	$19.4143	$20.5835	$19.9487	$19.4143	20.5835	$19.9487	$19.4143	20.5835	$19.9487	$19.4143	$20.5835
Useful lives of the cash-generating units (year average)	12	11	12	7	7	7	5	6	7	5	5	6	4	5
Pre-tax discount rate	14.16%	9.45%	10.83%	13.20%	10.15%	9.76%	10.73%	8.63%	9.76%	10.73%	8.63%	8.29%	13.25%	9.96%
Period (2)	2023 - 2034	2022 - 2033	2020 - 2032	2023 - 2029	2022 - 2029	2020 - 2027	2023 - 2027	2022 - 2027	2020 - 2027	2023 - 2027	2020-2026		2023 - 2026	2020 - 2026

(1) Average of the first four years.
(2) The first five years are projected and stabilize at year six.
N.A. = Not applicable

CGUs in Pemex Industrial Transformation are processing centers grouped according to their types of processes as refineries, gas complex processors, and petrochemical centers. These centers produce various finished products for direct sale to customers or intermediate products that can be processed in another of its CGUs or by a third party. Each processing center of Pemex Industrial Transformation represents the smallest unit that has distinguishable revenues, with clear costs and expenses that enable future cash flows (value in use) to be determined.

Cash flow determinations are made based on PEMEX's business plans, operating financial programs, forecasts of future prices of products related to the processes of the CGUs, budget programs and various statistical models that consider historical information of processes and the capacity of various processing centers.

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The recoverable amount of assets is based on each asset's value in use. The value in use for each asset is calculated based on discounted cash flows, taking into consideration the volumes to be produced and sales to be carried out. As of December 31, 2022, 2021 and 2020, the value in use for the impairment of fixed assets was as follows:

	2022	2021	2020
Salina Cruz Refinery	Ps. 49,725,087	31,909,325	30,422,588
Tula Refinery	48,695,398	39,815,742	34,829,922
Cadereyta Refinery	48,191,707	39,432,148	40,793,541
Nuevo Pemex Gas Processor Complex	31,708,026	—	—
Salamanca Refinery	17,799,786	51,998,803	44,777,784
Madero Refinery	10,279,749	—	6,799,072
Minatitlán Refinery	4,061,210	20,545,810	18,819,247
Cosoleacaque Petrochemical Complex	1,974,484	625,255	—
Arenque Gas Processor Complex	105,610	—	—
Cangrejera Ethylene Processor Complex	—	—	11,493,567
Morelos Ethylene Processor Complex	—	7,903,064	9,396,765
Total	**Ps.212,541,057**	**192,230,147**	**197,332,486**

Cash-Generating Units of Pemex Logistics

As of December 31, 2022, 2021 and 2020, Pemex Logistics recognized a net reversal of impairment of Ps. 2,121,045, an impairment of Ps. (3,161,108) and a reversal of impairment of Ps. 426,560, respectively.

The net (impairment) and reversal of impairment were in the following CGUs:

	2022	2021	2020
Construction in progress	Ps. 2,121,045	(2,927,035)	—
Vessel	—	—	303,516
Land and transport (white pipelines)	—	(234,073)	123,044
Reversal of impairment (impairment), net	**Ps. 2,121,045**	**(3,161,108)**	**426,560**

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	As of December 31,								
	2022	2021	2020	2022	2021	2020	2022	2021	2020
	Pipelines			Landing transport			Vessel		
Discount rate	12.73%	12.57%	11.97%	12.73%	12.57%	11.97%	12.73%	12.57%	11.97%
Useful life	19	20	22	2	3	5	16	17	19

As of December 31, 2022, Pemex Logistics recognized a net reversal of impairment of Ps. 2,121,045 due to: (i) the capitalization of some work in progress, and (ii) an increase in the discount rate to project future cash flows from 12.57% in 2021 to 12.73% in 2022.

As of December 31, 2021, Pemex Logistics recognized a net impairment of Ps. (3,161,108) due to: (i) an impairment in some works in progress, for which a reservation was estimated due to the economic adjustments that PEMEX presents for these projects and (ii) an increase in the discount rate to project future cash flows from 11.97% in 2020 to 12.57% in 2021.

As of December 31, 2020, Pemex Logistics recognized a reversal of impairment in land transport and vessel CGUs for Ps. 426,560, mainly due to an increase in projected cash inflows.

CGU in Pemex Logistics are pipelines and transport equipment.

The recoverable amounts of the assets as of December 31, 2022, 2021 and 2020, corresponding to the discounted cash flows at the rate of 12.73%, 12.57% and 11.97%, respectively, as follows:

	2022	2021	2020
TAD, TDGL, TOMS (Storage terminals)	Ps. 66,431,256	76,522,522	95,169,597
Pipelines	43,707,101	113,847,249	88,740,662
Primary logistics	74,294,282	72,281,553	108,036,325
Total	**Ps.184,432,639**	**262,651,324**	**291,946,584**

Cash-Generating Units of Pemex Fertilizers

CGU is a plant used in the ammonia process.

The recoverable amount of assets is based on each asset's value in use. To determine cash flows, volumes to be produced and sales to be carried out were taken into consideration.

Discount rate

The discount rate used as of December 31, 2020 was 9.51% due to the updating of comparable companies taken as reference to the determination of the discount rate.

As of December 31, 2020, Pemex Fertilizers recognized an impairment of Ps. (92,444) in CGUs mentioned above. The impairment was mainly caused from (i) the decrease in projected production due to the lack of raw material, (ii) increase in raw material prices, and (iii) decrease in ammonia prices.

	December 31, 2020
Exchange rate	19.9487
Discount rate	9.51%
Useful life	22

G. PEMEX can conduct exploration and extraction activities through Exploration and Extraction Contracts ("EECs"). The EECs are awarded individually, through associations or joint ventures based on guidelines approved by the *Comisión Nacional de Hidrocarburos* ("National Hydrocarbons Commission" or "CNH") and are classified into:

a. Production-sharing contracts;

b. Profit-sharing contracts;

c. License agreements; and

d. Service contracts.

Certain of the EECs are operated though joint arrangements, for which PEMEX recognizes in its financial statements both the rights to the assets and the obligations for the liabilities, as well as profits and losses relating to the arrangements.

EECs as of December 31, 2022 are:

a. Production-sharing contracts:

The object of the production-sharing contracts is the execution of oil activities under shared production contracts among Mexico through the Mexican Government via the CNH and Pemex Exploration and Production (as contractor), for the contractual area and the sharing of costs, risks, and terms and conditions involved in the contract and in accordance with the applicable regulations and best practices of the industry receiving, in exchange, benefits in favor of the contractor.

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I. Production contracts without a partner

- Hydrocarbons Exploration and Extraction Contract for Block 29, Cuenca del Sureste, in which Pemex Exploration and Production owns 100% of the project.
- Hydrocarbon Extraction Contract for the Ek-Balam (shallow water) Block. Pemex Exploration and Production owns 100% of this contractual area.

II. Production contracts in consortium

- Exploration and Extraction Contract related to Block 2 Tampico Misantla, pursuant to a consortium formed by Pemex Exploration and Production and Deutsche Erdoel AG ("DEA") and Compañía Española de Petróleos, S. A. U., (jointly liable). The object of the contract is the realization of oil activities, under shared production contracts, by the contractor for the contractual area and the sharing of costs, risks, terms and conditions involved in the contract and in accordance with the applicable regulations and best practices of the industry, receiving in exchange, benefits in favor of the contractor. Pemex Exploration and Production and DEA each have a 50% interest in this contractual area. Pemex Exploration and Production is the operator under this contract.
- Exploration and Extraction Contract, related to Block 8 Cuencas del Sureste, pursuant to a consortium formed by Pemex Exploration and Production, EPC Hidrocarburos México, S. A. de C. V. (EPC). and Ecopetrol Global Energy, S. L. U. (jointly liable). Pemex Exploration and Production was designated by all the participating companies and with the approval of the CNH as the operator of this contract and all operational aspects of the petroleum activities will be carried out only by the operator on behalf of all participating companies. Pemex Exploration and Production and EPC each have a 50% interest in this contractual area.
- Exploration and Extraction Contract, related to Block 16, Tampico Misantla, pursuant to a consortium by Pemex Exploration and Production, Deutsche Erdoel México S. de R.L. de C.V. (as operator) and CEPSA E.P. México S. de R.L. de C.V., as jointly liable. Pemex Exploration and Production owns 40% of this contractual area, DEUTSCHE Erdoel México S. de R.L. de C.V. owns 40%, and CEPSA E.P. México S. de R.L. de C.V. owns 20%.
- Exploration and Extraction Contract, related to Block 17, Tampico Misantla, pursuant to a consortium by Pemex Exploration and Production, Deutsche Erdoel México S. de R.L. de C.V. (as operator) and CEPSA E.P. México S. de R.L. de C.V., as jointly liable. Pemex Exploration and Production owns 40% of this contractual area, Deutsche Erdoel México S. de R.L. de C.V. owns 40%, and CEPSA E.P. México S. de R.L. de C.V. owns 20%.
- Exploration and Extraction Contract, related to Block 18, Tampico Misantla, pursuant to a consortium by Pemex Exploration and Production (as operator) and CEPSA E.P. México S. de R.L. de C.V. (as partner). Pemex Exploration and Production owns 80% of this contractual area, and CEPSA E.P. México S. de R.L. de C.V. owns 20%.
- Hydrocarbons Exploration and Extraction Contract for Block 32, Cuenca del Sureste, by Pemex Exploration and Production (as operator) and Total E&P México, S.A. de C.V. (as partner). Pemex Exploration and Total E&P México, S.A. de C.V each have a 50% interest in this contractual area.
- Hydrocarbons Exploration and Extraction Contract for Block 33, Cuenca del Sureste, by Pemex Exploration and Production (as operator) and Total E&P México, S.A. de C.V. Pemex Exploration and Total E&P México, S.A. de C.V each have a 50% interest in this contractual area.

- Hydrocarbons Exploration and Extraction Contract for Block 35, Cuenca del Sureste, by Shell Exploración y Extracción de México, S.A. de C.V (as operator) and Pemex Exploration and Production. Shell Exploración y Extracción de México, S.A. de C.V. and Pemex Exploration each have a 50% interest in this contractual area.
- Exploration and Extraction Contract, related to the Santuario El Golpe Block, pursuant to a consortium formed by Pemex Exploration and Production (as partner) and Petrofac México, S.A. de C.V. (PETROFAC), as operator. Pemex Exploration and Production owns 64% of this contractual area and PETROFAC owns 36%.
- Exploration and Extraction Contract, related to the Misión Block, pursuant to a consortium formed by Pemex Exploration and Production (as partner) and Servicios Múltiples de Burgos, S.A. de C.V. (as operator). Pemex Exploration and Production owns 51% of this contractual area and Servicios Múltiples de Burgos, S.A. de C.V. owns 49%.
- Exploration and Extraction Contract, related to Ébano Block, pursuant to a consortium formed by Pemex Exploration and Production (as partner), DS Servicios Petroleros, S.A. de C.V. (as operator) and D&S Petroleum S.A. de C.V. (as partner). Pemex Exploration and Production owns 45% of this contractual area, Servicios Múltiples de Burgos owns 54.99%, while D&S Petroleum S.A. de C.V. owns 0.01%.

b. License contracts

The nature of the contract relationship is the execution of oil activities, under the license contracting modality, under which the contractor is granted the right to explore and extract at its exclusive cost and risk hydrocarbons owned by the Mexican nation, who must comply with the obligations arising from the contract in the name and representation of each of the signatory companies in the contractual area in accordance with the applicable regulations, industry best practices and the terms and conditions of the contract. The contractor shall be entitled to payment for hydrocarbons produced, in accordance with the terms of the contracts, and after payments to the Mexican Government are made.

I. License contracts without association

- Hydrocarbons Exploration and Extraction Contract for Block 5, Plegado Perdido, in which Pemex Exploration and Production owns 100% of the project.
- Hydrocarbons Exploration and Extraction Contract for Block 18, Cordilleras Mexicanas, in which Pemex Exploration and Production owns 100% of the project.

II. License contracts in association

- Hydrocarbons Exploration and Extraction Contract for Block 3 “Plegado Perdido”, in deep waters, formed by INPEX Corporation (“INPEX”) (as partner), Chevron Energía de Mexico, S. de R.L. de C.V. (“Chevron”) (as operator) and Pemex Exploration and Production, (as partner). Chevron, Pemex Exploration and Production and INPEX have a 37.5%, 27.5% and 35% interest in this project, respectively, and will be jointly liable for all obligations of the contractors according to this contract regardless of their participation interest.

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- Hydrocarbons Exploration and Extraction Contract for Block 2, Plegado Perdido, formed by Pemex Exploration and Production (as partner) and Shell Exploración y Extracción de México, S.A. de C.V. (as operator). Pemex Exploration and Production and Shell Exploración y Extracción de México, S.A. de C.V. each have a 50% interest in this project.
- Hydrocarbons Exploration and Extraction Contract for Block 22, Cuenca Salina, formed by Pemex Exploration and Production, Inpex E&P México, S.A. de C.V., (as partners), and Chevron (as operator). Chevron, Pemex Exploration and Production and Inpex E&P México, S.A. de C.V., have a 37.5%, 27.5% and 35% interest in this project, respectively.
- A licensing contract with BHP Billiton Petróleo Operaciones de México, S. de R.L. ("BHP Billiton") for the Trión Block. BHP Billiton owns 60% of the contractual area, while Pemex Exploration and Production owns 40%, and each of the signatory companies are jointly liable for all obligations of the contractors.
- Hydrocarbons Exploration and Extraction Contract for the Cárdenas Mora Block, for onshore fields, formed by Pemex Exploration and Production (as partner), Petrolera Cárdenas Mora, S. A. P. I. de C. V. (as operator) and Cheiron Holding Limited (jointly liable). Pemex Exploration and Production and Petrolera Cárdenas Mora, S. A. P. I. de C. V. each have a 50% of interest in this project.
- Hydrocarbons Exploration and Extraction Contract for the Ogarrio Block, for onshore fields, formed by Pemex Exploration and Production (as partner), Deutche Erdoel México, S. de R.L. de C.V. (as operator) and DEA Deutche Erdoel, A.G. ("DEA") (jointly liable). Pemex Exploration and Production and DEA each have a 50% interest in this project.
- Hydrocarbons Exploration and Extraction Contract for the Miquetla Block, for onshore fields, formed by Pemex Exploration and Production (as partner) and Operadora de Campos DWF, S.A. de C.V. (as operator). Pemex Exploration and Production has a 49% interest in this project while Operadora de Campos DWF, S.A. de C.V. has a 51% interest.

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See below for a condensed statement of comprehensive income and condensed statement of financial position, summarizing the exploration and extraction contracts listed above (presentation non-audited):

	Production-sharing contracts												
As of /For the year ended December 31, 2022	***EK-Balam***	***Block 2***	***Block 8***	***Block 16***	***Block 17***	***Block 18***	***Block 29***	***Block 32***	***Block 33***	***Block 35***	***Santuario El Golpe***	***Misión***	***Ébano***
Sales:													
Net sales	19,256,552	—	—	—	—	—	—	—	—	—	1,104,331	1,475,643	1,135,858
Cost of sales	5,802,059	103,938	51,069	35,832	38,675	73,599	29,134	86,593	144,327	32,342	2,253,631	108,622	1,204,615
Gross income (loss)	13,454,493	(103,938)	(51,069)	(35,832)	(38,675)	(73,599)	(29,134)	(86,593)	(144,327)	(32,342)	(1,149,300)	1,367,021	(68,757)
Other income (loss), net	28,255	(9,300)	(3,425)	—	—	—		—	—	—	—	—	(696)
Administrative expenses	274	—	—	—	—	—	—	—	—	—	5,967	—	84,891
Operating income (loss)	13,482,474	(113,238)	(54,494)	(35,832)	(38,675)	(73,599)	(29,134)	(86,593)	(144,327)	(32,342)	(1,155,267)	1,367,021	(154,344)
Taxes, duties and other	4,908,531	—	—	—	—	—	—	—	—	171	43,724	324,198	—
Net income (loss)	8,573,943	(113,238)	(54,494)	(35,832)	(38,675)	(73,599)	(29,134)	(86,593)	(144,327)	(32,513)	(1,198,991)	1,042,823	(154,344)
Cash and cash equivalents	—	198,344	74,011	—	—	123,294	98,436	114,708	—	—	15,208	—	—
Accounts receivable	70,044,445	284,298	56,568	35,105	15,867	36,961	1,139,578	253,171	48,200	316,429	10,901,871	7,920,779	3,995,264
Total current assets	70,044,445	482,642	130,579	35,105	15,867	160,255	1,238,014	367,879	48,200	316,429	10,917,079	7,920,779	3,995,264
Wells, pipelines, properties, plant and equipment, net	28,124,354	—	—	—	—	—	—	—	—	—	59,970	1,683,427	248,525
Other assets	—	12,111	—	—	—	—	—	—	—	—	—	—	—
Total assets	98,168,799	494,753	130,579	35,105	15,867	160,255	1,238,014	367,879	48,200	316,429	10,977,049	9,604,206	4,243,789
Suppliers	14,090,553	11,241	10,031	78,075	76,201	738	14,423	1,007	313,501	661,367	5,434,599	2,479,654	3,072,209
Taxes and duties payable	537,063	968	1,223	—	—	1,643	951	2,076	—	—	9,077	15,859	7,003
Other current liabilities	4,700,634	896,333	487,011	61,851	50,871	446,951	1,308,915	610,383	98,992	48,402	2,222,286	3,033,148	565,073
Deferred income taxes	4,284,410	—	—	—	—	—	—	—	—	—	—	—	—
Total liabilities	23,612,660	908,542	498,265	139,926	127,072	449,332	1,324,289	613,466	412,493	709,769	7,665,962	5,528,661	3,644,285
Equity (deficit), net	65,982,196	(300,551)	(313,192)	(68,989)	(72,530)	(215,478)	(57,141)	(158,994)	(219,966)	(360,827)	4,510,078	3,032,722	753,848

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		License contracts							
As of /For the year ended December 31, 2022	***Trion***	***Block 3***	***Block 2***	***Block 5***	***Block 18***	***Block 22***	***Cárdenas Mora***	***Ogarrio***	***Miquetla***
Sales:									
Net sales	—	—	—	—	—	—	2,092,236	2,084,907	422,796
Cost of sales	—	42,947	127,366	66,975	71,444	63,617	2,325,582	959,465	1,162,390
Gross income (loss)	—	(42,947)	(127,366)	(66,975)	(71,444)	(63,617)	(233,346)	1,125,442	(739,594)
Other income (loss), net	—	—	—	—	—	—	(459)	(26)	(8,374)
Administrative expenses	—	—	—	—	—	—	61	86,162	147,842
Operating income (loss)	—	(42,947)	(127,366)	(66,975)	(71,444)	(63,617)	(233,866)	1,039,254	(895,810)
Taxes, duties and other	—	—	—	—	—	—	263,585	306,956	—
Net income (loss)	—	(42,947)	(127,366)	(66,975)	(71,444)	(63,617)	(497,451)	732,298	(895,810)
Cash and cash equivalents	—	—	—	108,522	114,901	—	40	—	—
Accounts receivable	—	31,269	157,640	44,581	36,291	341,860	8,648,213	1,359,559	1,576,331
Total current assets	—	31,269	157,640	153,103	151,192	341,860	8,648,253	1,359,559	1,576,331
Wells, pipelines, properties, plant and equipment, net	—	—	—	—	—	—	295,650	1,336,020	222,840
Total assets	—	31,269	157,640	153,103	151,192	341,860	8,943,903	2,695,579	1,799,171
Suppliers	—	181,591	390,009	89,438	99,996	575,293	3,974,082	2,344,715	2,085,393
Taxes and duties payable	—	—	—	5,521	5,893	—	7,506	12,752	1,729
Other current liabilities	—	59,442	201,321	459,113	477,335	116,107	1,390,814	4,021,185	262,675
Total liabilities	—	241,033	591,330	554,072	583,224	691,400	5,372,402	6,378,652	2,349,797
Equity (deficit), net	—	(166,817)	(306,324)	(333,994)	(360,588)	(285,923)	4,068,952	(4,415,371)	345,184

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NOTE 14. INTANGIBLE ASSETS, NET

As of December 31, 2022 and 2021, intangible assets, net were mainly wells unassigned to a reserve and other components of intangible assets, which amounted to Ps. 30,024,934 and Ps. 20,016,146, respectively as follows:

A. Wells unassigned to a reserve

	2022	2021
Wells unassigned to a reserve:		
Balance at the beginning of the year	Ps. 18,639,136	21,435,160
Additions to construction in progress	34,291,324	25,377,983
Transfers against expenses	(13,911,491)	(12,565,711)
Transfers against fixed assets	(10,630,314)	(15,608,296)
Balance at the end of the year	**Ps. 28,388,655**	**18,639,136**

As of December 31, 2022, 2021 and 2020, PEMEX recognized expenses related to unsuccessful wells of Ps. 21,021,660, Ps. 22,296,103 and Ps. 19,351,986, respectively, directly in its statement of comprehensive income.

B. Other intangible assets

	Licenses	Exploration expenses, evaluation of assets and concessions	Total
Cost			
Balance as of January 1, 2022	Ps. 5,258,823	1,845,848	Ps. 7,104,671
Additions	1,016,283	23,951	1,040,234
Effects of foreign exchange	(33,617)	(105,591)	(139,208)
	6,241,489	1,764,208	8,005,697
Amortization accumulated			
Balance as of January 1, 2022	(4,950,315)	(777,346)	(5,727,661)
Additions	(195,948)	—	(195,948)
Amortization	(492,311)	(24,031)	(516,342)
Effects of foreign exchange	25,486	45,047	70,533
	(5,613,088)	(756,330)	(6,369,418)
Balance as of December 31, 2022	**Ps. 628,401**	**1,007,878**	**Ps. 1,636,279**
Useful lives	**1 to 3 years**	**Up to 36 years**	

	Licenses	Exploration expenses, evaluation of assets and concessions	Total
Cost			
Balance as of January 1, 2021	Ps. 4,885,305	1,769,100	6,654,405
Additions	416,070	20,165	436,235
Disposals	(35,885)	—	(35,885)
Effects of foreign exchange	(6,667)	56,583	49,916
	5,258,823	1,845,848	7,104,671
Amortization accumulated			
Balance as of January 1, 2021	Ps. (4,592,114)	(721,667)	(5,313,781)
Disposals	32,561	—	32,561
Amortization	(371,115)	(32,180)	(403,295)
Effects of foreign exchange	(19,647)	(23,499)	(43,146)
	(4,950,315)	(777,346)	(5,727,661)
Balance as of December 31, 2021	**Ps. 308,508**	**Ps. 1,068,502**	**Ps. 1,377,010**
Useful lives	**1 to 3 years**	**Up to 36 years**	

NOTE 15. GOVERNMENT BONDS, LONG-TERM NOTES RECEIVABLE AND OTHER ASSETS

A. Promissory notes

On August 5, 2016, Petróleos Mexicanos received promissory notes issued by the Mexican Government as part of the Mexican Government's assumption of a portion of the payment liabilities related to Petróleos Mexicanos and Subsidiary Entities' pensions and retirement plans.

On November 19, 2020, Petróleos Mexicanos and the SHCP agreed to exchange 16 promissory notes in favor of Petróleos Mexicanos for 18 series of Mexican Government local bonds (the "Government Bonds"). The resources from the Government Bonds will be exclusively transferred to the FOLAPE for the payments related to its pension and retirement plan obligations.

The roll-forward related to the promissory notes as of December 31, 2020 is as follows:

	For the year ended December 31, 2020[(i)]
Balance at the beginning of the year	Ps. 126,534,822
Collected promissory notes	(4,102,622)
Accrued interests	7,097,040
Interests received from promissory notes	(881,048)
Reversal of (impairment) of the promissory notes	8,000
Exchange from promissory notes to Bonds	(128,656,192)
Balance at the end of the period	**Ps. —**

(i) Until November 19, 2020.

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B. Government bonds

As of December 31, 2022 and 2021, the balance of Government Bonds (see Note 15-A), includes Government Bonds valued at amortized cost as follows:

	2022	2021
Government bonds [1]	Ps. 110,179,517	Ps. 110,855,356
Less: current portion of Government Bonds, net of expected credit losses	46,526,257	1,253,451
Total long-term notes receivable	**Ps. 63,653,260**	**Ps. 109,601,905**

[1] As of December 31, 2022 and 2021, includes an expected credit loss of Ps. 9,717 and Ps. 13,038, respectively.

As of November 19, 2020, the value of the Government Bonds was Ps. 128,786,611, and the liability was Ps. 95,597,610.

On November 20, 2020, Petróleos Mexicanos monetized the whole of the Government Bonds by entering into a three-year financial arrangement to partially raise an equivalent of Ps. 95,597,610 at an annual rate of 8.56275%, maturing November 24, 2023. Petróleos Mexicanos retains the risks, benefits and economic rights of the Government Bonds, which were delivered to a financial institution. Petróleos Mexicanos will continue to collect coupon and principal payments from the securities throughout the term of the transaction. Therefore, Petróleos Mexicanos recognizes these Government Bonds as restricted assets and recognizes short-term debt for the monetization. The resources from the Government Bonds were transferred to the FOLAPE for payments related to its pension and retirement plan obligations.

During the period from January 1 to December 31, 2022, interest income generated by the Government Bonds amounted to Ps. 7,534,938, of which Petróleos Mexicanos received payments in the amount of Ps. 7,455,715. During the period from January 1 to December 31, 2021, interest income generated by the Government Bonds amounted to Ps. 7,094,180, of which Petróleos Mexicanos received payments in the amount of Ps. 7,126,559.

As of December 31, 2022 and 2021 the Government Bonds consist of 17 series of development bonds (D Bonds, M Bonds and UDI Bonds) issued by the SHCP with maturities between 2023 and 2026, at nominal value of Ps. 102,492,032 and Ps. 913,482 in UDIs.

As of December 31, 2022 and 2021, the fair value of the transferred assets was Ps. 108,062,414 and Ps. 109,124,514, respectively and the fair value of the associated liabilities was Ps. 82,372,990 and Ps. 83,869,441, respectively, resulting in a net position of Ps. 25,689,424 and Ps. 25,255,073, respectively.

As of December 31, 2022 and 2021, the recorded liability was Ps. 90,577,596 (Ps. 89,739,938 of principal and Ps. 837,658 of interest) and Ps. 84,189,749 (Ps. 83,401,120 of principal and Ps. 788,629 of interest), respectively (see Note 16).

The roll-forward of the Mexican Bonds is as follows:

	December 31,	
	2022	2021
Balance as of the beginning of the year	Ps. 110,855,356	Ps. 129,549,519
Government Bonds collected	—	(15,788,696) [1]
Accrued interests	7,534,938	7,094,180
Interests received from bonds	(7,455,715)	(7,126,559)
Impact of the valuation of bonds in UDIs	491,975	459,149
Amortized cost	(1,250,358)	(3,336,781)
Reversal (Impairment) of bonds	3,321	4,544
Balance at the end of the year	**Ps. 110,179,517**	**Ps. 110,855,356**

(1) Government Bonds were collected on December 9, 2021.

C. Long-term notes receivable

As of December 31, 2022 and 2021, the balance of long-term notes receivable was Ps. 1,334,126 and Ps. 1,646,290 and includes Ps. 783,999 and Ps. 833,473, respectively, of collection rights related to Value Added Tax from the non-recourse factoring contract between Pemex Logistics and Banco Mercantil del Norte, S.A.

D. Other assets

At December 31, 2022 and 2021, the balance of other assets was as follows:

	December 31,	
	2022	2021
Payments in advance [1]	Ps. 26,515,825	Ps. 35,931,167
Other	2,565,824	2,327,872
Insurance	1,621,076	853,891
Total other assets	**Ps. 30,702,725**	**Ps. 39,112,930**

(1) Mainly advance payments to contractors for the construction of the Dos Bocas Refinery through PTI ID.

NOTE 16. DEBT

The Federal Revenue Law applicable to PEMEX as of January 1, 2022 published in the Official Gazette of the Federation on November 12, 2021, authorized Petróleos Mexicanos and its Subsidiary Entities to incur an internal net debt up to Ps. 27,242,000 and an external net debt up to U.S.$1,860,000. PEMEX can incur additional internal or external debt, as long as the total amount of net debt does not exceed the ceiling established by the Federal Revenue Law.

The Board of Directors approves the terms and conditions for the incurrence of obligations that constitute public debt of Petróleos Mexicanos for each fiscal year, in accordance with the Petróleos Mexicanos Law and the Reglamento de la Ley de Petróleos Mexicanos (Regulations to the Petróleos Mexicanos Law). The terms and conditions are promulgated in accordance with the guidelines approved by the SHCP for Petróleos Mexicanos for the respective fiscal year.

During the period from January 1 to December 31, 2022, PEMEX participated in the following financing activities:

- On February 25, 2022, Petróleos Mexicanos issued a promissory note for the principal amount of Ps. 250,000, bearing an interest rate linked to 28-day Interbank Equilibrium Interest Rate ("TIIE") plus 235 basis points, maturing in February 2023.

- On March 28, 2022, Petróleos Mexicanos entered into a term loan credit facility in the amount of U.S.$ 75,000 due January 2023, at a floating rate linked to SOFR plus 245 basis points.

- On March 30, 2022, Petróleos Mexicanos completed the exchange of notes previously issued under Rule 144A and under Regulation S for SEC-registered notes. The following table sets forth the principal amount of the registered debt securities issued by Petróleos Mexicanos pursuant to such exchange of notes.

