



Doosan Heavy Industries &  
Construction  
'18 Results and  
'19 Plans



2019.2.

# Disclaimer

This presentation was prepared for the convenience of investors. The financial figures contained in this presentation are K-IFRS consolidation and DHI operation\* basis.

Also, this presentation has been prepared in advance prior to the completion of external audit, only for the convenience of investors. Accordingly, it may be subject to change during the course of audit.

This presentation is provided only as a reference material. Doosan Heavy Industries and Construction assumes no responsibility for your decisions.

\* DHI Operation : DHIC Parent & Overseas Subsidiaries(DPS and etc.)

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# DHIC\_Summary

Orders decreased YoY due to delays in some large projects.  
Sales decreased YoY while OP and OP margin improved.

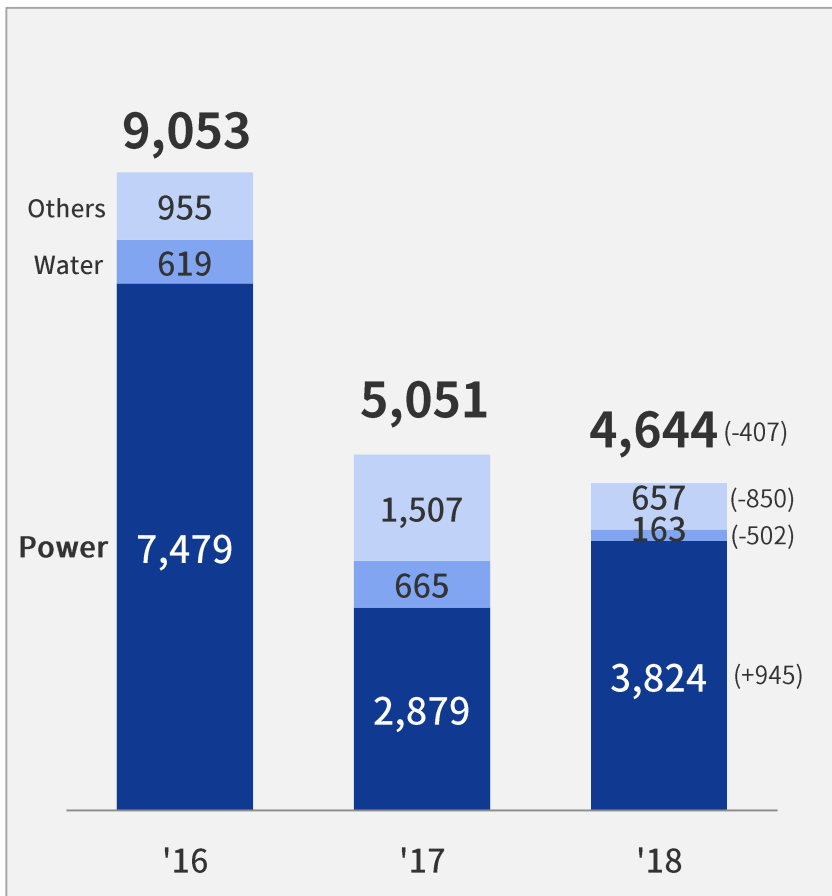
(Unit : KRW B., %)

Category	2017	2018	Difference (YoY)
Order	5,051	4,644	-407
Backlog	17,235	16,402	-833
Sales	5,744	5,477	-267
OP	190	205	+15
OPM(%)	3.3%	3.8%	+0.5%p
EBITDA	436	450	+14
Non-OP	-341	-874	-533
Interest P/L	-170	-207	-37
FX	-36	-8	+28
Others	-135	-658	-523
Net P/L	-126	-711	-585

# DHIC\_New orders

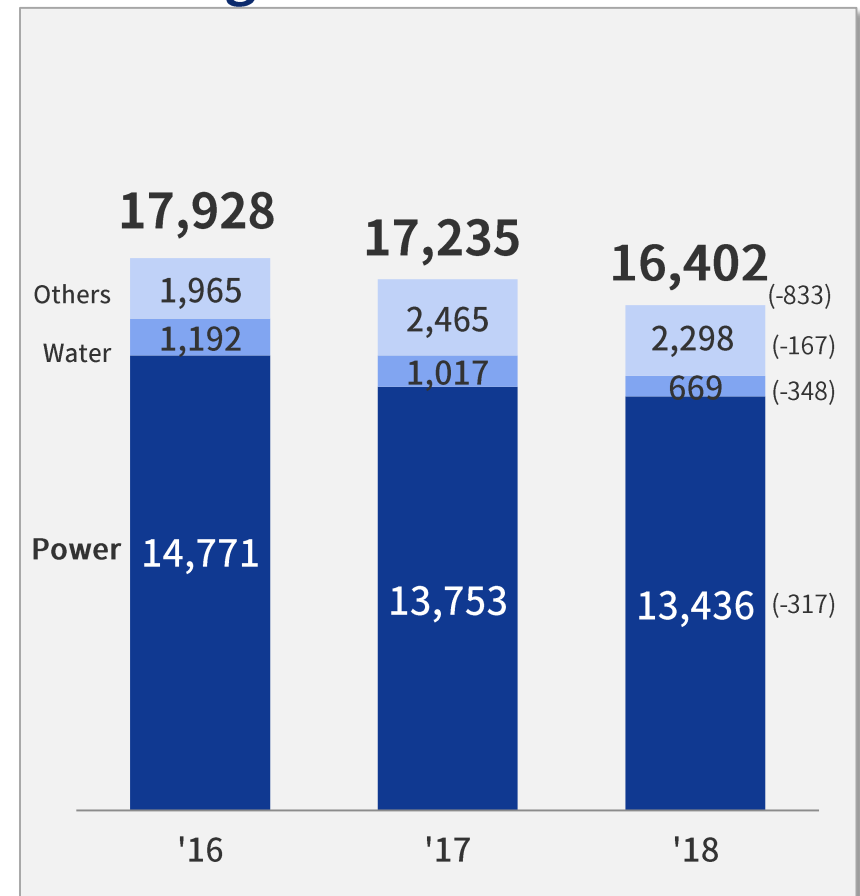
Orders decreased YoY due to delays in some large-sized projects, while backlogs maintained at 3 times of annual sales.

