



# **FUTURING SMART ENERGY**

**3Q 2019 Review & Outlook**

**LS IS**



## Disclaimer

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**This presentation material is prepared for investors' reference, based on data that have not been filed with the financial supervisory commission.**

**Actual business performance may not necessarily be consistent with the projections herein, as a result of unexpected changes in the market environment and other conditions.**

**The financial information in this document are consolidated earnings results based on K-IFRS.**

# I . Results & Outlook

# 3Q 2019 Total Results

**Sales 548bwn (YoY 54bwn decreased), Operating Profit 53bwn (YoY 1bwn increased)**

**Sales profit decrease by Electric Infra & Automation Segment**

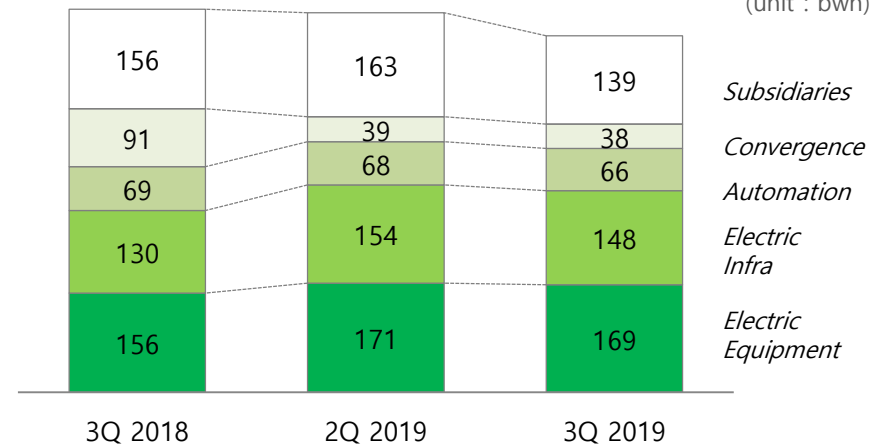
## Income Statement

(unit : bwn)

Segment	3Q 2018	2Q 2019	3Q 2019	YoY	QoQ
Sales	602	581	548	△54	△33
Operating Profit	53	43	53	1	10
Profit before tax	45	38	52	6	14
Net income	35	26	38	3	12

## Sales Breakdown by Business

(unit : bwn)



\* Subsidiaries includes LS Metal, LS Sauter, LS Mecapion, LSIS Wuxi, LSIS Dalian and LS-Vietnam

\*\* Convergence Business includes Trans SOC, Solar, Smart-Grid and EV components.

\*\*\* Sales of subsidiaries are before the consolidated adjustments.

# 2Q 2019 Financial Position

**Total assets 2,436bwn (YoY 77bwn increased)**

**Total liabilities/Equity Ratios reduced YoY 13% (stable financial structure)**

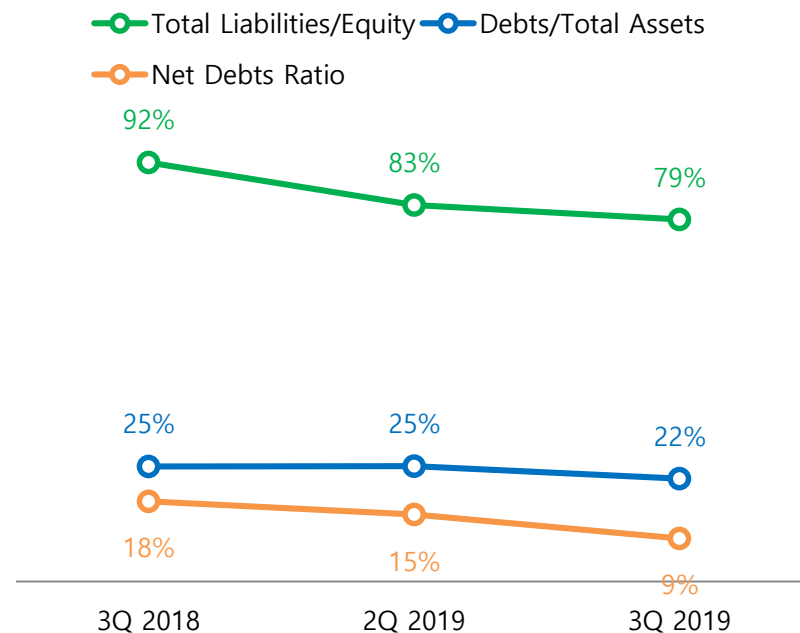
## Financial Statement

(unit : bwn)