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Security	Issuer	Guarantors	Principal amount outstanding U.S.$
6.875% Notes due 2025	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	901,836
6.700% Notes due 2032	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	6,779,842

- On April 18, 2022, Petróleos Mexicanos renewed a promissory note for Ps. 4,000,000, originally issued in October 2021, bearing interest at a floating rate linked to the 28-day TIIE plus 315 basis points, maturing in January 2023.
- On April 26, 2022, Petróleos Mexicanos obtained Ps. 10,000,000 related to the Government Bonds monetization due February 2024.
- On April 29, 2022, Petróleos Mexicanos increased a credit line to U.S.$450,000, bearing interest at a floating rate linked to 90-day SOFR plus 345 basis points due October 2023.
- On May 18, 2022, Petróleos Mexicanos issued a promissory note for the principal amount of Ps. 500,000 bearing interest at a floating rate linked to 28-day TIIE plus 250 basis points, maturing in May 2023.
- On May 31, 2022, Petróleos Mexicanos renewed a promissory note, originally issued in December 2021, for Ps. 3,000,000, bearing interest at a floating rate linked to 28-day TIIE plus 330 basis points, maturing in February 2023.
- On May 31, 2022, Petróleos Mexicanos launched a U.S.$1,984,689 invoice refinancing liability management transaction under which certain suppliers and contractors were given the opportunity to exchange outstanding invoices due from PEMEX and its productive subsidiaries for global 8.750% notes due June 2029.
- On June 15, 2022, Petróleos Mexicanos renewed two promissory notes, originally issued in December 2021 and January 2022, respectively, for Ps. 2,000,000, each one, bearing interest at a floating rate linked to 28-day TIIE plus 330 basis points, maturing in March 2023.
- On June 17, 2022, Petróleos Mexicanos renewed a short-term credit, originally issued in September 2021, for U.S. $500,000 bearing interest at a floating rate linked to 217-day SOFR plus 200 basis points, maturing in January 2023.
- On August 19, 2022, Petróleos Mexicanos renewed a promissory note, originally issued in February 2022 for the principal amount of Ps. 5,000,000, bearing interest at a floating rate linked to 28-day TIIE plus 365 basis points, maturing in August 2023.
- On August 23, 2022, Petróleos Mexicanos renewed a promissory note, originally issued in February 2022 for the principal amount of U.S.$11,362, bearing interest at a floating rate linked to 30-day SOFR plus 175 basis points, maturing in February 2023.

- On September 13, 2022, Petróleos Mexicanos renewed a promissory note, originally issued in January 2021, for Ps. 4,000,000, bearing interest at a floating rate linked to 28-day TIIE plus 365 basis points, maturing in September 2023.

- On October 7, 2022, Petróleos Mexicanos issued a promissory note for the principal amount of Ps. 1,500,000, bearing interest at a floating rate linked to 28-day TIIE plus 195 basis points, maturing in April 2023.

- On October 17, 2022, Petróleos Mexicanos issued a promissory note for the principal amount of Ps. 1,000,000, bearing interest at a floating rate linked to 28-day TIIE plus 195 basis points, maturing in April 2023.

- On October 26, 2022, Petróleos Mexicanos completed the exchange of notes previously issued under Rule 144A and under Regulation S for SEC-registered notes. The following table sets forth, the principal amount of the registered debt securities issued by Petróleos Mexicanos pursuant to such exchange of notes.

Security	Issuer	Guarantors	Principal amount outstanding U.S.$
8.750% Notes due 2029	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	1,984,688

- On October 28, 2022, Petróleos Mexicanos issued a promissory note for the principal amount of Ps. 500,000, bearing interest at a floating rate linked to 28-day TIIE plus 225 basis points, maturing in April 2023.

- On November 9, 2022, Petróleos Mexicanos subscribed a revolving credit line for the amount of Ps. 15,500,000, bearing interest at a floating rate linked to 28-day TIIE plus 350 basis points, maturing in November 2025. On November 28, 2022 Petróleos Mexicanos issued an amendment to increase the amount to Ps. 20,500,000.

- On November 14, 2022, Petróleos Mexicanos issued a promissory note for the principal amount of Ps. 1,300,000, bearing interest at a floating rate linked to 91-day TIIE plus 280 basis points, maturing in February 2023.

- On December 21, 2022, Petróleos Mexicanos subscribed a revolving credit line for the amount of U.S.$ 150,000, bearing interest at a floating rate linked to 90-day SOFR plus 295 basis points, maturing in June 2023.

- On December 29, 2022, Petróleos Mexicanos issued a promissory note for the principal amount of Ps. 2,000,000, bearing interest at a floating rate linked to 28-day TIIE plus 235 basis points, maturing in March 2023.

As of December 31, 2022, PEMEX had U.S.$7,664,000 and Ps. 29,500,000 in available credit lines in order to provide liquidity, which are fully used.

All the financing activities mentioned above were guaranteed by Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics and their respective successors and assignees.

As of December 31, 2022, the outstanding amount related to the factoring arrangement to support its suppliers amounted Ps. 18,447,086 (including U.S.$104,599) with maturities of 180 days linked to TIIE and CETES plus 160 and 280 basis points.

As of December 31, 2021, the outstanding amount under PMI Trading's revolving credit line was U.S.$202,547. From January 1 to December 31, 2022, PMI Trading obtained U.S.$1,736,218 from its revolving credit line and repaid U.S. $1,775,899. As of December 31, 2022, the outstanding amount under this revolving credit line was U.S.$162,866 and the available amount was U.S.$62,134.

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The Federal Revenue Law applicable to PEMEX as of January 1, 2021, published in the Official Gazette of the Federation on November 25, 2020, authorized Petróleos Mexicanos and its Subsidiary Entities to incur an internal net debt up to Ps. 22,000,000 and an external net debt up to U.S.$1,000,000. PEMEX can incur additional internal or external debt, as long as the total amount of net debt does not exceed the ceiling established by the Federal Revenue Law.

The Board of Directors approves the terms and conditions for the incurrence of obligations that constitute public debt of Petróleos Mexicanos for each fiscal year, in accordance with the Petróleos Mexicanos Law and the *Reglamento de la Ley de Petróleos Mexicanos* (Regulations to the Petróleos Mexicanos Law). The terms and conditions are promulgated in accordance with the guidelines approved by the SHCP for Petróleos Mexicanos for the respective fiscal year.

During the period from January 1 to December 31, 2021, PEMEX participated in the following financing activities (floating interest rates are disclosed after debt horizon table):

- On January 22, 2021, Petróleos Mexicanos entered into a credit agreement guaranteed by an export credit agency for a line of credit in the amount of U.S.$ 152,237 due January 2031, at a rate linked to the one-year London Inter Bank Offered Rate (LIBOR) plus 138 basis points.
- On May 10, 2021, Petróleos Mexicanos entered into a U.S.$ 400,000 term loan in two tranches, one of U.S.$ 65,000 and the second of U.S.$ 335,000, due March 2030 and 2031, respectively. Both tranches bear interest at a floating rate linked to six-month LIBOR plus 48 basis points.
- On May 21, 2021, Petróleos Mexicanos renewed and restructured a term loan for U.S.$ 300,000 which bears interest at a floating rate linked to three-month LIBOR plus a variable margin between 170 and 345 basis points determined by Petróleos Mexicanos' long-term currency denominated debt ratings.
- On July 8, 2021, Petróleos Mexicanos restructured the U.S.$150,000 term loan to a new U.S.$300,000 term loan due July 2024, which bears interest at a floating rate linked to three-month LIBOR plus 320 basis points.
- On July 16, 2021, Petróleos Mexicanos entered into a U.S.$750,000 term loan due January 2023, which bears interest at a floating rate linked to three-month LIBOR plus a variable margin between 170 and 345 basis points determined by Petróleos Mexicanos long-term currency denominated debt ratings.
- On October 19, 2021, Petróleos Mexicanos entered into a Ps. 4,000,000 term loan due April 15, 2022, which bears interest at a floating rate linked to the 182-day TIIE plus 248 basis points.
- On November 18, 2021, Petróleos Mexicanos, renewed and increase a promissory note entered into July 2021, for Ps. 3,000,000 and an original term of 120 days. This renewal was carried out for Ps. 4,000,000 and a term of 120 days at a rate linked to the 91-day TIIE plus 257.5 basis points.
- On December 16, 2021, Petróleos Mexicanos, entered into a promissory note of U.S.$1,000,000 of its 6.700% Notes due 2032 under its U.S.$112,000,000 Medium Term Notes Program, Series C.
- On December 16, 2021, Petróleos Mexicanos, entered into a promissory note for the principal amount of Ps. 3,000,000 bearing interest at a floating rate linked to the 182-day TIIE plus 260 basis points, with a maturity of 180 days.
- On December 17, 2021, Petróleos Mexicanos, renewed a promissory note entered into in June 2021 for the principal amount of Ps. 2,000,000 and an original term of 180 days. This renewal was agreed for an additional 180-day term at a rate linked to TIIE plus 260 basis points. In addition, Petróleos Mexicanos entered into a promissory note for the principal amount of Ps. 2,000,000 bearing interest at a floating rate of the 182-day TIIE plus 260 basis points with a maturity of 180 days.
- On December 20, 2021, Petróleos Mexicanos, renewed a loan for the principal amount of Ps. 500,000 and an original term of 180 days. This renewal was agreed for an additional 180-day term at a rate linked to three-month LIBOR plus 200 basis points.
- On December 21, 2021, Petróleos Mexicanos, entered into a promissory note for the principal amount of Ps. 500,000 bearing interest at a floating rate of the 28-day TIIE plus 190 basis points with a 90-day maturity.

- On December 23, 2021, Petróleos Mexicanos completed a liability management transaction consisting of private offers to exchange and offers to purchase (collectively, the "Offers"), pursuant to which Petróleos Mexicanos issued an additional U.S.$5,813,567 aggregate principal amount of its 6.700% Notes due 2032 and paid an amount of cash equal to U.S.$4,484,800 as consideration for the securities accepted in the Offers, accrued and unpaid interest and other transaction fees, costs and expenses in connection with the Offers.

All of the debt securities listed above are jointly and severally guaranteed by Pemex Exploration and Production, Pemex Industrial Transformation, Pemex Logistics and their respective successors and assignees.

As of December 31, 2021, PEMEX had U.S.$7,664,000 and Ps. 37,000,000 in available credit lines in order to provide liquidity, of which only U.S.$50,000 are available.

All of the financing activities mentioned above were guaranteed by Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics and their respective successors and assignees.

From January 1 to December 31, 2021, PMI Trading obtained U.S.$43,292,749 from its revolving credit line and repaid U.S.$43,369,772. As of December 31, 2021, the outstanding amount under this revolving credit line was U.S.$2,310,042.

Various financial transactions (including credit facilities and bond issuances) require compliance with various covenants that, among other things, place restrictions on the following types of transactions by PEMEX, subject to certain exceptions:

- The sale of substantial assets essential for the continued operations of its business.
- The incurrence of liens against its assets.
- Transfers, sales or assignments of rights to payment not yet earned under contracts for the sale of crude oil or natural gas, accounts receivable or other negotiable instruments.

As of December 31, 2022 and 2021 and as of the date of the issuance of these consolidated financial statements, PEMEX was in compliance with the covenants described above.

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(Figures stated in thousands, except as noted)

As of December 31, 2022 and 2021, debt was as follows:

			2022	
	Rate of interest [1]	Maturity	Pesos	Foreign currency
U.S. dollars				
Bonds	Fixed from 2.29% to 9.50%, SOFR plus 2.20% to 3.00% and LIBOR plus 0.35% to 0.43%	Various to 2060	1,164,663,984	U.S.$ 59,990,007
Project financing	Fixed from 2.96% and LIBOR plus 0.45% to 1.38%	Various to 2031	21,706,959	1,118,091
Direct loans	Fixed from 5.25%, LIBOR plus 1.75% to 3.50%	Various to 2031	58,490,408	3,012,749
Syndicated loans	LIBOR plus 2.35%	Various to 2024	48,535,750	2,500,000
Bank loans	Fixed at 3.50% and LIBOR plus 1.19% and 1.25%	2023	66,239	3,412
Revolving credit lines	SOFR plus 3.00%, LIBOR plus 3.58% and 3.75% and Fed effective plus 1.55%	2023	151,646,707	7,811,083
Financing of Infrastructure asset	Fixed from 5.40% and 8.40%	Various to 2036	23,896,275	1,230,859
Plus Factoring	SOFR plus 3.15%	2023	2,030,718	104,599
Total financing in U.S. dollars			1,471,037,040	U.S.$ 75,770,800
Euros				
Bonds	Fixed from 2.75% to 5.50% EURIBOR plus 2.40%	Various to 2030	192,131,988	€ 9,278,018
Direct loans	Fixed at 5.11%	Various to 2023	10,354,150	500,000
Total financing in Euros			202,486,138	€ 9,778,018
Japanese yen				
Bonds	Fixed from 0.54% to 3.50%	Various to 2026	16,157,618	¥ 109,915,769
Pesos				
Certificados bursátiles	TIIE plus 1.00% and fixed from 7.19% to 7.47%	Various to 2026	93,536,610	
Direct loans	Fixed from 6.55% and TIIE plus 0.85% to 3.65%	Various to 2029	56,802,606	
Plus Factoring	TIIE plus 2.55% to 2.80% and CETES plus 1.60% to 2.50%	2023	16,416,368	
Syndicated loans	TIIE plus 0.95%	Various to 2025	10,200,000	
Revolving credit lines	TIIE plus 1.50% to 3.50%	Various to 2023	29,500,000	
Monetization of Mexican Government Bonds	Fixed from 9.08200%	Various to 2024	99,739,938	
Total financing in pesos			306,195,522	
UDIs				
Certificados bursátiles	Fixed from 3.02% to 5.23%	Various to 2035	38,085,401	
Other currencies				
Bonds	Fixed from 1.75% and 3.75%	Various to 2025	18,138,980	
Total principal in pesos [2]			2,052,100,699	
Plus:				
Accrued interest			39,363,297	
Notes payable to contractors [3]			—	
Total principal and interest			2,091,463,996	
Less:				
Short-term maturities			426,584,386	
Current portion of notes payable to contractors [3]			—	
Accrued interest			39,363,297	
Total short-term debt and current portion of long-term debt			465,947,683	
Long-term debt			**Ps.1,625,516,313**	

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(Figures stated in thousands, except as noted)

	Rate of interest [1]	Maturity	2021	
			Pesos	Foreign currency
U.S. dollars				
Bonds	Fixed from 1.7% to 9.5% and LIBOR plus 0.35% to 3.65%	Various to 2060	Ps. 1,242,945,106	U.S.$ 60,385,508
Project financing	LIBOR plus 0.28% to 1.75%	Various to 2031	33,596,532	1,632,207
Direct loans	Fixed from 5.25% and LIBOR plus 1.07% to 3.50%	Various to 2031	60,802,906	2,953,963
Syndicated loans	LIBOR plus 2.35%	Various to 2024	51,458,750	2,500,000
Bank loans	Fixed at 3.50% and LIBOR plus 1.19% and 1.25%	Various to 2023	407,929	19,818
Revolving credit lines	LIBOR plus 2.0% to 3.75% and Fed effective plus 1.30%	2022	160,379,535	7,791,655
Financing of Infrastructure asset	Fixed from 5.40% and 8.40%	Various to 2036	27,232,062	1,323,004
Total financing in U.S. dollars			1,576,822,820	U.S.$ 76,606,155
Euros				
Bonds	Fixed from 1.875% to 5.50% EURIBOR plus 2.40%	Various to 2030	254,527,144	€ 10,873,232
Direct loans	Fixed at 5.11%	Various to 2023	11,704,300	500,000
Total financing in Euros			266,231,444	€ 11,373,232
Japanese yen				
Bonds	Fixed from 0.54% to 3.5%	Various to 2026	19,663,527	¥ 109,913,510
Pesos				
Certificados bursátiles	TIIE plus 1.00% and Fixed from 7.19% to 7.47%	Various to 2026	93,428,071	
Direct loans	Fixed from 6.55% and TIIE plus 0.85% to 5.24%	Various to 2029	34,420,635	
Plus Factoring	TIIE plus 2.37% to 3.32%	2022	20,003,268	
Syndicated loans	TIIE plus 0.95%	Various to 2025	15,000,000	
Revolving credit lines	TIIE plus 1.50% and 2.90%	Various to 2022	37,000,000	
Monetization of Mexican Government Bonds	Fixed at 8.56275%	Various to 2023	83,401,120	
Total financing in pesos			283,253,094	
UDIs				
Certificados bursátiles	Fixed from 3.02% to 5.23%	Various to 2035	35,454,689	
Other currencies				
Bonds	Fixed from 1.75% to 8.25%	Various to 2025	30,503,050	
Total principal in pesos [2]			2,211,928,624	
Plus:				
Accrued interest			37,338,471	
Notes payable to contractors[3]			428,799	
Total principal and interest			2,249,695,894	
Less:				
Short-term maturities			454,516,343	
Current portion of notes payable to contractors [3]			428,799	
Accrued interest			37,338,471	
Total short-term debt and current portion of long-term debt			492,283,613	
Long-term debt			**Ps. 1,757,412,281**	

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The following table presents the roll-forward of total debt of PEMEX for each of the year ended December 31, 2022 and 2021, which includes short and long-term debt:

	2022 [1]	2021 [1]
Changes in total debt:		
At the beginning of the year	Ps. 2,249,695,894	Ps. 2,258,727,317
Loans obtained - financing institutions [2]	1,064,179,416	1,652,151,747
Debt payments	(1,107,159,280)	(1,707,581,580)
Accrued interest [3][4]	160,020,297	162,903,771
Interest paid	(154,017,189)	(157,256,625)
Foreign exchange	(121,255,142)	40,751,264
At the end of the year	**Ps. 2,091,463,996**	**Ps. 2,249,695,894**

(1) These amounts include accounts payable by Financed Public Works Contracts ("FPWC") (formerly known as, Multiple Services Contracts), which do not generate cash flows.

(2) Petróleos Mexicanos implemented a factoring scheme to support its suppliers. Amounts for 2021 totaled Ps. 15,934,904, which did not represent cash flows.

(3) During 2022, includes Ps. 379,045 of premiums and awards amortizations; Ps. (355,978) of fees and expenses related to the issuance of debt and amortized cost of Ps. 3,827,232.

(4) During 2021, includes Ps. 3,290,673 of premiums and awards amortizations; Ps. (2,835,359) of fees and expenses related to the issuance of debt and amortized cost of Ps. 6,226,947.

	2023	2024	2025	2026	2027	2028 and thereafter	Total
Maturity of the total principal outstanding and accrued interest as of December 31, 2022, for each of the years ending December 31.	Ps. 465,947,683	250,055,685	92,786,910	165,272,035	146,108,988	971,292,695	Ps. 2,091,463,996

A. As of December 31, 2022 and 2021, interest rates were as follows: one week SOFR of 4.3%, three month SOFR of 4.58745%, three month EURIBOR of 2.132%, three month LIBOR of 4.76720% and 2.09130%, respectively; six month LIBOR of 5.13886% and 3.38750%, respectively; 12 month LIBOR of 5.48214% and 5.83130%, respectively; TIIE rate of 10.7605% and 5.715%, respectively, for 28 days; TIIE rate of 10.975% and 5.855%, respectively, for 91 days; and TIIE rate of 11.080% and 6.020%, respectively, for 182 days.

B. Includes financing from foreign banks of Ps. 1,763,576,383 and Ps. 1,946,136,632, as of December 31, 2022 and 2021, respectively.

C. The total amounts of notes payable to contractors as of December 31, 2022 and 2021, current and long-term, are as follows:

	2021
Total notes payable to contractors [1][2]	Ps. 428,799
Less: current portion of notes payable to contractors	428,799
Notes payable to contractors (long-term)	**Ps. —**

(1) PEMEX entered into FPWCs pursuant to which the hydrocarbons and construction in progress are property of Pemex Exploration and Production. Pursuant to the FPWC, the contractors manage the work in progress, classified as development, infrastructure and maintenance. As of December 31, 2021, PEMEX had no outstanding amount payable, as the agreement reached its maturity.

(2) During 2007, Pemex Exploration and Production contracted for the purchase of a Floating Production Storage and Offloading ("FPSO") vessel. The investment in the vessel totaled U.S.$723,575. As of December 31, 2022 there was no outstanding amount and as of December 31, 2021, the outstanding balance owed to the contractor was Ps. 445,299 (U.S.$21,437).

D. As of December 31, 2022 and 2021, PEMEX used the following exchange rates to translate the outstanding balances in foreign currencies to pesos in the statement of financial position:

	2022	2021
U.S. dollar	19.4143	20.5835
Japanese yen	0.1470	0.1789
Pounds sterling	23.3496	27.8834
Euro	20.7083	23.4086
Swiss francs	20.9791	22.5924

NOTE 17. LEASES

PEMEX leases plants, transportation and storage equipment, port facilities, buildings and land. Leases generally run for a period of one to twenty years, in some cases with an option to renew the lease after that date. Some lease payments are renegotiated every five years to reflect that the rent payments are market compliant. Some of the leases provide for additional rental payments that are based on changes in local price indexes. For certain leases, PEMEX has restrictions to enter into a sublease agreement.

Plants, transport and storage equipment, port facilities, buildings and land leases were entered into in previous years as service, transportation and building leases.

PEMEX has rights of use assets for equipment whose contractual terms are from one to three years. These leases are short-term and / or low-value item leases. PEMEX has decided not to recognize the right-of-use assets and lease liabilities for these leases.

Lease information where PEMEX is a lessee is presented as follows:

i. Rights of use assets are as follow:

	Rights of use assets							
	Transportation and storage equipment	Plants	Drilling equipment	Rights of use	Port facilities	Buildings	Lands	Total
Balance as of January 1, 2021	**Ps. 25,268,381**	**23,823,684**	**5,938,628**	**1,664,525**	**2,417,909**	**48,761**	**33,369**	**Ps. 59,195,257**
Depreciation of the year	(3,872,379)	(2,081,243)	(196,278)	(88,284)	(144,680)	(21,841)	(3,166)	(6,407,871)
Cancellations	(2,866,335)	(435,062)	—	—	—	—	—	(3,301,397)
Additions	2,119,878	2,419,911	—	—	82,388	35,157	616	4,657,950
Currency translation effect	18,381	—	—	—	33,020	401	692	52,494
Reversal of Impairment	—	—	—	87,025	—	—	—	87,025
Balance as of December 31, 2021	**Ps. 20,667,926**	**23,727,290**	**5,742,350**	**1,663,266**	**2,388,637**	**62,478**	**31,511**	**Ps. 54,283,458**
Depreciation of the year	(3,333,879)	(2,050,826)	(277,276)	(86,342)	(182,369)	(29,968)	(3,118)	(5,963,778)
Additions	4,396,333	—	434,451	—	451,013	36,400	336	5,318,533
Cancellations	(1,984,257)	(1,601,197)	—	—	—	—	—	(3,585,454)
Currency translation effect	(487,536)	—	—	—	(42,328)	(346)	(1,702)	(531,912)
Balance as of December 31, 2022	**Ps. 19,258,587**	**20,075,267**	**5,899,525**	**1,576,924**	**2,614,953**	**68,564**	**27,027**	**Ps. 49,520,847**
Estimated useful life	1 to 10 years	14 years	10 years	23 years	20 years	1 to 5 years	5 years	

ii. Leases liabilities are as follows:

	2022	2021
Lease liabilities recognized at January 1	Ps. 59,351,649	63,184,128
Additions	5,318,533	4,657,950
Cancellations	(4,392,850)	(3,734,303)
Payments of principal	(7,362,686)	(7,622,403)
Accrued interest	4,304,918	4,773,883
Interests paid	(3,274,137)	(3,646,028)
Foreign Exchange	(2,813,852)	1,738,422
Lease liabilities at December 31,	**Ps. 51,131,575**	**59,351,649**

The obligation recognized as of December 31, 2022 and 2021, amounted to Ps. 51,131,575 and Ps. 59,351,649, of which Ps. 6,680,488 and Ps. 7,902,874 were recognized in current liabilities and Ps. 44,451,087 and Ps. 51,448,775 in non-current liabilities, respectively.

iii. Amounts recognized in the statement of comprehensive Income

	2022	2021
Depreciation of rights of use	Ps. 5,963,778	Ps. 6,407,871
Interests from lease liabilities	4,445,315	4,985,566
Expenses related to short-term leases	106,695	105,789

iv. Amounts recognized in the statement of cash flows

	2022	2021
Lease payments (principal and interest)	Ps. (10,636,823)	Ps. (11,268,431)

NOTE 18. DERIVATIVE FINANCIAL INSTRUMENTS

PEMEX faces market risk caused by the volatility of hydrocarbon prices, exchange rates and interest rates, credit risk associated with investments and financial derivatives, as well as liquidity risk. In order to monitor and manage these risks, PEMEX has approved general provisions relating to financial risk management, which are comprised of policies and guidelines that promote an integrated framework for risk management, regulate the use of Derivative Financial Instruments (DFIs), and guide the development of risk mitigation strategies.

This regulatory framework establishes that DFIs should be used only for the purpose of mitigating financial risk. The use of DFIs for any other purpose must be approved in accordance with PEMEX's current internal regulation. PEMEX has a Financial Risk Working Group (FRWG) which is a specialized working group with decision-making authority on financial risk exposure, financial risk mitigation schemes, and DFIs trading of Petróleos Mexicanos, the subsidiary entities, and where applicable, the subsidiary companies.

Approved DFIs are mainly traded on the Over-the-Counter (OTC) market; however, exchange traded instruments may also be used. In the case of PMI Trading, DFIs are traded on CME-Clearport.

The different types of DFIs that PEMEX trades are described below in the subsections corresponding to each risk type and as related to the applicable trading markets.

One of PEMEX's policies is to contribute to minimizing the impact that unfavorable changes in financial risk factors have on its financial results by promoting an adequate balance between incoming cash flows from operations and outgoing cash flows related to its liabilities.

As part of the regulatory framework for financial risk management, PEMEX has established the eligible counterparties with which it may trade DFIs and other financial instruments.

In addition, certain PMI Subsidiaries have implemented a regulatory framework for risk management with respect to its activities, which consists of policies, guidelines and procedures to manage the market risk associated with its commodity trading activities in accordance with industry best practices, such as: 1) the use of DFIs for financial risk mitigation purposes; 2) the segregation of duties; 3) valuation and monitoring mechanisms, such as the generation of a daily portfolio risk report, value at risk ("VaR") computation; and 4) VaR limits, both at a global and business unit level and the implementation of stop loss mechanisms.

Given that PEMEX's outstanding DFIs have been entered into for risk mitigation purposes, particularly with economic hedging purposes, there is no need to establish and monitor market risk limits.

For those portfolios with an open market risk exposure, PEMEX's financial risk management regulatory framework establishes the implementation and monitoring of market risk metrics and limits (such as VaR, among others).

PEMEX has also established credit guidelines for DFIs that Pemex Industrial Transformation offers to its domestic customers, which include the use of guarantees and credit lines. For exchange traded DFIs PEMEX trades under the margin requirements of the corresponding exchange market, and therefore does not have internal policies for these DFIs.

DFIs held with financial counterparties do not require collateral exchange clauses. Notwithstanding, PEMEX's regulatory framework promotes credit risk mitigation strategies such as collateral exchange.

PEMEX does not have an independent third party to verify compliance with these internal standards; however, PEMEX has internal control procedures that certify compliance with existing policies and guidelines.

A. Risk Management

I. Market Risk

i. Interest rate risk

PEMEX is exposed to fluctuations in floating interest rate liabilities. PEMEX is exposed to U.S. dollar LIBOR, U.S. dollar SOFR and to Mexican peso TIIE. As of December 31, 2022, 18.7% of PEMEX's total net debt outstanding (including DFIs) consisted of floating rate debt.

Occasionally, for strategic reasons or in order to offset the expected inflows and outflows, PEMEX has entered into interest rate swaps and options. Through the swap agreements, PEMEX acquires the obligation to make payments based on a fixed interest rate in exchange for receiving payments referenced to a floating interest rate. On the other hand, under the option agreements, PEMEX acquires protection against possible raises in the floating interest rates of some of its liabilities.

As of December 31, 2022, Petróleos Mexicanos was a party to four interest rate swap agreements denominated in U.S. dollars for an aggregate notional amount of U.S.$511,250 at a weighted average fixed interest rate of 2.34% and a weighted average term of 2.5 years.

Similarly, in order to eliminate the volatility associated with variable interest rates of long-term financing operations, PMI NASA has also executed two interest rate swap agreements denominated in U.S. dollars for an aggregate notional amount of U.S. $1,378, at a weighted average fixed interest rate of 3.80% and a weighted average term of 0.17 years.

Moreover, PEMEX invests in pesos and U.S. dollars in compliance with applicable internal regulations, through portfolios that have different purposes that seek an adequate return subject to risk parameters that reduce the probability of capital losses. The objective of the investments made through these portfolios is to meet PEMEX's obligations payable in pesos and U.S. dollars.

The investments made through PEMEX's portfolios are exposed to domestic and international interest rate risk and credit spread risk derived from government and corporate securities, and inflation risk arising from the relationship between UDIs and pesos. However, these risks are mitigated by established limits on exposure to market risk.

IBOR reference rates transition

As a result of the decision made by the Financial Stability Board (FSB), the Interbank Offered Rates (IBORs), such as the LIBOR in dollars (over-night "O/N", one week "1W", two months "2M" and twelve months "12M") or the EURIBOR in Euros, ceased being published in 2022 and were required to be replaced by alternative reference rates, based on risk-free rates obtained from market operations.

The discontinuation of the publication of these rates was originally scheduled for December 2021. Nevertheless, on November 2020, the ICE Benchmark Administration Limited (known as "ICE") announced an extension until June 2023 for the publication of the most common LIBOR rates in dollars, (one month "1M", three months "3M", six months "6M" and twelve months "12M").

Therefore, PEMEX has identified and is reviewing contracts expiring after the applicable discontinuation dates, that could be impacted by the change in the aforementioned rates.

As of December 31, 2022, PEMEX has a reduced number of financial instruments referenced to floating rates in U.S. dollars with maturity and interest rate fixation after June 2023. This portfolio of financial instruments is composed of debt instruments and DFIs as shown below:

	Reference Rate	**Notional Amount As of December 31, 2022 (in thousands of each currency)*
Debt	LIBOR 1M U.S.$	471,780
	LIBOR 3M U.S.$	343,710
	LIBOR 6M U.S.$	787,068
DFI	LIBOR 1M U.S.$	2,500,000
	LIBOR 3M U.S.$	156,250
	LIBOR 6M U.S.$	243,750

* Note: Notional amounts with maturity after June 30, 2023.

Petróleos Mexicanos has a financial instrument denominated in Euros with the EURIBOR 3M as a reference rate. This reference will continue to be published, by agreement of the European financial authorities, so the current contract does not require any amendment.

In the event that TIIE ceases to be published, the portfolio of financial instruments referenced to these floating rates is composed of debt instruments and DFIs as shown below:

	Reference Rate	**Notional Amount As of December 31, 2022 (in thousands of each currency)*
Debt	TIIE 28D MXN	66,950,939
	TIIE 91D MXN	20,392,684
DFI	TIIE 28D MXN	31,733,673

* Note: Notional amounts with maturity after December 31, 2022.