## Orders



## Backlogs

(Unit : KRW B.)



# DHIC\_Balanced Sheet

(Unit : KRW B., %)

Category	2017 end	2018 3Q	2018 end	Difference (YoY)
Current Assets	4,221	4,709	4,520	+299
Cash & Cash Equivalent	898	786	1,046	+148
Non-Current Assets	10,511	9,813	9,023	-1,488
Total Assets	14,732	14,522	13,543	-1,189
Total Liabilities	8,750	9,074	9,190	+440
Net-Debt	4,301	4,871	4,399	+99
Total Equity	5,982	5,447	4,353	-1,629
Total Liabilities and Equity	14,732	14,522	13,543	-1,189
Total L/E Ratio	146.3%	166.6%	211.1%	+64.8%p

# DHIC Parent\_Summary

(Unit : KRW B., %)

Category	2017	2018	Difference (YoY)
Sales	4,337	4,102	-235
OP	226	185	-42
OPM(%)	5.2%	4.5%	-0.7%p
Non-OP	-241	-875	-633
Interest P/L	-142	-175	-34
FX	2	-38	-40
Others	-102	-661	-559
Net P/L	16	-725	-741

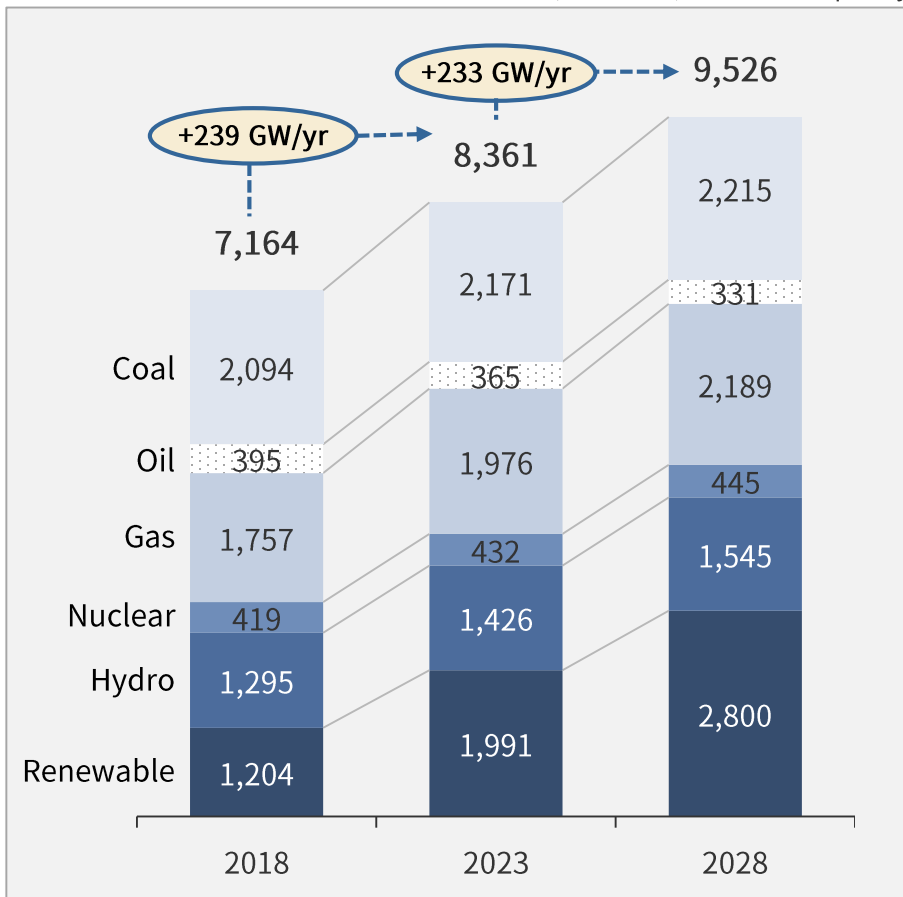
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# Market Forecast\_Power Plant

## Power Plant

(Unit : GW, Installed Capacity)



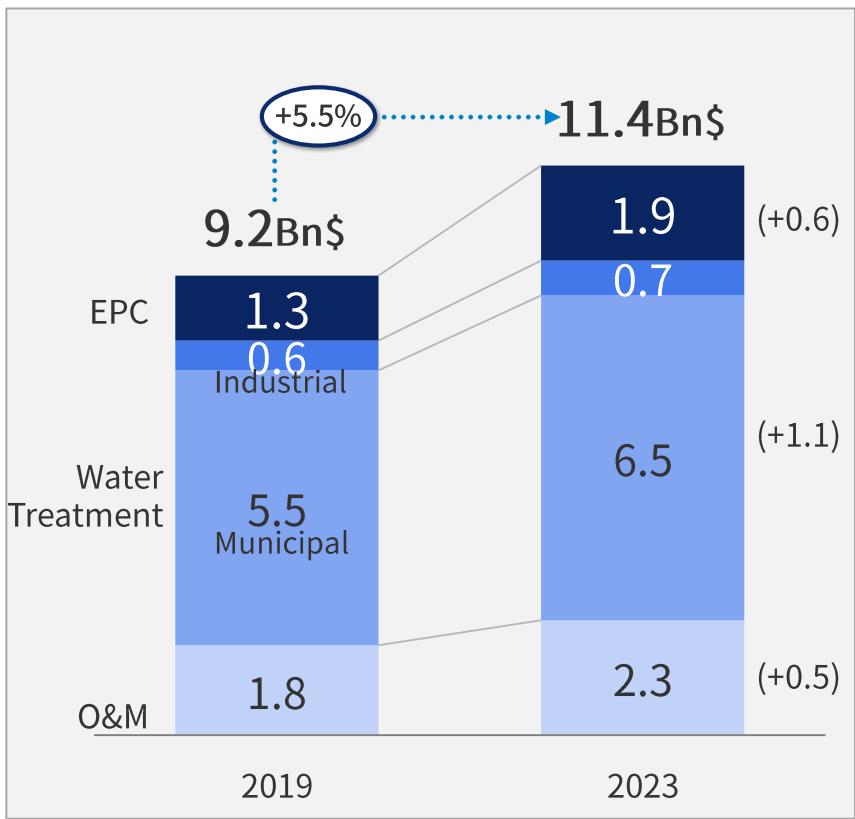
[Reference : IHS CERA 2018]

