



Doosan Heavy Industries & Construction

Doosan Heavy Industries & Construction '17 3Q Business Results Review



2017.11.

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.

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

Table of Contents

- **DHIC (Doosan Heavy Industries & Construction)**
 - **Summary**
 - **New Orders**
 - **Sales/Operating Profit**
 - **Annual New Orders Forecast**
 - **Balance Sheet**
 - **DHIC Parent**
- Consolidated
- Affiliates
- Status of new businesses

DHIC_Summary

Cumulative orders to 3Q recorded 2.8T., similar level to the last year.
Sales increased 2% YoY, and accumulated OPM(%) was 4.2%.

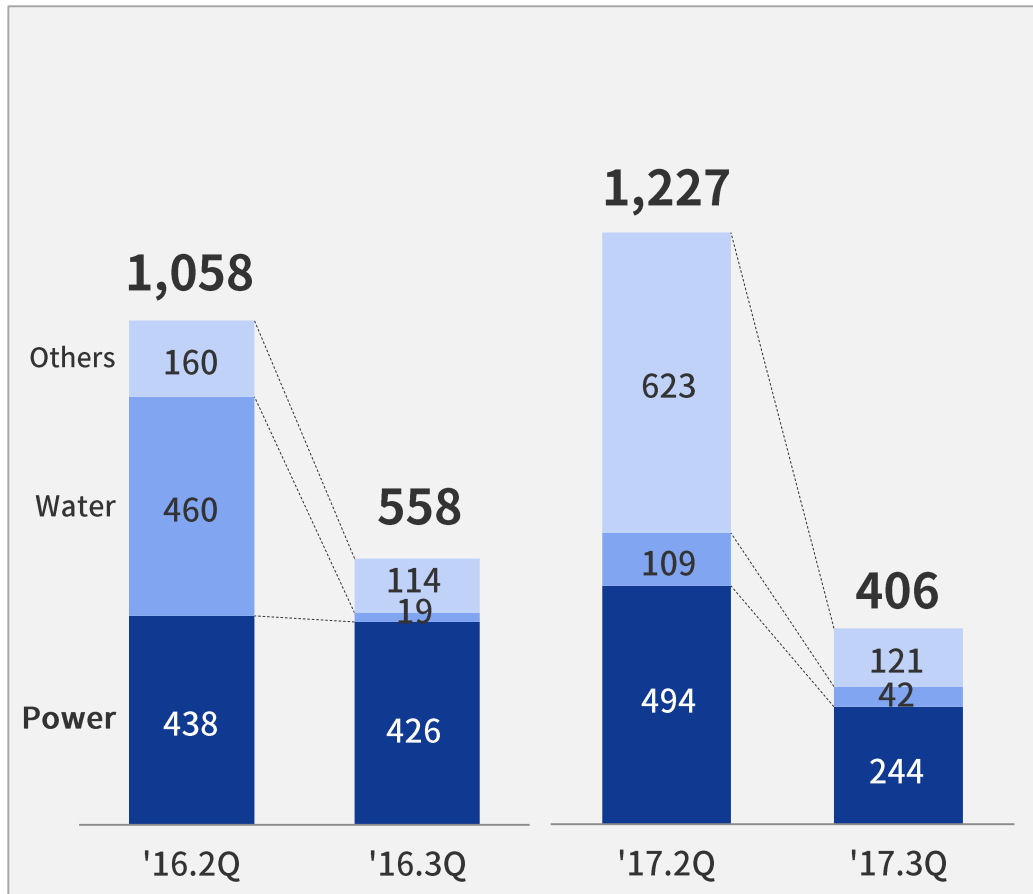
(Unit : KRW B., %)

Category	2016			2017			Difference(YoY)	
	2Q	3Q	3Q (Accu.)	2Q	3Q	3Q (Accu.)	3Q	Accu.
Order	1,058	558	2,879	1,227	406	2,821	-152	-58
Backlog	17,188	16,462		19,069	18,130		+1,668	
Sales	1,488	1,284	4,094	1,447	1,344	4,164	+60	+70
OP	72	50	215	63	42	174	-8	-41
OPM(%)	4.9%	3.9%	5.2%	4.3%	3.1%	4.2%	-0.8%p	-1.0%p
EBITDA	133	109	393	120	102	348	-7	-45
Non-OP	-46	-37	-144	-107	-70	-226	-33	-82
Interest P/L	-36	-36	-111	-40	-42	-125	-6	-14
FX	3	15	12	-32	-25	-46	-40	-58
Others	-13	-16	-45	-34	-2	-55	+14	-10
Net P/L	21	2	38	-52	-28	-73	-30	-111

DHIC_New Orders

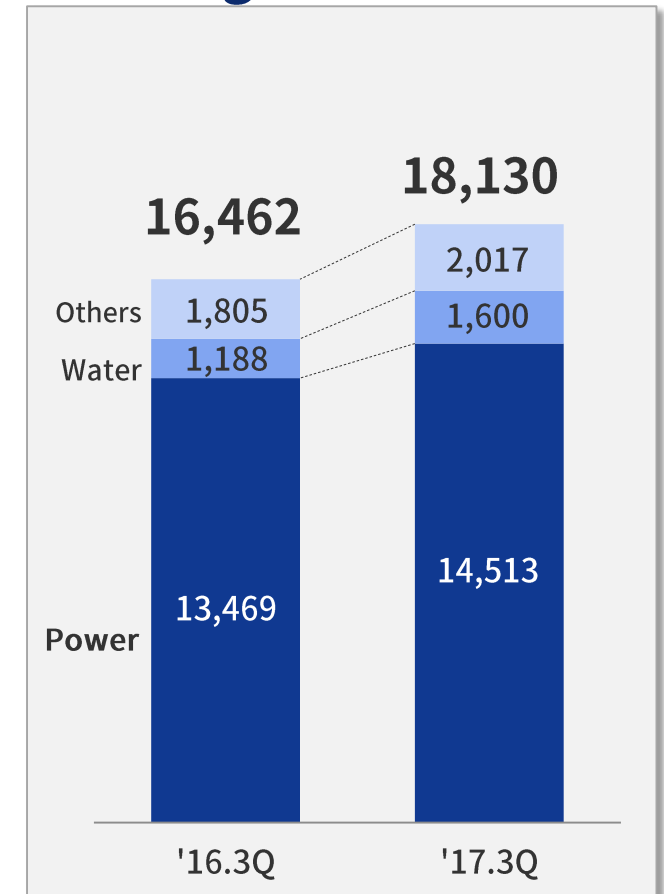
Due to order delay of some large-sized Pjts, orders recorded KRW 0.4T. in 3Q.
Order backlog was KRW 18.1T., which was more than 2.5 times of sales.