Segment	3Q 2018	2Q 2019	3Q 2019	YoY	QoQ
Total Assets	2,359	2,407	2,436	77	29
Current Assets	1,553	1,497	1,543	△9	46
Cash & cash equivalent	379	414	421	42	6
Total Liabilities	1,129	1,088	1,077	△52	△11
Debts	595	607	548	△47	△59
Net Debts	216	193	127	△88	△65
Equity	1,229	1,318	1,358	129	40

## Financial Ratios

(unit : %)

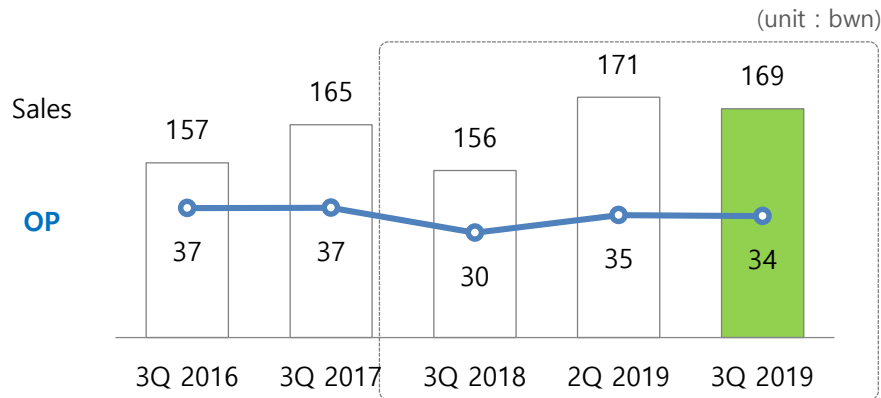


# Business Results & Outlook

**Electric Equipment – Sales/Profit increased in Overseas mkt (Europe,Middle East)**

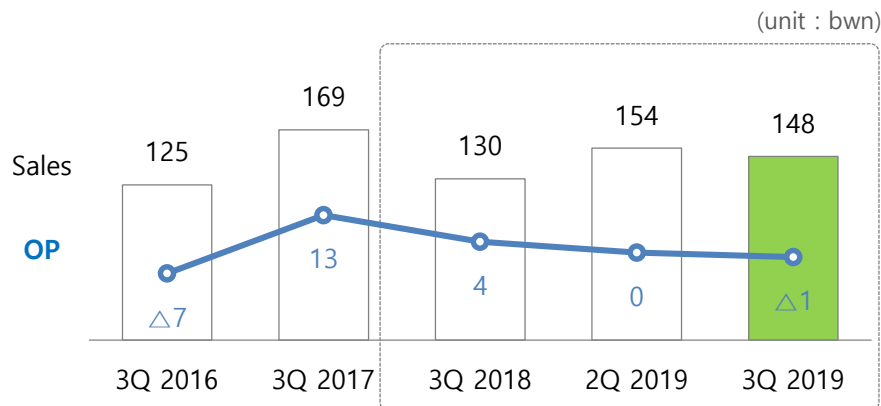
**Electric Infra – Profit decreased due to in Domestic mkt (Major Company,Product Mix)**

## Electric Equipment



- Sales increased YoY 8%, OP increased YoY 16%
  - Sales increased in Europe DC Component
  - Profit increased by foreign exchange rate
- Sales increased in Global DC Equipment mkt
  - Boosted sales in Europe Renewable mkt
  - Expanded Korea Photovoltaic/ESS mkt

## Electric Infra



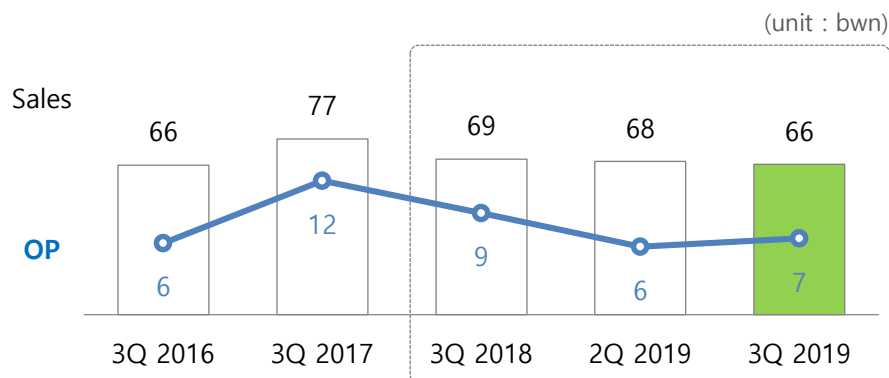
- Sales increased YoY 14%, OP decreased YoY 134%
  - Domestic sales decreased by Plant investment reduce
  - decrease profitability due to Product Mix
- Keep Global Investment in Chemical business
  - EV battery extension Plant in China/Vietnam