PEMEX's portfolio also consists of additional debt instruments and DFIs referenced at fixed rates, which are not listed in the tables above since PEMEX's fixed rate portfolio will not be impacted by the IBOR transition.

Currently, PEMEX has been in constant communication with its counterparties, in order to carry out this transition in the most efficient way possible. In addition, as a result of the transition, PEMEX is working on any amendments to its contracts that may be required and is monitoring the evolution of the IBORs transition in the market, in order to anticipate any negative impact that these changes may have.

Derived from the transition to the alternative reference rates based on risk-free rates (RFR), PEMEX has adopted the policy of not entering into new DFIs referenced to IBOR rates. Additionally, some of the discount curves that PEMEX uses to obtain the fair value of its DFIs already include on their construction instruments of the corresponding currency referenced to the new RFR.

Additionally, as a result of the policy of not entering into new financing operations at floating rates linked to IBOR, during 2021 and 2022, PEMEX contracted financing operations in U.S. dollars at floating rates linked to the new RFR rates.

The credit agreements of PMI Trading include flexible provisions that help realize an orderly transition to an alternative rate in the event that the LIBOR rates ceased to be published. Currently, PMI Trading's negotiations to adopt the new benchmark rate have concluded and PMI Trading has agreed to the new benchmark of Secured Overnight Funding Rate (SOFR) starting on July 1, 2023, or on any previous date, once LIBOR ceases to be available.

ii. Exchange rate risk

Most of PEMEX's revenues are denominated in U.S. dollars, a significant amount of which is derived from exports of crude oil and petroleum products, which are priced and payable in U.S. dollars. Additionally, PEMEX's revenues from domestic sales of gasoline and diesel net of IEPS Tax, tax duties, incentives, and other related taxes, as well as domestic sales of natural gas and its byproducts, LPG and petrochemicals, are referenced to international U.S. dollar-denominated prices.

PEMEX's expenses related to hydrocarbon duties are calculated based on international U.S. dollar-denominated prices and the cost of hydrocarbon imports that PEMEX acquires for resale in Mexico or use in its facilities are indexed to international U.S. dollar-denominated prices. By contrast, PEMEX's capital expenditure and operating expenses are established in pesos.

As a result of this cash flow structure, the depreciation of the peso against the U.S. dollar increases PEMEX's financial balance. The appreciation of the peso relative to the U.S. dollar has the opposite effect. PEMEX manages this risk without the need for hedging instruments because the impact on PEMEX's revenues of fluctuations in the exchange rate between the U.S. dollar and the peso is offset in whole or in part by its impact on its obligations.

PEMEX prioritizes debt issuances denominated in U.S. dollars; nonetheless, this is not always achievable, hence non-U.S. dollar denominated debt issued in international currencies is hedged through DFIs to mitigate their exchange rate exposure, either by swapping it into U.S. dollars or through other derivative structures. The rest of the debt is denominated in pesos or in UDIs, and for the debt denominated in UDIs, it has been converted into pesos through DFIs in order to eliminate the inflationary risk exposure.

As a consequence of the above, PEMEX's debt issued in international currencies other than U.S. dollars has exchange rate risk mitigation strategies. PEMEX has selected strategies that further seek to reduce its cost of funding by leaving, in some cases, part of this exchange rate exposure unhedged when assessed as appropriate.

The underlying currencies of PEMEX's DFIs are the euro, Swiss franc, Japanese yen and pounds sterling against the U.S. dollar and UDIs against the peso.

As of December 31, 2022, PEMEX did not enter into any DFIs, since no debt in currencies other than U.S. dollars or pesos was issued.

During 2021, PEMEX carried out the restructure of five cross-currency swaps, two of them with a recouponing clause. These DFIs hedged the exchange rate exposure of a €1,000,000 debt with maturity in 2026, a €100,000 debt with maturity in 2030 and the 10% of a €1,250,000 debt with maturity in 2027. For this restructure PEMEX entered into, without cost, structures which are composed of a cross-currency swap and the sale of a call option, guaranteeing complete protection up to a certain exchange rate and partial protection above that level. These DFIs maintained the original contractual clauses. Once this restructure had been carried out, 25% of the issue with maturity in 2026 remained hedged with two cross-currency swaps.

Additionally, during 2020, PEMEX carried out the restructure of three cross-currency swaps, one of which had a recouponing provision. These DFIs hedged the exchange rate exposure of a €1,250,000 debt with maturity in 2027. For this restructuring, PEMEX entered into, without cost, structures which are composed of a cross-currency swap and the sale of a call option, guaranteeing complete protection up to a certain exchange rate and partial protection above that level. This allowed PEMEX to eliminate the recouponing provision without cost.

PEMEX recorded a total foreign exchange gain (loss) of Ps. 129,690,090, Ps. (45,675,050) and Ps. (128,949,304), for the years ended December 31, 2022, 2021 and 2020, respectively; these amounts include the unrealized foreign exchange gain (loss) associated with debt of Ps. 121,255,142, Ps. (40,751,264) and Ps. (122,099,058) for the years ended December 31, 2022, 2021 and 2020, respectively. Unrealized foreign exchange gains and losses do not impact PEMEX's cash flows. The appreciation of the peso during 2022 caused a total net foreign exchange gain because a significant part of PEMEX's debt, 85.08% (principal only) as of December 31, 2022, is denominated in a currency other than the Mexican peso. Due to the cash flow structure described above, the depreciation of the peso relative to the U.S. dollar does not affect PEMEX's ability to meet U.S. dollar-denominated financial obligations and it improves PEMEX's ability to meet peso-denominated financial obligations. On the other hand, the appreciation of the peso relative to the U.S. dollar may increase PEMEX's peso-denominated debt service costs on a U.S. dollar basis.

Certain of the PMI Subsidiaries face market risks generated by fluctuations in foreign exchange rates. In order to mitigate these risks, the boards of directors of several of these companies have authorized a policy which

stipulates that financial assets must be denominated in its functional currency, unless the company owes a duty or expected payment in a currency other than its functional one.

Finally, a significant amount of PMI Trading's income and expenses, including the cost of sales and related sales costs, is derived from the trade of refined products, petrochemicals and gas liquids to PEMEX subsidiaries and third parties, whose prices are determined and are payable in U.S. dollars. PMI Trading's exposure to foreign currency risk results primarily from the need to fund tax payments denominated in domestic currency, as well as from certain related sales costs denominated in domestic currency.

PMI Trading believes it can adequately manage the risk created by the payment of taxes in domestic currency without the need to enter into hedging instruments because the exposure to this risk is marginal relative to the total flows of U.S. dollar. In addition, in the event that a potential foreign exchange risk arises in connection with a commercial transaction, PMI Trading may implement risk mitigation measures by entering into DFIs.

iii. Hydrocarbon Price Risk

PEMEX periodically assesses its revenues and expenditures structure in order to identify the main market risk factors that PEMEX's cash flows are exposed to in connection with international hydrocarbon prices. Based on this assessment, PEMEX monitors its exposure to the most significant risk factors and quantifies their impact on PEMEX's financial balance.

PEMEX's exports and domestic sales are directly or indirectly related to international hydrocarbon prices. Therefore, PEMEX is exposed to fluctuations in these prices. In terms of crude oil and natural gas, part of this risk is transferred to the Mexican Government under PEMEX's current fiscal regime.

PEMEX's exposure to hydrocarbon prices is partly mitigated by natural hedges between its inflows and outflows.

Additionally, PEMEX continuously evaluates the implementation of risk mitigation strategies, including those involving the use of DFIs, taking into consideration their operative and budgetary feasibility.

In 2017, the Board of Directors of Petróleos Mexicanos approved the establishment of an Annual Oil Hedging Program. Since then, PEMEX has implemented hedging strategies to partially protect its cash flows from falls in the Mexican crude oil basket price below the one established in the Federal Revenue Law.

During 2019, PEMEX entered into a crude oil hedge for fiscal year 2020, pursuant to which PEMEX hedged 243 thousand barrels per day for the period between December 2019 and December 2020, for U.S.$178,268.

Afterwards, during 2020 PEMEX entered into a crude oil hedge for the first half of fiscal year 2021, pursuant to which PEMEX hedged 332.5 thousand barrels per day for the period between December 2020 and June 2021, for U.S.$119,920.

During the first half of 2021 PEMEX entered into a crude oil hedge for the second half of fiscal year 2021, pursuant to which PEMEX hedged 218 thousand barrels per day on average, for the period between July 2021 and December 2021, for U.S.$39,401.

During the second half of 2021 and the first half of 2022, PEMEX entered into a crude oil hedge for the fiscal year 2022, pursuant to which PEMEX hedged 309 thousand barrels per day on average for the period between January 2022 and December 2022, for U.S.$158,988.

Finally, during the second half of 2022, PEMEX entered into the crude oil hedge for the fiscal year 2023, pursuant to which PEMEX hedged 100 thousand barrels per day on average for the period between January 2023 and December 2023, for U.S.$69,652.

Additionally, PEMEX cash flows are exposed to crack spread movements as these determine the refining margin.

During the fourth quarter of 2022, PEMEX began the implementation of a hedging strategy to protect its cash flows exposed to diesel crack spread from decrements below the level established in the Federal Revenue Law for the fiscal year 2023. This is a zero-cost strategy.

In addition to supplying natural gas, Pemex Industrial Transformation can offer DFIs to its domestic customers in order to provide them with support to mitigate the risk associated with the volatility of natural gas prices.

Since 2017, when this service is offered, Pemex Industrial Transformation must enter into DFIs with Petróleos Mexicanos under the opposite position to those DFIs offered to its customers in order to mitigate the market risk it would bear under such offered DFIs. Petróleos Mexicanos then transfers the related price risk derived from the DFI position held with Pemex Industrial Transformation to financial counterparties by entering into the opposite position DFIs with such parties. As of December 31, 2022, there were no DFIs since all the DFIs in its portfolios expired in 2019. In case of entering into new trades, Pemex Industrial Transformation DFI portfolios have VaR and CaR limits in order to limit market risk exposure.

PMI Trading faces market risk generated by the terms of the purchase and sale of refined products and natural gas liquids, as well as the volatility of oil prices. Accordingly, it frequently enters into DFIs in order to mitigate this risk, thereby reducing the volatility of its financial results.

In accordance with the risk management regulatory framework that PMI Trading has implemented, VaR and the change in profit and loss by portfolio are calculated daily and compared to the maximum applicable limits in order to implement risk mitigation mechanisms as necessary.

iv. Market risk quantification

The quantification of market risk exposure in PEMEX's financial instruments is presented below, in accordance with the applicable international risk management practices.

Interest rate risk quantification

The quantification of interest rate risk of investment portfolios is carried out by using the one-day horizon historical VaR, with a confidence level of 95%, over a period of one year. The VaR incorporates interest rate and spread risks. In addition, for portfolios in domestic currency, the VaR includes the inflation risk embedded in securities denominated in UDI. For portfolio management purposes, interest rate risk is mitigated by VaR limits.

As of December 31, 2022, the VaRs of PEMEX's investment portfolios were Ps. (15.15) for the Peso Treasury Portfolio, Ps. 0.00 for FOLAPE, and U.S.$ 0.00 for the U.S. Dollar Treasury Portfolio.

Additionally, PEMEX has a portfolio of Mexican Government bonds. It is considered that these securities are not exposed to market risk, unlike the investment portfolios' securities. Therefore, there is no need to calculate a VaR.

In addition to the exposure to interest rate fluctuations of the DFIs in which PEMEX is obligated to make payments referenced to floating rates, PEMEX's DFIs are exposed to Mark-to-Market ("MtM") volatility as a result of changes in the interest rate curves used in their valuation.

Interest rate risk quantification was calculated for DFIs in conjunction with the interest rate risk quantification for the debt portfolio. The following table shows the sensitivity of PEMEX's DFIs and debt portfolio to a

parallel shift of 10 basis points (bp) over the zero coupon rate curves. The 10bp parallel shift may be used to estimate in a simple manner the impact for proportional values to this shift and was selected in accordance with market practices for financial risk management.

For the debt portfolio, interest rate risk sensitivity was calculated taking into account both the DFI interbank market yield curves and the PEMEX curves (which were also used to estimate the debt portfolios' fair value). These metrics were calculated solely for informational purposes and are not used for portfolio management purposes because PEMEX does not intend to prepay its debt or terminate its DFIs early. Therefore, there is no interest rate risk arising from fixed rate obligations.

INTEREST RATE and CURRENCY DFIs

Interest rate sensitivity to + 10 bp

	Interbank Yield Curves			PEMEX Curves
Currency	Sensitivity debt	Sensitivity DFIs	Sensitivity net	Sensitivity debt
CHF	U.S.$ 366	U.S.$ (368)	U.S.$ (2)	U.S.$ 357
Euro	30,739	(27,583)	3,156	23,409
Pound Sterling	1,468	(1,458)	10	1,312
Yen	2,418	(1,237)	1,181	2,064
Peso	12,349	454	12,803	11,534
UDI	10,510	(10,143)	367	8,770
U.S. dollar	786,744	176,361	963,105	254,268

In thousands of U.S. dollars
Figures not audited

In addition, PEMEX performed a retrospective sensitivity analysis of the impact on its financial statements for the years ended December 31, 2022, 2021 and 2020, in which PEMEX assumed either an increase or decrease of 25 basis points in the floating interest rates of its debt and corresponding hedges.

At December 31, 2022, 2021 and 2020, had market interest rates been 25 basis points higher, with all other variables remaining constant, the net income for the year ended December 31, 2022, would have been Ps. 796,763 lower, and the net loss for the years ended December 31, 2021 and 2020, would have been Ps. 895,382 and Ps. 606,839 higher, respectively, primarily as a result of an increase in interest expense. Conversely, had market interest rates been 25 basis points lower, the net income for the year ended December 31, 2022, would have been Ps. 796,763 higher, and the net loss for the years ended December 31, 2021 and 2020, would have been Ps. 895,382 and Ps. 606,839 lower, respectively, primarily as a result of a decrease in interest expense.

Exchange rate risk quantification

The investments of PEMEX's portfolios do not face foreign exchange rate risk because the funds of such portfolios are used to meet obligations in pesos and U.S. dollars.

Currency DFIs are entered into in order to hedge exchange rate risk arising from debt flows in currencies other than pesos and U.S. dollars or inflation risk arising from debt flows in UDIs. However, due to the accounting treatment, net income is exposed to MtM volatility, mainly as a result of changes in the exchange rates used in their valuation.

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Exchange rate risk quantification was calculated for DFIs in conjunction with the exchange rate risk quantification for the debt portfolio. The following table shows the sensitivity of PEMEX's DFIs and debt portfolio to an increase of 1% to the exchange rates of currencies against the U.S. dollar. The 1% may be used to estimate in a simple manner the impact for proportional values to this increase and was selected in accordance with market practices for financial risk management.

For the debt portfolio, exchange rate risk sensitivity was calculated taking into account both, interbank market yield curves and the PEMEX curves. In addition, the table shows the one-day horizon historical VaR of the remaining open position, with a confidence level of 95%, over a period of one year. These metrics were calculated solely for informational purposes. Nevertheless, in order to carry out management activities related to its debt portfolio, PEMEX periodically conducts quantitative analyses in order to estimate the exchange rate risk exposure generated by its debt issuances. Based on these analyses, PEMEX has elected to enter into DFIs as an exchange rate risk mitigation strategy. These DFIs along with the debt that they hedge are shown in the following table:

INTEREST RATE and CURRENCY DFIs

Exchange rate sensitivity +1% and VaR 95%

	Interbank Yield Curves				PEMEX Curves
Currency	Sensitivity Debt	Sensitivity DFIs	Sensitivity Net	VaR 95% Net	Sensitivity Debt
CHF	U.S.$ (3,913)	U.S.$ 3,964	U.S.$ 51	U.S.$ (42)	U.S.$ (3,850)
Euro	(111,148)	76,215	(34,933)	(36,092)	(96,480)
Pound Sterling	(5,336)	5,334	(2)	(3)	(4,863)
Yen	(8,463)	2,045	(6,418)	(7,542)	(7,567)
Peso	(164,652)	(17,471)	(182,123)	(165,737)	(161,607)
UDI	(21,259)	20,794	(465)	(435)	(19,120)

In thousands of U.S. dollars
Figures not audited

As shown in the table above, exchange rate risk derived from debt denominated in currencies other than pesos and U.S. dollars is almost fully hedged by DFIs. The exchange rate risk exposure to the Swiss franc, euro, pound sterling and Japanese yen is a result of the delta of the structures described above (Seagull Options and Calls), and considering the current exchange rate levels, represents a lower funding cost than the hedging strategies carried out through swaps.

In addition, PEMEX performed a retrospective sensitivity analysis of the impact on its financial statements of the years ended December 31, 2022, 2021 and 2020, in which PEMEX assumed either an increase or decrease of 10% in the exchange rate between the U.S. dollar and peso in order to determine the impact on net income and equity as a result of applying these new rates to the monthly balances of assets and liabilities denominated in U.S. dollars.

At December 31, 2022, 2021 and 2020, had the peso depreciated against the U.S. dollar by 10% with other variables remaining constant, the net income for the year ended December 31, 2022, would have been Ps. 198,697,226 lower, and the net loss for the years ended December 31, 2021 and 2020, would have been Ps. 172,056,924 and Ps. 168,334,391 higher, respectively, primarily as a result of an increase in the exchange rate losses. However, had the peso appreciated against the U.S. dollar by 10%, the net income for the year ended December 31, 2022, would have been higher by Ps. 198,697,226, and the net loss for the years ended December 31, 2021 and 2020, would have been lower by Ps. 172,056,924 and Ps. 168,334,391, respectively, primarily as a result of the decrease in exchange rate losses.

Hydrocarbon price risk quantification

Pemex Industrial Transformation occasionally faces market risk due to open positions arising from the mismatch between the DFI portfolio offered to domestic customers and hedges with international counterparties. As of December 31, 2022, Pemex Industrial Transformation's natural gas DFI portfolios had no market risk exposure since all the DFIs in its portfolios expired in 2019.

Open market risk exposure would be measured using the 20-day Delta-Gamma VaR methodology, with a confidence level of 95%, based on 500 daily observations; VaR and CaR would be monitored and mitigated by pre-established limits.

It should be noted that sensitivity analyses were not carried out for other financial instruments, such as accounts receivable and payable (as defined in the financial reporting standards). Such accounts are cleared in short-term, and therefore market risk is considered to be nonexistent. Most of these accounts are related to hydrocarbon prices.

In accordance with the risk management regulatory framework that PMI Trading has implemented, VaR and the change in profit and loss by portfolio are calculated daily and compared to the maximum applicable limits in order to implement risk mitigation mechanisms as necessary.

PMI Trading's global VaR associated with commodities market risk was U.S. $(4,064) as of December 31, 2022. This VaR was calculated using the historical method with a 95% confidence level, two-year history and a one-day horizon. The minimum VaR recorded on the year was U.S. $(2,504) (registered on December 12, 2022) and the maximum VaR recorded on the year was U.S. $(21,652) (registered on March 8, 2022). As of December 31, 2021, the global VaR 95% was U.S. $(4,614).

The quantification of crude oil price risk is carried out by using the one-day horizon historical VaR, with a confidence level of 95%, over a period of one year. As of December 31, 2022, this was U.S.$(8,191).

II. Credit Risk

When the fair value of a DFI is favorable to PEMEX, PEMEX faces the risk that the counterparty will not be able to meet its obligations. PEMEX monitors its counterparties' creditworthiness and calculates the credit risk exposure for its DFIs. As a risk mitigation strategy, PEMEX only enters into DFIs with major financial institutions with a minimum credit rating of BBB-. These ratings are issued and revised periodically by risk rating agencies. Furthermore, PEMEX seeks to maintain a diversified portfolio of counterparties.

In order to estimate PEMEX's credit risk exposure to each financial counterparty, the potential future exposure is calculated by projecting the risk factors used in the valuation of each DFI in order to estimate the MtM value for different periods, taking into account any credit risk mitigation provisions.

Moreover, PEMEX has entered into various long-term cross-currency swaps agreements with "recouponing" provisions (pursuant to which the payments on the swaps are adjusted when the MtM exceeds the relevant threshold specified in the swap), thereby limiting the exposure to its counterparties to a specific threshold amount, as well as the counterparties' exposure to PEMEX. The specified thresholds were reached in four cross-currency swap during 2022, which were used to hedge the exchange rate exposure to euro, and in one cross-currency swap during 2021, which was used to hedge the exchange rate exposure to the pounds sterling.

This resulted in the cash settlement of such swaps and the resetting of swap terms to return their MtM value to zero. During 2022, PEMEX did not enter into any new cross-currency swap with these characteristics.

Additionally, during 2022 PEMEX carried out a voluntary recouponing of a MXN/UDI cross-currency swap, which hedges an UDIs 721,564 debt with maturity in 2028.

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According to IFRS 13 “Fair Value Measurement,” the fair value or MtM value of DFIs must reflect the creditworthiness of the parties. Consequently, the fair value of a DFI takes into account the risk that either party may default on its obligation. Due to the above, PEMEX applies the credit value adjustment (“CVA”) method to calculate the fair value of its DFIs.

For each DFI, the CVA is calculated by determining the difference between the MtM and the estimated MtM adjusted for credit risk. In determining the credit risk, the CVA method takes into account the current market perception about the credit risk of both counterparties, using the following inputs: a) the MtM projection for each payment date based on forward yield curves; b) the implied default probability obtained from both, PEMEX and the counterparty’s credit default swaps, at each payment date; and c) the default recovery rates of each counterparty.

The current and potential exposures, aggregated by credit rating, are as follows:

Maximum Credit Exposure by term in Petróleos Mexicanos

Rating	Current	Less than 1 year	1-3 years	3-5 years	5-7 years	7-10 years	More than 10 years
A+	U.S.$ (176,154)	U.S.$ 166,520	U.S.$ 191,753	U.S.$ 111,377	U.S.$ 123,806	U.S.$ —	U.S.$ —
A	(102,791)	224,207	253,413	163,192	100,000	—	—
A-	(216,848)	378,031	218,832	253,977	124,570	—	—
BBB+	55,029	234,233	401,638	416,710	97,429	120,463	157,057
BBB	(52,181)	361,620	587,566	519,802	343,821	266,512	288,818
BBB-	(137,999)	29,622	90,515	123,290	148,267	—	—

in thousands of U.S. dollars
Figures not audited

Maximum Credit Exposure by term in Petróleos Mexicanos including debt

Rating	Current	Less than 1 year	1-3 years	3-5 years	5-7 years	7-10 years	More than 10 years
A+	U.S.$ —	U.S.$ —	U.S.$ —	U.S.$ 111,377	U.S.$ 123,806	U.S.$ —	U.S.$ —
A	—	—	3,413	163,192	100,000	—	—
A-	—	96,659	147,895	253,977	124,570	—	—
BBB+	—	—	—	416,710	97,429	120,463	157,057
BBB	—	—	—	519,802	343,821	266,512	288,818
BBB-	—	29,622	90,515	123,290	148,267	—	—

in thousands of U.S. dollars
Figures not audited

PEMEX also faces credit risk derived from its investments. As of December 31, 2022, the position in domestic currency was in Mexican Government bonds in pesos. Given the current credit rating, the default probability in this currency is zero according to the default’s frequency matrices from rating agencies, therefore no quantification or disclosure of this exposure is made.

Furthermore, by means of its credit guidelines for DFI operations, Pemex Industrial Transformation significantly reduces its credit risk exposure related to the DFIs.

In order to qualify for these DFIs, Pemex Industrial Transformation's customers must be party to a current natural gas supply contract and sign a domestic master derivative agreement.

Additionally, according to the credit guidelines, DFIs with these customers must be initially secured by cash deposits, letters of credit or other collateral provisions, as required. The credit guidelines indicate that Pemex Industrial Transformation may offer DFIs with an exemption from collateral requirements up to a certain amount, through a credit line approved by the credit committee, based on an internal financial and credit assessment. Moreover, if the credit line is insufficient to cover each client's exposure, the client is obligated to deposit collateral.

In accordance with these guidelines, in the event that a client does not meet its payment obligations, DFIs related to this client would be terminated, rights to any available collateral would be exercised and, if the collateral were insufficient to cover the fair value, or in the absence of collateral, natural gas supply would be suspended until the payment is made.

As of December 31, 2022, Pemex Industrial Transformation had no DFIs since all the DFIs of its portfolios expired in 2019. As such, once the total settlement of the operations was carried out, the exempt credit lines expired, and the guarantees deposited by the clients were entirely returned.

PMI Trading's credit risk associated with DFI transactions is mitigated through the use of futures and standardized instruments that are cleared through CME-Clearport.

III. Liquidity Risk

PEMEX's main internal source of liquidity comes from its operations. Additionally, through its debt planning and the purchase and sale of U.S. dollars, PEMEX currently preserves a cash balance at a level of liquidity in domestic currency and U.S. dollars that is considered adequate to cover its investment and operating expenses, as well as other payment obligations, such as those related to DFIs.

In addition, as of December 31, 2022, Petróleos Mexicanos has acquired committed revolving credit lines in order to mitigate liquidity risk, two of which provide access to Ps. 20,500,000 and Ps. 9,000,000 with expiration dates in November 2025 and November 2023, respectively; and another that provides access to U.S. $5,500,000 with expiration date in June 2024. As of December 31, 2022, these credit lines are fully used (see Note 16).

During 2021, PEMEX entered into FX Forwards MXN/U.S.$ in order to preserve an adequate level of liquidity in U.S. dollars. As of December 31, 2021, the accumulated notional amount of these instruments was U.S. $600,000.

During 2022, PEMEX entered into FX Forwards MXN/U.S.$ in order to preserve an adequate level of liquidity in U.S. dollars. As of December 31, 2022, none of these DFIs were outstanding.

Finally, the investment strategies of PEMEX's portfolios are structured by selecting time horizons that consider each currency's cash flow requirements in order to preserve liquidity.

Certain PMI Subsidiaries mitigate their liquidity risk through several mechanisms, the most important of which is its centralized treasury, which provides access to two syndicated credit facilities for up to U.S. $664,000 and U.S.$ 1,500,000, respectively (the latter was transferred from Petróleos Mexicanos to PMI during December 2020) and cash surplus capacity in the custody of the centralized structure. In addition, certain PMI Subsidiaries have access to bilateral credit lines from financial institutions for up to U.S. $130,000.

These companies monitor their cash flow on a daily basis and protect their creditworthiness in the financial markets. Liquidity risk is mitigated by monitoring certain financial ratios as set forth in the policies approved by each company's board of directors.

The following tables show the cash flow maturities as well as the fair value of PEMEX's debt and DFI portfolios as of December 31, 2022, and 2021. It should be noted that:

- For debt obligations, these tables present principal cash flow and the weighted average interest rates for fixed rate debt.
- For interest rate swaps, interest rate options, cross-currency swaps and currency options, these tables present notional amounts and weighted average interest rates by expected (contractual) maturity dates.
- Weighted average variable rates are based on implied forward rates obtained from the interbank market yield curve at the reporting date.
- For crude oil and crack spread, volumes are presented in millions of barrels, and fixed average and strike prices are presented in U.S. dollars per barrel.
- DFIs' fair value includes CVA and is calculated based on market quotes obtained from market sources such as Bloomberg, *Proveedor Integral de Precios, S.A. de C.V.* ("PIP"), among others.
- For PMI Trading, the prices used in commercial transactions and DFIs are published by reputable sources that are widely used in international markets, such as CME-NYMEX, Platts and Argus, among others.
- Fair value is calculated internally, either by discounting cash flows with the corresponding zero-coupon yield curve in the original currency, or through other standard methodologies commonly used in financial markets for specific instruments.
- For all instruments, the tables are based on the contract terms in order to determine the future cash flows that are categorized by expected maturity dates.

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Quantitative Disclosure of Debt Cash Flow Maturities as of December 31, 2022[1][2]

	Year of expected maturity date							
	2023	2024	2025	2026	2027	2028 Thereafter	Total Carrying Value	Fair Value
Liabilities								
Outstanding debt								
Fixed rate (U.S. dollars)	Ps. 49,003,377	Ps. 22,392,384	Ps. 34,634,833	Ps. 74,001,164	Ps. 116,556,308	Ps. 895,763,628	Ps. 1,192,351,694	Ps. 1,011,100,409
Average interest rate (%)	—	—	—	—	—	—	6.59%	
Fixed rate (Japanese yen)	4,410,000	—	—	11,747,618	—	—	16,157,618	14,691,136
Average interest rate (%)	—	—	—	—	—	—	1.35%	
Fixed rate (pound sterling)	—	—	10,479,479	—	—	—	10,479,479	9,441,285
Average interest rate (%)	—	—	—	—	—	—	3.75%	
Fixed rate (pesos)	38,129,345	118,930,168	—	31,135,724	—	—	188,195,237	182,158,536
Average interest rate (%)	—	—	—	—	—	—	7.76%	
Fixed rate (UDIs)	—	—	—	24,060,801	—	14,024,600	38,085,401	37,120,498
Average interest rate (%)	—	—	—	—	—	—	4.09%	
Fixed rate (euros)	28,979,202	25,859,165	34,142,241	20,714,535	25,865,189	53,510,465	189,070,797	173,811,236
Average interest rate (%)	—	—	—	—	—	—	4.30%	
Fixed rate (Swiss francs)	7,659,500	—	—	—	—	—	7,659,500	7,475,294
Average interest rate (%)	—	—	—	—	—	—	1.75%	
Total fixed rate debt	**Ps. 128,181,424**	**Ps. 167,181,717**	**Ps. 79,256,553**	**Ps. 161,659,842**	**Ps. 142,421,497**	**Ps. 963,298,693**	**Ps. 1,641,999,726**	**Ps. 1,435,798,394**
Variable rate (U.S. dollars)	Ps. 204,537,935	Ps. 57,417,565	Ps. 5,739,676	Ps. 2,398,477	Ps. 2,487,239	Ps. 6,104,457	Ps. 278,685,349	Ps. 272,536,429
Variable rate (euros)	13,415,342	—	—	—	—	—	13,415,342	13,497,422
Variable rate (pesos)	80,449,683	25,456,403	7,790,683	1,213,716	1,200,252	1,889,545	118,000,282	131,589,540
Total variable rate debt	**Ps. 298,402,960**	**Ps. 82,873,968**	**Ps. 13,530,359**	**Ps. 3,612,193**	**Ps. 3,687,491**	**Ps. 7,994,002**	**Ps. 410,100,973**	**Ps. 417,623,391**
Total debt	**Ps. 426,584,384**	**Ps. 250,055,685**	**Ps. 92,786,912**	**Ps. 165,272,035**	**Ps. 146,108,988**	**Ps. 971,292,695**	**Ps. 2,052,100,699**	**Ps. 1,853,421,785**

Note: Numbers may not total due to rounding.