New Orders



Backlogs

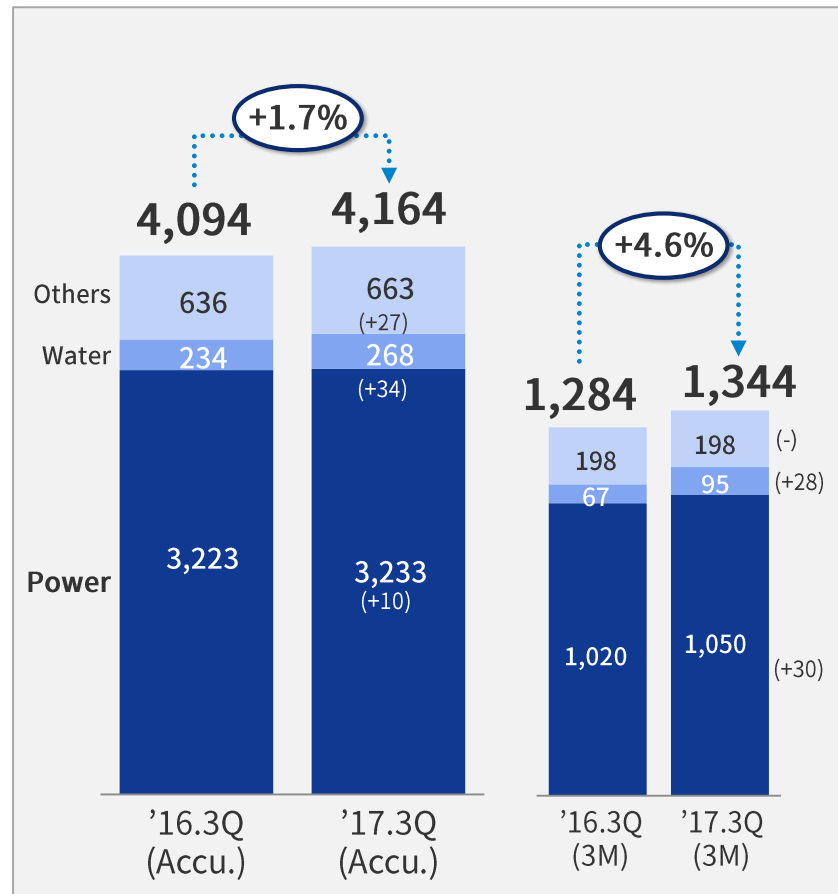
(Unit : KRW B.)



DHIC_Sales / OP(%)

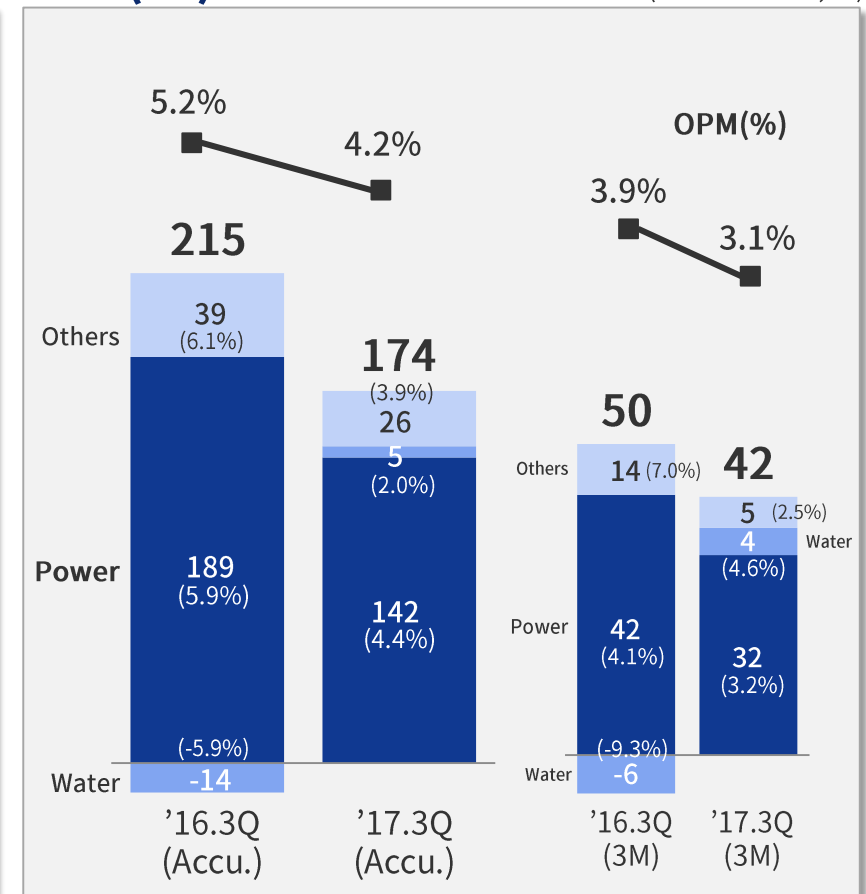
Sales increased by 2%(3Q cumulative), and 5%(3Q alone) YoY, while OP(margin) decreased YoY due to the suspension of domestic nuclear Shin Kori 5&6.

Sales



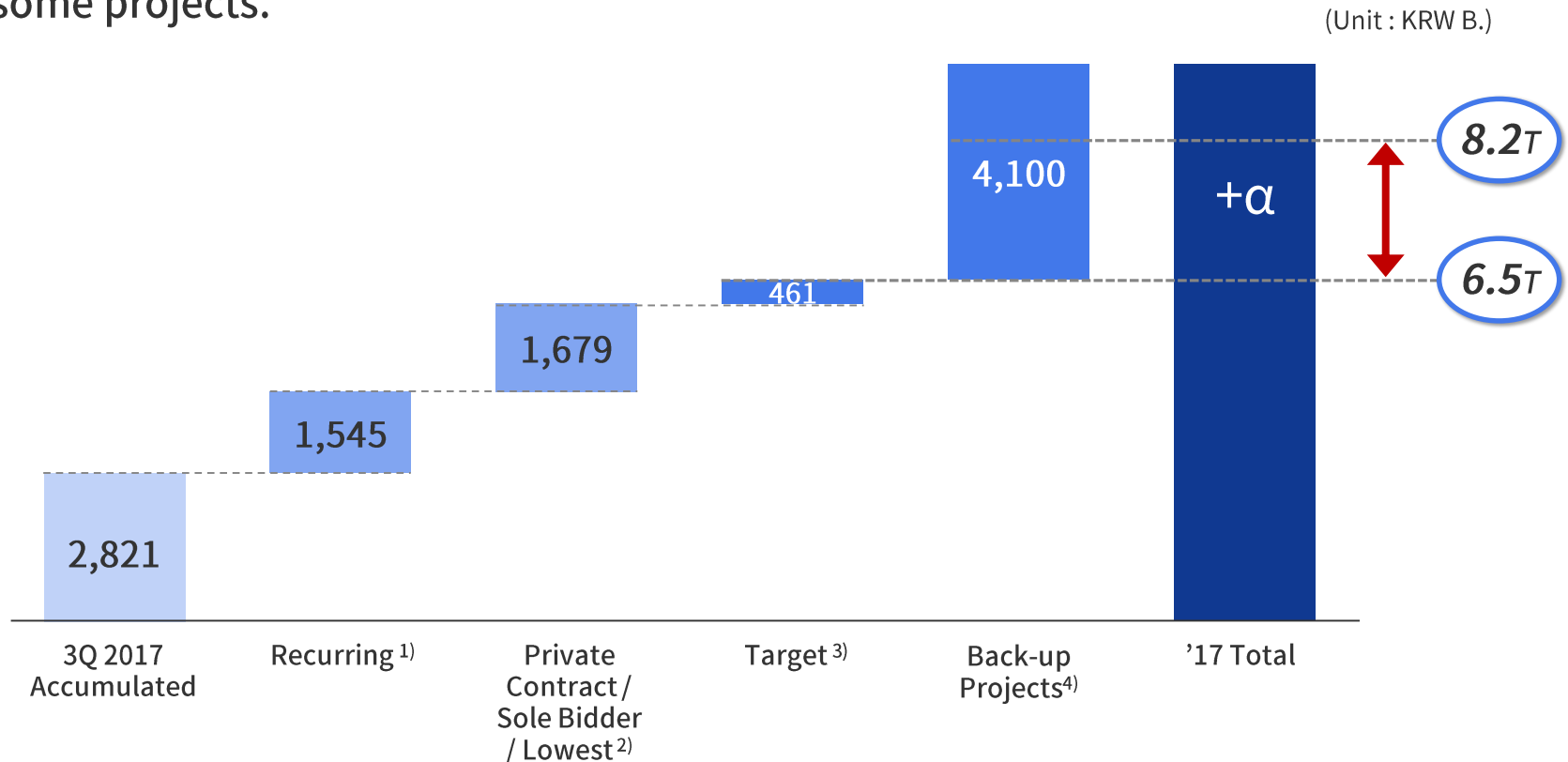
OP(%)

(Unit : KRW B., %)



DHIC_Annual New Orders Forecast

Cumulative orders to 3Q were 2.8T. Expect to achieve yearly new orders minimum of 6.5T. to 8.2T., considering uncertainties of government's energy policy and delays in some projects.