# Business Results & Outlook

**Automation – Sales decreased in Domestic/Overseas mkt (Machinery mkt)**

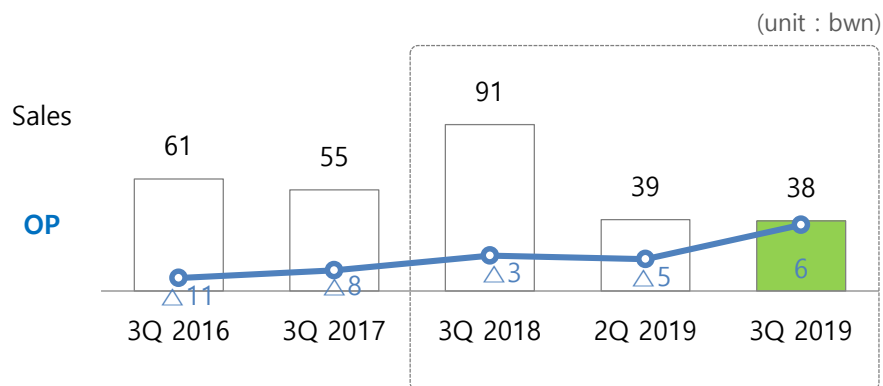
**Convergence- Sales decreased in Smart-Grid(ESS), Profit increased in all business**

## Automation



- Sales decreased YoY 3%, OP decreased YoY 25%
  - Sales decrease in Domestic mkt (Machinery)
  - Sales decreased in Overseas (Iran, Europe)
- Strengthen Overseas sales in Target Area (South-East Asia, North America)

## Convergence Business



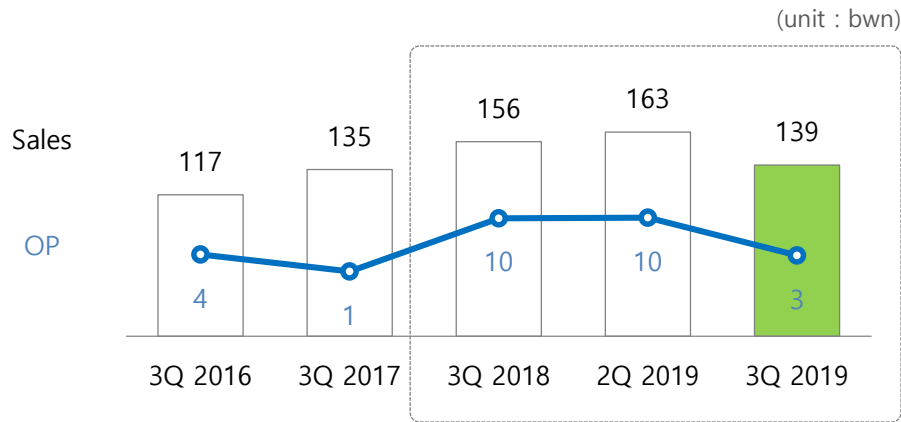
- Sales decreased YoY 58%, OP increased YoY 284%
  - Sales decreased Smart-Grid (ESS)
  - EV components keep profit status
  - Profit increased by EV & temporary issue (Smart)
- Large size Solar EPC PJT increasing in Korea mkt
  - Sae Man Keum / Bigeumdo island
- Boosted EV components Sales in China/Europe mkt

# Business Results & Outlook

Wuxi keep favorable condition by Electric equipment, Relay

LS Metal – Sales/Profit decreased by Copper/Stainless steel (sales delayed to next quarter)

## Subsidiaries



- Sales decreased YoY 11%, OP YoY 64% decreased
  - LS Metals sales/profit decreased by Copper/STS
  - Wuxi keep good business condition due to Electric equipment
- LS Metals performance keep improving in Shipbuilding mkt
- Wuxi performance improving by better Electric Car mkt condition in China.(DC-relay)