(1) The information in this table has been calculated using exchange rates at December 31, 2022, of Ps. 19.4143 = U.S. $1.00; Ps. 0.1470 = 1.00 Japanese yen; Ps. 23.3496 = 1.00 pound sterling; Ps. 7.646804 = 1.00 UDI; Ps. 20.7083 = 1.00 euro; and Ps. 20.9791 = 1.00 Swiss franc.

(2) Does not include accrued interest.

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Quantitative Disclosure of Debt Cash Flow Maturities as of December 31, 2021[1][2]

	Year of expected maturity date							
	2022	2023	2024	2025	2026	2027 Thereafter	Total Carrying Value	Fair Value
Liabilities								
Outstanding debt								
Fixed rate (U.S. dollars)	Ps. 37,913,852	Ps. 50,307,730	Ps. 23,079,032	Ps. 36,124,005	Ps. 78,925,073	Ps. 1,032,384,964	Ps. 1,258,734,656	Ps. 1,294,291,227
Average interest rate (%)	—	—	—	—	—	—	6.00%	
Fixed rate (Japanese yen)	—	5,367,000	—	—	14,296,527	—	19,663,527	18,454,292
Average interest rate (%)	—	—	—	—	—	—	1.00%	
Fixed rate (pounds sterling)	9,753,906	—	—	12,508,863	—	—	22,262,769	23,002,138
Average interest rate (%)	—	—	—	—	—	—	6.00%	
Fixed rate (pesos)	85,401,120	—	57,280,273	—	31,048,584	—	173,729,977	171,407,986
Average interest rate (%)	—	—	—	—	—	—	8.00%	
Fixed rate (UDIs)	—	—	—	—	22,428,519	13,026,170	35,454,689	35,287,367
Average interest rate (%)	—	—	—	—	—	—	4.00%	
Fixed rate (euros)	37,384,961	32,746,388	29,205,234	38,593,629	23,400,183	89,686,575	251,016,970	260,931,866
Average interest rate (%)	—	—	—	—	—	—	4.00%	
Fixed rate (Swiss francs)	—	8,240,281	—	—	—	—	8,240,281	8,302,575
Average interest rate (%)	—	—	—	—	—	—	2.00%	
Total fixed rate debt	**Ps. 170,453,839**	**Ps. 96,661,399**	**Ps. 109,564,539**	**Ps. 87,226,497**	**Ps. 170,098,886**	**Ps. 1,135,097,709**	**Ps. 1,769,102,869**	**Ps. 1,811,677,451**
Variable rate (U.S. dollars)	Ps. 200,020,654	Ps. 34,147,302	Ps. 61,710,357	Ps. 6,949,574	Ps. 3,382,861	Ps. 12,306,214	Ps. 318,516,962	Ps. 274,925,000
Variable rate (euros)	—	15,214,474	—	—	—	—	15,214,474	15,241,361
Variable rate (pesos)	84,470,650	7,029,082	10,790,839	6,907,513	206,075	118,960	109,523,119	109,857,819
Total variable rate debt	**Ps. 284,491,304**	**Ps. 56,390,858**	**Ps. 72,501,196**	**Ps. 13,857,087**	**Ps. 3,588,936**	**Ps. 12,425,174**	**Ps. 443,254,555**	**Ps. 400,024,180**
Total debt	**Ps. 454,945,143**	**Ps. 153,052,257**	**Ps. 182,065,735**	**Ps. 101,083,584**	**Ps. 173,687,822**	**Ps. 1,147,522,883**	**Ps. 2,212,357,424**	**Ps. 2,211,701,631**

Note: Numbers may not total due to rounding.

(1) The information in this table has been calculated using exchange rates at December 31, 2021, of Ps. 20.5835 = U.S. $1.00; Ps. 0.1789 = 1.00 Japanese yen; Ps. 27.8834 = 1.00 pound sterling; Ps. 7.108233 = 1.00 UDI; Ps. 23.4086 = 1.00 euro; and Ps. 22.5924 = 1.00 Swiss franc.

(2) Does not include accrued interest.

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Quantitative Disclosure of Cash Flow Maturities from Derivative Financial Instruments Held or Issued for Purposes Other than Trading as of December 31, 2022[1] [2]

	Year of expected maturity date							
	2023	2024	2025	2026	2027	2028 Thereafter	Total Carrying Value	Fair Value (3)
Hedging Instruments								
Interest Rate DFI (2)(4)								
Interest Rate Swaps (U.S. dollars)								
Variable to fixed	Ps. 4,346,428	Ps. 3,227,627	Ps. 2,378,252	Ps. —	Ps. —	Ps. —	Ps. 9,952,307	Ps. 409,459
Average pay rate	2.37%	2.35%	2.31%	0.00%	0.00%	0.00%	N.A.	N.A.
Average receive rate	5.45%	5.07%	4.34%	0.00%	0.00%	0.00%	N.A.	N.A.
Interest Rate Options								
Buy Cap, Sell Floor on floating in U.S. dollar LIBOR 1M	Ps. —	Ps. 48,535,750	Ps. —	Ps. —	Ps. —	Ps. —	Ps. 48,535,750	Ps. 2,263,382
Currency DFI								
Cross-currency swaps								
Receive euros/Pay U.S. dollars	Ps. 45,303,255	Ps. 25,853,538	Ps. 37,200,560	Ps. 21,259,267	Ps. 26,074,861	Ps. 56,631,520	Ps. 212,323,001	Ps. (11,745,814)
Receive Japanese yen/Pay U.S. dollars	4,685,672	—	—	—	—	—	4,685,672	(231,855)
Receive pounds sterling/Pay U.S. dollars	—	—	11,486,665	—	—	—	11,486,665	(1,123,000)
Receive UDI/Pay pesos	—	—	3,063,181	17,076,001	—	11,594,491	31,733,673	6,147,449
Receive Swiss francs/Pay U.S. dollars	7,086,220	—	—	—	—	—	7,086,220	620,453
Currency Options								
Buy Put, Sell Put and Sell Call on Japanese yen	Ps. —	Ps. —	Ps. —	Ps. 11,845,210	Ps. —	Ps. —	Ps. 11,845,210	Ps. (461,140)
Buy Call, Sell Call and Sell Put on euros	—	25,978,760	15,067,681	—	—	25,978,760	67,025,201	(4,750,485)
Sell Call on pounds sterling	—	—	10,556,234	—	—	—	10,556,234	(2,835)
Sell Call on Swiss francs	7,664,921	—	—	—	—	—	7,664,921	(1,617)
Sell Call on Euros	13,508,955	—	13,508,955	15,587,256	25,978,760	28,057,061	96,640,987	(375,031)
FX Forwards								
Receive U.S. dollars / Pay pesos	Ps. —	Ps. —	Ps. —	Ps. —	Ps. —	Ps. —	Ps. —	Ps. —

N.A. = not applicable.

Numbers may not total due to rounding.

(1) The information in this table has been calculated using exchange rates at December 31, 2022, of Ps. 19.4143 = U.S. $1.00 and Ps. 20.7083 = 1.00 euro.

(2) PEMEX's management uses these DFIs to hedge market risk; however, these DFIs do not qualify for accounting purposes as hedges and are recorded in the financial statements as entered into for trading purposes.

(3) Positive numbers represent a favorable fair value to PEMEX.

(4) PMI's risk management policies and procedures establish that DFIs should be used only for hedging purposes; however, DFIs are not recorded as hedges for accounting purposes.

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Quantitative Disclosure of Cash Flow Maturities from Derivative Financial Instruments Held or Issued for Purposes Other than Trading as of December 31, 2021[1][2]

	Year of expected maturity date							
	2022	2023	2024	2025	2026	2027 Thereafter	Total Carrying Value	Fair Value (3)
Hedging Instruments								
Interest Rate DFI (2)(4)								
Interest Rate Swaps (U.S. dollars)								
Variable to fixed	Ps. 4,754,104	Ps. 4,608,186	Ps. 3,422,007	Ps. 2,521,479	Ps. —	Ps. —	Ps. 15,305,776	Ps. (263,340)
Average pay rate	2.43%	2.37%	2.35%	2.31%	0.00%	0.00%	N.A.	N.A.
Average receive rate	0.86%	1.65%	2.12%	2.26%	0.00%	0.00%	N.A.	N.A.
Interest Rate Options								
Buy Cap, Sell Floor on floating in U.S. dollar LIBOR 1M	Ps. —	Ps. —	Ps. 51,458,750	Ps. —	Ps. —	Ps. —	Ps. 51,458,750	Ps. (323,852)
Currency DFI								
Cross-currency swaps								
Receive euros/Pay U.S. dollars	Ps. 36,728,355	Ps. 48,031,582	Ps. 27,410,532	Ps. 40,585,768	Ps. 23,338,421	Ps. 87,687,261	Ps. 263,781,919	Ps. (4,217,800)
Receive Japanese yen/Pay U.S. dollars	—	4,967,860	—	—	—	—	4,967,860	70,651
Receive pounds sterling/Pay U.S. dollars	10,327,298	—	—	12,178,434	—	—	22,505,732	(94,957)
Receive UDI/Pay pesos	—	—	—	3,063,181	17,076,001	10,374,031	30,513,213	6,159,382
Receive Swiss francs/Pay U.S. dollars	—	7,512,978	—	—	—	—	7,512,978	524,471
Currency Options								
Buy Put, Sell Put and Sell Call on Japanese yen	Ps. —	Ps. —	Ps. —	Ps. —	Ps. 14,308,629	Ps. —	Ps. 14,308,629	Ps. (206,526)
Buy Call, Sell Call and Sell Put on euros	—	—	29,253,527	16,967,046	—	29,253,527	75,474,100	(1,398,532)
Sell Call on pounds sterling	—	—	—	12,534,024	—	—	12,534,024	(27,896)
Sell Call on Swiss francs	—	8,229,792	—	—	—	—	8,229,792	(12,202)
Sell Call on Euros	14,041,693	15,211,834	—	15,211,834	17,552,116	60,847,337	122,864,814	(917,025)
FX Forwards								
Receive U.S. dollars / Pay pesos	Ps. 12,340,413	Ps. —	Ps. —	Ps. —	Ps. —	Ps. —	Ps. 12,340,413	Ps. 3,575

N.A. = not applicable.

Numbers may not total due to rounding.

(1) The information in this table has been calculated using exchange rates at December 31, 2021, of Ps. 20.5835 = U.S. $1.00 and Ps. 23.4086 = 1.00 euro.

(2) PEMEX's management uses these DFIs to hedge market risk; however, these DFIs do not qualify for accounting purposes as hedges and are recorded in the financial statements as entered into for trading purposes.

(3) Positive numbers represent a favorable fair value to PEMEX.

(4) PMI's risk management policies and procedures establish that DFIs should be used only for hedging purposes; however, DFIs are not recorded as hedges for accounting purposes.

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The following tables show the estimated amount of principal and interest cash flow maturities of PEMEX's financial liabilities as of December 31, 2022 and 2021 (DFIs are not included):

Financial Liabilities Interest and Principal Cash Flow Maturities as of December 31, 2022[1]

		Year of expected maturity date						
	Total Carrying Value	2023	2024	2025	2026	2027	2028 Thereafter	Total
Financial Liabilities								
Suppliers	Ps. 282,245,250	Ps. 282,245,250	Ps. —	Ps. —	Ps. —	Ps. —	Ps. —	Ps. 282,245,250
Accounts and accrued expenses Payable	81,808,426	81,808,426	—	—	—	—	—	81,808,426
Leases	51,131,575	12,675,801	9,520,188	7,597,880	6,872,446	6,326,035	38,294,561	81,286,911
Debt	2,091,463,996	589,247,128	364,516,602	180,784,946	248,156,834	213,073,284	1,828,545,637	3,424,324,431
Total	Ps. 2,506,649,247	Ps. 965,976,605	Ps. 374,036,790	Ps. 188,382,826	Ps. 255,029,280	Ps. 219,399,319	Ps. 1,866,840,198	Ps. 3,869,665,018

Note: Numbers may not total due to rounding.

(1) The information in this table has been calculated using exchange rates at December 31, 2022, of Ps. 19.4143 = U.S. $1.00; Ps. 0.1470 = 1.00 Japanese yen; Ps. 23.3496 = 1.00 pound sterling; Ps. 7.646804 = 1.00 UDI; Ps. 20.7083 = 1.00 euro; and Ps. 20.9791 = 1.00 Swiss franc.

Financial Liabilities Interest and Principal Cash Flow Maturities as of December 31, 2021[1]

		Year of expected maturity date						
	Total Carrying Value	2022	2023	2024	2025	2026	2027 Thereafter	Total
Financial Liabilities								
Suppliers	Ps. 264,056,358	Ps. 264,056,358	Ps. —	Ps. —	Ps. —	Ps. —	Ps. —	Ps. 264,056,358
Accounts and accrued expenses Payable	32,015,808	32,015,808	—	—	—	—	—	32,015,808
Leases	59,351,648	12,605,808	9,419,274	8,532,225	7,607,774	6,623,833	48,274,654	93,063,568
Debt	2,249,695,894	476,595,081	345,041,866	278,703,016	188,640,855	254,935,624	2,114,074,975	3,657,991,417
Total	Ps. 2,605,119,708	Ps. 785,273,055	Ps. 354,461,140	Ps. 287,235,241	Ps. 196,248,629	Ps. 261,559,457	Ps. 2,162,349,629	Ps. 4,047,127,151

Note: Numbers may not total due to rounding.

(1) The information in this table has been calculated using exchange rates on December 31, 2021, of Ps. 20.5835 = U.S. $1.00; Ps. 0.1789 = 1.00 Japanese yen; Ps. 27.8834 = 1.00 Pound sterling; Ps. 7.108233 = 1.00 UDI; Ps. 23.4086 = 1.00 euro; and Ps. 22.5924 = 1.00 Swiss franc.

B. Fair value of derivative financial instruments

PEMEX periodically evaluates its exposure to international hydrocarbon prices, interest rates and foreign currencies and uses derivative instruments as a mitigation mechanism when potential sources of market risk are identified.

PEMEX monitors the fair value of its DFI portfolio on a periodic basis. The fair value represents the price at which one party would assume the rights and obligations of the other and is calculated for DFIs through models commonly used in the international financial markets, based on inputs obtained from major market information systems and price providers. Therefore, PEMEX does not have an independent third party to value its DFIs.

PEMEX calculates the fair value of its DFIs through the tools developed by its market information providers, and through valuation models implemented in software packages used to integrate all of PEMEX´s business areas and accounting, such as SAP (System Applications Products).

PEMEX's DFI portfolio is composed primarily of swaps, for which fair value is estimated by projecting future cash flows and discounting them with the corresponding discount factor; for currency and interest rate options, this is done through the Black and Scholes model, and for crude oil options, through the Levy model for Asian options.

According to IFRS 13 "Fair Value Measurement", the MtM value of DFIs must reflect the creditworthiness of the parties. Consequently, the fair value of a DFI takes into account the risk that either party may default on its obligation. Due to the above, PEMEX applies the credit value adjustment ("CVA") method to calculate the fair value of its DFIs.

Given that PEMEX's hedges are cash flow hedges, their effectiveness is preserved regardless of variations in the underlying assets or reference variables since, through time, asset flows are offset by liabilities flows. Therefore, it is not necessary to measure or monitor the hedges' effectiveness.

PEMEX's assumptions and inputs considered in the calculation of the fair value of its DFIs fall under Level 2 of the fair value hierarchy for market participant assumptions.

Embedded derivatives

In accordance with established accounting policies, PEMEX has analyzed the different contracts that PEMEX has entered into and has determined that according to the terms thereof none of these agreements meet the criteria to be classified as embedded derivatives. Accordingly, as of December 31, 2022 and 2021, PEMEX did not recognize any embedded derivatives (foreign currency or index).

Accounting treatment

PEMEX enters into derivatives transactions with the sole purpose of hedging financial risks related to its operations, firm commitments, planned transactions and assets and liabilities recorded on its statement of financial position. Nonetheless, some of these transactions do not qualify for hedge accounting treatment because they do not meet the requirements of the accounting standards for designation as hedges. They are therefore recorded in the financial statements as instruments entered into for trading purposes, despite the fact that their cash flows are offset by the cash flows of the positions (assets or liabilities) to which they relate. As a result, the changes in their fair value are recognized in the "Derivative financial instruments (cost) income, net" line item in the consolidated statement of comprehensive income.

As of December 31, 2022 and 2021, the net fair value of PEMEX's DFIs (including both DFIs that have not reached maturity and those that have reached maturity but have not been settled), recognized in the consolidated statement of financial position, was Ps. (9,486,488) and Ps. (1,162,119), respectively. As of December 31, 2022, and 2021, PEMEX did not have any DFIs designated as hedges.

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The following table shows the fair values and notional amounts of PEMEX's DFIs, including those with an open position and those that have matured but that have not been settled, which were designated as non-hedges for accounting purposes and entered into for trading purposes as of December 31, 2022 and 2021. It should be noted that:

- DFIs' fair value includes CVA and is calculated based on market quotes obtained from market sources such as Bloomberg, *Proveedor Integral de Precios, S.A. de C.V.*, among others.
- Fair value is calculated internally, either by discounting cash flows with the corresponding zero-coupon yield curve, in the original currency, or through other standard methodologies commonly used in the financial markets for certain specific instruments.

		December 31, 2022		December 31, 2021	
DFI	**POSITION**	**Notional Amount**	**Fair Value**	**Notional Amount**	**Fair Value**
Interest rate swaps	PEMEX pays fixed in U.S. dollar and receives floating in 3-month U.S. dollar LIBOR + spread.	Ps. 4,246,878	Ps. 122,931	Ps. 7,075,578	Ps. (137,382)
Interest rate swaps	PEMEX pays fixed in U.S. dollar and receives floating in 6-month U.S. dollar LIBOR + spread.	5,678,683	286,469	8,027,565	(123,206)
Cross-currency swaps	PEMEX pays the 28-day TIIE + spread in pesos and receives fixed in UDI.	31,733,673	6,147,449	30,513,214	6,159,382
Cross-currency swaps	PEMEX pays fixed in U.S. dollar and receives fixed in Japanese yen.	4,685,672	(231,856)	4,967,860	70,651
Cross-currency swaps	PEMEX pays floating in 3-month U.S. dollar LIBOR + spread and receives floating in 3-month euro LIBOR + spread.	14,868,234	(1,361,333)	15,763,653	(471,040)
Cross-currency swaps	PEMEX pays fixed in U.S. dollar and receives fixed in euro.	197,454,768	(10,384,481)	248,018,268	(3,746,760)
Cross-currency swaps	PEMEX pays floating in 6-month U.S. dollar LIBOR + spread and receives fixed in Pound sterling.	—	—	10,327,298	(14,455)
Cross-currency swaps	PEMEX pays fixed in U.S. dollar and receives fixed in Pound sterling.	11,486,665	(1,123,000)	12,178,434	(80,503)
Cross-currency swaps	PEMEX pays fixed in U.S. dollar and receives fixed in CHF.	7,086,220	620,453	7,512,978	524,471
Interest Rate Options	PEMEX Buy Cap, Sell Floor on floating in U.S. dollar LIBOR 1M.	48,535,750	2,263,382	51,458,750	(323,852)
Currency Options	PEMEX Buy Put, Sell Put and Sell Call on Japanese yen	11,845,210	(461,140)	14,308,629	(206,526)
Currency Options	PEMEX Buy call, Sell Call and Sell Put on euro	67,025,201	(4,750,485)	75,474,101	(1,398,532)
Currency Options	PEMEX Sell Call on Pound sterling	10,556,234	(2,835)	12,534,024	(27,896)
Currency Options	PEMEX Sell Call on CHF	7,664,921	(1,617)	8,229,792	(12,202)
Currency Options	PEMEX Sell Call on euro	96,640,988	(375,031)	122,864,815	(917,025)
Currency Forward	PEMEX pays Pesos and receives U.S. dollar.	—	—	12,340,413	3,575
Interest rate swaps	PEMEX pays fixed in U.S. dollar and receives floating in U.S. dollar LIBOR 1M.	26,746	59	202,632	(2,752)
	Subtotal		Ps. (9,251,035)		Ps. (704,052)

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		December 31, 2022		December 31, 2021	
DFI	**Position**	**Volume (MMb)**	**Fair Value**	**Volume (MMb)**	**Fair Value**
Crude oil Options	PEMEX buys Put and sells Put	34.90	Ps. (207,494)	54.10	Ps. (458,068)
Crack Spread Swaps	PEMEX pays fixed in U.S.$ and receives floating in U.S.$ Crack Spread Diesel	0.59	(27,959)	—	—
	Subtotal		Ps. (235,453)		Ps. (458,068)
	Total		Ps. (9,486,488)		Ps. (1,162,120)

		December 31, 2022		December 31, 2021	
DFI	**Market**	**Volume (MMb)**	**Fair value**	**Volume (MMb)**	**Fair value**
Futures	Exchange traded	(1.48)	Ps. (263,060)	(0.61)	Ps. (4,677)
Petroleum Products Swaps	Exchange traded	(2.27)	146,828	(2.31)	(28,389)

Notes: Amounts may not total due to rounding.

The fair value of the Futures and the Petroleum Products Swaps was recognized as “Cash and cash equivalents” in the statement of financial position because PEMEX considered these financial assets to be fully liquid.

The exchange rate for U.S. dollars as of December 31, 2022 and 2021 was Ps. 19.4143 and Ps. 20.5835 per U.S. dollar, respectively. The exchange rate for euros as of December 31, 2022 and 2021 was Ps. 20.9791 and Ps. 22.5924 per euro, respectively.

For the years ended December 31, 2022, 2021 and 2020, PEMEX recognized a net (loss) gain of Ps. (22,862,951), Ps. (25,224,243) and Ps. 17,096,141, respectively, in the “Derivative financial instruments (cost) income, net” line item with respect to DFIs treated as instruments entered into for trading purposes.

The following table presents the fair value of PEMEX's DFIs that are included in the consolidated statement of financial position in Derivative financial instruments (including both DFIs that have not reached maturity and those that have reached maturity but have not been settled), as of December 31, 2022 and 2021:

	Derivatives assets Fair value	
	December 31, 2022	December 31, 2021
Derivatives not designated as hedging instruments		
Forwards	Ps. —	Ps. 22,896
Currency options	—	164,218
Interest rate options	2,263,382	—
Cross-currency swaps	10,082,786	12,286,853
Interest rate swaps	409,400	—
Total derivatives not designated as hedging instruments	Ps. 12,755,568	Ps. 12,473,967
Total assets	Ps. 12,755,568	Ps. 12,473,967

	Derivatives liabilities Fair value	
	December 31, 2022	December 31, 2021
Derivatives not designated as hedging instruments		
Forwards	Ps. —	Ps. (19,321)
Crude oil options	(207,494)	(458,068)
Currency options	(5,211,625)	(1,769,276)
Interest rate options	—	(323,852)
Crack spread swaps	(27,959)	—
Cross-currency swaps	(16,795,037)	(10,802,229)
Interest rate swaps	59	(263,340)
Total derivatives not designated as hedging instruments	Ps. (22,242,056)	Ps. (13,636,086)
Total liabilities	Ps. (22,242,056)	Ps. (13,636,086)
Net total	Ps. (9,486,488)	Ps. (1,162,119)

The following tables presents the net gain (loss) recognized in income on PEMEX's DFIs for the years ended December 31, 2022, 2021 and 2020, in the consolidated statement of comprehensive income which is presented in the "Derivative financial instruments (cost) income, net" line item:

Derivatives not designated as hedging instruments	Amount of gain (loss) recognized in the Statement of operations on derivatives		
	December 31, 2022	December 31, 2021	December 31, 2020
Forwards	Ps. (57,874)	Ps. 255,045	Ps. —
Futures	(1,871,162)	(1,478,143)	(1,612,650)
Crude oil options	(3,038,638)	(2,373,131)	4,996,014
Currency options	(3,592,393)	(4,791,503)	2,698,748
Interest rate options	2,664,631	522,241	(1,802,514)
Crack spread swaps	(27,883)	—	—
Cross-currency swaps	(17,511,767)	(17,344,621)	13,770,849
Crude oil futures swaps	—	(146,350)	(176,341)
Interest rate swaps	572,135	132,219	(777,965)
Total	**Ps. (22,862,951)**	**Ps. (25,224,243)**	**Ps. 17,096,141**

NOTE 19. EMPLOYEE BENEFITS

Until December 31, 2015, Petróleos Mexicanos and Subsidiary Entities only had defined benefit pension plans for the retirement of its employees, to which only Petróleos Mexicanos and the Subsidiary Entities contribute. Benefits under these plans are based on an employee's salary and years of service completed at retirement. As of January 1, 2016, Petróleos Mexicanos and the Subsidiary Entities also have a defined contribution pension plan, in which both Petróleos Mexicanos and the Subsidiary Entities and the employee contribute to an employee's individual account.

Benefits under the defined benefit plan are mainly based on the years of service completed by the employee, and their remuneration at the date of retirement. The obligations and costs of these plans are recognized based on an actuarial valuation prepared by independent experts. Within the regulatory framework of plan assets, there are no minimum funding requirements. Petróleos Mexicanos and the Subsidiary Entities have established additional plans to cover post-employment benefits, which are based on actuarial studies prepared by independent experts and which include disability, post-mortem pension and the death of retired employees, as well as medical services for retired employees and beneficiaries.

For the defined benefit plan, Petróleos Mexicanos and Subsidiary Entities funded its employees benefits through Mexican trusts, the resources of which come from the retirement line item of PEMEX's annual budget (an operating expense), or any other line item that substitutes or relates to this line item, or that is associated with the same line item and the interests, dividends or capital gains obtained from the investments of the trusts.

In 2019, the Board of Directors of Petróleos Mexicanos approved modifications to the organic structure of PEMEX. As a result of this, the Subsidiary Entities and Petróleos Mexicanos transferred and / or received active personnel through the figure of employer substitution, with which the Subsidiary Entities and Petróleos Mexicanos recognized the retirement obligations of the transferred personnel whose impact was calculated in the actuarial study carried out by the independent experts.

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The following table show the amounts associated with PEMEX's labor obligations:

	December 31,	
	2022	**2021**
Liability for defined benefits at retirement and post-employment at the end of the year	Ps. 1,295,765,636	Ps. 1,371,307,692
Liability for other long-term benefits	11,121,039	12,763,956
Total liability for defined benefits recognized in the consolidated statement of financial position at the end of the year	**Ps. 1,306,886,675**	**Ps. 1,384,071,648**

The amount reflected in Employee Benefit at the end of the year includes both the defined benefit plan (DB) and the defined contribution plan (DC). As for the defined contribution scheme, the Assets (liabilities) recognized in the balance sheet (DC-warranty) went from Ps. 2,417,049 in 2021 to Ps. 2,348,557 in 2022. The expense in the statement of comprehensive income (net cost for the period, DC-guarantee) was Ps. 452,913 and Ps.467,765 as of December 2022 and 2021, respectively.

The following tables contain detailed information regarding PEMEX's retirement and post-employment benefits:

	December 31,	
Changes in the liability for defined benefits	**2022**	**2021**
Liability for defined benefits at the beginning of the year	Ps. 1,371,307,692	Ps. 1,516,671,029
Current Service cost [1]	18,446,170	41,135,899
Past service cost	524	34,573
Net interest	112,552,382	104,524,369
Liquidation event loss	1,971	49,032
Defined benefits paid by the fund	(6,673,574)	(6,608,749)
Actuarial losses (gains) in other comprehensive results due to:		
Change in financial assumptions [2]	(150,264,079)	(266,985,561)
Change in demographic assumptions [2]	2,403,864	44,085,779
For experience during the year [2]	16,188,726	2,581,184
Assets of the plan during the year [2]	277,256	(52,166)
Contributions paid to the fund	(68,475,296)	(64,127,697)
Defined benefit liabilities at end of year	**Ps. 1,295,765,636**	**Ps. 1,371,307,692**

[1] The variation between 2022 and 2021 is mainly due to the result of the contractual review carried out in 2021, in which the retirement requirements were modified for the syndicated personnel.

[2] The amount of actuarial losses corresponding to retirement and post-employment benefits recognized in other comprehensive income net of deferred income tax for Ps. (123,385,417) generated in the period from January to December 2022 correspond mainly to the increase in the discount rate from 8.46% in 2021 to 9.39% in 2022. Other influencing factors were the changes in obligations for movements in the population, age, seniority, salary, pensions and benefits.

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	December 31,	
Changes in pension plan assets	**2022**	**2021**
Plan assets at the beginning of year	Ps. 2,289,697	Ps. 2,438,724
Return on plan assets	253,721	294,713
Payments by the pension fund	(68,534,502)	(64,623,601)
Company contributions to the fund	68,410,838	64,127,697
Actuarial (gains) losses in plan assets	(121,876)	52,164
Adjustment to the Defined Contribution Plan [(1)]	(64,388)	—
Pension plan assets at the end of year	**Ps. 2,233,490**	**Ps. 2,289,697**

[(1)] The concepts come from the valuation of PMI´s liabilities.

The Labor Fund reduction was due to budgetary requirements derived from the need to meet a financial balance goal in cash flow. In this sense, during 2020 PEMEX's administration implemented a strategy and the contributions to the Fund are scheduled and executed taking into account the initial balance plus the cost of payrolls and retirements for the year, maintaining a minimum operating balance without the operational continuity risk or payment to personnel.

The Contributions from PEMEX to the FOLAPE include the contribution associated to the Mexican Government Bonds exchanged, collected in December 2021 in the amount of Ps. 15,277,401 of principal, contributed during the months from January to March, 2022. Derived from the Federal Government Contribution due to the Modification of the Pension Plan of Petróleos Mexicanos and its Subsidiary Entities from April to December, 2022, PEMEX contributed to Ps. 7,544,895 of interest.

From January 1 to December 31, 2022, interest income generated by the total of Government Bonds amounted Ps. 7,534,938 of which Petróleos Mexicanos received the payment of Ps. 7,455,715 (see Note 15).