1) Equip. 0.5T, Service 0.9T, Others 0.1T / Low order risk, continued & repeated contracted PJTs

2) South Africa A CFB 1.1T, Middle East Water etc.

3) Domestic Civil/Construction etc.

4) Saudi EPC 1.0T, Vietnam EPC 0.9T, Southeast-Asia EPC 0.7T, Middle East Water 0.5T etc. / **Domestic Nuclear not included**

DHIC_Balance Sheet

(Unit: KRW B., %)

Category	2016	3Q 2017	Difference
Current Assets	4,445	4,688	+243
Cash & Cash Equivalent	730	619	-111
Non-Current Assets	10,218	10,341	+123
Total Assets	14,663	15,030	+367
Total Liabilities	8,745	9,118	+373
Net-Debt	3,974	5,021	+1,047
Total Equity	5,918	5,912	-6
Total Liabilities and Equity	14,663	15,030	+367
Total L/E Ratio	147.8%	154.2%	+6.4%p

*Bond with Warrant(BW) included



DHIC Parent_Summary

(Unit : KRW B., %)

	'16.3Q (Accu.)	'17.3Q (Accu.)	YoY
Sales	3,107	3,144	+37
OP	203	199	-4
OPM(%)	6.5%	6.3%	-0.2%p
Non-OP	-159	-144	+15
Interest P/L	-92	-105	-13
FX	-29	-11	+18
Others	-38	-28	+10
Net P/L	31	35	+4

Table of Contents

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'17 3Q Consolidated_Summary

Cumulative sales to 3Q increased 9.1% YoY, and OPM also improved to 6.9%.

(Unit : KRW B., %)

Category	2016			2017			YoY	
	2Q	3Q	3Q (Accu.)	2Q	3Q	3Q (Accu.)	3Q standard	Accu. standard
Sales	3,613	3,074	9,871	3,837	3,483	10,769	+409	+898
OP	264	156	641	308	196	743	+40	+101
OPM(%)	7.3%	5.1%	6.5%	8.0%	5.6%	6.9%	+0.5%p	+0.4%p
Non-OP	-178	-103	-387	-247	-131	-500	-27	-113
Interest P/L	-123	-107	-361	-109	-114	-332	-6	+29
FX	-11	33	32	-26	-14	10	-48	-22
Others	-44	-29	-58	-111	-3	-177	+27	-119
P/L before income tax	86	53	254	61	65	243	+12	-11
Net P/L	131	74	295*	-26	-10	1	-84	-293

*machine tools biz disposal KRW 191B.

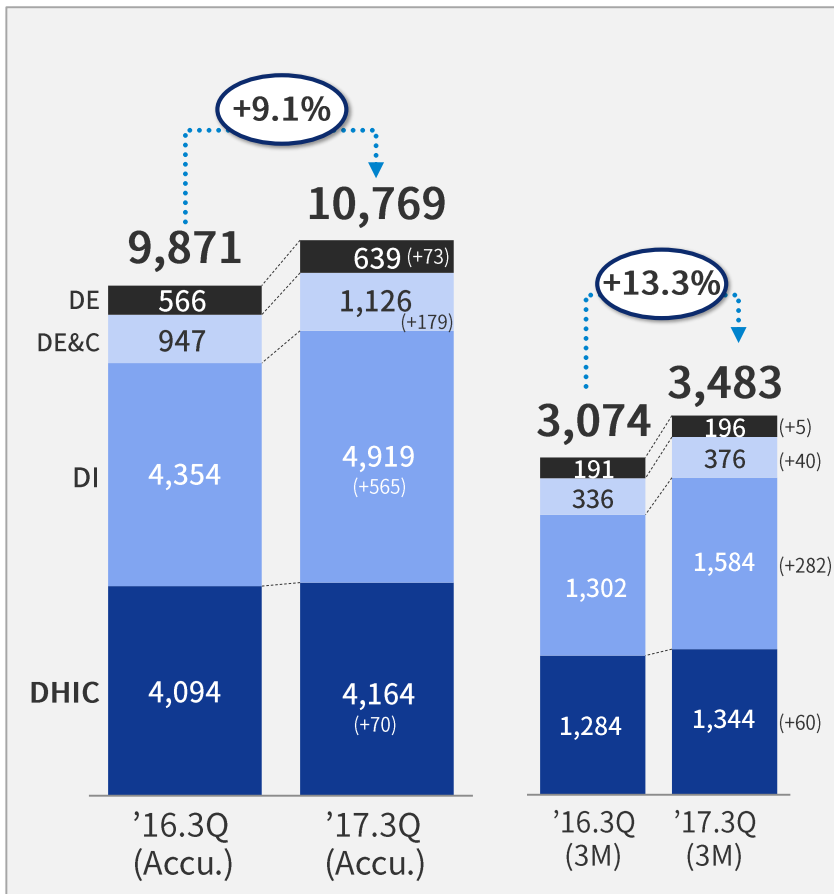


Doosan Heavy Industries & Construction

Consolidated_Sales / OP(%)

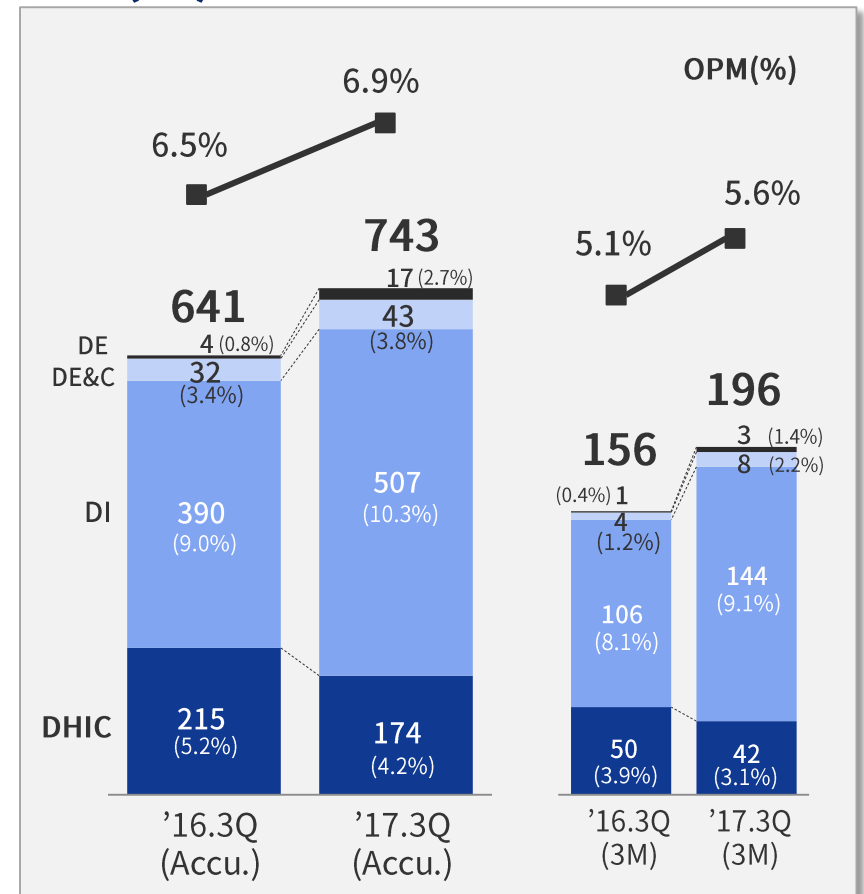
In 3Q, sales increased 13.3% YoY thanks to simultaneous growth of all affiliates as well as DHIC, OP(margin) improved by 50bps.