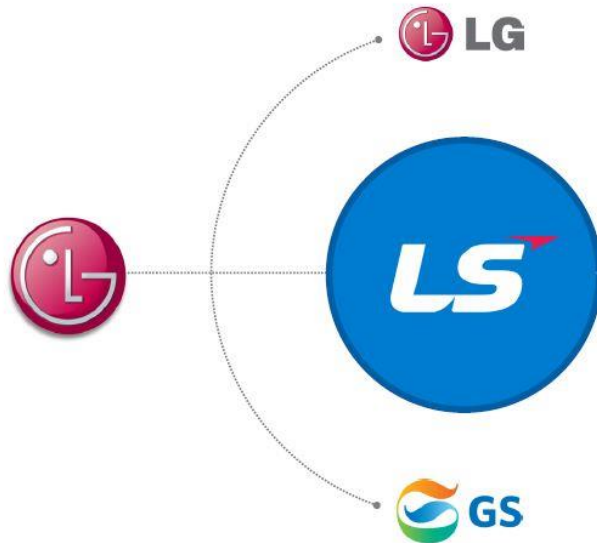


## II. Company & Business Introduction

## Growing into a World's Best from the Nation's First!

Leading company in the industrial electric, electronics, materials and energy field following its separation from LG in 2003

### LS History



## Leader in Power Solutions, Automation & Green Business

The Leading Company in the Power Distribution & Automation Industry

The first to build a Smart Grid, Green Village and Green Factory

Founded	1974
Sales	2,485billion(KRW)
Employees	3,161
Headquarters	LS Tower, Gyeonggi-do, Korea
Plants	Total 7 Plants
Overseas subsidiaries	China, Vietnam, Japan, etc.
Overseas branches	USA, Europe, Russia, Vietnam, etc.

(As of 2017)



### 1. A History of Challenging the Future (1970's ~ 2007)

**1970's** '74 Jul. Established Goldstar Instrument & Electrical Co., Ltd

**1980's** '87 Mar. Established Goldstar Industrial Systems Co., Ltd.



**2007** Feb. Opened Marketing Subsidiary in Dubai

**2005** Mar. Renamed from LG to LS Industrial Systems  
Sep. Constructed the Electric & Automation equipment factory in Wuxi, China

**2003** Nov. Disaffiliated from LG Group, joined LS Group

**2001** Jun. Constructed Dalian factory

**2000** Sep. Established high-voltage testing agency

**1990's** '94 Jul. Listed Goldstar Industrial Systems on the Korea Stock Exchange

'95 Feb. Renamed from Goldstar to LG Industrial Systems (LGIS)

'95 Sep. LGIS merged Goldstar I&E & Goldstar Mechanical & Electrical

'99 Apr. LGIS merged LG Metal

'99 Aug. Sold copper smelting, Vending Machine, Elevator & Escalator unit

### 2. Shifting the strategy to growth paradigm (2007 ~ 2012)

- 2008**
- Apr. Relocated its headquarters to Anyang LS Tower
  - Sep. Received the Korea Best Company Award (Electricity & Cable industry category)
  - Oct. LS Industrial Systems(currently LSIS) Opened R&D Center in Shanghai, China



- 2009**
- Mar. Published the Green Business Vision
  - Oct. Share in Mecapion acquired
  - Oct. European sales corporation established

- 2012**
- May. completed a EV Relay factory in Cheongju, Korea
  - Jun. Awarded the Best Korean Company Grand Award
  - Dec. Selected as one of the Top 100 Global Innovators by Thompson Reuters
  - Dec. US and Chinese patent acquired for smart meter technology

- 2011**
- Oct. Completed the Busan HVDC Plant
  - Nov. Included in the Fortune Korea's 500 Fastest Growing Companies
  - Nov. Selected as one of the Top 100 Global Innovators by Thompson Reuters



- 2010**
- Jan. LS Power Semitech J/V established
  - Feb. LS Sauter established
  - Apr. LS Metal spun off from LSIS and newly established LS Metal
  - Apr. Construction of Busan plant completed
  - May. LS Hogae Electric established in China
  - May. LS Industrial Systems(currently LSIS) got the largest number of Green Certification as the first company in Korea
  - Jul. LS Industrial Systems(currently LSIS) opened R&D Center in Beijing, China