Expected payments for fiscal year 2023 are Ps. 85,750,924.

As of December 31, 2022 and 2021, the amounts and types of plan assets are as follows:

	December 31,	
Plan Assets	**2022**	**2021**
Cash and cash equivalents	Ps. 168,367	Ps. 32,199
Debt instruments	2,065,123	2,257,498
Total plan assets	**Ps. 2,233,490**	**Ps. 2,289,697**

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	December 31,	
Changes in Defined Benefit Obligations (DBO)	**2022**	**2021**
Defined benefit obligations at the beginning of the year	Ps. 1,373,548,493	Ps. 1,519,084,202
Service costs	17,582,708	21,151,945
Financing costs	112,801,977	104,844,611
Past service costs	524	34,573
Payments by the fund	(75,208,077)	(71,232,349)
Amount of actuarial (losses) gains recognized in other comprehensive results due to:		
Change in financial assumptions [1]	(150,264,079)	(266,985,561)
Change in demographic assumptions [2]	2,403,864	44,085,779
For experience during the year [3]	16,188,726	2,581,184
Reductions	1,971	—
Modifications to the pension plan [4]	864,011	19,984,109
Defined benefit obligations at the end of year	**Ps. 1,297,920,118**	**Ps. 1,373,548,493**

(1) The variations in financial assumptions are due to the increase in the discount rate from 8.46% in 2021 to 9.39% in 2022.
(2) The main factor influencing in variation between 2022 and 2021 is due to the observed changes in mortality.
(3) The changes in assumptions from experience depend on factors that do not necessarily have the same behavior from year to year and given by the movements in the population different to those expected, the factors that influenced the result of year 2022 were increase in salaries, departures and inflows of personnel, among others.
(4) The variation between 2022 and 2021 is mainly due to the result of the contractual review carried out in 2021, in which the retirement requirements were modified for the syndicated personnel.

The effects on the Defined Benefits Liability upon retirement and post-employment at the end of the period are:

- The effect of an increase or decrease of one percentage point in the discount rate is a (10.39)% and 12.39%, respectively, in defined benefit obligations.
- The effect of an increase or decrease of one percentage point in medical services is 2.48% and (2.20)%, respectively, in defined benefit obligations.
- The effect of an increase or decrease of one percentage point in the inflation is 8.04% and (7.18)%, respectively, in defined benefit obligations.
- The effect of an increase or decrease of one percentage point in the wage is 0.88% and (1.05)%, respectively, in defined benefit obligations.

The effects previously mentioned were determined using the projected unit credit method which was the same method used in the prior valuation.

Assumptions regarding future mortality are based on EMSSA2009 to Unique Circular of the *Comisión Nacional de Seguros y Fianzas* (National Commission of Insurance and Bonds) and include improvements. For the December valuation, the mortality table for retired personnel was updated using an actuarial proposal based on the experience of Petróleos Mexicanos and its Subsidiary Entities. The mortality table for the incapacitated personnel is the EMSSInc-IMSS2012 and for the disabled personnel the EMSSInv-IMSS2012.

PEMEX's plan assets is held in the FOLAPE trusts, which are managed by BBVA Bancomer, S. A. and a technical committee for each trust that is comprised of personnel from Petróleos Mexicanos and the trusts. As of December 31, 2022, FOLAPE has a balance of Ps. 167,023, while the remaining Ps. 2,066,467 belong to affiliate companies that are in charge of managing their own funds.

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The following tables present additional fair value disclosure about plan assets and indicate their rank, in accordance with IFRS 13, as of December 31, 2022 and 2021:

	Fair value measurements as of December 31, 2022			
Plan assets	Quoted prices in active markets for identical assets (level 1)	Significant observable inputs (level 2)	Significant unobservable inputs (level 3)	Total
Cash and cash equivalents	Ps. 168,367	Ps. —	Ps. —	Ps. 168,367
Debt instruments	2,065,123	—	—	2,065,123
Total	**Ps. 2,233,490**	**Ps. —**	**Ps. —**	**Ps. 2,233,490**

	Fair value measurements as of December 31, 2021			
Plan assets	Quoted prices in active markets for identical assets (level 1)	Significant observable inputs (level 2)	Significant unobservable inputs (level 3)	Total
Cash and cash equivalents	Ps. 32,199	Ps. —	Ps. —	Ps. 32,199
Debt instruments	2,257,498	—	—	2,257,498
Total	**Ps. 2,289,697**	**Ps. —**	**Ps. —**	**Ps. 2,289,697**

As of December 31, 2022 and 2021, the principal actuarial assumptions used in determining the defined benefit obligation for the plans are as follows:

	December 31,	
	2022	2021
Rate of increase in salaries	4.47%	4.47%
Rate of increase in pensions	4.00%	4.00%
Rate of increase in post-mortem pensions	0.00%	0.00%
Rate of increase in medical services	7.65%	7.65%
Inflation assumption	4.00%	4.00%
Rate of increase in basic basket for active personnel	5.00%	5.00%
Rate of increase in basic basket for retired personnel	4.00%	4.00%
Rate of increase in gas and gasoline	4.00%	4.00%
Discount and return on plan assets rate [1]	9.39%	8.46%
Average length of obligation (years)	13.45	14.38

[1] In accordance with IAS 19, the discount rate was determined using as a reference the interest rates observed in Mexican Government bonds, based on the Fixed Rate bonds of the Federal Government ("Bonos M") and the "Cetes", as well as the flow of expected payments to cover the contingent obligations. As a consequence of the change in the yields of the financial instruments mentioned above at the end of the year, the discount rate increased compared to the end of 2021.

Other long-term benefits

Petróleos Mexicanos and the Subsidiary Entities have established other long-term benefit plans for their employees, to which employees do not contribute, which correspond to the seniority premiums payable for disability, death and survivor benefits (payable to the widow and beneficiaries of worker), medical service, gas and basic basket for beneficiaries. Benefits under these plans are based on an employee's salary and years of service completed at separation date. Obligations and costs of such plans are recorded in accordance with actuarial valuations performed by independent actuaries.

The amounts recognized for other long-term obligations are as follows:

	December 31,	
Change in the liability for defined benefits	**2022**	**2021**
Liabilities for defined benefits at the beginning of year	Ps. 12,763,956	Ps. 18,497,057
Charge to income for the year	2,010,051	2,354,238
Actuarial losses (gains) recognized in income due to:		
Change in financial assumptions	(1,899,096)	(4,121,075)
Change in demographic assumptions	(166,459)	(2,027,902)
For experience during the year	(1,585,760)	(1,937,645)
Benefits paid	(1,653)	(717)
Liabilities for defined benefits at the end of year	**Ps. 11,121,039**	**Ps. 12,763,956**

The expected long-term benefit payments for 2023 amount to Ps. 326,674.

The principal actuarial assumptions used in determining the defined benefit obligation for the plans are:

- The effect of an increase or decrease of one percentage point in the discount rate is (14.12)% and 18.64%, respectively, in defined benefit obligations.
- The effect of an increase or decrease of one percentage point in medical services is 6.79% and (4.55)%, respectively, in defined benefit obligations.
- The effect of an increase or decrease of one percentage point in the inflation is 0.50% and (0.08)%, respectively, in defined benefit obligations.
- The effect of an increase or decrease of one percentage point in the wage is 4.00% and (3.25)%, respectively in defined benefit obligations.

The principal actuarial assumptions used in determining the defined benefit obligation for the plans are as follows:

	December 31,	
	2022	**2021**
Rate of increase in salaries	4.47 %	4.47 %
Inflation assumption	4.00 %	4.00 %
Rate of increase in basic basket for active personnel	5.00 %	5.00 %
Rate of increase in basic basket for retired personnel	4.00 %	4.00 %
Rate of increase in gas and gasoline	4.00 %	4.00 %
Discount and return on plan assets rate [(1)]	9.39 %	8.46 %
Average length of obligation (years)	13.45	14.38

(1) In accordance with IAS 19, the discount rate was determined using as a reference the interest rates observed in Mexican Government bonds denominated in pesos (Cetes and M bonds), as well as the flow of payments expected to cover contingent obligations. As a result of the profits in financial instruments at the end of 2022, the discount rate increased as compared 2021.

NOTE 20. PROVISIONS FOR SUNDRY CREDITORS

At December 31, 2022, 2021 and 2020, the provisions for sundry creditors and others is as follows:

	2022	2021	2020
Provision for plugging of wells (Note 13)	Ps. 66,699,388	70,144,756	77,125,513
Provision for trails in process (Note 27)	10,533,137	11,114,006	8,321,816
Provision for environmental costs	11,914,160	11,138,904	9,178,555
	Ps. 89,146,685	**92,397,666**	**94,625,884**

The following tables show the allowance account for plugging of wells, trials in progress and environmental costs:

	Plugging of wells		
	2022	2021	2020
Balance at the beginning of the year	Ps. 70,144,756	77,125,513	80,849,900
(Decrease) Increase capitalized in fixed assets	(3,573,843)	(13,834,388)	(12,816,336)
Unwinding of discount against income	4,647,200	4,454,106	4,555,692
Unrealized foreign exchange loss (gains)	(3,984,400)	2,454,810	4,766,921
Amount used	(534,325)	(55,285)	(230,664)
Balance at the end of the year	**Ps. 66,699,388**	**70,144,756**	**77,125,513**

	Trials in progress		
	2022	2021	2020
Balance at the beginning of the year	Ps. 11,114,006	8,321,816	8,075,031
Additions against expenses	3,137,470	4,818,298	972,692
Provision cancellation	(3,704,499)	(2,025,221)	(724,026)
Amount used	(13,840)	(887)	(1,881)
Balance at the end of the year	**Ps. 10,533,137**	**11,114,006**	**8,321,816**

	Environmental costs		
	2022	2021	2020
Balance at the beginning of the year	Ps. 11,138,904	9,178,555	9,086,977
Additions against expenses	1,711,108	2,424,037	1,669,063
Cancellation against expenses	(856,047)	(407,671)	(1,574,810)
Amount used	(79,805)	(56,017)	(2,675)
Balance at the end of the year	**Ps. 11,914,160**	**11,138,904**	**9,178,555**

Provision for plugging of wells

PEMEX records a provision at present value for the future plugging cost of an oil production facility or pipeline at the time that it is built.

The plugging provision represents the present value of plugging costs related to oil and gas properties. These provisions have been created based on internal estimates of PEMEX. PEMEX has made certain assumptions based on the current economic environment that PEMEX believes provide a reasonable basis on which to estimate the future liability. These estimates are reviewed regularly to take into account any material changes in the assumptions. However, actual plugging

costs in the long run will depend on future market prices for the necessary plugging work, which reflect market conditions at the time the work is being performed.

The calculation of this provision considers the year-end exchange rate, the projected inflation rate for the United States, interpolated discount rates based on the maturity date of long-term debt instruments in U.S. markets, as well as unit costs obtained from current contracts as of the valuation date, the current status of PEMEX's wells and the limit of proved and developed reserves as of January 1, 2023.

The decrease in the provision in 2022, 2021 and 2020 against fixed assets corresponded to a decrease in the reserve limits, adjustments to the discount rate and applications to the reserve. This includes the effect of the discount rate over time of Ps. 4,647,200, Ps. 4,454,106 and Ps. 4,555,692 for 2022, 2021 and 2020, respectively. The discount rate ranges used during 2022, 2021 and 2020 were from 9.380% to 10.520%, 3.114% to 8.040% and 3.268% to 7.799% for U.S. dollar denominated assets, respectively.

Moreover, the time of plugging depends on when the fields cease to have economically viable production rates, which, in turn, depends on the inherently uncertain future prices of oil and gas. Well plugging of works will be carried out as follows:

Year	Amount
2023	Ps. 76,691
2024	1,064,330
2025	955,654
2026	4,350,081
2027	5,640,335
More than five years	54,612,297
Total	Ps. 66,699,388

Provision for environmental costs

PEMEX is subject to the provisions of the *Ley General del Equilibrio Ecológico y la Protección al Ambiente* (General Law on Ecological Equilibrium and Environmental Protection). To comply with this law, environmental audits of PEMEX's larger operating, storage and transportation facilities have been or are being conducted. Following the completion of such audits, PEMEX has signed various agreements to implement environmental remediation and improve environmental plans. Such plans will be sent to the *Agencia Nacional de Seguridad Industrial y de Protección al Medio Ambiente del Sector Hidrocarburos* (National Agency for Industrial Safety and Environmental Protection of the Hydrocarbons Sector or "ASEA"). The period of execution of these works is not defined, as they are subject to the budgets that may be granted to PEMEX.

NOTE 21. INCOME TAXES AND DUTIES

As of December 31, 2022 and 2021, income taxes and duties payable are as follow:

		2022	2021
Income taxes and duties:			
Profit-sharing Duty	Ps.	29,134,959	63,233,153
Income tax		4,268,496	3,743,571
Total income taxes and duties		33,403,455	66,976,724
Other taxes and duties:			
Special Tax on Production and Services		23,217,262	17,813,672
Hydrocarbons Extraction Duty		6,895,491	17,723,515
Exploration Hydrocarbons Duty		136,588	126,932
Exploration and Extraction Hydrocarbons Duty		413,371	375,903
Withheld taxes		5,800,188	9,165,475
Import taxes and duties		13,028	13,028
Other contributions payable		933,972	558,342
Total other taxes and duties		37,409,900	45,776,867
Total other income taxes and duties	**Ps.**	**70,813,355**	**112,753,591**

The *Ley de Ingresos sobre Hidrocarburos* ("Hydrocarbons Revenue Law") was published in the Official Gazette of the Federation on August 11, 2014, and came into effect, on January 1, 2015. The Hydrocarbons Revenue Law sets forth the fiscal regime for Petróleos Mexicanos applicable to the assignments and the contracts that were established on such date. Likewise, every year the Federal Revenue Law is published in the Official Gazette of the Federation and includes specific regulations for Petróleos Mexicanos and the Subsidiary Entities.

Tax regime applicable to Assignments

The tax regime applicable to the exploration and production for the assignments granted to PEMEX by the Mexican Government includes the following taxes and duties:

A. Derecho por la Utilidad Compartida "DUC" (Profit-sharing Duty).

As of January 1, 2015, Pemex Exploration and Production is obligated to pay a Profit-sharing Duty.

For 2022 and 2021, the applicable rate of this duty was 40% and 54%, respectively. The computation of this duty is based on the excess of the value of hydrocarbons produced during the fiscal year (including self-consumption, shrinkage and burning), minus certain permitted deductions by the Hydrocarbons Revenue Law, including part of the investments and some costs, expenses and duties. Pursuant to the Federal Revenue Law, as of January 1, 2023, this duty was set at 40%.

During 2022, this duty was Ps. 398,123,710 from annual payments presented on April 3, 2023 paid as follows: Ps. 397,567,229, resulting in a balance of Ps. 556,481 as of December 31, 2022.

During 2021, this duty was Ps. 374,433,879 from annual payments presented on March 31, 2022 paid as follows: Ps. 300,374,423, in monthly installment payment and a tax credit of Ps. 73,280,000; resulting in a balance of Ps. 779,456 as of December 31, 2021.

Duties and income tax paid as of December 31, 2022, 2021 and 2020 were Ps. 431,444,989, Ps. 265,883,549 and Ps. 172,369,522, respectively.

The accounting result differs from the tax result mainly due to differences in depreciation, non-deductible expenses and others. Such differences generate a deferred DUC.

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Total DUC and other as of December 31, 2022, 2021 and 2020 are integrated as follows:

	2022	2021	2020
DUC	Ps. 398,123,710	374,433,879	218,912,687
Fiscal credit [1]	—	(73,280,000)	(65,000,000)
Deferred DUC expense	(6,703,627)	5,673,403	696,449
Total DUC	**Ps. 391,420,083**	**306,827,282**	**154,609,136**

[1] There was not credit tax granted for 2022.

The principal factors generating the deferred DUC are the following:

	2022	2021
Deferred DUC asset:		
Tax credits	Ps. 454,631,317	571,306,914
Deferred Profit-sharing duty liability:		
Wells, pipelines, properties, plant and equipment	(171,170,789)	(241,237,295)
Deferred DUC asset net	283,460,528	330,069,619
Unrecognized Deferred DUC	(274,008,700)	(327,321,418)
Net, deferred DUC asset	**Ps. 9,451,828**	**2,748,201**

The expected benefit for DUC in 2022 and 2021 was different from that which would result from applying the 40% and 54% rate to the tax base, respectively, as a result of the line items mentioned in the tables below.

	2022	2021	2020
Expected expense (benefit):	Ps. 236,421,472	147,520,595	(20,837,768)
Increase (decrease) resulting from:			
Expected benefit contract	(4,987,552)	(5,333,064)	(496,643)
Non-cumulative profit [1]	(778,566,830)	(1,252,957,737)	(2,291,937,519)
Non-deductible expenses [1]	547,132,910	1,110,770,206	2,313,271,930
Production value	526,040,742	507,997,938	321,353,133
Deductible duties	(51,920,424)	(44,270,598)	(21,850,672)
DUC tax credit [2]	—	(73,280,000)	(65,000,000)
Deferred DUC (benefit) expense	(6,703,627)	5,673,403	696,449
Deductions cap	(75,996,608)	(89,293,461)	(80,589,774)
DUC-Profit-sharing duty expense	**Ps. 391,420,083**	**306,827,282**	**154,609,136**

(1) Fluctuations changes are included which have no effect on the determination of the DUC.
(2) Corresponds to the tax credit granted by the Mexican Government on February 19, 2021 and April 21, 2020.

On February 19, 2021, the Mexican Government, through a presidential decree, granted PEMEX a reduction in its tax burden equal to Ps. 73,280,000 for 2021. The tax benefit was granted as a measure of release of resources for PEMEX to increase investment in hydrocarbon exploration and production activities.

This decrease in the Profit-sharing Duty is incremental to the one resulting from the decrease of the rate from 58% to 54% to in 2021 in accordance with amendments to the Hydrocarbons Revenue Law.

B. Derecho de Extracción de Hidrocarburos (Hydrocarbons Extraction Duty).

SHCP considers the effects of variations in the U.S. producer price index, or another alternative index, when it determines the rate to be published in the Official Gazette of the Federation.

This duty is to be calculated using a rate based on a formula applicable to each type of hydrocarbon, the volume of production and utilizing the relevant market price for hydrocarbons in U.S. Dollars.

During 2022 and 2021, Pemex Exploration and Production incurred Ps. 129,801,061 and Ps. 81,982,589 respectively, which are included in the cost of sales line item.

C. Derecho de Exploración de Hidrocarburos (Exploration Hydrocarbons Duty).

Pemex Exploration and Production as "assignee" must make monthly payments for this duty. The rates for 2022 were 1,548.88 pesos per square kilometer of non-producing areas. After 60 months, this tax increases to 3,703.86 pesos per square kilometer for each additional month that the area is not producing. These amounts will be updated on an annual basis in accordance with the national consumer price index.

During 2022 and 2021, Pemex Exploration and Production incurred Ps. 1,638,913 and Ps. 1,443,437, respectively, which are included in the cost of sales line item.

D. Impuesto por la actividad de Exploración y Extracción de Hidrocarburos (Exploration and Extraction Hydrocarbons Duty).

The assignments granted by the Mexican Government create a tax on the exploration and extraction activities carried out in the corresponding area. The monthly tax paid during the exploration phase and until the extraction phase begins is 2,020.27 pesos per square kilometer. During the extraction phase of a project, a monthly tax of 8,081.17 pesos per square kilometer is payable until the relevant contract for exploration and extraction or assignment is terminated.

During 2022 and 2021, the incurred tax was Ps. 4,664,541 and Ps. 4,701,122 respectively, which are included in the cost of sales line item.

Tax Regime applicable to contracts:

As of January 1, 2015, the tax regime applicable to Pemex Exploration and Production for contracts is set forth in the Hydrocarbons Revenue Law which regulates, among other things, the fiscal terms applicable to the exploration and extraction contracts (license, profit sharing contracts, production sharing and services) and sets duties and other taxes paid to the Mexican Government.

The Hydrocarbons Revenue Law also establishes the following duties applicable to PEMEX in connection with assignments granted to it by the Mexican Government:

- ***Cuota Contractual para la Fase Exploratoria (Exploration Phase Contractual Fee)***

During the exploration phase of an exploration and extraction contract, the Mexican Government is entitled to collect a monthly payment of 1,548.88 pesos per square kilometer of non-producing areas. After 60 months, this fee increases to 3,703.86 pesos per square kilometer for each additional month that the area is not producing. The fee amount will be updated on an annual basis in accordance with the national consumer price index.

- ***Regalías (Royalties)***

Royalty payments to the Mexican Government are determined based on the "contractual value" of the relevant hydrocarbons, which is based on a variety of factors, including the type of underlying hydrocarbons (e.g., crude oil,

associated natural gas, non-associated natural gas or condensates), the volume of production and the market price. Royalties are payable in connection with licensing contracts, production-sharing contracts and profit-sharing contracts.

- ***Pago del Valor Contractual (Contractual Value Payment)***

Licensing contracts require a payment to the Mexican Government calculated as a percentage of the "contractual value" of the hydrocarbons produced, as determined by the SHCP on a contract-by-contract basis.

- ***Porcentaje a la Utilidad Operativa (Operating Profit Payment)***

Production-sharing contracts and profit-sharing contracts require a payment equivalent to a specified percentage of operating profits. In the case of production-sharing contracts, this payment shall be made in-kind through delivery of the hydrocarbons produced. In the case of profit-sharing contracts, this payment shall be made in cash.

- ***Bono a la Firma (Signing Bonus)***

Upon execution of a licensing contract, a signing bonus is to be paid to the Mexican Government in an amount specified by the SHCP in the relevant bidding terms and conditions or in the contracts resulting from a migration.

- ***Impuesto por la actividad de Exploración y Extracción de Hidrocarburos (Hydrocarbons Exploration and Extraction Activities Tax)***

Contracts for exploration and extraction granted by the Mexican Government will include a specified tax on the exploration and extraction activities carried out in the relevant area. The monthly tax paid during the exploration phase and until the extraction phase begins is 2,020.27 pesos per square kilometer. During the extraction phase of a project, a monthly tax of 8,081.17 pesos per square kilometer is payable until the relevant contract for exploration and extraction or assignment is terminated. During 2022 and 2021 the incurred tax amounted to Ps. 226,653 and Ps. 211,095, respectively.

Other applicable taxes

The Subsidiary Entities are subject to the Income Tax Law and the Value Added Tax Law. Pemex Industrial Transformation is also subject to the Special Tax on Production and Services (IEPS Tax).

2022 indirect taxes are as listed below:

A. IEPS Tax

IEPS Sobre la Venta de los Combustibles Automotrices (IEPS Tax on the Sale of Automotive Fuels): This tax is a fee on domestic sales of automotive fuels, gasoline and diesel. Pemex Industrial Transformation collects the fee on behalf of the Mexican Government. The applicable fees for this tax are Ps. 5.49 per liter of gasoline with an octane rating lower than 91; 4.64 pesos per liter of gasoline with an octane rating greater than or equal to 91 and 6.04 pesos per liter of diesel. The amount of the fee will depend on the class of fuel. The fee is fixed yearly and adjusted on a weekly basis by the SHCP. The fees apply to sales in Mexico and imports.

IEPS Beneficio de Entidades Federativas, Municipios y Demarcaciones Territoriales (IEPS Tax in Favor of States, Municipalities and Territories): This tax is a fee on domestic sales of automotive fuels, gasoline and diesel. Pemex Industrial Transformation collects the fee on behalf of the Mexican Government. The applicable fees for this tax are 48.47 cents per liter of gasoline with an octane rating of less than 91, 59.14 cents per liter of gasoline with an octane rating greater than or equal to 91 and 40.23 cents per liter of diesel. These fees change yearly in accordance with inflation. Funds gathered by this fee are allocated to Mexican states and municipalities as provided for in the Ley de Coordinación Fiscal (Tax Coordination Law). The fees only apply to sales in Mexico and are not subject to VAT.

IEPS a los Combustibles Fósiles (IEPS Tax on Fossil Fuels): This tax is a fee on domestic sales of fossil fuels. Pemex Industrial Transformation collects the fee on behalf of the Mexican Government. The applicable fees for this tax are 8.30 cents per liter of propane, 10.74 cents per liter of butane, 14.56 cents per liter of gasoline and aviation fuel, 17.39 cents per liter of jet fuel and other kerosene, 17.66 cents per liter of diesel, 18.85 cents per liter of fuel oil, Ps. 21.88 per ton of petroleum coke, Ps. 51.29 per ton of coal coke, Ps. 38.62 per ton of mineral carbon and Ps. 55.83 per ton of carbon from other fossil fuels. These fees change yearly in accordance with inflation and apply to imports to Mexico.

B. Value-Added Tax ("VAT")

For VAT purposes, final monthly payments are determined based on PEMEX's cash flow, in accordance with the provisions of the Value Added Tax Law, applicable to payers of this tax. The general rate to be applied is 16%. Certain activities with incentives will have the rate of 0%.

Beginning on January 1, 2019, a new Decree of fiscal incentives began to apply to the northern border region, which consisted of a credit equivalent to 50% of the general rate, applicable directly at the time of the sale or service. This incentive is applicable in six states in the northern border region and includes 43 municipalities in those states.

Petróleos Mexicanos and its Subsidiary Entities apply this tax benefit to the operations they carry out within the municipalities of the States included in the Decree.

VAT is applied to the sale of goods, the rendering of services, the granting of the temporary use of goods in the national territory and the importation of goods and services to the national territory. VAT taxpayers transfer VAT to their customers and are entitled to credit the VAT paid to their suppliers and on their imports. The net balance between VAT transferred to customers and paid to suppliers and on imports results each month in the VAT to be paid to the tax authorities or in an amount in favor of the taxpayer. The taxpayer has the right to credit VAT in favor against VAT payable in future months, to request a refund or to offset it against other payable federal taxes.

Taxes on Income are described below:

C. Income Tax

As of January 1, 2015, Petróleos Mexicanos, the Subsidiary Entities and the Subsidiary Companies residing in Mexico for tax purposes are subject to the Income Tax Law.

This tax is calculated by applying a rate of 30% to the tax result. Tax result is the excess of total revenues over the allowed deductions and tax losses from previous years.

Accounting income differs from taxable income primarily due to the effects of inflation and differences between depreciation and other non-deductible expenses.

For the years ended December 31, 2022, 2021 and 2020, Petróleos Mexicanos and its Subsidiary Companies incurred the following income tax expense (benefit):

	2022	2021	2020
Current income tax	Ps. 5,939,990	Ps. 3,573,731	Ps. 5,370,822
Deferred income tax	(77,179,234)	(3,052,891)	25,592,117
Total (benefit) expense income tax, net	**Ps. (71,239,244)**	**Ps. 520,840**	**Ps. 30,962,939**

As of December 31, 2022 and 2021, Pemex Exploration and Production and Pemex Industrial Transformation did not recognize deferred income assets of Ps. 679,649,787 and Ps. 744,802,838, respectively, due to their expectation that future tax income will not correspond to such benefits. These amounts are mainly from fiscal losses to be amortized amounting with an expiration year from 2026 to 2032.

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The principal factors generating the deferred income tax are the following:

	2021	Recognized in profit and loss	Recognized in OCI	2022
Deferred income tax asset:				
Provisions	Ps. 11,032,260	888,794	—	11,921,054
Employee benefits provision	61,711,054	3,579,336	(8,075,854)	57,214,536
Advance payments from clients	176,967	43,248	—	220,215
Accrued liabilities	2,676,964	5,094,352	—	7,771,316
Non-recoverable accounts receivable	24,890	102,953	—	127,843
Derivative financial instruments	10,746	24,124	—	34,870
Wells, pipelines, properties and equipment	5,452,609	3,009,946	—	8,462,555
Tax loss carry-forwards [1]	8,468,185	67,960,156	—	76,428,341
Total deferred income tax asset	89,553,675	80,702,909	(8,075,854)	162,180,730
Deferred income tax liability:				
Wells, pipelines, properties, plant and equipment	(1,191,034)	(3,879,311)	—	(5,070,345)
Other	(2,150,316)	355,636	—	(1,794,680)
Total deferred income tax liability	(3,341,350)	(3,523,675)	—	(6,865,025)
Net long-term deferred income tax asset	**Ps. 86,212,325**	**77,179,234**	**(8,075,854)**	**155,315,705**

	2020	Recognized in profit and loss	Recognized in OCI	2021
Deferred income tax asset:				
Provisions	Ps. 8,919,555	2,112,705	—	11,032,260
Employee benefits provision	71,640,981	3,652,157	(13,582,084)	61,711,054
Advance payments from clients	188,283	(11,316)	—	176,967
Accrued liabilities	1,681,362	995,602	—	2,676,964
Non-recoverable accounts receivable	102,435	(77,545)	—	24,890
Derivative financial instruments	41,735	(30,989)	—	10,746
Wells, pipelines, properties and equipment	5,151,623	300,986	—	5,452,609
Tax loss carry-forwards [1]	12,427,658	(3,959,473)	—	8,468,185
Total deferred income tax asset	100,153,632	2,982,127	(13,582,084)	89,553,675
Deferred income tax liability:				
Wells, pipelines, properties, plant and equipment	(1,101,832)	(89,202)	—	(1,191,034)
Other	(2,310,282)	159,966	—	(2,150,316)
Total deferred income tax liability	(3,412,114)	70,764	—	(3,341,350)
Net long-term deferred income tax asset	**Ps. 96,741,518**	**3,052,891**	**(13,582,084)**	**86,212,325**

[1] Tax loss carryforwards expire in 2031.

Expense attributable to the profit (loss) from continuing operations before income taxes was different from that which would result from applying the 30% rate to profit, as a result of the items listed below:

	For the years ended December 31,		
	2022	2021	2020
Expected income tax expense	Ps. 163,937,963	Ps. 69,725,125	Ps. 28,835,256
Increase (decrease) resulting from:			
Tax effect of inflation-net	(23,533,416)	30,058,116	5,694,637
Fiscal updating of pipelines, properties and equipment	—	—	(161,883)
Deductible Duty	(119,437,113)	(90,346,164)	—
Unrecognized deferred tax change	(99,334,219)	(20,941,629)	—
Expected expenses from contracts	—	1,311,975	—
Retirement benefits	7,930,425	1,101,292	(8,206,693)
Non-deductible expenses	16,019,493	3,113,625	2,405,635
Others-net [1]	(16,822,377)	6,498,500	2,395,987
Income tax (benefit) expense, net	**Ps. (71,239,244)**	**Ps. 520,840**	**Ps. 30,962,939**

[1] Includes mainly impairment effect for 2022.