Sales



OP(%)

(Unit : KRW B., %)



Consolidated_Balance Sheet

(Unit : KRW B., %)

Category	2016	3Q 2017	Difference
Current Assets	9,028	10,484	+1,456
Cash & Cash Equivalent	1,586	1,911	+325
Non-Current Assets	15,804	15,732	-72
Total Assets	24,833	26,216	+1,383
Total Liabilities	18,010	19,102	+1,092
Net Debt	8,847	10,181	+1,334
Total Equity	6,823	7,114	+291
Total Liabilities and Equity	24,833	26,216	+1,383
Total L/E Ratio	264.0%	268.5%	+4.5%p

Table of Contents

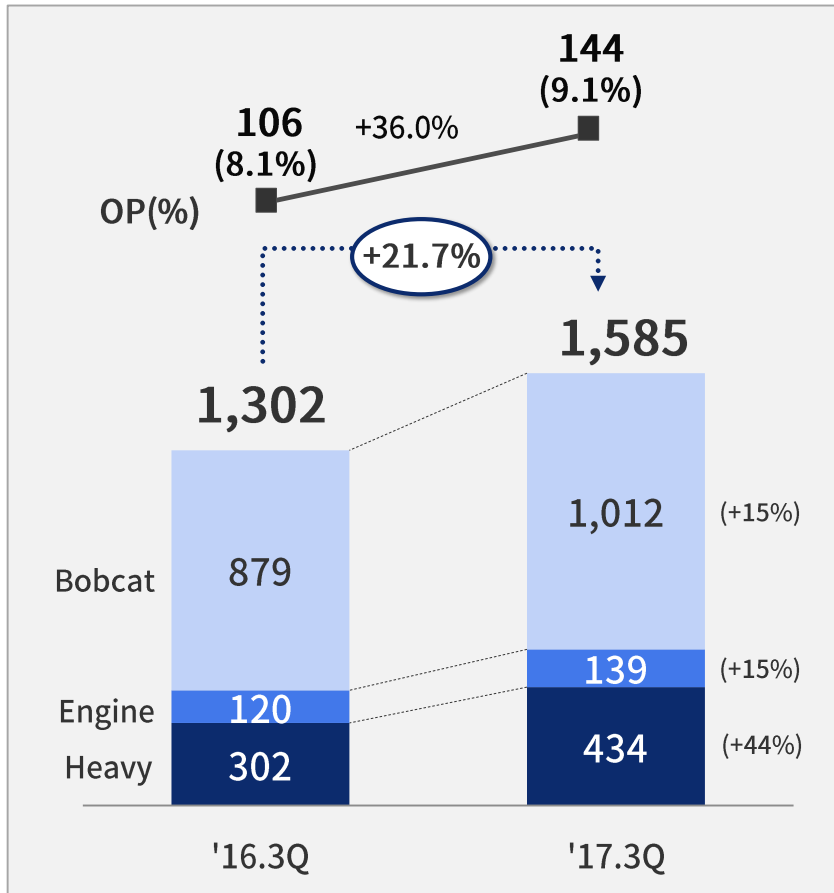
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Doosan Infracore

Sales & OP highly improved, driven by growth in all divisions. In China, product mix also improved mainly on high value-added products, with growth of sales volume.

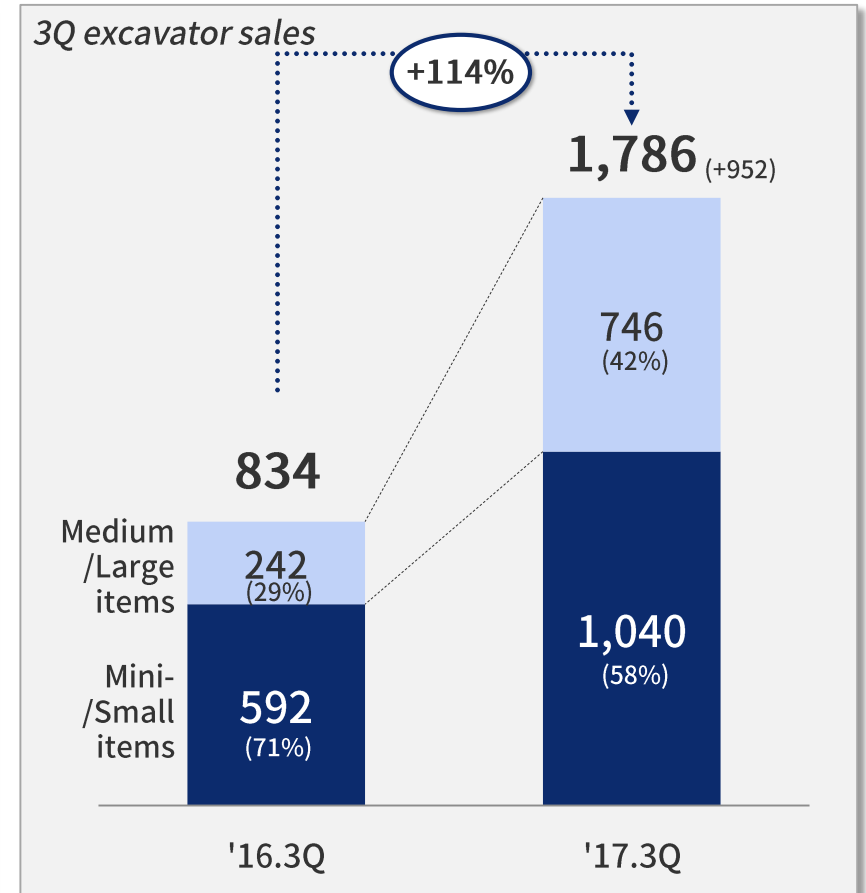
Sales/OP(%)

(Unit : KRW B., %)



Sales volume of China

(Unit : ea.)

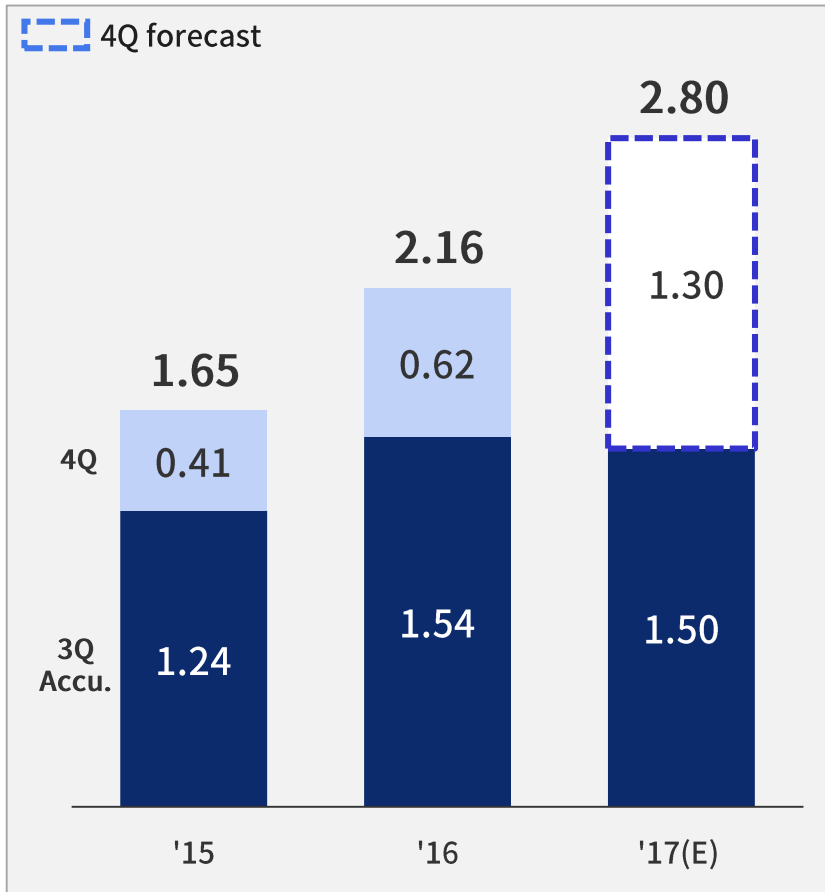


Doosan E&C

3Q accumulated orders recorded 1.5 T., and expect to achieve yearly new orders of 2.8T. Sales & OP increased thanks to growth of housing business.