### 3. Challenging for the future of Smart Energy (2013 ~ 2015)

- 2013**
- Apr. Awarded the Great Place to Work Award for 2 consecutive years
  - May. MOU with China's Dongfang Group for developing green automobile parts
  - May. Concluded contract for the transfer of HVDC technology, and partnered with KAPES and Alstom
  - Jun. Awarded the Best Korean Company Grand Award
  - Oct. Selected as one of the Top 100 Global Innovators by Thompson Reuters
  - Nov. Awarded the 39<sup>th</sup> Korea National Quality Grand Award
  - Dec. Won the 500 million Trade Tower Award

- 2015**
- Jan. Declared value-based management
  - Mar. Newly constructed R&D campus in Anyang



- 2014**
- Jan. Launched new strategic automation product lines for A&D
  - May. LSIS Vice Chairman Ja-kyun Koo Received Gold Tower Order of Industrial Service Merit
  - May. Won the World's Largest Order for Smart Grid Project in Iraq
  - Jun. Awarded the Best Korean Company Grand Award for 7 consecutive years
  - Jul. Marked the 40<sup>th</sup> anniversary of the foundation
  - Sep. Ranked number one in the Korean Standard – Quality Excellence Index for 2 consecutive years
  - Nov. Selected as one of the Top 100 Global Innovators by Thompson Reuters

### 3. Challenging for the future of Smart Energy (2016~ )

2016

Mar. Anyang R&D Campus acquired BEMS certification for the first time in Korea.

Sep. Selected as the best business in automobiles in terms of KS-QEI for four years in a row.

Sep. Anyang R&D Campus certified as the first business that established ESS (Emergency Support



2017

Feb. Named one of the world's top 100 businesses in patent applications in Europe.

Jun. Named Best Business in Korea for ten consecutive years.

Sep. Won a prize from the Minister of Trade, Industry, and Energy as a praiseworthy business in strategic items.

Oct. Finished the work for the construction of the largest (28MW) PV plant in Chitose, Hokkaido, Japan.

Dec. Finished the work for the construction of a 3MW floating PV plant on Cheongpungho lake, the largest of its kind in Korea.