- Coal power market to continue focusing on Asia and North Africa
- Environmental facilities to expand to reduce fine dust
- Gas power to expand due to preference for eco-friendly energy and peak-time demand response
  - possible to slowed down in short term due to past orders
- Nuclear also to continue
  - new building possibility in Eastern Europe market such as Czech Republic
  - KSA, India, UK and some countries are considering new projects
- Expecting rapid expansion of renewables
  - focusing on wind and solar in Asia market
  - expanding to new power generation fields such as hydrogen fuel cell

# Market Forecast\_Water

## Water market

(Unit: Bn\$, CAGR)



- IWP<sup>1)</sup> business continue to grow focusing on Middle East market - expect new projects from India, Egypt, Chile and others
- Industrial water treatment business continue to grow in reuse/ advanced water treatment field to respond environmental regulations
- Municipal water treatment business to expand to respond water shortages and urbanization - Middle East IWP/ UK water treatment business expansion

※Source : GWI, GWM

Water : over 5MIGD, MENA/ Latin America/ Asia etc.,

Water treatment : over \$50M, MENA/ Latin America/ Asia/ UK-DHIC assessable market

1) IWP: Independent Water Project

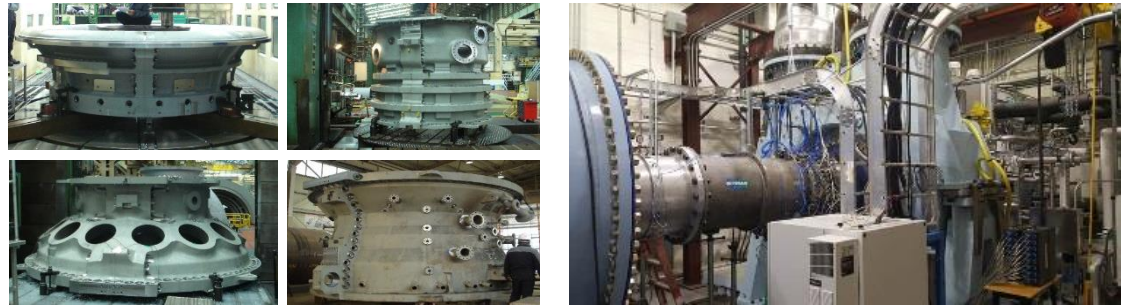
# New business\_ Development of GT / Service

## Timeline

- (Jul '13)  
DHIC selected to  
NRP partner to  
develop GT
- ('17 3Q)  
Basic design  
completed
- ('18 2Q)  
Detailed design  
completed/  
Production started
- ('19.1Q)  
Component /  
System test
- (~Aug '19)  
GT Prototype
- (~Dec '20)  
Engine performance  
test
- Demonstration

## Status and major achievements

- Partial parts development completed, assembly in progress
- Rotor system operational stability assessment completed, component test to be completed before engine test ('19 1Q)

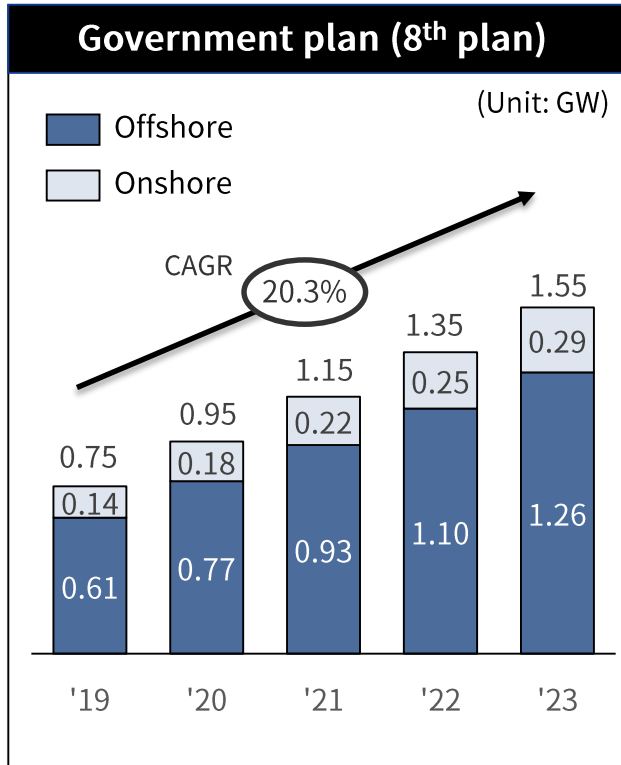


## DTS GT Service business

- Since acquisition of DTS<sup>1)</sup> in '17, new orders has increased highly thanks to customer and product diversification
  - Secured orders from new region and customer(Mexico, North America and others)
  - Scope expansion from repair-oriented to new parts/uprate