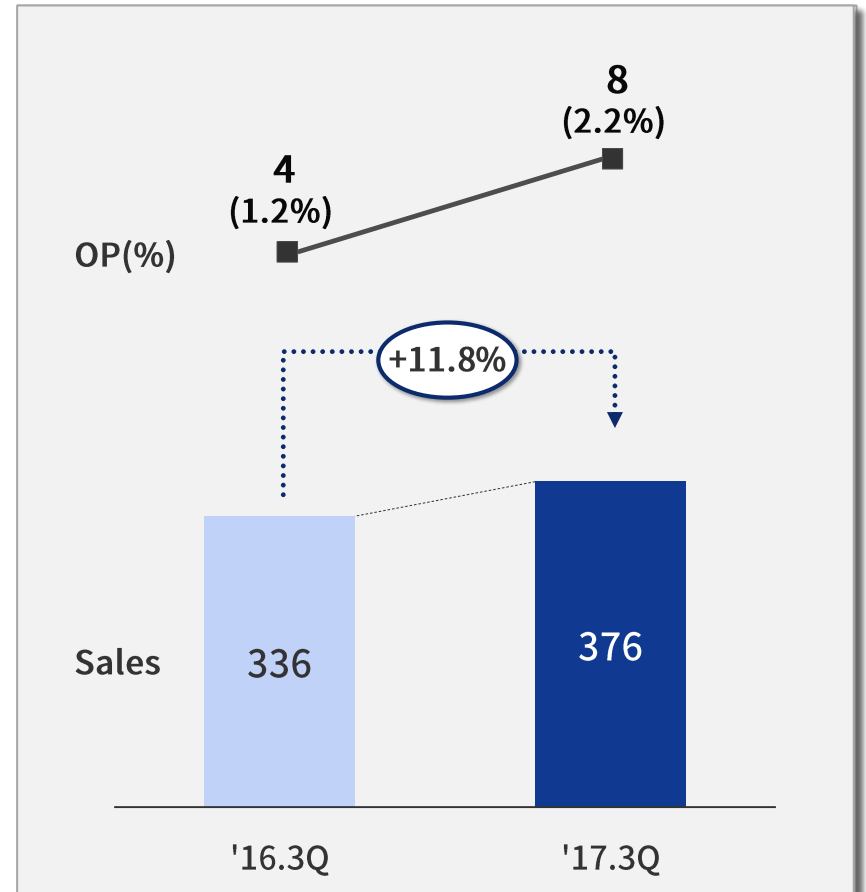
New Orders

(Unit : KRW T.)



Sales/OP(%)

(Unit : KRW B., %)

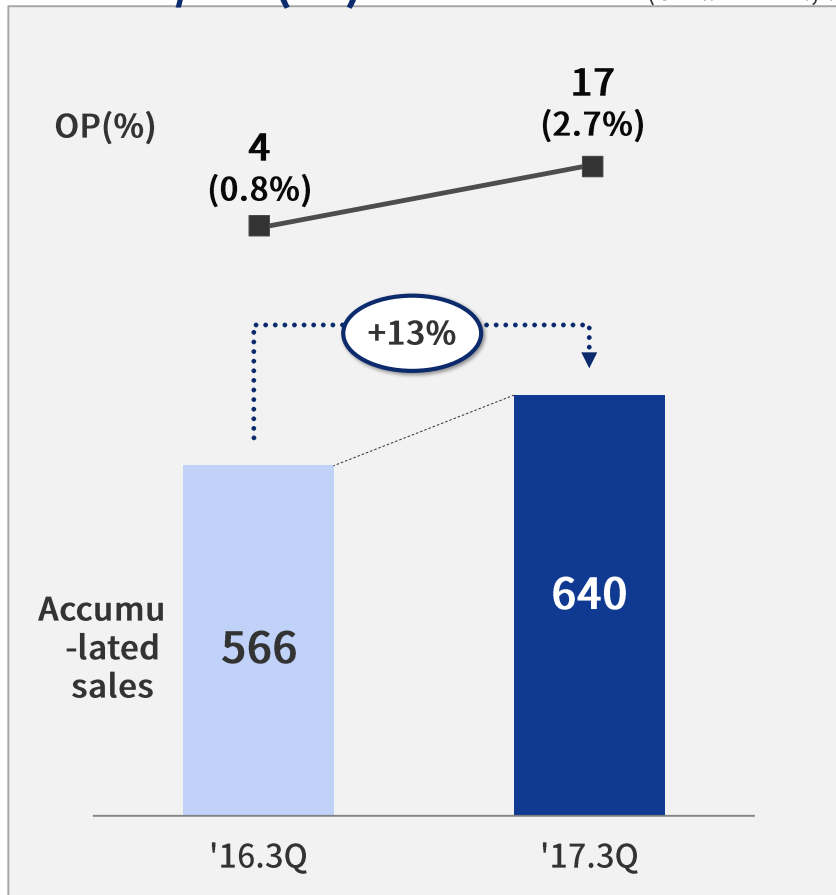


Doosan Engine

Revenue and profit growth continued, looking forward to continuous improvement backed by turn-around of ship-building market. Especially, orders in China will increase since DE dominates the Chinese market(M/S #1).

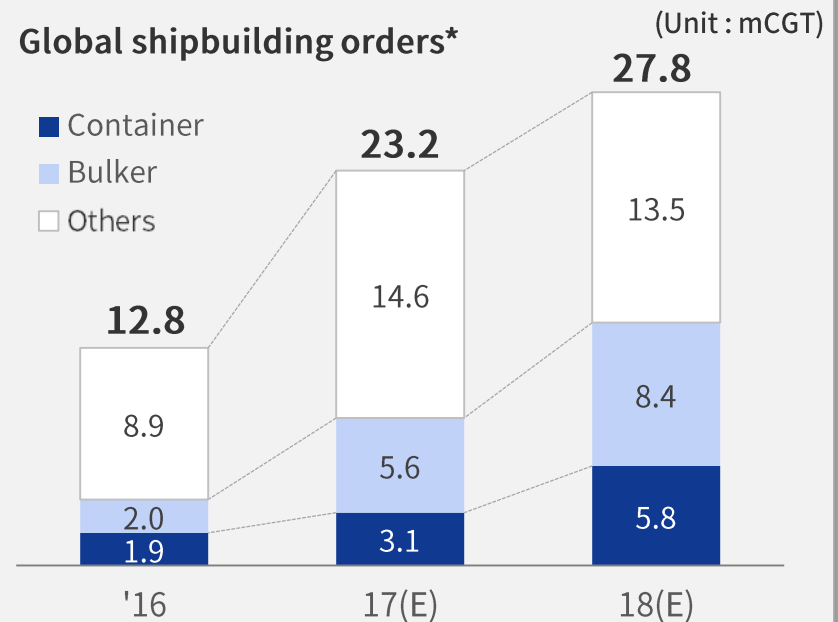
Sales/OP(%)

(Unit: KRW B., %)



Shipbuilding industry recovery

- Expect new order in 2017 increase 80% YoY, and more growth in 2018 with full-scale turn-around of industry
- DE secured competitiveness in container and bulk carriers and these are expected to drive turn-around of the industry



※ Source: Clarkson Forecast Report (Sep. 2017)

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Nuclear – EUR Approval

EUR approved APR1400 design. With this approval, exportation of APR1400 to major EU countries is now available, and securing partnerships with EUR-GenCos are eased.