As of December 31, 2022 and 2021, the net accumulated effect of actuarial gains and losses on deferred tax was Ps. (3,410,986) and Ps. 4,664,868, respectively. In addition, as of December 31, 2022 and 2021, the deferred tax effect of actuarial gains and losses is presented in comprehensive loss in the amounts of Ps. 8,075,854 and Ps. 13,582,084, respectively.

NOTE 22. EQUITY (DEFICIT)

A. Certificates of Contribution *"A"*

The capitalization agreement between Petróleos Mexicanos and the Mexican Government states that the Certificates of Contribution "A" constitute permanent capital.

For the twelve-months period ended December 31, 2022, Petróleos Mexicanos received Ps. 188,306,717 in Certificates of Contribution "A" from the Mexican Government.

For the twelve-months period ended December 31, 2021, Petróleos Mexicanos received Ps. 316,354,129 in Certificates of Contribution "A" from the Mexican Government.

PEMEX's Certificates of Contribution "A" are as follows:

	Amount
Certificates of Contribution "A" as of December 31, 2020	Ps. 524,931,447
Increase in Certificates of Contribution "A" during 2021	316,354,129
Certificates of Contribution "A" as of December 31, 2021	Ps. 841,285,576
Increase in Certificates of Contribution "A" during 2022	188,306,717
Certificates of Contribution "A" as of December 31, 2022	**Ps. 1,029,592,293**

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Mexican Government contributions made in the form of Certificates of Contribution "A" during 2022 totaled Ps. 188,306,717 and were designated for the construction of the Dos Bocas Refinery, for the strengthening of financial position and the rehabilitation plan of the National Refining System, as follows:

Date	Construction of the Dos Bocas Refinery	Strengthening of financial position	Rehabilitation Plan of the refineries
January 21	—	19,321,641	—
January 21	7,500,000	—	—
February 14	7,500,000	—	—
March 8	—	26,115,898	—
March 8	7,500,000	—	—
April 28	762,100	—	—
May 26	21,737,900	—	—
July 29	—	—	969,342
August 19	4,000,000	—	—
August 30	2,000,000	—	—
September 6	—	—	683,125
September 8	2,500,000	—	—
September 14	2,500,000	—	—
September 22	2,500,000	—	—
September 28	2,400,000	—	—
October 4	—	—	1,618,523
October 6	2,500,000	—	—
October 13	2,500,000	—	—
October 20	2,500,000	—	—
October 28	2,500,000	—	—
November 4	2,500,000	—	—
November 7	—	—	1,805,296
November 10	2,500,000	—	—
November 17	2,500,000	—	—
November 25	—	—	892,893
November 25	2,500,000	—	—
December 1	4,000,000	—	—
December 2	800,000	—	—
December 5	—	—	1,200,000
December 8	4,000,000	—	—
December 15	4,000,000	—	—
December 15	—	—	1,000,000
December 18	15,118,286	—	4,881,713
December 29	21,000,000	—	—
Total	**129,818,286**	**45,437,539**	**Ps. 13,050,892**

B. Mexican Government contributions

During 2022, Petróleos Mexicanos received a grant from the FONADIN in the amount of Ps. 23,000,000 for the acquisition of the remaining 50.005% interest in DPRLP (see Note 12).

During 2021, there were no Mexican Government contributions apart from Certificates of Contribution "A".

C. Legal reserve

Under Mexican law, each of the Subsidiary Companies is required to allocate a certain percentage of its net income to a legal reserve fund until the fund reaches an amount equal to a certain percentage of each Subsidiary Company's capital stock.

During 2022 and 2021, there were no changes to the legal reserve.

D. Accumulated other comprehensive income (loss)

As a result of the discount rate analysis related to employee benefits liability, for the periods ended December 31, 2022 and 2021 PEMEX recognized net actuarial gains in other comprehensive income (loss) net of deferred income tax for Ps. 123,385,417 and Ps. 205,401,008, respectively, which included net of deferred income tax of Ps. (8,075,854) and Ps. (13,582,084), respectively, related to retirement and post-employment benefits. The variation related to retirement and post-employment benefits was the result of an increase in the discount and return on plan assets rates from 8.46% as of December 31, 2021 to 9.39% as of December 31, 2022.

E. Accumulated deficit from prior years

PEMEX has recorded negative earnings in the past several years. However, the *Ley de Concursos Mercantiles* ("Commercial Bankruptcy Law of Mexico") is not applicable to Petróleos Mexicanos and the Subsidiary Entities. Furthermore, the financing agreements to which PEMEX is a party do not provide for financial covenants that would be breached or events of default that would be triggered as a consequence of negative equity.

F. Uncertainty related to going concern

The consolidated financial statements have been prepared assuming PEMEX will continue as a going concern. The going concern assumption contemplates the realization of assets and satisfaction of liabilities in normal course of business. However, substantial doubt about PEMEX's ability to continue as a going concern exists.

Facts and conditions

PEMEX has substantial debt, incurred mainly to finance the capital expenditures needed to carry out its capital investment projects and to fund its operating expenses. Due to its heavy fiscal burden resulting from the payment of hydrocarbon extraction duties and other taxes, the cash flows derived from PEMEX's operations in recent years have not been sufficient to fully fund its operations and capital expenditure programs, which have been partially supported by the Mexican Government's equity contributions. In addition, PEMEX´s working capital has deteriorated in recent years.

In 2021 and 2022, certain ratings agencies downgraded PEMEX's credit rating, mainly driven by the effects of COVID-19, as well the volatility of the crude oil prices and the downgrade of the Mexican Government's sovereign debt rating, impacting PEMEX´s access to the financial markets, the cost and terms of PEMEX's new debt and contract renegotiations that PEMEX may carry out during 2022 and 2023. These conditions have negatively impacted PEMEX´s financial performance and also its liquidity position.

Although PEMEX recognized net income of Ps. 99,998,470 in 2022, during 2021 and 2020 PEMEX recognized losses of Ps. (294,775,877) and Ps. (509,052,065), respectively. In addition, as of December 31, 2022 and 2021, PEMEX had a negative equity of Ps. (1,768,822,225), and Ps. (2,170,000,783), respectively, mainly due to continuous net losses, and a negative working capital of Ps. 401,842,480 and Ps. 464,254,286, as of December 31, 2022 and 2021, respectively.

PEMEX has budget autonomy, and, in public finance terms, is subject to the cash flows financial balance goals approved in the *Decreto de Presupuesto de Egresos de la Federación* ("Federal Expenditure Budget Decree"). This represents the difference between its gross revenues (inflows) and its total budgeted expenditures (outflows) including the financial cost of its debt, which is proposed by the SHCP and approved by the Chamber of Deputies. The Federal Budget for 2022 authorized PEMEX to have a negative financial balance budget of Ps. zero. This shortfall does not consider payments of principal of PEMEX's debt due in 2023 which will be covered by financing activities that do not represent a net debt in terms of public debt greater than Ps. 29,912,400. PEMEX has short-term debt principal maturities (including interest payable) of Ps.465,947,683 as of December 31, 2022.

The combined effect of the above-mentioned events indicates substantial doubt about PEMEX's ability to continue as a going concern.

Actions-

PEMEX and the Mexican Government are carrying out the following actions, among others, to preserve liquidity and let PEMEX pay its commitments:

The application of the tax credit decree to automotive fuels published in the Official Gazette of the Federation of March 4, 2022, remains for 2023, which allows PEMEX to substantially recover the value of the difference between the sale price and its international reference price, when in a scenario of oil and diesel, these are limited to the effects of inflation in the country.

The reduction of the profit-sharing duty rate remains for 2023, as in 2022, since the decreased to 40.0% in 2022 from 54.0% in 2021.

During early 2023, PEMEX received equity contributions of P.s 7,200,000 and issued notes totaling Ps. 41,200,000.

In addition, PEMEX has plans to raise funds from the markets in accordance with prevailing conditions, to refinance its debt.

Further, PEMEX has the capacity to refinance its short-term debt maturities through direct loans and revolving credit facilities and loans guaranteed by export credit agencies. PEMEX also established in conjunction with development and commercial banks Cadenas Productivas PEMEX Plus (Productive Chains Plus Program) to aid for the payment to suppliers and contractors. PEMEX's ability to refinance its short-term debt depends on factors beyond its reach.

The Revenue Law for 2022 also authorized PEMEX to incur a net additional indebtedness up to Ps. 29,912,400 (Ps. 27,068,400 and U.S.$142,200), which is considered as public debt by the Mexican Government and may be used to partially cover its financial balance of zero in 2023.

PEMEX reviews and aligns its capital expenditures portfolio in accordance with updated economic assumptions on a periodic basis and giving priority to those projects which increase production in an efficient manner and at the lowest cost.

On December 13, 2022, the Board of Directors of Petróleos Mexicanos approved the business plan of Petróleos Mexicanos and its Subsidiary Companies for 2023-2027 (the "2023-2027 Business Plan").

Prices of crude oil, natural gas and petroleum products shown a recovery in 2022, and they are expected to continue recover during 2023. In addition, if international values for the Mexican oil price were higher than the average price of U.S.

$68.7 per barrel, the price on which the zero financial balance was built, this additional revenue would enable PEMEX to achieve its business plan objectives more quickly.

Petróleos Mexicanos and its Subsidiary Entities are not subject to the Commercial Bankruptcy Law of Mexico and none of PEMEX's existing financing agreements include any financial covenants that could lead to the demand for immediate payment of its debt due to having negative equity or non-compliance with financial ratios.

As a reference, PEMEX prepared its consolidated financial statements as of December 31, 2022 and 2021 on a going concern basis. There are certain conditions that have generated important uncertainty and significant doubts concerning the entity's ability to continue operating, including recurring net losses, negative working capital and negative equity. Those financial statements do not contain any adjustments that would be required if they were not prepared on a going concern basis.

G. Non-controlling interest

PEMEX does not currently own all of the shares of PMI CIM and COMESA, variations in income and equity from these entities are also presented in the consolidated statements of changes in equity (deficit) as "non-controlling interest."

As of December 31, 2022, 2021 and 2020 non-controlling interest represented (losses) gains of Ps. (288,610), Ps. 128,502 and Ps. 369,692, respectively, in PEMEX's equity (deficit).

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NOTE 23. COST AND EXPENSES BY NATURE

Cost and expenses by nature for each of the years ended December 31, 2022, 2021 and 2020, was as follows:

	2022	2021	2020
Purchases	Ps. 1,126,780,036	Ps. 518,434,795	Ps. 386,040,047
Depreciation of wells, pipelines, properties, plant and equipment, depreciation of rights of use and amortization of intangible assets	146,251,935	140,155,507	137,398,830
Exploration and Extraction Hydrocarbons Duty and taxes	136,840,962	88,596,015	43,593,642
Net periodic cost of employee benefits	129,333,812	140,215,404	128,808,540
Personnel services	107,990,777	100,401,001	103,044,657
Conservation and maintenance	78,323,591	65,239,995	69,939,632
Auxiliary services with third-parties	28,799,131	9,656,254	15,901,982
Unsuccessful wells	26,582,595	26,952,138	22,269,583
Raw materials and spare parts	26,516,438	23,504,046	18,381,313
Losses from fuels subtraction [(1)]	19,891,204	6,791,377	4,279,542
Other operation costs and expenses	17,671,352	79,812,903	20,573,244
Other operation taxes and duties	14,717,890	12,933,825	12,180,579
General expenses with third-parties	12,454,485	6,867,868	4,198,747
Exploration expenses	8,126,787	6,458,310	6,732,689
Freight	8,522,913	5,195,157	3,426,079
Insurance	7,384,099	6,997,343	6,068,497
Fees	6,476,622	548,928	259,186
Integrated Contracts	4,556,801	4,904,774	5,275,946
Inventory variations [(2)]	(38,474,306)	(11,544,077)	2,572,641
Total cost of sales and general expenses	**Ps. 1,868,747,124**	**Ps. 1,232,121,563**	**Ps. 990,945,376**

(1) In accordance with Resolution RES / 179/2017, issued by the CRE, losses from fuels subtraction are losses outside the scope of the contemplated operating costs as a result of various illicit actions, including the theft of and illicit market in fuels.

Pemex Logistics is responsible for distributing hydrocarbons through the pipelines and for the received products, preserving their quality and delivering them from the point of reception to the user at the point of destination. Pemex Logistics determines the volume of missing hydrocarbons through monthly calculations.

(2) The variation in inventories represents the difference between the balances as of the beginning and the end of the year, as well as variations in standard and real costs. During 2022, the variation was mainly due to the increase in crude oil prices.

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NOTE 24. OTHER REVENUES AND OTHER EXPENSES

Other revenues and expenses-net for each of the years ended December 31, 2022, 2021 and 2020, was as follows:

A. Other revenues

	2022	2021	2020
Translation effect from the consolidated equity method [1]	Ps. 10,383,296	Ps. —	Ps. —
Tax updates [2]	8,061,861	915,277	6,966
Other income [3]	7,815,529	3,028,394	909,894
Other income for services	2,797,260	4,126,750	2,420,939
Bidding terms, sanctions, penalties and other	2,353,815	1,429,152	1,170,632
Revenues from reinsurance premiums	1,772,399	110,994	2,534,466
Account debugging	1,558,361	523,365	485,562
Insurance and deposits	1,510,943	1,459,760	2,149,214
Gains on bargain purchase of business acquisition	1,271,188	—	—
Claims recovery	881,462	1,147,424	1,515,295
Funds from FONADIN [4]	732,194	1,674,225	—
Recognition of partial income [5]	410,000	2,756,680	—
Franchise fees	348,906	376,179	494,785
Gain on sale of fixed assets	43,859	52,266	50,215
Participation rights [6]	—	—	30,878
Total other revenues	Ps. 39,941,073	Ps. 17,600,466	Ps. 11,768,846

(1) As of December 31, 2022 PEMEX recognized Ps.10,383,296 of currency translation effects from the investment in DPRLP into other income, as a result of derecognizing the equity method (see Note 12-B).

(2) As of December 31, 2022 PEMEX recognized tax updates "VAT", recovery from IEPS tax variable fee and cancellation of obligations due to losses by legal resolution.

(3) As of December 31, 2022 includes mainly cancellation of trials in process provision.

(4) On June 11, 2021, PEMEX was authorized by the FONADIN for a non-recoverable contribution to continue with the “Exploitation of wastewater” development project at the Miguel Hidalgo refinery, for the payment of executed work and for the associated expenses including pending estimated payments, expenses and investments related to the executed work in the amount of Ps. 4,399,765. The total non-recoverable contribution from the FONADIN was Ps. 6,073,990, of which Ps. 1,674,225 was recognized in 2021 as other income.

Pemex recognized the non-recoverable contribution as deferred income, and it will be recognized over the useful life of the asset from the non-recoverable contribution; this useful life is estimated at 20 years.

There are no conditions or contingencies linked to the non-recoverable contribution from FONADIN since the expenditure and capitalization has already been accrued.

(5) Recognition of partial income and aimed deferred remediation agreement in favor to Petróleos Mexicanos that will be settled in November 2023.

(6) Relates to operators right into EECs, to guarantee their participation interest in such contracts.

B. Other expenses

	2022	2021	2020
Loss from derecognition of disposal of assets [1]	Ps. (19,116,521)	Ps. (45,185,031)	Ps. (351,010)
Other expenses	(3,304,653)	(3,058,504)	(436,723)
Claims	(3,140,284)	(2,670,560)	(376,697)
Fines	(24,095)	(55,001)	—
Transportation and distribution of natural gas	—	—	(30,284)
Total other expenses	Ps. (25,585,553)	Ps. (50,969,096)	Ps. (1,194,714)

[1] For 2022 and 2021, includes mainly fixed assets from Pemex Exploration and Production without future development plans.

NOTE 25. RELATED PARTIES

The balances and transactions with related parties are mainly due to: (i) the sale and purchase of products, (ii) the billing of administrative services, and (iii) financial loans between related parties.

Directors and employees of Petróleos Mexicanos and the Subsidiary Entities are subject to regulations related to conflict of interest such as the Petróleos Mexicanos Law, *Ley Federal de Responsabilidades Administrativas de los Servidores Públicos* (Federal Law of Administrative Responsibilities of Public Officials) and the *Políticas y Lineamientos Anticorrupción para Petróleos Mexicanos, sus Empresas Productivas Subsidiarias y, en su caso, Empresas Filiales (*Anticorruption Policies and Guidelines for Petróleos Mexicanos, its Subsidiary Productive Companies and, where applicable, Subsidiary Companies). Under these provisions, PEMEX's directors and employees are obligated to "recuse themselves from intervening in any way in the attention to, processing or resolution of matters in which they might have personal, family or business interest, including those where some benefit can result for themselves, their spouse, blood or affinity relatives up to the fourth degree, or civil relatives, or for third parties with which they have professional, labor or business relations, or for partners or partnerships where the public officials or the persons referred above are or have been members thereof."

Related parties include individuals and companies that do not form part of PEMEX, but that could take advantage of being in a privileged position as a result of their relationship with PEMEX. Also included are situations in which PEMEX could take advantage of a special relationship in order to benefit its financial position or results of operations.

Main operations identified by PEMEX with this kind of directors and officers are as follows:

Mr. Manuel Bartlett Díaz, Chief Executive Officer of CFE, was appointed member of the Board of Directors of Petróleos Mexicanos in December 2018. CFE has executed several purchase agreements with Pemex Industrial Transformation. During 2022, CFE acquired the following products from Pemex Industrial Transformation:

Product	2022
Heavy fuel oil	Ps. 17,204,708
Industrial diesel	13,679,071
Other	966,841
Fuel oil	584,976
Natural Gas	349,735
Freights	315
Total	**Ps. 32,785,646**

As of December 31, 2022, CFE owed Pemex Industrial Transformation a total amount of Ps. 4,779,759. Invoices are payable between 16 and 60 days.

A. Compensation of Directors and Officers

For the years ended December 31, 2022, 2021 and 2020, short-term benefits of executive officers of Petróleos Mexicanos and the Subsidiary Entities paid or accrued in that year for services in all capacities was approximately Ps. 35,906, Ps. 34,360 and Ps. 30,988, respectively. Retirement post-employment and long-term employee benefits are granted as follows:

	As of December 31,		
	2022	2021	2020
Retirement	Ps. 4,917	4,888	7,233
Post-employment	166	200	354
Long-term	1,681	2,468	3,702
	Ps. 6,764	7,556	11,289

Except in the case of the independent members, members of the Boards of Directors of Petróleos Mexicanos and the Subsidiary Entities do not receive compensation for their services.

The compensation paid or accrued during 2022, 2021 and 2020, to the independent members of the Board of Directors of Petróleos Mexicanos was approximately Ps. 7,648, Ps. 7,646 and Ps. 6,008, respectively.

B. Compensation and benefits

As an employee benefit, PEMEX offers salary advances to all of its eligible Petroleum Workers' Union and non-union workers, including executive officers, pursuant to the programs set forth in the collective bargaining agreement and in the *Reglamento de Trabajo del Personal de Confianza de Petróleos Mexicanos y Empresas Productivas Subsidiarias* (Employment Regulation of White-Collar Employees of Petróleos Mexicanos and Subsidiary Entities), respectively.

The salary advances, which are non-interest bearing, are offered to each eligible employee in an amount up to a maximum of four months' salary and are repaid through salary deductions in equal installments over a period of either one or two years, as elected by the employee. Most employees take advantage of this benefit. The amount of salary advances outstanding to executive officers at December 31, 2022 and 2021 was Ps. 630 and Ps. 265, respectively. The amount of salary advances outstanding to executive officers at March 31, 2023 was Ps. 1,017.

NOTE 26. COMMITMENTS

A. PMI CIM has entered into several contracts for the sale of crude oil on the international market to foreign companies. The terms and conditions of these contracts are specific to each client, and their durations may be indefinite (evergreen contracts) or they may contain a minimum obligatory period (long-term contracts).

B. PEMEX has entered into a nitrogen supply contract for the pressure maintenance program at the Cantarell complex. During 2007, an additional contract was entered into with the purpose of supplying nitrogen to the Ku-Maloob-Zap complex and extending the original contract until 2027. At December 31, 2022 and 2021, the value of the nitrogen to be supplied during the term of the contract was approximately U.S.$1,227,596 and U.S.$1,451,362, respectively. In the event of the annulment of the contract and depending on the circumstances, PEMEX has the right or the obligation to acquire the vendor's nitrogen plant under the terms of the contract.

Estimated future payments under this contract for upcoming fiscal years are as follows:

Year	Payment	
2023	U.S.$	263,930
2024		274,880
2025		276,192
2026		277,043
2027		135,551
Total	**U.S.$**	**1,227,596**

C. As of December 31, 2022, PEMEX had entered into FPWCs by means of which the contractor, manages and is responsible for financing performance of the work to be undertaken. Those FPWCs are grouped into the categories of development, infrastructure and/or maintenance.

As of December 31, 2022 and 2021, the estimated value of these commitments was as follows:

Maturity	2022		2021	
Up to 1 year	Ps.	634,432	Ps.	488,438
1 to 3 years		90,426		294,662
Total	**Ps.**	**724,858**	**Ps.**	**783,100**

D. As of December 31, 2022 and 2021, the estimated value of the commitments that PEMEX has entered into with several contractors for the development of various infrastructure and services works was as follows:

Maturity	2022		2021	
Up to 1 year	Ps.	61,463,967	Ps.	181,088,750
1 to 3 years		69,662,017		177,187,792
4 to 5 years		22,166,730		124,716,836
More than 5 years		3,132,471		22,643,024
Total	**Ps.**	**156,425,186**	**Ps.**	**505,636,402**

NOTE 27. CONTINGENCIES

In the ordinary course of business, PEMEX is named in a number of lawsuits of various types. PEMEX evaluates the merit of each claim and assesses the likely outcome. PEMEX has not recorded provisions related to ongoing legal proceedings since an unfavorable resolution is not expected in such proceedings, with the exception of the proceeding described in further detail in this Note.

PEMEX is involved in various civil, tax, criminal, administrative, labor and commercial lawsuits and arbitration proceedings. The results of these proceedings are uncertain as of the date of these consolidated financial statements. As of December 31, 2022 and 2021, PEMEX had accrued a reserve of Ps. 10,533,137 and Ps. 11,114,006, respectively, for these contingent liabilities.

As of December 31, 2022, the current status of the principal lawsuits in which PEMEX is involved is as follows:

- On April 4, 2011, Pemex Exploration and Production was summoned before the *Séptima Sala Regional Metropolitana* ("Seventh Regional Metropolitan Court") of the *Tribunal Federal de Justicia Fiscal y Administrativa* ("Tax and Administrative Federal Court") in connection with an administrative claim (No. 4957/11-17-07-1) filed by EMS Energy Services de México, S. de R.L. de C.V. and Energy Maintenance Services Group I. LLC requesting that Pemex Exploration and Production's termination of the public works contract be declared null and void. In a concurrent proceeding, the plaintiffs also filed an administrative claim (No. 13620/15-17-06) against Pemex Exploration and Production before the *Sexta Sala Regional Metropolitana* ("Sixth Regional Metropolitan Court") of the Tax and Administrative Federal Court in Mexico City seeking damages totaling U.S. $193,713 related to the above-mentioned contract. Pemex Exploration and Production filed a response requesting the two administrative claims be joined in a single proceeding, which was granted. On April 30, 2019, a judgment was issued by the *Segunda Seccion de la Sala Superior* ("Second Section of the Superior Court") in favor of Pemex Exploration and Production. On June 25, 2019, the plaintiffs filed an amparo (D.A. 397/2019) before the *Tercer Tribunal Colegiado en Materia Administrativa del Primer Circuito* ("Third Administrative Joint Court of the First Circuit"), which was granted. On March 12, 2020, Pemex Exploration and Production filed a motion to review against the resolution granting this amparo before the Third Administrative Joint Court of the First Circuit. On October 1, 2020, the Third Administrative Joint Court declared the resolution null and void, no amount was granted in favor of the plaintiffs, among others. On February 24, 2022, an amparo (350/2020) was granted in favor of EMS Energy Services de México, S. de R.L. On March 17, 2022, a motion was filed to draw the resolution by the *Suprema Corte de Justicia de la Nación* (Supreme Court of Justice of the Nation). On June 16, 2022 a resolution was issued in connection with the amparo 350/2020 stating that the plaintiffs partially proved their requests, and the resolution was declared null and void, among others. On August 1, 2022, a motion to review this resolution was filed and admitted (RF 574/2022) by the Third Administrative Joint Court of the First Circuit. On September 13, 2022, representations were made under the amparo (D.A. 539/2022) filed by the plaintiffs before such Court. As of the date of these consolidated financial statements, a final resolution is still pending.

- On October 18, 2019, the *Sala Regional Peninsular* ("Regional Peninsular Court") of the *Tribunal Federal de Justicia Administrativa* ("Federal Justice Administrative Court") in Mérida, Yucatán summoned Pemex Exploration and Production in connection with a claim (91/19-16-01-9) filed by PICO México Servicios Petroleros, S. de R.L. de C.V. requesting that Pemex Exploration and Production's termination of the public works contract (no. 428814828) be declared null and void and seeking U.S. $137,300 for expenses and related damages, among other claims. On December 12, 2019, Pemex Exploration and Production filed a response to this claim. On March 28, 2020, a notification dated February 10, 2020, was received in which the extended claim was admitted. On February 10, 2020, the expert appointed by the plaintiff was accepted. On February 18, 2020, an extension requested by the accounting expert appointed by Pemex Exploration and Production was accepted and his opinion was filed and ratified on August 11, 2020. On June 1, 2021, an independent expert was designated. On September 30, 2021, a resolution was issued, which declared that all evidence has been filed. On October 15, 2021, the parties filed their pleadings. On November 9, 2021, this stage closed. On June 8, 2022, the Regional Peninsular Court sent the file to the Superior Court due to the amount involved in this claim.On August 22, 2022, the Regional Peninsular Court was informed that the Superior Court refused to attract this claim and on December 2, 2022 it was notified that the amparo was denied. On December 8, 2022, a complaint was filed against this resolution, which as of this date is still pending to be admitted. As of the date of these consolidated financial statements, a final resolution is still pending.

- Tech Man Group, S.A. de C.V. filed an administrative claim (7804/18-17-09-8) against Pemex Industrial Transformation seeking Ps. 2,009,598 for, among other things, payment of expenses and penalties in connection with a public works contract (CO-OF-019-4008699-11) before the *Tribunal Fiscal de Justicia Administrativa* (Fiscal Court of Administrative Justice). On June 25, 2019, a response was filed by Pemex Industrial Transformation as well as a motion against the admission of the claim, which was accepted. On October 2, 2019, the opinion of the accounting and construction experts submitted by the defendant was filed. On February 17,

2020, Pemex Industrial Transformation requested the Fiscal Court of Administrative Justice to appoint a new accounting expert since the previous appointed expert rejected his designation. On March 2, 2020, the independent construction expert filed his opinion. On August 7, 2020, the *Novena Sala Regional Metropolitana* (Ninth Regional Metropolitan Court) of the Federal Justice Court appointed an independent accounting expert, who filed his report on December 7, 2020. The parties also filed their pleadings. On March 30, 2022, the Superior Court of the Fiscal Court of Administrative Justice stated that the claim was filed untimely. On June 1, 2022, the plaintiff filed an amparo against this resolution. On July 8, 022, representations were filed under the amparo 437/2022 before *Décimo Quinto Tribunal Colegiado en materia Administrativa del Primer Circuito* (Fifteenth Administrative Joint Court of the First Circuit). As of the date of these consolidated financial statements, a final resolution is still pending.

- Constructora Norberto Odebrecht, S.A. filed an administrative claim against Pemex Industrial Transformation (file No. 4742/19-17-01-7) seeking U.S. $113,582 and Ps. 14,607 in connection with a termination resolution (no. 1,757) dated January 14, 2019, and issued by Pemex Industrial Transformation, which awarded U.S. $51,454 in favor of Pemex Industrial Transformation. The claim was admitted. On November 11, 2020, Pemex Industrial Transformation filed a response to this claim. The accounting expert filed his opinion. On June 2, 2022 an opinion by the accounting expert appointed by Pemex Industrial Transformation was filed. As of the date of these consolidated financial statements, a final resolution is still pending.

- On November 24, 2021, Pemex Industrial Transformation filed a repeal request (no. RRL2021014568) seeking that the resolutions dated October 7, 2021, issued by the Hydrocarbons Verification Manager of the Tax Administration Service are declared null and void. These resolutions established charges for Special Taxes on Production and Services, Value Added Taxes, fines among other for an amount of Ps. 3,084,975. As of the date of these consolidated financial statements, a final resolution is still pending.

- Micro Smart Systems de México, S. de R.L. de C.V. (MSSM) filed before the *Sala Regional del Golfo Norte* (Regional Court of the North Gulf) of the Tax and Administrative Federal Court (574/22-18-01-8) challenging a settlement statement dated February 17, 2022 related to a works contract number No. 424049831 issued by Pemex Exploration and Production and seeking U.S. $240,488. On April 5, 2022, the claim was admitted which was notified on May 17, 2022. On July 1, 2022, Pemex Exploration and Production filed a response to this claim, requesting Pemex Exploration and Production evidence, which was filed on August 8, 2022, and admitted by the Regional Court of the North Gulf on August 17, 2022. On September 2, 2022, this Regional Court confirmed the rejection of the evidence filed by the plaintiffs. On September 29, 2022, the First Section of the Superior Court denied a compliant motion filed by MSSM against the settlement statement dated February 17, 2022. As of the date of these financial statements, a final resolution is still pending.

- On September 9, 2022, Pemex Industrial Transformation filed a repeal request against a tax credit for the 2016 fiscal year related to the Special Tax on Production and Services and Value Added Tax for an amount of Ps. 5,852,222, seeking that this resolution is declared null and void. As of the date of these financial statements, a final resolution is still pending.

The results of these proceedings are uncertain until their final resolutions are issued by the appropriate authorities. PEMEX has recorded liabilities for loss contingencies when it is probable that a liability has been incurred and the amount thereof can be reasonably estimated. When a reasonable estimation could not be made, qualitative disclosure was provided in the notes to these consolidated financial statements. PEMEX does not disclose amounts accrued for each individual claim because such disclosure could adversely affect PEMEX's legal strategy, as well as the outcome of the related litigation.