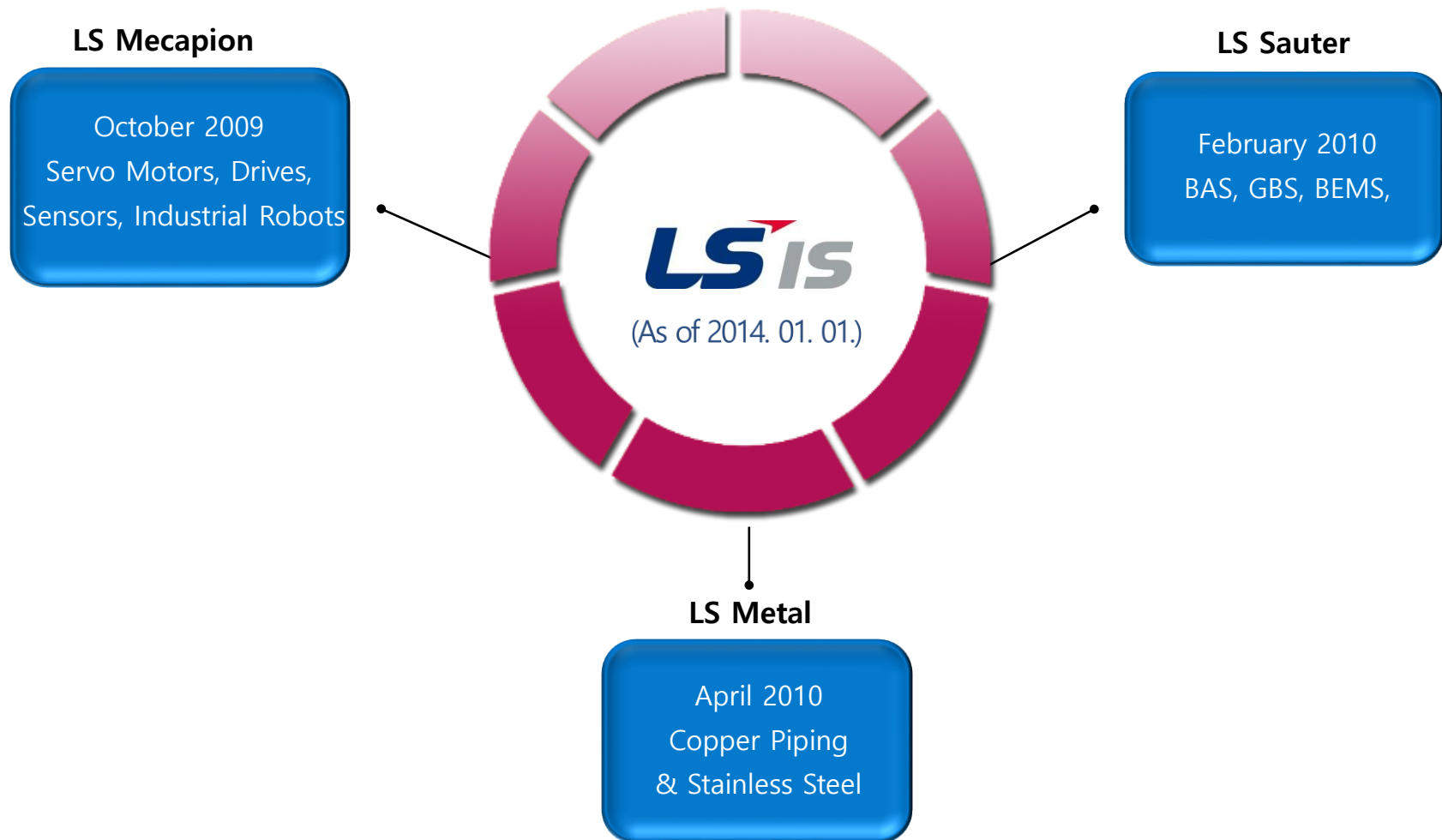
2018

Jan. Selected as one of the world's top 100 innovative businesses.

Apr. Finished the work for the construction of MW ESS-linked PV plant at the Hwamyong Water Treatment Plant in Busan.

Dec. Acquires ESS Unit of North America's ESS Leader Parker-Hannifin

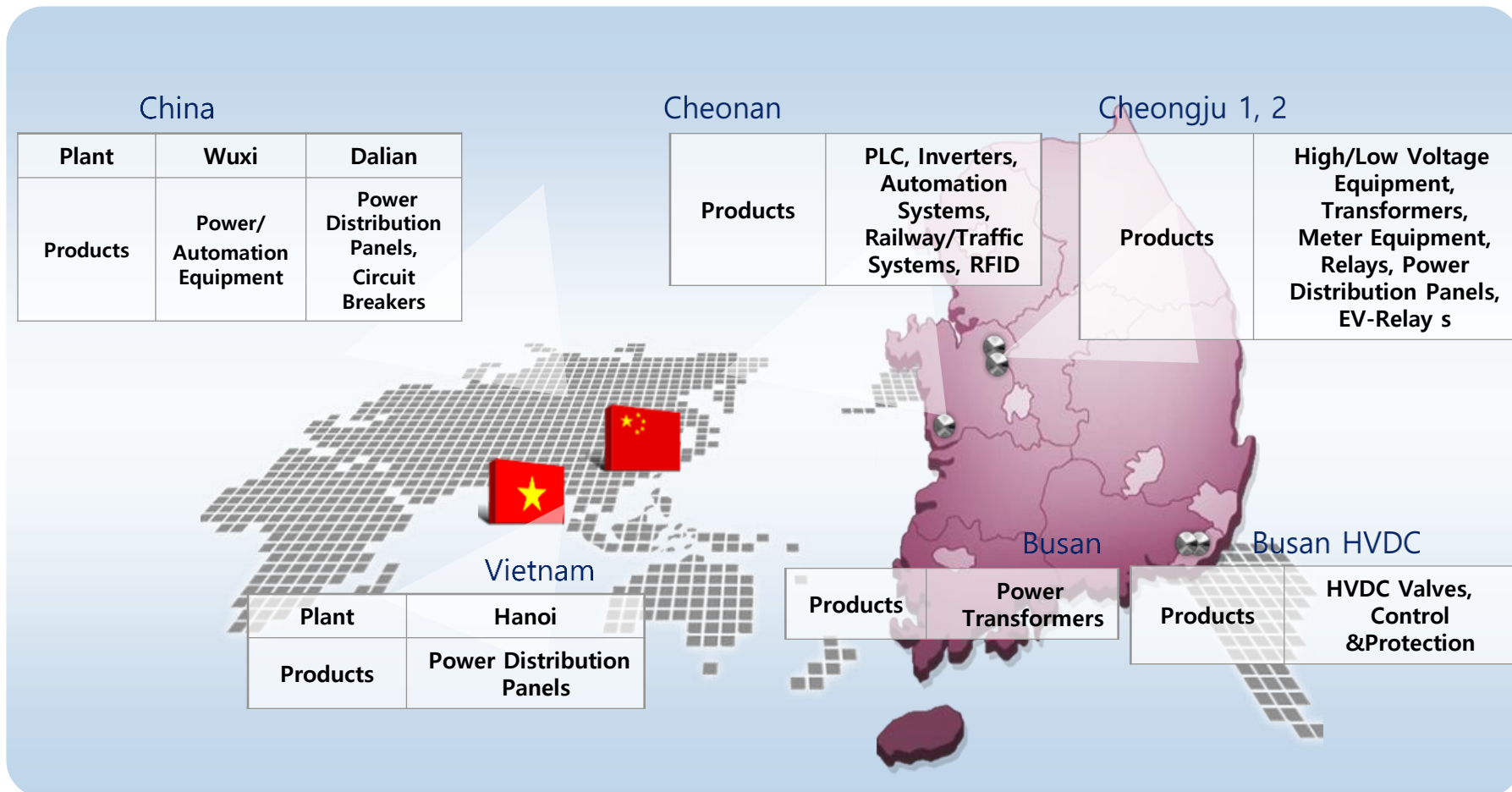
### Strengthening the Business Portfolio through M&As