EUR(European Utility Requirements)

-	Description
Objectives	Define EUR documents to give a common frame to the development of next generation Light Water Reactor type Nuclear PP, which will be well fitted to the European utility needs.
Promoters	14 major GenCos in 12 EU countries: EDF(France), EDF Power(UK), TVO(Finland), Vattenfal(Sweden), CEZ(Czech Rep.) and ETC.
Coverage	Projects developed by EUR promoters and other regions which apply EUR documents such as South Africa and Egypt.

•Background

- EUR is one of major Nuclear design requirement* which established by major EU GenCos, and is precondition to export nuclear system to major EU countries and others
- KEPCO developed EU-APR(improved version of APR1400) for the EUR approval

•Approval

- Review commenced(Nov 2015)
/ Certification passed(8th Oct 2017)
- Major improvement : enhancing responsiveness for critical accident, optimization for 50Hz

Proved excellence of Korean Type Nuclear System and could accelerate export case to European countries

* NRC(Nuclear Regulatory Commission) of US is another major requirement, and APR1400 had passed it's primary safety assessment in Aug. 18

Nuclear – Overseas Export

UK, KSA, Czech and other countries are now promoting new Nuclear PP, Korea Team including DHIC is now carrying out proactive marketing activities for these PJTs.

Progress of nuclear PJTs

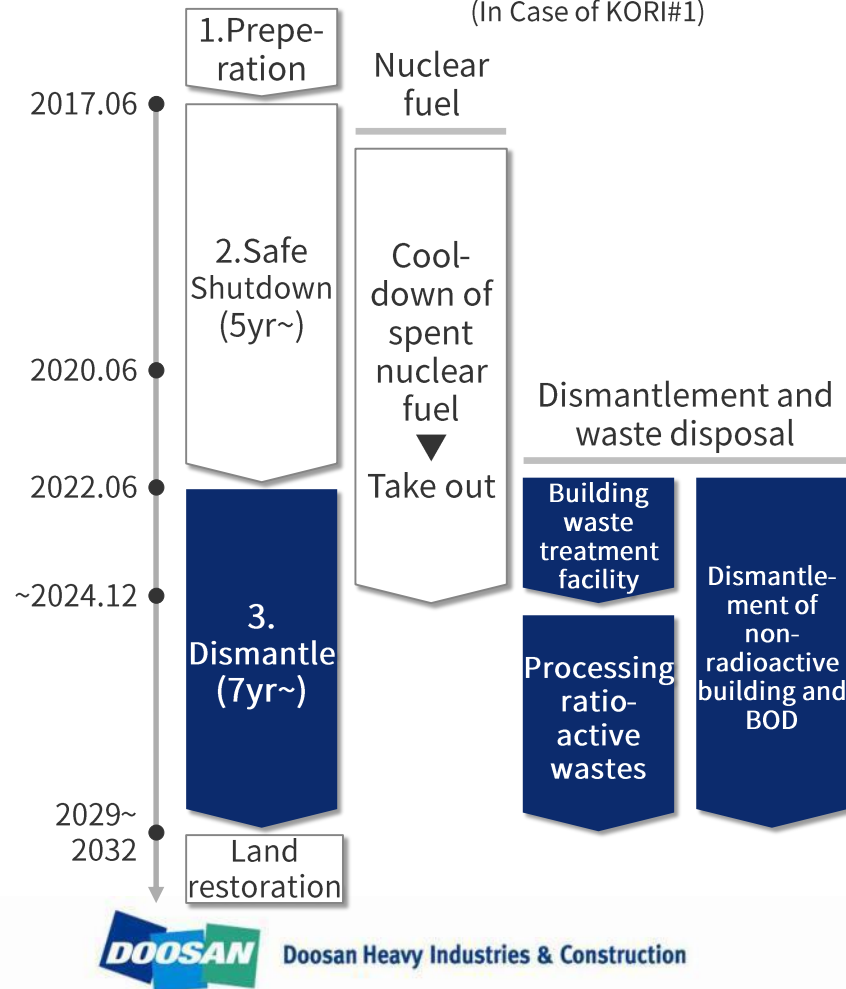
Country/ Project	UK/ Moorside	KSA/ SMART Nuclear	KSA/ Commercial Nuc.	Czech Rep./ Temelin
Capacity	APR1400*2units (altering from AP1000*3)	100MW*2	1.2~1.6GW*2	1GW*2
progress	- KEPCO plans to subscribe preliminary feasibility study to acquire NuGen from Toshiba - discussion for DD and others details are on progress - now 100% of NuGen is owned by Toshiba - Consultation on PJT implementation plans is now being dicussed with UK Gvmt.	- In '15, KSA-Korea signed MOU for co-work to commercialize Smart Nuclear - PPE(Pre-PJT Engineering) is on progress with KSA and KAERI* since Sep. of '15 - KSA approved new building of Smart Nuclear PP in Sep. of '17 * KAERI : Korea Atomic Energy Research Institute	- KSA announced the plan to build Commercial Nuclear PP in Sep. of '17 - In Oct, Ministry of CIE*(Korea) and Minister of Economic Planning (KSA) had meeting to discuss nuclear related collaboration * CIE : Commerce, Industry and Energy	- Plans to build #3, #4 units besides Temelin #1, #2 which are now operating. - Since '07 new building plan cancelled several times for political reasons or others - Recently, Amnesty of Czech Rep. Nuclear visited Korea - visited DHIC and Shingori PP

Nuclear Decommissioning

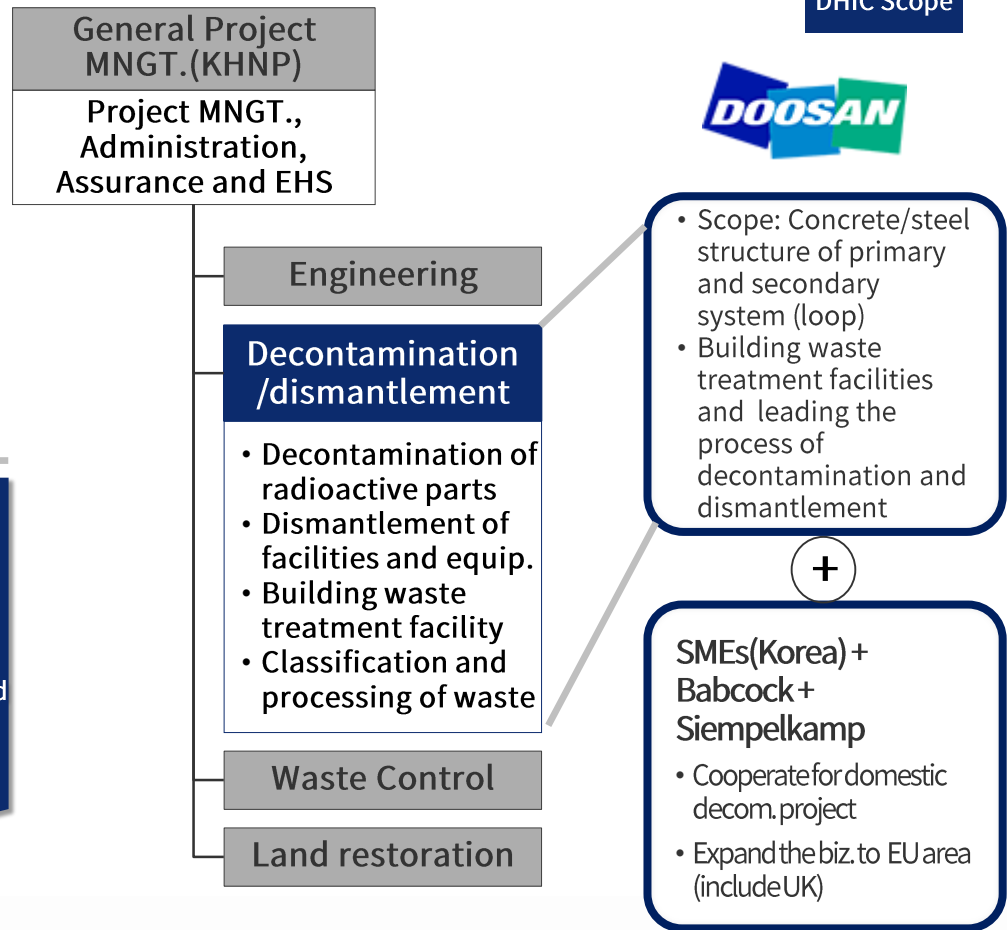
Full decommissioning of KORI#1 starts from 2022, after cool-down of nuclear fuel. DHIC is driving alliances and R&D efforts in decontamination and dismantlement work to lead the business of Korea nuclear power plant.