# New business\_Wind power

## Domestic market outlook



## Diversification of wind turbine models

3MW



<Southwest offshore>

- Completion of the first offshore wind farm (Tamra, Sep '17, 30MW) - used 100% domestic technology
- Southwest offshore demo complex is being installed (Nov '19, 60MW)

5MW



< Jeju onshore demo >

- Developed 5.5MW model, demo plant is now on-line
- Expect to apply to Jeju, Southwest offshore projects and others

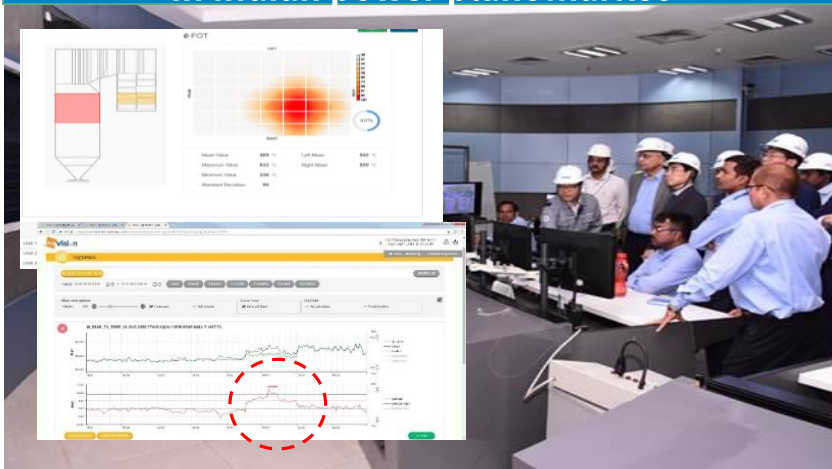
8MW

- 8MW offshore system is now developing under NRP
- Development to be completed by '22 and then commercialization

# New business\_Digital Transformation

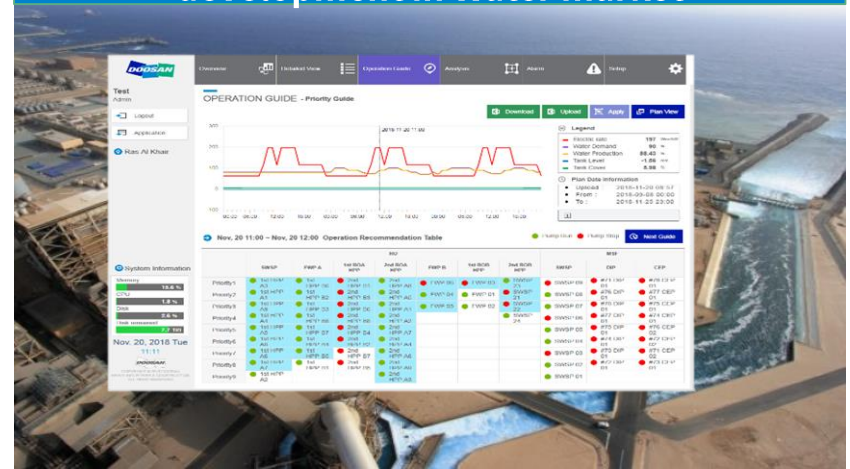
## Major achievements

### Digital solution demo project in Indian power plant market



- India Reliance group's Sasan power plant - efficiency improvement/ O&M forecast solution pilot to expand Indian market

### EMS(Energy Management Solution) development in Water market



- EMS(Energy Management Solution) development completed
- Demo project proposal to customer in Middle East

### Big Data based Digital Solution business expansion

- Failure prediction solution(Prevision) development completed jointly with EWP<sup>1)</sup> - applied to EWP e-Brain center

- Promote O&M cost reduction system development through wind operational data analysis/ digital management system building

1) EWP : Korea East-West Power co.

# New business\_Progress of nuclear export

## Overseas nuclear PP timeline



## Progress

Project	Progress
KSA full-sized & SMART Nuclear	Full-sized : Short list <sup>1)</sup> (1H '19), preferred bidder(2H '19) will be selected SMART : PPE <sup>2)</sup> completed (Nov '18) - plan to submit a construction proposal in 1H '19 (KHNP→KSA)
India AP1000 (WEC)	Indian govt. decided to introduce US WEC AP1000 (July '17) WEC re-submitted a bid upon re-issue of RFP <sup>3)</sup> (Oct '18) Negotiation of construction cost contract with NPCIL <sup>4)</sup> is expected (2H '19 ~)
Czech Rep. Nuclear	Selected as KHNP's construction partner (Aug '18) Signed a cooperation agreement between domestic company and GENCO for nuclear export bids in the Czech Republic (Sep '18)
UK Moorside	Toshiba's liquidation of NuGen has made business unclear, but Korea and UK are still in negotiation

# Major achievements – after 3Q

## Major achievements by items

### Gas power

- Completed development of major GT parts, assembly to be completed in '19
- Jeju LNG combined cycle power plant completed (Dec '18)
  - supply 20% of electricity in Jeju (240MW)
- DTS signed long-term rotor maintenance service contract(for 7 GTs) with MCV of U.S. (Dec '18)

### Renewables

- Signed MOU for cooperation on offshore wind projects with Korea Western Power, Korea South-East Power (Oct '18)
  - supplied equipment/O&M service to Taean offshore wind farm(400MW)
- Signed power equipment contract for Japanese biomass<sup>1)</sup> project (Oct '18)
- Developed localized model of ultra high-pressure storage tank for hydrogen filling station and succeeded in delivery(Jan '19)