## We manufacture high-quality products in nine plants around the world

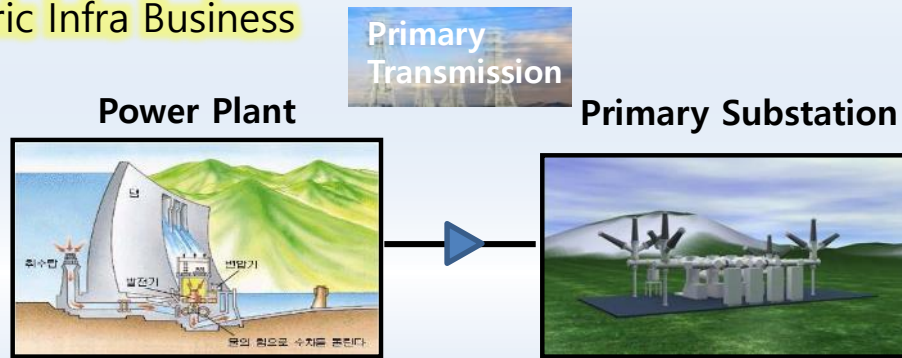
- Domestic: 5 Plants (Cheongju 1 & 2, Cheonan, Busan, Busan HVDC)
- Overseas: 4 Plants (China: Dalian, Wuxi, Hubei / Vietnam: Hanoi)



# Business Introduction

## Leading Provider of Total Electric Power, Automation & Green Business Solutions

### Electric Infra Business



**Ultra-high voltage power transmission & distribution system equipment such as gas insulated switchgear (GIS)**

**< Main Products >**

- Gas Insulated Switchgear (GIS)
- Power Transformers
- Remote Monitoring & Diagnosis Equipment
- HVDC
- Switchgear (SWGR)



### Electric Equipment Business

**Factory/Building/Household**



**Substation**



**Top low and medium voltage electrical equipment for electricity users**

**<Main Products>**

- Vacuum Circuit Breakers (VCB)-MV
- Air Circuit Breakers (ACB)
- Molded Case Circuit Breakers (MCCB)
- Magnetic Contactors (MC)



# Business Introduction

## Automation Business

### Factory / Building (FA/PA)



Discrete Automation



Process Automation



Building Automation

From simple automation control to large-scale manufacturing facilities and process control, LSIS provides the optimal solutions to diverse industrial fields.

#### < Main Products >

- Variable Frequency Drive
- PLC (Programmable Logic Controller)
- HMI (Human Machine Interface)
- Servo Drive & Motor
- DCS (Distributed Control System)
- RTU (Remote Terminal Unit)