Basic Plan for Nuc.Dec.

(In Case of KORI#1)



Business Structure



Gas Turbine Development

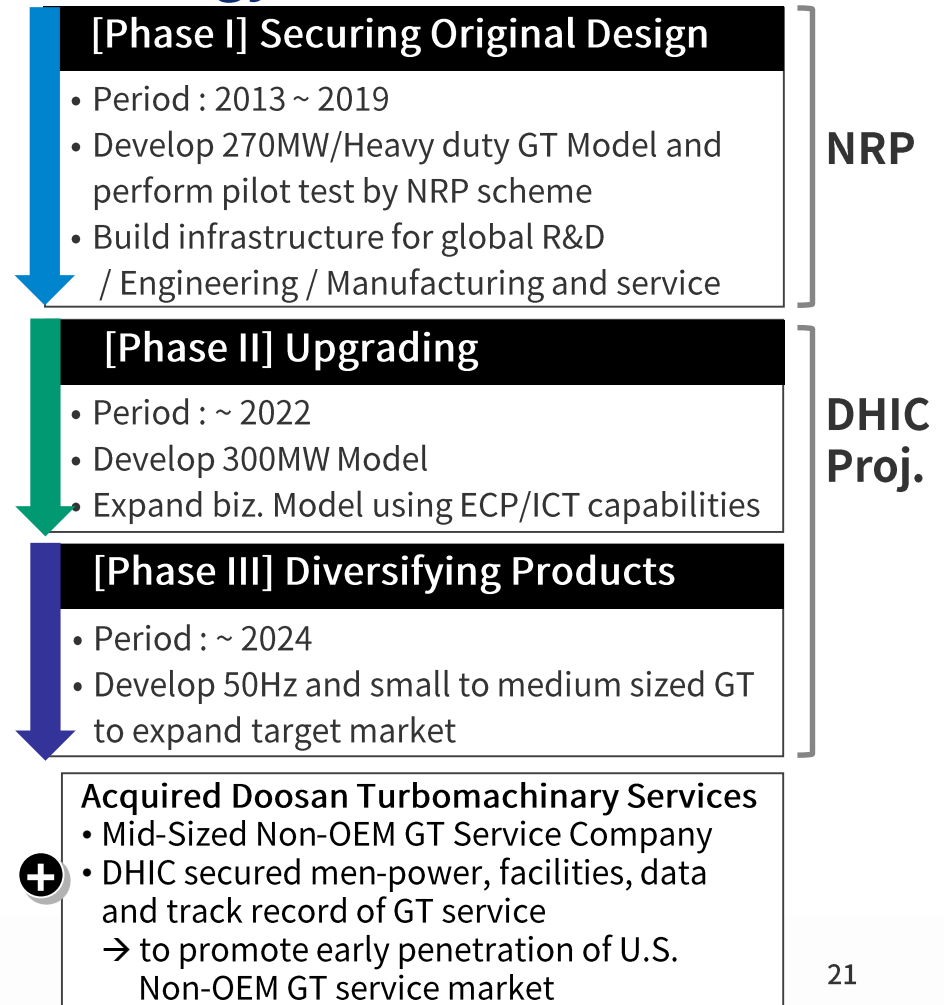
DHIC is now executing NRP* to develop large-sized/heavy duty gas turbine with the governmental support, and fostering the item to the next growth engine.

Overview of Development

	NRP's RFP	DHIC Target
Performance	Capacity>100MW Efficiency>37%	Capacity>270 MW Efficiency>40%
Emission standard	NOx <15ppm / CO ₂ <10ppm	NOx <15ppm / CO ₂ <10ppm
Period	2013.07 ~ 2019.09 (75months)	

* NRP: National Research Project

Strategy



Gas Turbine – Acquisition of DTS

Acquisition of DTS* enables DHIC to secure track records of Non-OEM GT service areas and to expand into new biz area. And also, synergy is expected with enhancing reliability of GT which DHIC is now developing.

DTS Acquisition



	Desc.
Basic Info.	Established in 1996 / Houston, US / 85 employees / Revenue 27.2M USD, 2016
Main biz: Revenue B/D	D/E/F class GT non-OEM maintenance : GT component repair(65%), rotor repair(28%), Steam turbine repair and others(7%)

* DTS : Doosan Turbomachinery Services, changed name from ACT Independent Turbo Services after the deal

Benefits of Acquisition

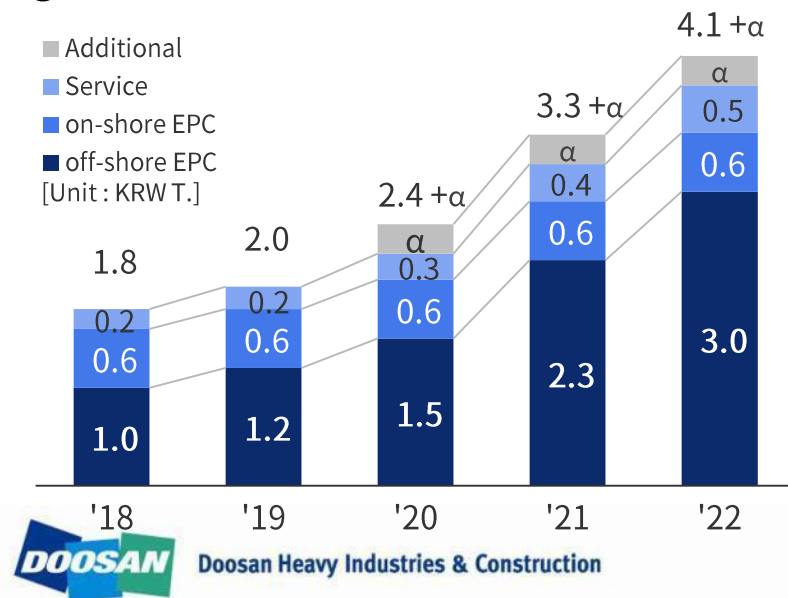
- Entering Non-OEM GT service market
 - Secured track records of GT service biz, and local presence in North America
 - Enabled to expand into Global non-OEM service market using Doosan network
 - Mexico, Korea, KSA and others('18~)
- Supporting Doosan GT development and early promotion
 - Technical support from DTS to Doosan GT development
 - Building GT repair procedure/ process
 - Using DTS client network for Doosan GT promotion
 - Using DTS as GT service center for Doosan GT in the future

Wind Turbine

Domestic offshore wind turbine market to expand rapidly as Korea GVMT. clarified its attitude to expand renewables. DHIC has good chance to lead the market with strong track records and competitive products portfolio.