### Service

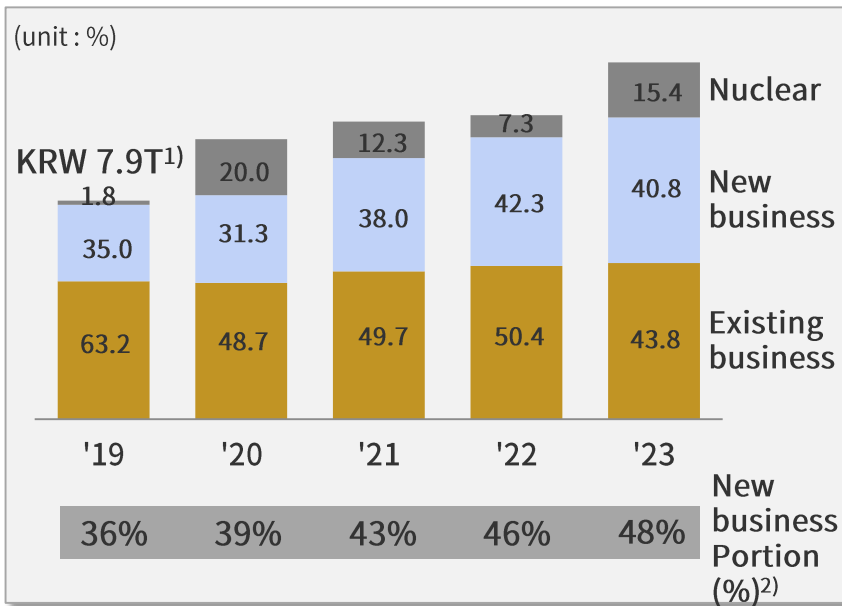
- First supply of digital solution to Indian power market
- Doosan Babcock signed maintenance contract of the largest TPP in UK(Dec '18)

### Nuclear

- APR1400 acquired a standard design approval issued by U.S. NRC<sup>2)</sup> (Nov '18)
  - AREVA of France suspended NRC screening, while MHI of Japan postponed
  - EU-APR model acquired EUR Certification (Dec '17)

# Long term order portfolio

## Long term order portfolio('19~'23)



- expand new business portion to half of total orders (nuclear projects excluded)

1) '19 order forecast

2) nuclear projects excluded when calculating the proportion of new business

### Expansion of new business

- **Gas Turbine**
  - large-scale GT development / demonstration
  - GT service business(domestic/overseas)
- **Renewables**
  - expand domestic offshore wind business, 8MW model development
  - solar/ESS related business
- **Service**
  - R&M for aging coal fired power plants
  - maintenance/retrofit business (domestic/overseas)
  - digital service solution
- **Promote hydrogen-related business, new technology-based business**

### Strengthen existing business

- **Maintain existing market in Power/Water EPC and expand to new markets**
  - Power : Asia, North Africa and others
  - Water : Middle East, others

### Overseas nuclear

- **Nuclear export (UK, India, Czech, KSA, etc.)**
- **U.S./ KSA Small Modular Reactor**

# '19 Business Plan

Planned to increase orders by 71% YoY, sales by 4% YoY, and OP margin to improve 40bps.

(Unit : KRW B, %)

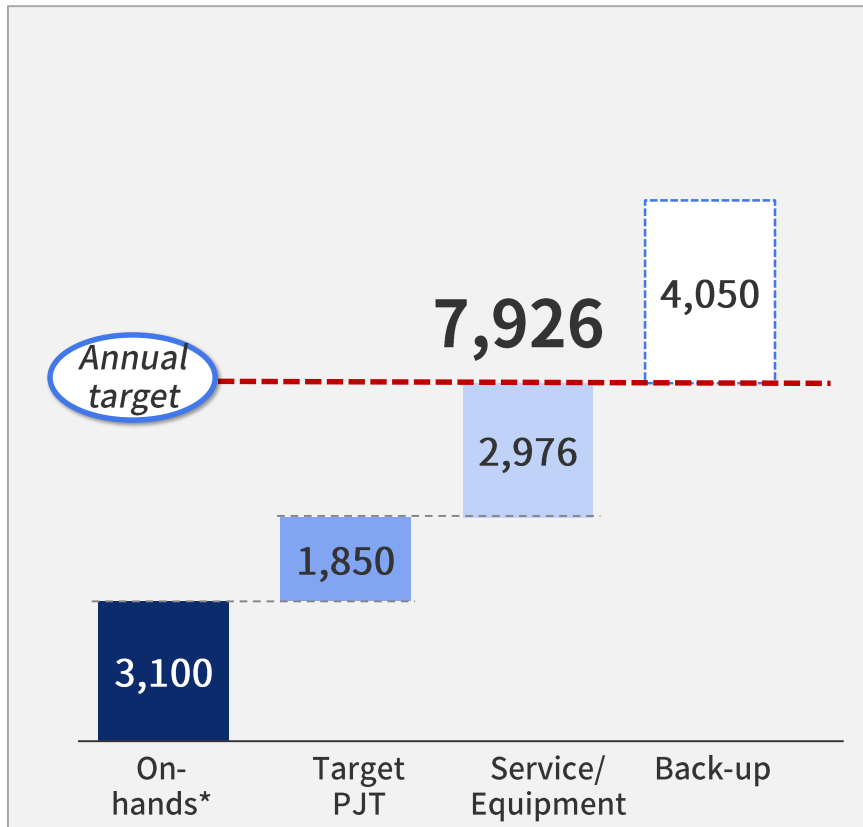
Category	2017	2018	2019(P)	YoY
Order	5,051	4,644	7,926	+3,282
Sales	5,744	5,477	5,708	+231
OP	190	205	237	+32
OPM(%)	3.3%	3.8%	4.2%	+0.4%p

# '19 Order Forecast

Expect KRW 7.9T of new orders in '19, including on-hands project(deferred from '18) and large scale orders such as Vietnam projects.