Pursuant to an ordinary session held by the Board of Directors on August 23, 2013, Petróleos Mexicanos established policies for the granting of mutual guarantees, loans or any type of credit in favor of the Subsidiary Entities and Subsidiary Companies; in accordance with these policies, the Corporate Finance Department issues an opinion with its risk analysis, financial valuation, budget sufficiency, accounting treatment and conclusions.

Additionally, Pemex Logistics has granted the following corporate guarantees in connection with the exploration and extraction contracts entered into by Pemex Exploration and Production, as required by the CNH:

- Exploration and extraction of hydrocarbons under the deep-water license modality, Trión field (Tender CNH-A1-TRION / 2016), of U.S.$4,000,000.
- Exploration and extraction of the contract area 3 Cinturón plegado perdido (Tender CNHR01- L04 / 2015), of U.S. $3,333,000.
- Extraction of hydrocarbons under shared production contract of the Ek-Balam fields, of U.S.$5,000,000.
- Extraction of hydrocarbons in contractual area Santuario and El Golpe 3 field, of U.S.$320,000.
- Exploration and extraction of hydrocarbons under shared production contract, contractual area 2 Tampico-Misantla, of U.S.$1,250,000.
- Exploration and extraction of hydrocarbons under shared production contract, contractual area 8 Cuencas del Sureste, of U.S.$1,250,000.
- Exploration and extraction of hydrocarbons shared production contract, assignment AE-0398-Mission of U.S. $255,000.
- Extraction of hydrocarbons under license agreement, Ogarrio field of U.S.$250,000.
- Extraction of hydrocarbons under license agreement, Cárdenas and Mora fields, of U.S.$250,000.
- Exploration and extraction of hydrocarbons under the deep-water license modality, contractual area 2 Perdido, of U.S.$2,500,000.
- Exploration and extraction of hydrocarbons under the deep-water license modality, contractual area 5 Perdido, of U.S.$5,000,000.
- Exploration and extraction of hydrocarbons under the deep-water license modality, contractual area 18 Cordilleras Mexicanas, of U.S.$5,000,000.
- Exploration and extraction of hydrocarbons under shared production contract contractual area 22 Cuenca Salina, of U.S.$1,375,000.
- Contractual area 16 Tampico-Misantla, Veracruz, of U.S.$1,000,000.
- Contractual area 17 Tampico-Misantla, Veracruz, of U.S.$1,000,000.
- Contractual area 18 Tampico-Misantla, Veracruz, of U.S.$2,000,000.
- Contractual area 29 Cuencas del Sureste, of U.S.$2,500,000.
- Contractual area 32 Cuencas del Sureste, of U.S.$1,250,000.
- Contractual area 33 Cuencas del Sureste, of U.S.$1,250,000.
- Contractual area 35 Cuencas del Sureste, of U.S.$1,250,000.
- Contractual area Ébano, of U.S.$225,000.
- Contractual area AE-0388-M-Miquetla (for conventional and non-conventional on-shore licenses) of U.S.$245,000.

Certain other Subsidiary Entities have also granted guarantees and other contingencies.

Total guarantees granted to Pemex Exploration and Production amounted to U.S.$40,503,000, equivalent to Ps. 786,337,393, as of December 31, 2022 at the closing exchange rate on December 31, 2022, of Ps. 19.4143 = U.S.$1.00.

As of December 31, 2020, Pemex Logistics granted to Pemex Industrial Transformation the obligations from a lease contract for U.S.$150,000, equivalent to Ps. 2,912,145 at the closing exchange rate on December 31, 2022, of Ps. 19.4143 =U.S.$1.00, to J. Aron & Company LLC, a subsidiary of Goldman Sachs Group Inc.

PEMEX considers the probability it needs to make a disbursement of cash, for the guarantees granted and in effect as of December 31, 2022 remote.

NOTE 28. SUBSEQUENT EVENTS

A. Indebtedness for 2023

The Federal Revenue Law applicable to PEMEX as of January 1, 2023, published in the Official Gazette of the Federation on November 14, 2022, authorized Petróleos Mexicanos and its Subsidiary Entities to incur an internal net debt up to Ps. 27,068,400 and an external net debt up to U.S.$142,200. PEMEX can incur additional domestic or external debt, as long as the total amount of net debt does not exceed the ceiling established by the Federal Revenue Law.

B. Recent financing activities

- On January 6, 2023, Petróleos Mexicanos entered into a credit line to U.S.$50,000, bearing interest at a floating rate linked to 90-day SOFR plus 300 basis points, maturing in July 2023.
- On January 13, 2023, Petróleos Mexicanos issued a promissory note for the principal amount of Ps. 4,000,000 bearing interest at a floating rate linked to 28-day TIIE plus 365 basis points, maturing in January 2024.
- On January 23, 2023, Petróleos Mexicanos amended a credit contract to U.S.$750,000, bearing interest at a floating rate linked to 90-day SOFR plus 350 basis points plus and adjustment for the change in the reference to 26 basis points, maturing in July 2024.
- On January 27, 2023, Petróleos Mexicanos entered into a new revolving credit line of Ps. 4,000,000, bearing interest at a floating rate linked to 91-day TIIE plus 310 basis points, maturing in September 2023.
- On January 27, 2023, Petróleos Mexicanos issued a promissory note for the principal amount of Ps. 4,000,000 bearing interest at a floating rate linked to 28-day TIIE plus 275 basis points, maturing in October 2023.
- On January 31, 2023, Petróleos Mexicanos issued U.S.$2,000,000 of its 10.00% Notes due 2033 under its U.S. $125,000,000 Medium-Term Notes Program, Series C. All debt securities under this program are guaranteed by Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics.
- On February 1, 2023, Petróleos Mexicanos issued a promissory note for the principal amount of Ps. 3,000,000 bearing interest at a floating rate linked to 28-day TIIE plus 275 basis points, maturing in May 2023.
- On February 17, 2023, Petróleos Mexicanos issued a promissory note for the principal amount of U.S. $11,362 bearing interest at a floating rate linked to 30-day SOFR plus 175 basis points, maturing in February 2024.
- On February 22, 2023, Petróleos Mexicanos entered into a new revolving credit line of Ps. 5,000,000, in two tranches:
  - Ps. 2,000,000 bearing interest at a floating rate linked to 91-day TIIE plus 320 basis points, maturing in July 2023.
  - Ps. 3,000,000 bearing interest at a floating rate linked to 91-day TIIE plus 325 basis points, maturing in August 2023.
- On February 24, 2023, Petróleos Mexicanos issued a promissory note for the principal amount of Ps.2,000,000 bearing interest at a floating rate linked to 28-day TIIE plus 200 basis points, maturing in August 2023.
- On February 24, 2023, Petróleos Mexicanos issued a promissory note for the principal amount of Ps.250,000 bearing interest at a floating rate linked to 28-day TIIE plus 235 basis points, maturing in February 2024.

- On February 24, 2024, Petróleos Mexicanos issued a promissory note for the principal amount of Ps.3,000,000 bearing interest at a floating rate linked to 28-day TIIE plus 360 basis points, maturing in February 2024.
- On February 28, 2023, Petróleos Mexicanos entered into a new term loan credit facility of U.S.$150,000, bearing interest at a floating rate linked to90-day SOFR plus 450 basis points, maturing in February 2025.
- On March 13, 2023, Petróleos Mexicanos issued a promissory note for the principal amount of U.S.$200,000 bearing interest at a fixed rate of 10.375%, maturing in March 2033.
- On March 16, 2023, Petróleos Mexicanos issued a promissory note for the principal amount of U.S.$537,500 bearing interest at a fixed rate of 10.375%, maturing in March 2033.
- On March 28, 2023, Petróleos Mexicanos obtained Ps.9,225,000 related to Monetization of Government Bonds, maturing in February 2024.

As of December 31, 2022, the outstanding amount under the PMI Trading revolving credit line was U.S.$162,866. From January 1 to April 24, 2023, PMI Trading obtained U.S.$332,216 from its revolving credit line and repaid U.S.$335,309. As of April 24, 2023, the outstanding amount under this revolving credit line was U.S.$159,773. The available amount under this revolving credit lines was U.S.$ 65,227 as of April 24, 2023.

As of April 24, 2023, PEMEX had U.S.$7,664,000 and Ps. 29,500,000 in available credit lines in order to provide liquidity, which are fully drawn.

C. Exchange rates and crude oil prices

As of April 24, 2023, the Mexican peso-U.S. dollar exchange rate was Ps. 18.0090 per U.S. dollar, which represents a 7.2% appreciation of the value of the peso in U.S. dollar terms as compared to the exchange rate as of December 31, 2022, which was Ps. 19.4143 per U.S. dollar. This decrease in U.S. dollar exchange rate, has led to an estimate of Ps. 126,153,436 in PEMEX's foreign exchange gains as of April 24, 2023.

As of April 24, 2023, the weighted average price of the crude oil exported by PEMEX was U.S.$69.44 per barrel. This represents a price decrease of approximately 0.4% as compared to the average price as of December 31, 2022, which was U.S.$69.71 per barrel.

D. Contributions from the Mexican Government

During the period from January 1 to April 24, 2023, the Mexican Government made certain contributions to Petróleos Mexicanos through the Ministry of Energy. These amounts are reflected in the table below:

Date	Construction of the Dos Bocas Refinery	Strengthening of financial position	Strengthening of Fertilizers chain
January 19	Ps. —	—	600,000
January 30	—	—	600,000
February 23	—	6,000,000	—
March 16	10,500,000	—	—
Total	**Ps. 10,500,000**	**6,000,000**	**1,200,000**

NOTE 29. SUBSIDIARY GUARANTOR INFORMATION

The following consolidating information presents: (i) condensed consolidated statements of financial position at December 31, 2022 and 2021 and condensed consolidated statements of comprehensive income and cash flows for the years ended December 31, 2022, 2021 and 2020 of Petróleos Mexicanos, the Subsidiary Guarantors and the Non-Guarantor Subsidiaries (as defined below).

These condensed consolidated statements were prepared in conformity with IFRS, with one exception: for the purposes of the presentation of the subsidiary guarantor information, the Subsidiary Entities and Subsidiary Companies have been accounted for as investments under the equity method by Petróleos Mexicanos. Earnings of subsidiaries are therefore reflected in Petróleos Mexicanos' investment account and earnings. The principal elimination entries eliminate Petróleos Mexicanos' investment in subsidiaries and inter-company balances and transactions. Pemex Exploration and Production, Pemex Industrial Transformation, Pemex Drilling and Services (merged with Pemex Exploration and Production), Pemex Logistics (collectively, the "Subsidiary Guarantors") and Pemex Ethylene (merged with Pemex Industrial Transformation) and Pemex Fertilizers (merged with Pemex Industrial Transformation) are 100% owned subsidiaries of the Mexican Government. The guarantees by the Subsidiary Guarantors of Petróleos Mexicanos' payment obligations under this indebtedness are full, unconditional, joint and several. Pemex Ethylene, Pemex Fertilizers, and the Subsidiary Companies collectively comprise the non-guarantor subsidiaries (the "Non-Guarantor Subsidiaries").

The Pemex Project Funding Master Trust (the "Master Trust"), which was a trust formed for the purpose of financing PEMEX's projects, was dissolved effective December 20, 2011 and is no longer consolidated in the financial statements of PEMEX as of December 31, 2011 and thereafter.

The following table sets forth, as of December 31, 2022, the principal amount outstanding of the registered debt securities originally issued by the Master Trust. As noted above, Petróleos Mexicanos has assumed, as primary obligor, all of the obligations of the Master Trust under these debt securities. The obligations of Petróleos Mexicanos are guaranteed by the Subsidiary Guarantors:

Table 1: Registered Debt Securities originally issued by the Master Trust and Assumed by Petróleos Mexicanos

Security	Primary obligor	Guarantors	Principal amount outstanding (U.S.$)
6.625% Guaranteed Bonds due 2035	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	U.S.$ 1,750,000
6.625% Guaranteed Bonds due 2038	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	491,175
8.625% Guaranteed Bonds due 2023	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	63,705
9.500% Guaranteed Bonds due 2027	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	168,625

The following table sets forth, as of December 31, 2022, the principal amount outstanding of the registered debt securities issued by Petróleos Mexicanos, and guaranteed by Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics.

Petróleos Mexicanos
Productive State-Owned Subsidiaries and Subsidiary Companies

Notes to the consolidated financial statements

(Figures stated in thousands, except as noted)

Table 2: Registered Debt Securities originally issued by Petróleos Mexicanos

Security	Guarantors		Principal amount outstanding (U.S.$)
9.500% Global Guaranteed Bonds due 2027	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	96,718
3.500% Notes due 2023	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	1,143,938
4.875% Notes due 2024	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	844,175
6.625% Notes due 2035	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	999,000
6.500% Bonds due 2041	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	1,560,521
5.500% Bonds due 2044	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	640,357
6.375% Bonds due 2045	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	1,199,747
5.625% Bonds due 2046	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	626,143
4.500% Notes due 2026	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	1,124,403
4.250% Notes due 2025	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	635,449
6.875% Notes due 2026	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	2,502,771
4.625% Notes due 2023	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	895,444
6.750% Bonds due 2047	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	5,548,156
5.350% Notes due 2028	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	1,976,720
6.350% Bonds due 2048	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	1,574,041
6.500% Notes due 2027	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	4,006,043

Petróleos Mexicanos
Productive State-Owned Subsidiaries and Subsidiary Companies

Notes to the consolidated financial statements

(Figures stated in thousands, except as noted)

Security	Guarantors		Principal amount outstanding (U.S.$)
5.950% Notes due 2031	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	3,777,381
6.490% Notes due 2027	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	1,538,374
6.840% Notes due 2030	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	2,345,538
6.950% Bonds due 2060	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	3,796,812
7.690% Bonds due 2050	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	8,047,831
6.500% Notes due 2029	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	1,204,708
6.875% Notes due 2025	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	901,836
8.750% Notes due 2029	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	1,908,685
6.700% Notes due 2032	Petróleos Mexicanos	Pemex Exploration and Production, Pemex Industrial Transformation and Pemex Logistics	6,779,842

Petróleos Mexicanos is the only PEMEX entity that had debt securities registered with the Securities and Exchange Commission (“SEC”) outstanding as of December 31, 2022 and as of the date of these consolidated financial statements, and all guaranteed debt is issued by Petróleos Mexicanos. The guaranties of the Subsidiary Guarantors are full and unconditional and joint and several. PEMEX’s management has not presented separate financial statements for the Subsidiary Guarantors, because it has determined that such information is not material to investors.

Petróleos Mexicanos
Productive State-Owned Subsidiaries and Subsidiary Companies

Notes to the consolidated financial statements

(Figures stated in thousands, except as noted)

SUPPLEMENTAL CONDENSED CONSOLIDATING FINANCIAL INFORMATION

STATEMENT OF FINANCIAL POSITION
As of December 31, 2022

	Petróleos Mexicanos	Subsidiary guarantors	Non-guarantor subsidiaries	Eliminations	PEMEX consolidated
Assets					
Current assets					
Cash and cash equivalents	Ps. 14,809,052	Ps. 11,293,133	Ps. 38,312,326	Ps. —	Ps. 64,414,511
Trade and other accounts receivable, derivative financial instruments and other current assets	61,562,752	197,610,993	78,288,125	—	337,461,870
Accounts receivable—inter-company	1,466,391,747	1,158,552,905	178,769,205	(2,803,713,857)	—
Inventories	1,695,679	79,127,255	45,195,463	—	126,018,397
Total current assets	1,544,459,230	1,446,584,286	340,565,119	(2,803,713,857)	527,894,778
Long-term receivables—intercompany	1,511,328,178	—	1,361,639	(1,512,689,817)	—
Investments in joint ventures and associates	(1,203,291,062)	269,011,476	231,429,045	704,894,507	2,043,966
Wells, pipelines, properties, plant and equipment-net	6,832,860	1,089,869,156	272,048,834	—	1,368,750,850
Long-term notes receivables	—	1,334,126	—	—	1,334,126
Right of use	1,631,407	44,352,154	3,537,286	—	49,520,847
Deferred taxes	51,156,380	113,857,491	6,618,687	—	171,632,558
Intangible assets	149,947	28,673,801	1,201,186	—	30,024,934
Mexican Government Bonds	63,653,260	—	—	—	63,653,260
Other assets	—	2,320,594	28,382,131	—	30,702,725
Total assets	**Ps. 1,975,920,200**	**Ps. 2,996,003,084**	**Ps. 885,143,927**	**Ps. (3,611,509,167)**	**Ps. 2,245,558,044**
Liabilities					
Current liabilities					
Current portion of long-term debt	Ps. 398,101,726	Ps. 20,438,040	Ps. 47,407,917	Ps. —	Ps. 465,947,683
Accounts payable—inter-company	1,423,626,118	1,293,390,155	86,538,902	(2,803,555,175)	—
Other current liabilities	31,085,188	346,977,135	85,727,252	—	463,789,575
Total current liabilities	1,852,813,032	1,660,805,330	219,674,071	(2,803,555,175)	929,737,258
Long-term debt	1,573,359,790	22,496,110	29,660,413	—	1,625,516,313
Long-term payables—inter-company	—	1,511,403,321	1,445,177	(1,512,848,498)	—
Employee benefits, provisions for sundry creditors, other liabilities and deferred taxes	318,280,995	1,124,420,120	16,425,583	—	1,459,126,698
Total liabilities	3,744,453,817	4,319,124,881	267,205,244	(4,316,403,673)	4,014,380,269
Equity (deficit), net	(1,768,533,617)	(1,323,121,797)	617,938,683	704,894,506	(1,768,822,225)
Total liabilities and equity	**Ps. 1,975,920,200**	**Ps. 2,996,003,084**	**Ps. 885,143,927**	**Ps. (3,611,509,167)**	**Ps. 2,245,558,044**

Petróleos Mexicanos
Productive State-Owned Subsidiaries and Subsidiary Companies

Notes to the consolidated financial statements

(Figures stated in thousands, except as noted)

SUPPLEMENTAL CONDENSED CONSOLIDATING FINANCIAL INFORMATION

STATEMENT OF FINANCIAL POSITION
As of December 31, 2021

	Petróleos Mexicanos	Subsidiary guarantors	Non-guarantor subsidiaries	Eliminations	PEMEX consolidated
Assets					
Current assets					
Cash and cash equivalents	Ps. 34,690,405	Ps. 6,157,869	Ps. 35,658,173	Ps. —	Ps. 76,506,447
Trade and other accounts receivable, derivative financial instruments and other current assets	14,502,133	191,315,372	89,956,950	—	295,774,455
Accounts receivable—inter-company	1,915,076,979	1,080,615,236	158,628,242	(3,154,320,457)	—
Inventories	930,656	54,797,831	30,384,655	—	86,113,142
Total current assets	1,965,200,173	1,332,886,308	314,628,020	(3,154,320,457)	458,394,044
Long-term receivables—intercompany	1,715,204,137	—	1,846,525	(1,717,050,662)	—
Investments in joint ventures and associates	(1,438,194,686)	172,395,250	78,073,476	1,189,980,912	2,254,952
Wells, pipelines, properties, plant and equipment-net	7,488,282	1,130,105,528	136,938,797	—	1,274,532,607
Long-term notes receivables	—	1,646,290	—	—	1,646,290
Right of use	666,839	52,047,552	1,569,067	—	54,283,458
Deferred taxes	53,898,456	34,644,220	3,713,163	—	92,255,839
Intangible assets	2,175	18,894,609	1,119,362	—	20,016,146
Mexican Government Bonds	109,601,905	—	—	—	109,601,905
Other assets	—	1,165,964	37,946,966	—	39,112,930
Total assets	**Ps. 2,413,867,281**	**Ps. 2,743,785,721**	**Ps. 575,835,376**	**Ps. (3,681,390,207)**	**Ps. 2,052,098,171**
Liabilities					
Current liabilities					
Current portion of long-term debt	417,076,084	22,488,458	52,719,071	—	492,283,613
Accounts payable—inter-company	2,092,847,395	962,430,582	98,598,958	(3,153,876,935)	—
Other current liabilities	23,587,329	334,918,246	71,859,142	—	430,364,717
Total current liabilities	2,533,510,808	1,319,837,286	223,177,171	(3,153,876,935)	922,648,330
Long-term debt	1,715,650,511	25,978,231	15,783,539	—	1,757,412,281
Long-term payables—inter-company	—	1,715,642,197	1,851,988	(1,717,494,185)	—
Employee benefits, provisions for sundry creditors, other liabilities and deferred taxes	334,835,252	1,196,413,505	10,789,586	—	1,542,038,343
Total liabilities	4,583,996,571	4,257,871,219	251,602,284	(4,871,371,120)	4,222,098,954
Equity (deficit), net	(2,170,129,290)	(1,514,085,498)	324,233,092	1,189,980,913	(2,170,000,783)
Total liabilities and equity	**Ps. 2,413,867,281**	**Ps. 2,743,785,721**	**Ps. 575,835,376**	**Ps. (3,681,390,207)**	**Ps. 2,052,098,171**

Petróleos Mexicanos
Productive State-Owned Subsidiaries and Subsidiary Companies

Notes to the consolidated financial statements

(Figures stated in thousands, except as noted)

SUPPLEMENTAL CONDENSED CONSOLIDATING FINANCIAL INFORMATION

STATEMENT OF COMPREHENSIVE INCOME
For the year ended December 31, 2022

	Petróleos Mexicanos	Subsidiary guarantors	Non-guarantor subsidiaries	Eliminations	PEMEX consolidated
Net revenues	Ps. —	Ps. 2,801,812,884	Ps. 1,498,442,200	Ps. (1,922,252,125)	Ps. 2,378,002,959
Services income	80,180,636	97,771,725	16,779,837	(189,346,848)	5,385,350
Total revenues	80,180,636	2,899,584,609	1,515,222,037	(2,111,598,973)	2,383,388,309
(Impairment) of wells, pipelines, properties, plant and equipment	—	(83,932,377)	394,356	—	(83,538,021)
Cost of sales	1,188,124	2,254,594,197	1,473,464,907	(2,030,684,206)	1,698,563,022
Gross income	78,992,512	561,058,035	42,151,486	(80,914,767)	601,287,266
Total general expenses	75,149,492	163,600,068	12,167,950	(80,733,408)	170,184,102
Other revenues (expenses), net	136,297	(617,947)	14,550,435	286,735	14,355,520
Operating income	3,979,317	396,840,020	44,533,971	105,376	445,458,684
Financing cost, net	(53,015,543)	(95,270,023)	(6,927,924)	(105,376)	(155,318,866)
Foreign exchange income (loss), net	(2,577,191)	131,349,483	917,798	—	129,690,090
Profit (loss) sharing in joint ventures and associates	149,613,112	(1,982,658)	66,706,428	(213,987,481)	349,401
Income (loss) before duties, taxes and other	97,999,695	430,936,822	105,230,273	(213,987,481)	420,179,309
Total taxes, duties and other	(2,412,355)	321,846,221	746,973	—	320,180,839
Net income for the year	100,412,050	109,090,601	104,483,300	(213,987,481)	99,998,470
Total other comprehensive result	27,263,372	96,178,950	(33,568,951)	—	89,873,371
Total comprehensive income (loss)	**Ps. 127,675,422**	**Ps. 205,269,551**	**Ps. 70,914,349**	**Ps. (213,987,481)**	**Ps. 189,871,841**

SUPPLEMENTAL CONDENSED CONSOLIDATING FINANCIAL INFORMATION

STATEMENT OF COMPREHENSIVE INCOME
For the year ended December 31, 2021

	Petróleos Mexicanos	Subsidiary guarantors	Non-guarantor subsidiaries	Eliminations	PEMEX consolidated
Net revenues	Ps. —	Ps. 1,815,602,641	Ps. 737,192,231	Ps. (1,062,139,493)	Ps. 1,490,655,379
Services income	83,783,182	93,096,004	11,936,130	(183,842,075)	4,973,241
Total revenues	83,783,182	1,908,698,645	749,128,361	(1,245,981,568)	1,495,628,620
(Impairment) of wells, pipelines, properties, plant and equipment	—	(751,469)	(459,126)	—	(1,210,595)
Cost of sales	939,331	1,502,101,853	728,325,768	(1,164,716,250)	1,066,650,702
Gross income	82,843,851	405,845,323	20,343,467	(81,265,318)	427,767,323
Total general expenses	77,055,697	160,027,365	9,622,354	(81,234,555)	165,470,861
Other revenues (expenses), net	2,985,438	(37,344,472)	1,009,896	(19,492)	(33,368,630)
Operating income	8,773,592	208,473,486	11,731,009	(50,255)	228,927,832
Financing cost, net	(54,245,927)	(102,785,773)	(3,907,658)	50,252	(160,889,106)
Foreign exchange (loss) income, net	(5,185,616)	(39,529,621)	(959,813)	—	(45,675,050)
(Loss) profit in joint ventures and associates	(246,891,433)	(2,353,222)	(10,630,620)	256,787,168	(3,088,107)
(Impairment) of joint ventures	—	—	(6,703,324)	—	(6,703,324)
Income (loss) before duties, taxes and other	(297,549,384)	63,804,870	(10,470,406)	256,787,165	12,572,245
Total taxes, duties and other	(3,017,215)	308,071,088	2,294,249	—	307,348,122
Net (loss) income for the year	(294,532,169)	(244,266,218)	(12,764,655)	256,787,165	(294,775,877)
Total other comprehensive result	44,225,180	161,981,238	6,941,577	—	213,147,995
Total comprehensive (loss) income	**Ps. (250,306,989)**	**Ps. (82,284,980)**	**Ps. (5,823,078)**	**Ps. 256,787,165**	**Ps. (81,627,882)**

Petróleos Mexicanos
Productive State-Owned Subsidiaries and Subsidiary Companies

Notes to the consolidated financial statements

(Figures stated in thousands, except as noted)

SUPPLEMENTAL CONDENSED CONSOLIDATING FINANCIAL INFORMATION

STATEMENT OF COMPREHENSIVE INCOME
For the year ended December 31, 2020

	Petróleos Mexicanos	Subsidiary guarantors	Non-guarantor subsidiaries	Eliminations	PEMEX consolidated
Net revenues	Ps. —	Ps. 1,115,845,485	Ps. 459,202,040	Ps. (626,101,165)	Ps. 948,946,360
Services income	78,461,654	88,034,087	12,253,482	(174,033,739)	4,715,484
Total revenues	78,461,654	1,203,879,572	471,455,522	(800,134,904)	953,661,844
(Impairment) of wells, pipelines, properties, plant and equipment	—	(36,303,470)	(50,230)	—	(36,353,700)
Cost of sales	982,896	1,090,745,812	460,296,695	(719,410,713)	832,614,690
Gross income	77,478,758	76,830,290	11,108,597	(80,724,191)	84,693,454
Total general expenses	75,817,961	154,020,378	9,198,761	(80,706,414)	158,330,686
Other revenues (expenses), net	170,887	5,733,633	4,635,082	34,530	10,574,132
Operating income	1,831,684	(71,456,455)	6,544,918	16,753	(63,063,100)
Financing cost, net	(54,710,062)	(70,134,087)	(3,066,150)	(16,754)	(127,927,053)
Foreign exchange (loss) income, net	(1,778,917)	(125,864,355)	(1,306,032)	—	(128,949,304)
(Loss) profit sharing in joint ventures and associates	(433,417,288)	1,288,687	(12,588,491)	441,176,559	(3,540,533)
(Loss) income before duties, taxes and other	(488,074,583)	(266,166,210)	(10,415,755)	441,176,558	(323,479,990)
Total taxes, duties and other	20,804,230	159,451,307	5,316,538	—	185,572,075
Net (loss) income for the year	(508,878,813)	(425,617,517)	(15,732,293)	441,176,558	(509,052,065)
Total other comprehensive result	(6,062,096)	(12,844,301)	7,600,985	—	(11,305,412)
Total comprehensive (loss) income	**Ps. (514,940,909)**	**Ps. (438,461,818)**	**Ps. (8,131,308)**	**Ps. 441,176,558**	**Ps. (520,357,477)**

Petróleos Mexicanos
Productive State-Owned Subsidiaries and Subsidiary Companies

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(Figures stated in thousands, except as noted)