Policy change and the market

- New GVMT is promoting to expand renewable's power supply portion up to 20%
 - Expand wind turbine to 16GW until '29 (off-shore 13GW, on-shore 3GW)
 - 7.9GW added from the latest plan of '14
- Korea market is expected to record 18% of growth rate(CAGR) to '22



DHIC's competitiveness

WinDS3000/5500

	WinDS3000		WinDS5500	
Capacity	3.0MW		5.5MW	
Height	90m		100m	
Rotor Dia.	134m		140m	
Output/yr	8.0GWh		16.1GWh	
Key Point	Optimized for Korea's condition		Acquired from HHI (oversized, off-shore)	

Digital based O&M and customer service

- Early alarm and wireless control system with real-time data monitoring
- Systematic response to client issue with help desk

DHIC's status and achievements

- M/S #1 in domestic public sector (42%, '12~'16)
- Sole player in Korea's off-shore wind turbine market

ESS/Microgrid

ESS biz won its record largest order from LADWP Beacon solar plant. Microgrid biz also entering into full-scale with completion of first industrial complex Microgrid PJT.

Beacon solar plant ESS Project



* Beacon Solar Plant, Mojave, California US.

	Description
Title	LADWP Beacon Battery Storage
Client	Los Angeles Dept. of Water and Power/ Largest municipal Water & Power supplier in US.
Period	'17.09 NTP ~ '18.09 Handover
Capacity	20MW-10MWh / 20 KRW B.

ESS business

- LADWP Beacon solar power plant ESS PJT
 - 20MW-10MWh, largest ever PJT for DHIC
 - Client is largest municipal utility company in US., expecting sizable follow-up PJTs

Microgrid business

- Completion of the first industrial complex Microgrid PJT in Korea
 - DHIC : EPC + System installation
Doosan Engine(DE) : site offering
Korea South-East Power(GenCo)
: Investment and operation
 - 100kW panels + 2.1MW-4.2MWh ESS
 - Supplying power to DE facility and sell the excess to generate and share the profit
 - The first-ever profit sharing model implemented for renewable farm in Korea

DHIC is promoting the expansion of R&M / Environment business

R&M(Renovation and Modernization)

- Life expansion and efficiency improvement for aged power plant
- Secured standard R&M biz model through national project that DHIC had executed
- Now executing R&M PJT with Boryung #3 coal power plant
 - promote to expand the project for other 19 standard coal boilers(500MW) in Korea
- India(Bandel), Africa(Morupule), and Australia(Eraring) PJTs are also in the process

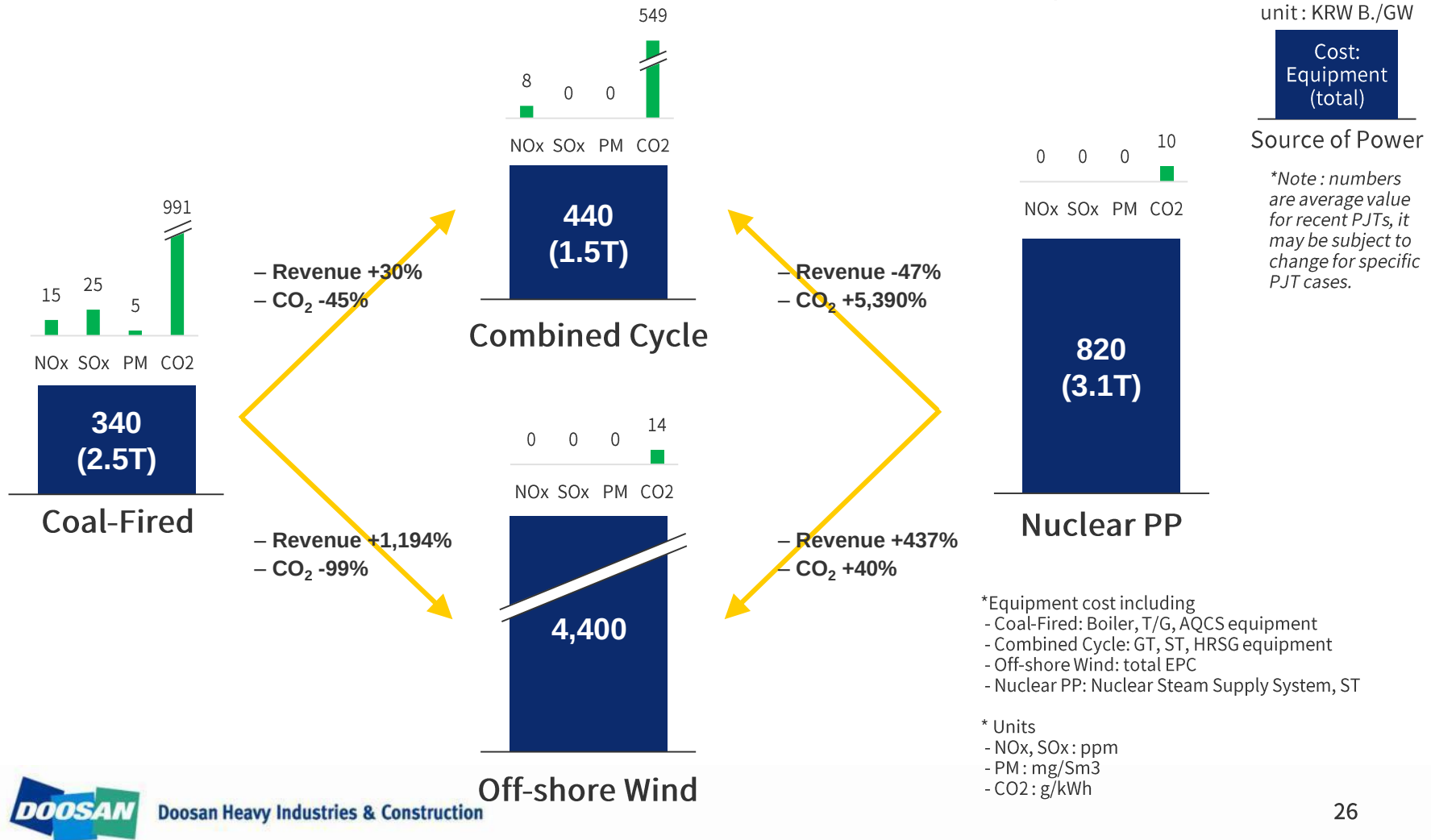
Environment business

- Pollution reduction works for power plants
- Acquired Lentjes(Germany) to secure original tech. for environment equipment
 - improving tech. competitiveness by co-work with DHIC
 - won '17.10 Kjøpsvik(Norway) project to supply FGDs*
- Indian market expand with tightening of environmental regulations
 - now 15 PJTs are on the bidding process

- Korea GVMt. to spend 7.2 T until '22 to replace environment equipment and to improve efficiency for the most of coal-fired PPs
 - Gvmt. announced “comprehensive measure for fine dust reduction('17.09.26)”
 - short- term environ. equip. enhancement : 0.2T, efficiency improvement and full-scale replacement of environ. equip. : 6.2T**, enhancement for the coal PP under construction : 0.8T
- Expanding the biz using track records of Boryung #3,4 R&M and building standard coal boilers

Energy Conversion Impact

As Korea's energy policy shifted to renewable and Gas-fired PP centric, DHIC is now more focusing on off-shore wind turbine biz and development of GT. Besides, Service biz opportunities for wind and GT are expected to expand rapidly.



theDoosanWay

Our story. Our vision.

Q&A