## '19 Forecast

(Unit: KRW B.)



### Secured KRW 3.1T of on-hands

- Indonesia coal PP EPC 1.5T
- Vietnam coal PP 0.5T
- Domestic renewable complex ESS 0.5T
- Domestic coal PP performance improvements 0.6T

### Target projects of EPC/ Water are in progress

- Domestic civil/architecture 0.8T
- Vietnam coal PP 0.6T
- KSA IWP 0.45T and others

\* On-hands : projects with private contract or DHIC is sole bidder or lowest bidder

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# Consolidated\_Summary

Sales increased about 7% YoY and operating profit exceeded KRW 1T.

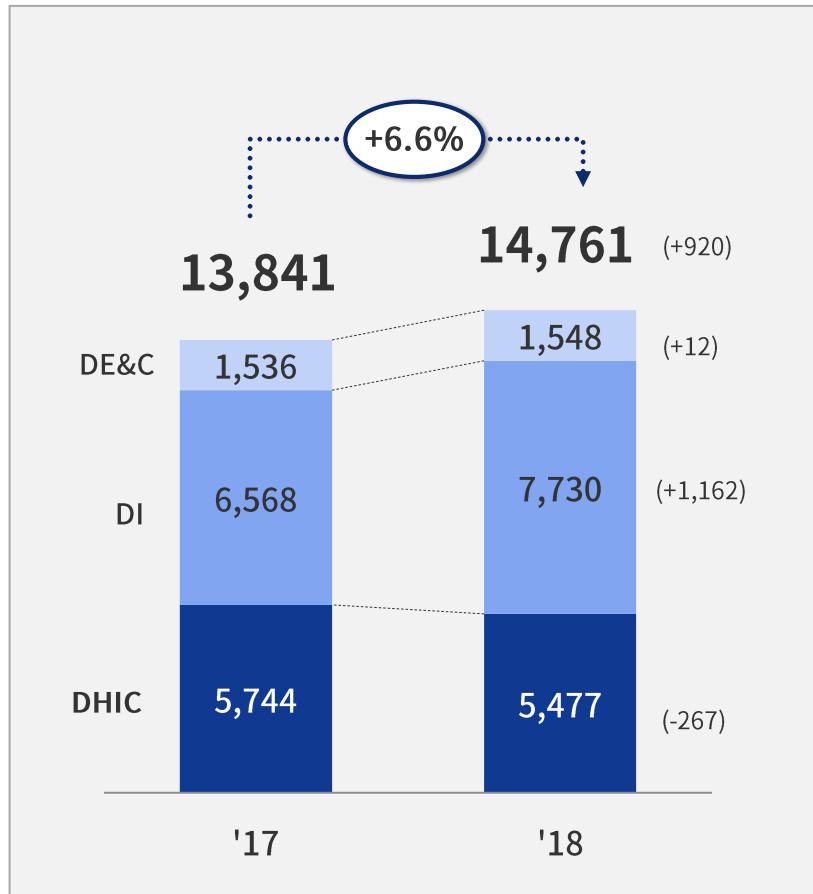
(Unit : KRW B, %)

Category	2017	2018	Difference (YoY)
Sales	13,841	14,761	+920
OP	913	1,002	+89
OPM(%)	6.6%	6.8%	0.2%p
EBITDA	1,414	1,505	+91
Non-OP	-782	-1,107	-325
Interest P/L	-437	-462	-25
FX	24	-22	-46
Others	-370	-623	-253
P/L before income tax	131	-105	-236
Net P/L	-110	-422	-312

# Consolidated\_Sales / OP(%)

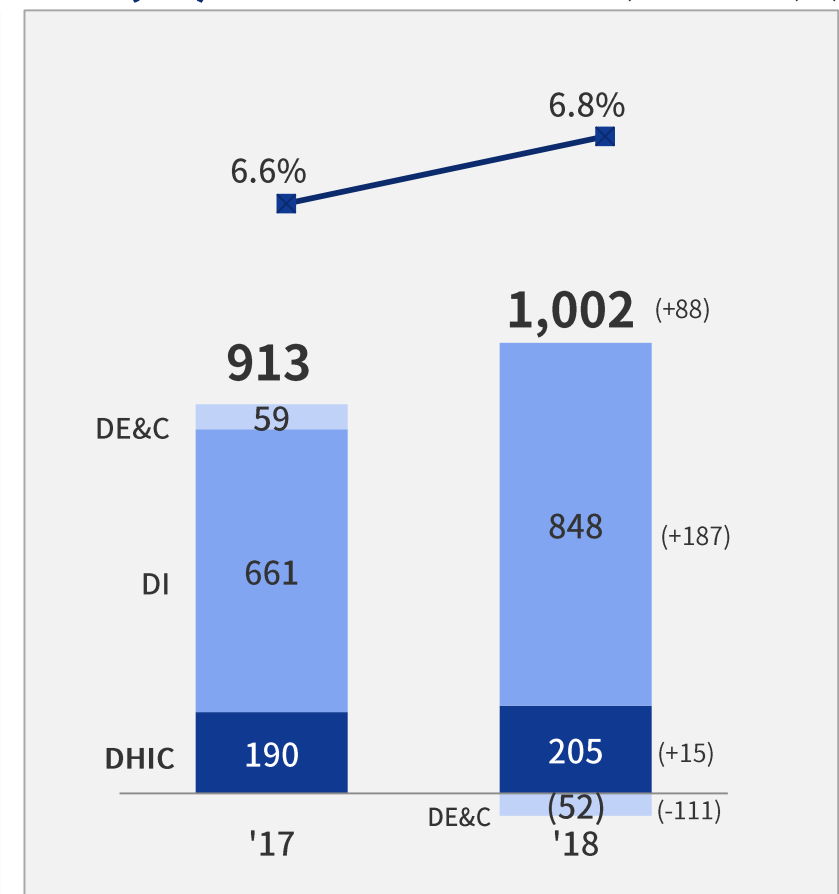
Sales increased 7% YoY backed by Infracore's growth(18% YoY), and OP exceeded KRW 1T.