SUPPLEMENTAL CONDENSED CONSOLIDATING FINANCIAL INFORMATION

STATEMENT OF CASH FLOWS
For the year ended December 31, 2022

	Petróleos Mexicanos	Subsidiary guarantors	Non-guarantor subsidiaries	Eliminations	PEMEX consolidated
Operating activities:					
Net income (loss)	Ps. 100,412,050	Ps. 109,090,601	Ps. 104,483,300	Ps. (213,987,481)	Ps. 99,998,470
Income taxes and duties	(2,412,355)	321,846,222	746,972	—	320,180,839
Depreciation and amortization of wells, pipelines, properties, plant and equipment	554,672	134,768,990	4,448,153	—	139,771,815
Amortization of intangible assets	433,850	22,598	59,894	—	516,342
Impairment of wells, pipelines, properties, plant and equipment	—	83,932,376	(394,355)	—	83,538,021
Capitalized unsuccessful wells	—	7,110,169	—	—	7,110,169
Unsuccessful wells from intangible assets	—	13,911,491	—	—	13,911,491
Loss from derecognition of disposal of wells, pipelines, properties, plant and equipment	770,522	20,594,151	2,358,648	—	23,723,321
Depreciation of rights of use	402,661	4,775,839	785,278	—	5,963,778
Cancellation of leases	17,489	(824,885)	—	—	(807,396)
(Gains) on bargain purchase of business acquisition	—	—	(1,271,188)	—	(1,271,188)
Reclassification of translation effect	—	—	(10,383,296)	—	(10,383,296)
Discount rate of reserve for well abandonment	—	4,647,200	—	—	4,647,200
Loss (profit) sharing in joint ventures and associates	(149,613,112)	1,982,659	(66,706,428)	213,987,480	(349,401)
Unrealized foreign exchange loss (income)	(116,319,473)	(7,874,293)	(4,351,603)	—	(128,545,369)
Interest expense	133,280,499	20,710,183	5,693,198	—	159,683,880
Interest income	(15,912,365)	(10,859,934)	(455,666)	—	(27,227,965)
Duties and taxes	(6,301,293)	(360,898,996)	527,037	—	(366,673,252)
Accounts receivable, inventories, accounts payable, DFIs and provisions	15,493,005	(52,750,442)	15,832,583	—	(21,424,854)
Employee benefits	18,330,319	35,818,190	126,678	—	54,275,187
Inter-company charges and deductions	511,277,041	(191,050,153)	115,670,229	(435,897,117)	—
Cash flows from (used in) operating activities	490,413,510	134,951,966	167,169,434	(435,897,118)	356,637,792
Investing activities:					
Acquisition of wells, pipelines, properties, plant and equipment and intangible assets	(1,015,214)	(221,783,321)	(131,061,456)	13,389,062	(340,470,929)
Other assets and other receivables	2,041,688	(1,388,372)	(19,728,200)	(13,389,063)	(32,463,947)
(Increase) decrease due to Inter-company investing					
Cash flows (used in) from investing activities	119,611,920	(223,171,693)	(150,304,771)	(119,070,332)	(372,934,876)
Financing activities:					
Increase in equity due to Certificates of Contribution “A” and proceeds from FONADIN grants	211,306,717	—	—	—	211,306,717
Collection and interest collected from the Mexican Government	7,455,715	—	—	—	7,455,715
Lease payments of principal and interest					
Loans obtained from financial institutions	428,181,800	34,447,738	601,549,878	—	1,064,179,416
Debt payments, principal only	(470,070,458)	(41,828,143)	(595,260,679)	—	(1,107,159,280)
Interest paid	(136,869,989)	(17,387,706)	301,005	—	(153,956,690)
Inter-company increase (decrease) financing	(669,221,278)	126,720,696	(12,466,868)	554,967,450	—
Net cash flows from (used in) financing activities:	(629,906,783)	93,354,991	(7,226,603)	554,967,450	11,189,055
Net increase (decrease) in cash and cash equivalents	(19,881,353)	5,135,264	9,638,060	—	(5,108,029)
Effects of foreign exchange on cash balances	—	—	(6,983,907)	—	(6,983,907)
Cash and cash equivalents at the beginning of the year	34,690,405	6,157,869	35,658,173	—	76,506,447
Cash and cash equivalents at the end of the year	**Ps. 14,809,052**	**Ps. 11,293,133**	**Ps. 38,312,326**	**Ps. —**	**Ps. 64,414,511**

Petróleos Mexicanos
Productive State-Owned Subsidiaries and Subsidiary Companies

Notes to the consolidated financial statements

(Figures stated in thousands, except as noted)

SUPPLEMENTAL CONDENSED CONSOLIDATING FINANCIAL INFORMATION

STATEMENT OF CASH FLOWS
For the year ended December 31, 2021

	Petróleos Mexicanos	Subsidiary guarantors	Non-guarantor subsidiaries	Eliminations	PEMEX consolidated
Operating activities:					
Net (loss) income	Ps. (294,532,169)	Ps. (244,266,218)	Ps. (12,764,655)	Ps. 256,787,165	Ps. (294,775,877)
Income taxes and duties	(3,017,215)	308,071,088	2,294,249	—	307,348,122
Depreciation and amortization of wells, pipelines, properties, plant and equipment	926,413	130,462,150	2,042,802	—	133,431,365
Amortization of intangible assets	302,074	27,629	73,592	—	403,295
Impairment of wells, pipelines, properties, plant and equipment	—	751,469	459,126	—	1,210,595
Capitalized unsuccessful wells	—	9,730,391	—	—	9,730,391
Unsuccessful wells from intangible assets	—	12,565,711	—	—	12,565,711
Loss from derecognition of disposal of wells, pipelines, properties, plant and equipment	165,820	47,033,371	100,431	—	47,299,622
Depreciation of rights of use	518,108	4,890,459	999,304	—	6,407,871
Reversal of impairment of rights of use			—		(87,025)
Impairment of joint ventures	—	—	6,703,324	—	6,703,324
Cancellation of leases	—	(432,906)	—	—	(432,906)
Unrealized foreign exchange loss (income) of reserve for well abandonment	—	4,454,106	—	—	4,454,106
Loss (profit) sharing in joint ventures and associates	257,030,877	97,909	2,990,198	(257,030,877)	3,088,107
Unrealized foreign exchange loss (income)	37,103,050	4,878,103	2,504,194	—	44,485,347
Interest expense	152,735,265	9,319,042	2,517,340	—	164,571,647
Interest income	(15,021,009)	(13,696,982)	(188,793)	—	(28,906,784)
Taxes and duties	(9,832,139)	(247,468,399)	(2,147,155)	—	(259,447,693)
Accounts receivable, inventories, accounts payable, DFIs and provisions	36,095,181	(42,928,835)	(29,866,906)	—	(36,700,560)
Employee benefits	23,767,561	45,120,142	(1,001,049)	—	67,886,654
Inter-company charges and deductions	(945,742,643)	(154,191,287)	116,560,178	983,373,752	—
Cash flows from (used in) operating activities	(759,500,826)	(125,670,082)	91,276,180	983,130,040	189,235,312
Investing activities:					
Acquisition of wells, pipelines, properties, plant and equipment and intangible assets	(305,025)	(157,505,188)	(77,595,821)	—	(235,406,034)
Other assets and other receivables	435,423	4,246,730	(31,511,677)	—	(26,829,524)
(Increase) decrease due to Inter-company investing	(68,097,420)	—	(858,455)	68,955,875	—
Cash flows (used in) from investing activities	(67,967,022)	(153,258,458)	(109,965,953)	68,955,875	(262,235,558)
Financing activities:					
Increase in equity due to Certificates of Contribution “A”	316,354,129	—	—	—	316,354,129
Collection and interest collected from the Mexican Government	22,915,255	—	—	—	22,915,255
Lease payments of principal and interest	(388,290)	(9,806,074)	(1,074,067)	—	(11,268,431)
Loans obtained from financial institutions	682,975,560	4,088,422	949,152,861	—	1,636,216,843
Debt payments, principal only	(749,672,127)	(8,885,244)	(949,024,209)	—	(1,707,581,580)
Interest paid	(151,547,133)	(5,430,171)	(279,321)	—	(157,256,625)
Inter-company increase (decrease) financing	732,126,639	300,149,402	19,809,874	(1,052,085,915)	—
Cash flows from (used in) financing activities:	852,764,033	280,116,335	18,585,138	(1,052,085,915)	99,379,591
Net increase (decrease) in cash and cash equivalents	25,296,185	1,187,795	(104,635)	—	26,379,345
Effects of foreign exchange on cash balances	—	—	10,137,321	—	10,137,321
Cash and cash equivalents at the beginning of the year	9,394,220	4,970,074	25,625,487	—	39,989,781
Cash and cash equivalents at the end of the year	**Ps. 34,690,405**	**Ps. 6,157,869**	**Ps. 35,658,173**	**Ps. —**	**Ps. 76,506,447**

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SUPPLEMENTAL CONDENSED CONSOLIDATING FINANCIAL INFORMATION

STATEMENT OF CASH FLOWS
For the year ended December 31, 2020

	Petróleos Mexicanos	Subsidiary guarantors	Non-guarantor subsidiaries	Eliminations	PEMEX consolidated
Operating activities:					
Net (loss) income	Ps. (508,878,813)	Ps. (425,617,517)	Ps. (15,507,766)	Ps. 440,952,031	Ps. (509,052,065)
Income taxes and duties	20,804,230	159,451,307	5,316,538	—	185,572,075
Depreciation and amortization of wells, pipelines, properties, plant and equipment	1,066,176	126,778,686	1,786,958	—	129,631,820
Amortization of intangible assets	453,081	(30,155)	56,062	—	478,988
Impairment of wells, pipelines, properties, plant and equipment	—	36,303,471	50,229	—	36,353,700
Capitalized unsuccessful wells	—	10,947,702	—	—	10,947,702
Unsuccessful wells from intangible assets	—	8,404,284	—	—	8,404,284
Loss from derecognition of disposal of wells, pipelines, properties, plant and equipment	94,065	3,004,053	2,199,444	—	5,297,562
Depreciation of rights of use	644,838	5,453,688	1,130,705	—	7,229,231
Loss from derecognition of disposal of intangible asset	—	—	396,118	—	396,118
Cancellation of leases	—	(1,101,987)	—	—	(1,101,987)
Discount rate of reserve for well abandonment	—	4,555,692	—	—	4,555,692
(Gains) on disposal of subsidiary companies	—	—	(707,533)	—	(707,533)
Loss (profit) sharing in joint ventures and associates	441,125,283	(41,685)	3,582,218	(441,125,283)	3,540,533
Unrealized foreign exchange loss (income)	117,158,102	12,040,638	3,267,503	—	132,466,243
Interest expense	134,335,289	25,908,927	1,521,026	—	161,765,242
Interest income	(11,617,299)	(5,124,749)	—	—	(16,742,048)
Taxes and duties	1,349,021	(155,315,035)	(3,725,449)	—	(157,691,463)
Accounts receivable, inventories, accounts payable, DFIs and provisions	(16,644,218)	(692,255)	22,115,695	—	4,779,222
Employee benefits	(355,666)	64,873,037	(5,347,025)	—	59,170,346
Inter-company charges and deductions	(147,308,477)	37,878,271	35,319,045	74,111,161	—
Cash flows from (used in) operating activities	32,225,612	(92,323,627)	51,453,768	73,937,909	65,293,662
Investing activities:					
Acquisition of wells, pipelines, properties, plant and equipment and intangible assets	(349,555)	(97,841,648)	(40,426,953)	—	(138,618,156)
Other assets and other receivables	930,596	(812,028)	(2,640,055)	—	(2,521,487)
(Increase) decrease due to Inter-company investing	(194,281,597)	—	627,372	193,654,225	—
Cash flows (used in) from investing activities	(193,700,556)	(98,653,676)	(42,439,636)	193,654,225	(141,139,643)
Financing activities:					
Increase in equity due to Certificates of Contribution “A”	46,256,000	—	—	—	46,256,000
Collection and interest collected from the Mexican Government	5,800,940	—	—	—	5,800,940
Lease payments of principal and interest	(396,917)	(8,266,969)	(1,346,915)	—	(10,010,801)
Loans obtained from financial institutions	730,222,863	1,046	557,905,959	—	1,288,129,868
Debt payments, principal only	(601,448,338)	(4,828,154)	(545,685,655)	—	(1,151,962,147)
Interest paid	(122,553,204)	(7,200,077)	(1,235,869)	—	(130,989,150)
Inter-company increase (decrease) financing	84,752,963	211,415,474	(28,576,303)	(267,592,134)	—
Cash flows from (used in) financing activities:	142,634,307	191,121,320	(18,938,783)	(267,592,134)	47,224,710
Net increase (decrease) in cash and cash equivalents	(18,840,637)	144,017	(9,924,651)	—	(28,621,271)
Effects of foreign exchange on cash balances	—	—	7,989,421	—	7,989,421
Cash and cash equivalents at the beginning of the year	28,234,857	4,826,057	27,560,717	—	60,621,631
Cash and cash equivalents at the end of the year	**Ps. 9,394,220**	**Ps. 4,970,074**	**Ps. 25,625,487**	**Ps. —**	**Ps. 39,989,781**

NOTE 30. SUPPLEMENTARY INFORMATION ON OIL AND GAS EXPLORATION AND PRODUCTION ACTIVITIES (UNAUDITED)

Under the Mexican Constitution, all crude oil and other hydrocarbon reserves located in the subsoil of Mexico are owned by the Mexican nation and not by PEMEX. In August 2014, through the Round Zero process, the Mexican Government granted PEMEX the right to extract, but not own, certain petroleum and other hydrocarbon reserves in Mexico through assignment deeds.

This note provides supplementary information on the oil and gas exploration, development and production activities of Pemex Exploration and Production in compliance with the U.S. Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) Topic 932 10-5 "Extractive Activities—Oil and Gas" ("ASC Topic 932") and Accounting Standards Update 2010-03 (see Note 3-G).

As of the date of these consolidated financial statements, all exploration and production activities of Pemex Exploration and Production are conducted in Mexico. The supplemental data presented herein reflect information for all of Pemex Exploration and Production's oil and gas producing activities.

A. Capitalized costs for oil and gas producing activities (unaudited):

	2022	2021	2020
Proved Properties	Ps. 2,866,888,317	2,755,452,487	2,483,134,177
Construction in progress	78,758,180	65,874,785	64,911,619
Accumulated depreciation and amortization	(2,150,051,501)	(1,970,206,627)	(1,775,163,736)
Net capitalized costs	Ps. 795,594,996	851,120,645	772,882,060

B. Costs incurred for oil and gas property exploration and development activities (unaudited):

	2022	2021
Exploration	Ps. 52,128,899	40,812,385
Development	134,415,959	96,188,784
Total costs incurred	**Ps. 186,544,858**	**137,001,169**

PEMEX does not have property acquisition costs because the oil reserves it exploits are owned by the Mexican nation.

Exploration costs include costs of geological and geophysical studies of fields in the amount of Ps. 12,169,758 and Ps. 10,054,253, for 2022 and 2021, respectively. These costs are accounted for as geological and geophysical exploration expenses, in accordance with the successful efforts method of accounting.

Development costs include those costs incurred in obtaining access to proved reserves and providing facilities for extracting, treating, gathering and storing oil and gas.

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C. Results of operations for oil and gas producing activities (unaudited):

	2022	2021	2020
Revenues from sale of oil and gas	Ps. 1,347,063,715	944,008,383	558,051,547
Hydrocarbon duties	404,918,526	306,827,282	154,609,136
Production costs (excluding taxes)	421,514,923	310,389,017	257,571,641
Other costs and expenses	94,115,614	35,671,317	(7,024,695)
Exploration expenses	38,752,353	37,006,392	31,868,857
Depreciation, depletion, amortization and accretion	173,178,527	62,569,917	845,380
	1,132,479,943	752,463,925	437,870,319
Results of operations for oil and gas producing activities	**Ps. 214,583,772**	**191,544,458**	**120,181,228**

D. Sales prices (unaudited)

The following table summarizes average sales prices in U.S. dollars for each of the years ended December 31 (excluding production taxes):

Description	2022	2021	2020
	U.S.$	U.S.$	U.S.$
Weighted average sales price per barrel of oil equivalent (boe) [1]	69.31	52.22	27.86
Crude oil, per barrel	89.84	66.06	35.47
Natural gas, per thousand cubic feet	7.17	5.16	2.54

[1] To convert dry gas to barrels of oil equivalent, a factor of 5.201 thousand cubic feet of dry gas per barrel of oil equivalent is used.

E. Crude oil and natural gas reserves (unaudited)

Under the Mexican Constitution, all oil and other hydrocarbon reserves located in the subsoil of Mexico are owned by the Mexican nation and not by PEMEX. Under the Petróleos Mexicanos Law, Pemex Exploration and Production has the right to extract, but not own, these reserves, and to sell the resulting production. The exploration and development activities of Petróleos Mexicanos and the Subsidiary Entities are limited to reserves located in Mexico.

Proved oil and natural gas reserves are those estimated quantities of crude oil, natural gas and natural gas liquids which geological and engineering data demonstrate with reasonable certainty to be economically producible from a given date forward, from known reservoirs and under existing economic conditions, operating methods and government regulations.

Proved reserves estimates as of December 31, 2022 were prepared by the Exploration and Production segment and were reviewed by the Independent Engineering Firms (as defined below), which audit its estimates of hydrocarbon reserves. According to the *Lineamientos que Regulan los Procedimientos de Cuantificación y Certificación de Reservas de la Nación* (Guidelines for Regulating the Nation's Reserves Quantification and Certification Procedures), CNH should review and approve of Hydrocarbons Reserves reports of Mexico's operators in the month of April. As of the date of these consolidated financial statements, the proved reserves estimates as of December 31, 2022 have not been approved by the CNH.

Pemex Exploration and Production estimates proved reserves based on generally accepted petroleum engineering and evaluation methods and procedures, which are based primarily on applicable SEC regulations and, as necessary, the SPE's publication entitled Standards Pertaining to the Estimating and Auditing of Oil and Gas Reserves Information, dated June

25, 2019 and other SPE publications, including the SPE's publication entitled Petroleum Resources Management System, as well as other technical sources, including Estimation and Classification of Reserves of Crude Oil, Natural Gas, and Condensate, by Chapman Cronquist, and Determination of Oil and Gas Reserves, Petroleum Society Monograph Number 1, published by the Canadian Institute of Mining and Metallurgy & Petroleum. The choice of method or combination of methods employed in the analysis of each reservoir is determined by:

- Experience in the area
- Stage of development
- Quality and completeness of basic data
- Production and pressure histories

Reserves data set forth herein represents only estimates. Reserves valuation is a subjective process of estimating underground accumulations of crude oil and natural gas that cannot be measured in an exact manner. The accuracy of any reserves estimate depends on the quality of available data, engineering and geological interpretation and professional judgment. As a result, estimates of different engineers may vary. In addition, the results of drilling, testing and producing subsequent to the date of an estimate may lead to the revision of an estimate.

During 2022, PEMEX did not record any material increase in PEMEX's hydrocarbons reserves as a result of the use of new technologies.

In order to ensure the reliability of PEMEX's reserves estimation efforts, it has undertaken the internal certification of its estimates of reserves since 1996. PEMEX has established certain internal controls in connection with the preparation of its proved reserves estimates. Initially, teams of geoscientists from Pemex Exploration and Production's exploration and exploitation business units (with each of these units covering several projects) prepare the reserves estimates, using different estimation processes for valuations relating to new discoveries and developed fields, respectively. Subsequently, the regional reserves offices collect these reserves estimates from the units and request that the *Gerencia de Certificación de Reservas de Hidrocarburos*, (Office of Hydrocarbon Reserves Certification), the central hydrocarbon reserves management body of Pemex Exploration and Production, review and certify such valuations and the recording of the related reserves. This internal certification process is undertaken in accordance with internal guidelines for estimating and classifying hydrocarbon reserves, which are based on the SEC's rules and definitions.

The Office of Hydrocarbon Reserves Certification, which additionally oversees and conducts an internal audit of the above process, consists entirely of professionals with geological, geophysical, petrophysical and reservoir engineering backgrounds. The engineers who participate in PEMEX's reserves estimation process are experienced in the following areas: reservoir numerical simulation; well drilling and completion; pressure, volume and temperature (PVT) analysis; analytical tools used in forecasting the performance of the various elements comprising the production system; and design strategies in petroleum field development. Furthermore, all of PEMEX's personnel have been certified by the *Secretaría de Educación Pública* (Ministry of Public Education), most have earned master's degrees in areas of study such as petroleum engineering, geology and geophysical engineering and they possess an average of over fifteen years of professional experience.

In addition to this internal review process, Pemex Exploration and Production's final reserves estimates are audited by independent engineering firms. Four independent engineering firms audited Pemex Exploration and Production's estimates of proved reserves as of December 31, 2022 or January 1, 2023: DeGolyer and MacNaughton ("DeGolyer"), Ryder Scott Company L.P ("Ryder Scott"), GLJ LTD. ("GLJ") and Sproule International Limited and Sproule México, S.A. de C.V. (which we refer to as "Sproule"), together, the "Independent Engineering Firms." The reserves estimate reviewed by the Independent Engineering Firms totaled 83.7% of PEMEX's estimated proved reserves. The remaining 16.3% of PEMEX's estimated proved reserves consisted of reserves located, among others, in some fields related to exploration and production contracts, in which a corresponding third party is responsible for assessing the volume of reserves.

DeGolyer audited the reserves in the Cantarell, Ku Maloob Zaap, Bellota Jujo and Samaria Luna business units, GLJ audited the reserves in the Poza Rica Altamira, Abkatún Pol Chuc and Litoral de Tabasco business units, Sproule audited

the reserves in the Cinco Presidentes and Macuspana Muspac business units and Ryder Scott audited the reserves in the Reynosa, Veracruz business units and the reserves of fields recently added to Pemex´s inventory reserves. The audits conducted by the Independent Engineering Firms consisted primarily of: (1) analysis of historical static and dynamic reservoir data provided by Pemex Exploration and Production; (2) construction or updating of the Independent Engineering Firms' own static and dynamic reservoir characterization models of some of the fields; (3) economic analysis of the fields; and (4) review of Pemex Exploration and Production's production forecasts and reserves estimates.

Since reserves estimates are, by definition, only estimates, they cannot be reviewed for the purpose of verifying exactness. Instead, the Independent Engineering Firms conducted a detailed review of Pemex Exploration and Production's reserves estimates so that they could express an opinion as to whether, in the aggregate, the reserves estimates that Pemex Exploration and Production furnished were reasonable and had been estimated and presented in conformity with generally accepted petroleum engineering and evaluation methods and procedures.

All questions, including any suggested modifications to proved reserves estimates, that arose during the Independent Engineering Firms' review process were resolved by Pemex Exploration and Production to the satisfaction of the Independent Engineering Firms. The Independent Engineering Firms have concluded that PEMEX's estimated total proved oil and natural gas reserve volumes set forth in this report are, in the aggregate, reasonable and have been prepared in accordance with Rule 4-10(a) are consistent with international reserves reporting practice and are in accordance with the revised oil and gas reserves disclosure provisions of ASC Topic 932.

PEMEX´s total proved developed and undeveloped reserves of crude oil, condensates and liquefiable hydrocarbons recoverable from field processing plants increased by 0.3% in 2022, from 6,073.0 million barrels on December 31, 2021 to 6,089.6 million barrels at December 31, 2022. Our proved developed reserves of crude oil, condensates and liquefiable hydrocarbons recoverable from processing plants increased by 1.4% in 2022, from 3,648.9 million barrels on December 31, 2021 to 3,698.3 million barrels at December 31, 2022. The amount of our proved reserves of crude oil, condensate and liquefiable hydrocarbon reserves added in 2022 was enough to offset the level of production in 2022, which amounted to 710.2 million barrels of crude oil, condensates and liquefiable hydrocarbons.

Our total proved developed and undeveloped dry gas reserves increased by 0.6% in 2022, from 7,039.5 billion cubic feet at December 31, 2021 to 7,079.6 billion cubic feet on December 31, 2022. Our proved developed dry gas reserves increased by 11.1% in 2022, from 3,933.7 billion cubic feet on December 31, 2021 to 4,368.5 billion cubic feet at December 31, 2022. These increases were principally due to an increase in proved developed dry gas reserves of the Quesqui, Lakach, Onel, Gasífero, Ku, and Tupilco Profundo fields. The amount of dry gas reserves added in 2022 was enough to offset the level of production in 2022, which amounted to 854.0 billion cubic feet of dry gas. Our proved undeveloped dry gas reserves decreased by 12.7% in 2022, from 3,105.8 billion cubic feet at December 31, 2021 to 2,711.1 billion cubic feet on December 31, 2022. This decrease was principally due to an increase in in proved developed dry gas reserves of the Quesqui, Ixachi, Gasífero, Ku, Onel and Tupilco Profundo fields.

During 2022, our exploratory activity in the shallow waters of the Gulf of Mexico and onshore regions resulted in the discovery of eleven new crude oil fields (Actul, Akal NW, Atoyatl, Chucox, Chucox NW, Pokche-NE, Tentok, Tlalkivak, Xanab-SE, Xinich and Zama) and one new reservoir in existing field (Niquita) and an extension from the drilling of one appraisal well in existing field (Valeriana). Together, these extensions and discoveries led to the incorporation approximately 89.1 million barrels of oil equivalent.

The following three tables of crude oil and dry gas reserves set forth PEMEX's estimates of its proved reserves determined in accordance with Rule 4-10(a).

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Summary of oil and gas [1] proved reserves as of December 31, 2022
based on average fiscal year prices

	Crude oil and Condensates [2] (in millions of barrels)	Dry Gas [3] (in billions of cubic feet)
Proved developed and undeveloped reserves:		
Proved developed reserves	3,698.3	4,368.5
Proved undeveloped reserves	2,391.3	2,711.1
Total proved reserves	**6,089.6**	**7,079.6**

Note: Numbers may not total due to rounding.

(1) PEMEX does not currently produce synthetic oil or synthetic gas, or other natural resources from which synthetic oil or synthetic gas can be produced.

(2) Crude oil and condensate reserves include the fraction of liquefiable hydrocarbons recoverable in natural gas processing plants located at fields.

(3) Reserve volumes reported in this table are volumes of dry gas, although natural gas production reported in other tables refers to sour wet gas.
There is a shrinkage in volume when natural gas liquids and impurities are extracted to obtain dry gas. Therefore, reported natural gas volumes are greater than dry gas volumes.

Source: Pemex Exploration and Production.

Crude oil and condensate reserves
(including natural gas liquids) [1]

	2022	2021	2020
Proved developed and undeveloped reserves:			
At December 31	6,073	6,041	5,961
Revisions [2]	647	565	651
Extensions and discoveries	78	115	97
Production	(710)	(697)	(695)
Farm outs & transfer to exploration and production contracts (CEE) & transfer of fields due to NHC bidding process	1	49	27
At December 31	**6,089**	**6,073**	**6,041**
Proved developed reserves at December 31	3,698	3,649	3,603
Proved undeveloped reserves at December 31	2,391	2,424	2,438

Note: Numbers may not total due to rounding.

(1) Crude oil and condensate reserves include the fraction of liquefiable hydrocarbons recoverable in natural gas processing plants located at fields.

(2) Revisions include positive and negative changes due to new data from well drilling, revisions made when actual reservoir performance differs from expected performance and changes in hydrocarbon prices.

Source: Pemex Exploration and Production.

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(Figures stated in thousands, except as noted)

Dry Gas Reserves

	2022	2021	2020
	(in billions of cubic feet)		
Proved developed and undeveloped reserves:			
At December 31	7,040	6,984	6,352
Revisions [1]	847	195	1,240
Extensions and discoveries	43	590	176
Production [2]	(854)	(751)	(819)
Farm outs & transfer to exploration and production contracts (CEE) & transfer of fields due to NHC bidding process	3	21	35
At December 31	**7,079**	**7,040**	**6,984**
Proved developed reserves at December 31	4,368	3,934	3,922
Proved undeveloped reserves at December 31	2,711	3,106	3,062

Note: Numbers may not total due to rounding.

(1) Revisions include positive and negative changes due to new data from well drilling, revisions made when actual reservoir performance differs from expected performance and changes in hydrocarbon prices.

(2) Production refers here to dry gas, although natural gas production reported in other tables refers to sour wet gas. There is a shrinkage in volume when natural gas liquids and impurities are extracted to obtain dry gas. Therefore, reported natural gas volumes are greater than dry gas volumes.

Source: Pemex Exploration and Production.

Pemex Exploration and Production's reserve-replacement ratio, or RRR, for a given period is calculated by dividing the sum of proved reserves additions due to discoveries, developments, delineations and revisions by that period's total production. During 2022, we obtained an increase of 898.7 million barrels of oil equivalent of proved reserves as aggregated from discoveries, revisions, delimitations and development and production, which represents a RRR of 102.8%. PEMEX's 2022 RRR improved similarly to that of 2021, when the RRR was 105.1%. PEMEX expect to continue obtaining values of this index of about 100 percent, as in the recent years.

PEMEX's reserves production ratio, which is presented in terms of years, is calculated by dividing the estimated remaining reserves at the end of the relevant year by the total production of hydrocarbons for that year. As of December 31, 2022, this ratio is eight years, six months for proved reserves.

F. Standardized measure of discounted future net cash flows related to proved oil and gas reserves (unaudited)

The standardized measure tables presented below relate to proved oil and gas reserves excluding proved reserves scheduled to be produced after the year 2048. This measure is presented in accordance with ASC Topic 932.

Estimated future cash inflows from production are computed by applying average prices of oil and gas on the first day of each month of 2022. Future development and production costs are those estimated future expenditures needed to develop and produce the year-end estimated proved reserves after a net cash flows discount factor of 10%, assuming constant year-end economic conditions.

Future tax expenses are computed by applying the appropriate year-end statutory tax rates with consideration of the tax rates of the new fiscal regime for Pemex Exploration and Production already legislated for 2022 to the future pre-tax net cash flows related to PEMEX's proved oil and gas reserves.

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The estimated future payment of taxes was calculated based on the current Hydrocarbons Revenue Law.

The standardized measure provided below represents a comparative benchmark value rather than an estimate of expected future cash flows or fair market value of PEMEX's production rights. There are numerous uncertainties inherent in estimating quantities of proved reserves and in projecting future rates of production and timing of development expenditures, including many factors beyond the control of the producer. Accordingly, reserve estimates may be materially different from the quantities of crude oil and natural gas that are ultimately recovered.

Standardized measure of discounted future net cash flows as of December 31

	2022	2021	2020
	(in millions of U.S. dollars)		
Future cash inflows	512,547	371,331	201,777
Future production costs (excluding profit taxes)	(174,115)	(146,062)	(109,064)
Future development costs	(26,013)	(24,184)	(23,631)
Future cash flows before tax	312,419	201,085	69,082
Future production and excess gains taxes	(205,035)	(146,416)	(73,122)
Future net cash flows	107,384	54,669	(4,040)
Effect of discounting net cash flows by 10%	(44,461)	(18,443)	3,359
Standardized measure of discounted future net cash flows	**62,923**	**36,226**	**(681)**

Note: Table amounts may not total due to rounding.

To comply with ASC Topic 932, the following table presents the aggregate standardized measure changes for each of the last three years and significant sources of variance:

Changes in standardized measure of discounted future net cash flows

	2022	2021	2020
	(in millions of U.S. dollars)		
Sales of oil and gas produced, net of production costs	(54,470)	(34,600)	(16,968)
Net changes in prices and production costs	77,278	84,233	(39,509)
Extensions and discoveries	3,078	1,583	1,426
Development cost incurred during the year	5,738	4,755	4,654
Changes in estimated development costs	(5,523)	(5,675)	(10,019)
Reserves revisions and timing changes	15,773	26,205	5,808
Accretion of discount of pre-tax net cash flows	9,749	2,220	5,929
Net changes in production and excess gains taxes	(24,927)	(41,814)	23,015
Aggregate change in standardized measure of discounted future net cash flows	**26,696**	**36,907**	**(25,664)**
Standardized measure:			
As of January 1	36,226	(681)	24,983
As of December 31	62,922	36,226	(681)
Change	**26,696**	**36,907**	**(25,664)**

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Note: Table amounts may not total due to rounding.

In computing the amounts under each factor of change, the effects of variances in prices and costs are computed before the effects of changes in quantities. Consequently, changes in reserves are calculated at December 31 prices and costs.

The change in computed taxes includes taxes effectively incurred during the year and the change in future tax expense.