## Sales



## OP(%)

(Unit : KRW B., %)



# Consolidated\_Balanced Sheet

(Unit : KRW B, %)

Category	2017 end	2018 3Q	2018 end	Difference (YoY)
Current Assets	9,230	10,066	9,782	+552
Cash & Cash Equivalent	2,208	2,301	2,468	+260
Non-Current Assets	15,732	15,369	15,033	-699
Total Assets	24,962	25,436	24,815	-147
Total Liabilities	18,396	18,569	18,596	+200
Net-Debt	9,007	9,141	8,357	-650
Total Equity	6,566	6,867	6,218	-348
Total Liabilities and Equity	24,962	25,436	24,815	-147
Total L/E Ratio	280.2%	270.4%	299.1%	+18.9%p

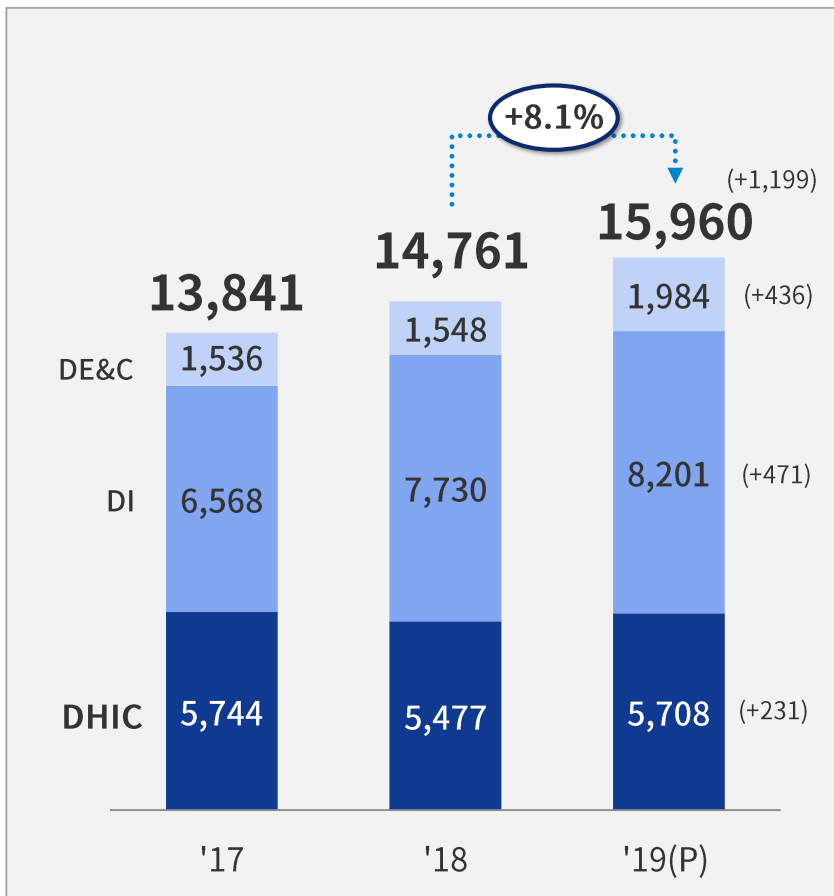
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# Consolidated\_'19 Business Plan

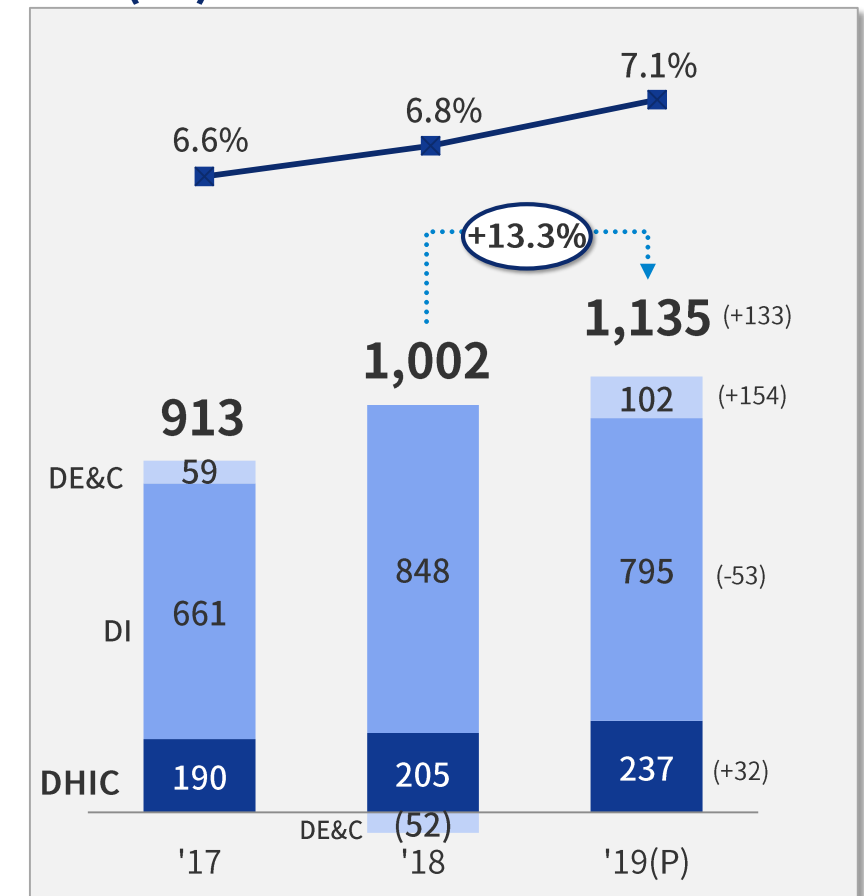
Planned to increase sales by 8% YoY through simultaneous growth of all affiliates including DHIC, and OP margin to reach 7%.

## Sales



## OP(%)

(Unit : KRW B, %)



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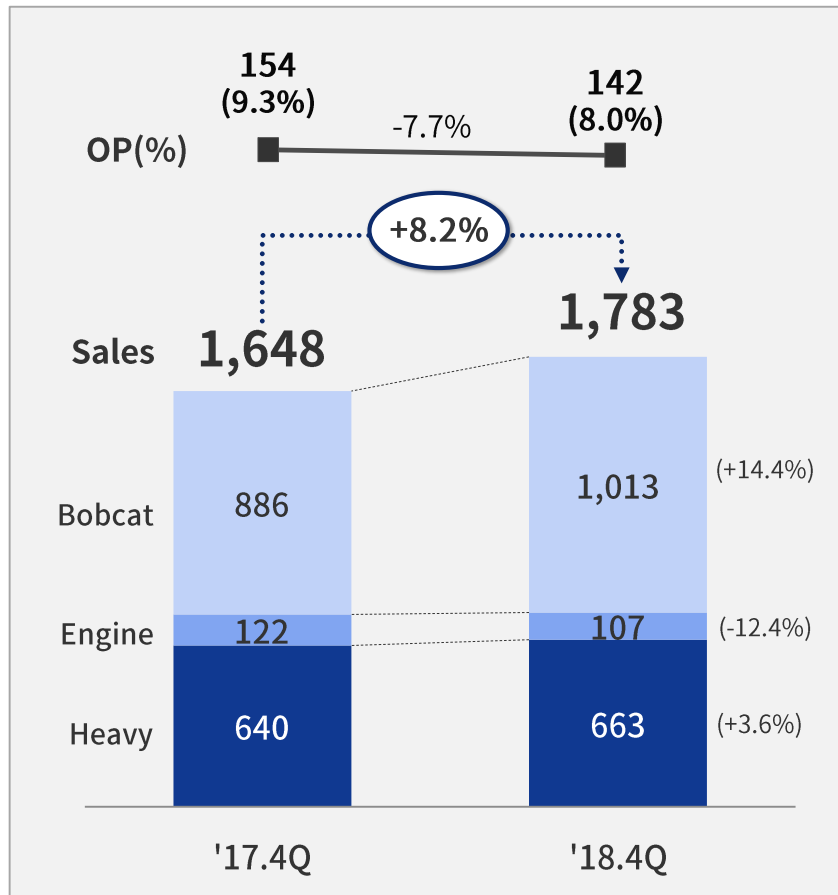
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# Appendix. Doosan Infracore

4Q Sales increased thanks to growth of heavy division and Bobcat. 4Q OP decreased due to sales mix effect and one-off costs, but reached historic high level on annual basis.

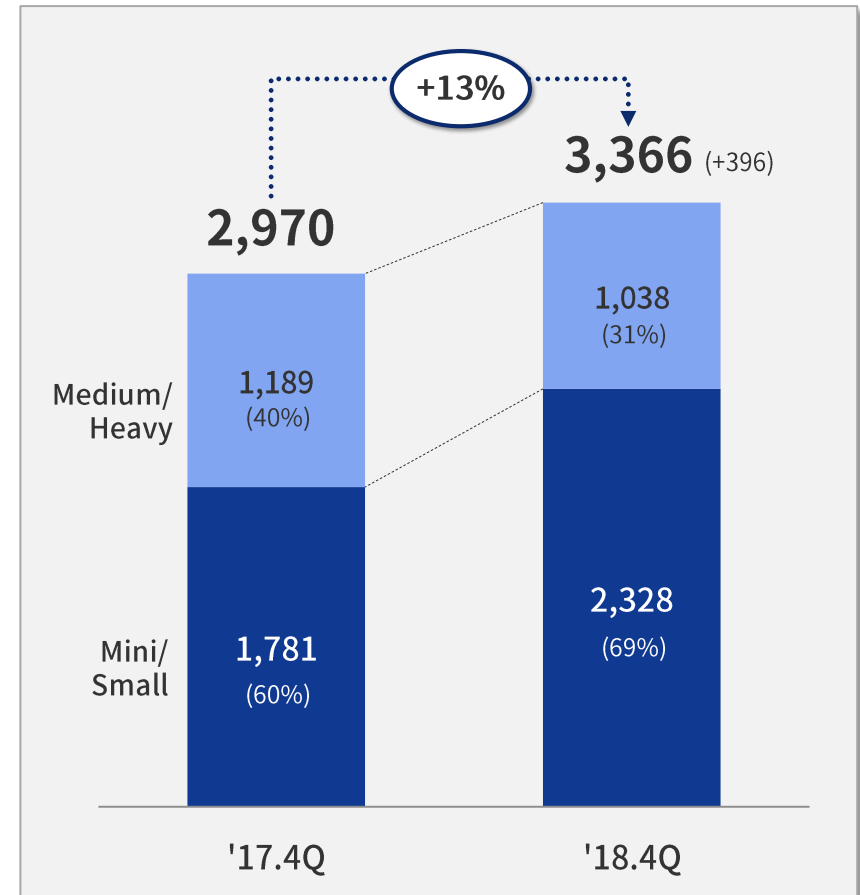
## Sales/OP(%)

(Unit: KRW B., %)



## 4Q China Sales/Mix

(Unit: ea.)



theDoosanWay

*Our story. Our vision.*

Q&A