## Convergence Business



Smart Grid



Green Car Solution



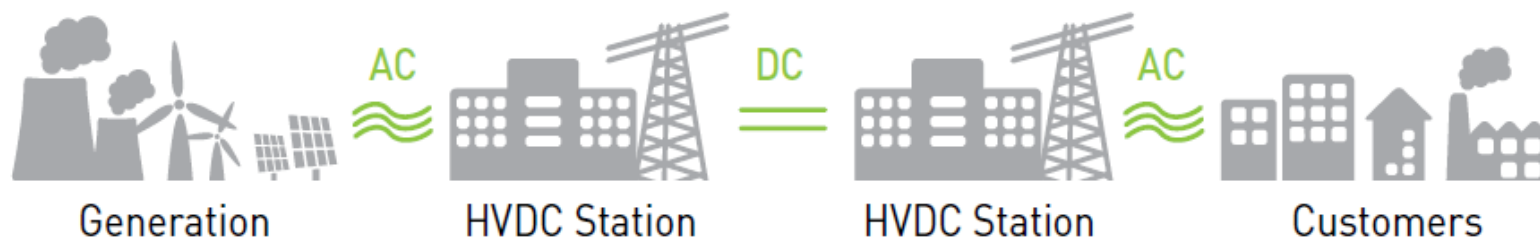
Photovoltaic System



Railway System

# HVDC

**HVDC system converts AC to DC to transmit long distance and then converts back again to AC**  
**Connect with the AC grid with very low loss**



## Long Distance Transmission with Lower Cost

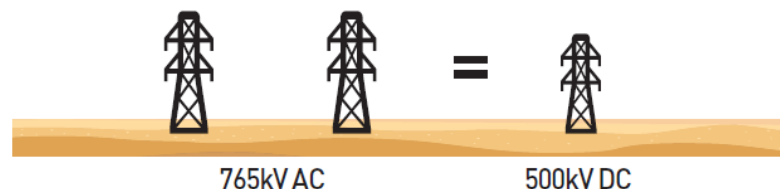
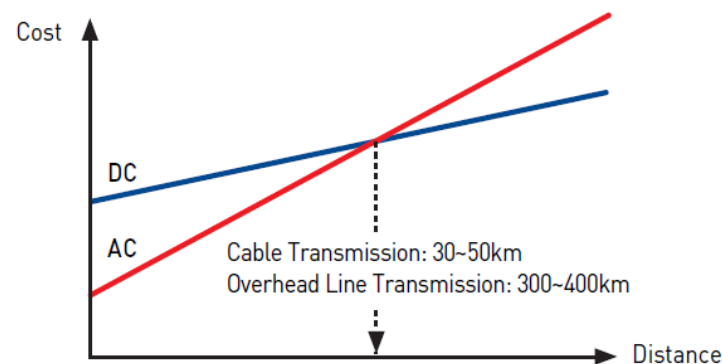
HVDC is the only option for the overhead transmission longer than 300km or submarine/underground 40km thanks to DC characteristics.

## Eco-friendly Transmission

HVDC system has lower environmental impact because it requires fewer overhead lines comparing to AC system. The technology is also the key component in the future energy system based on renewable energy sources.

## Optimal Grid Management

HVDC can directly interconnect load centers with huge energy sources efficiently. Therefore, negative impact on the grid is minimized. HVDC also improves the performance of AC grid by means of additional controllability.

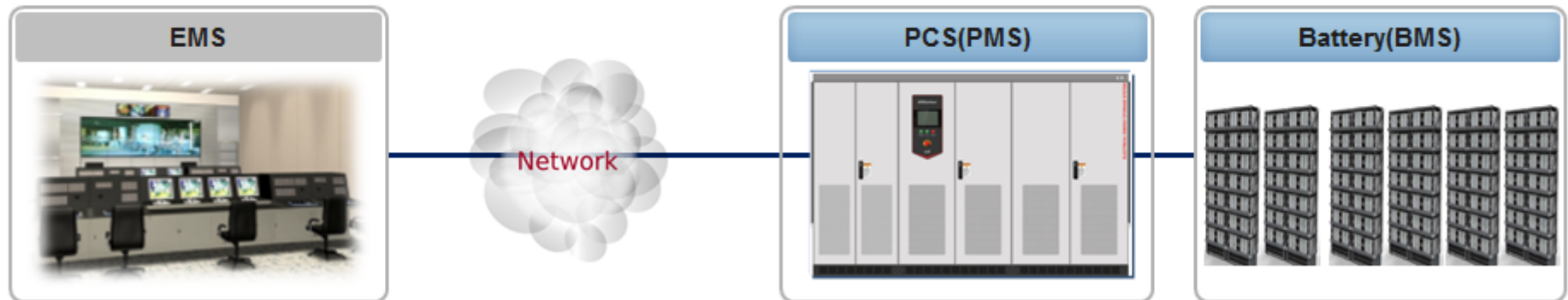




# ESS Applications

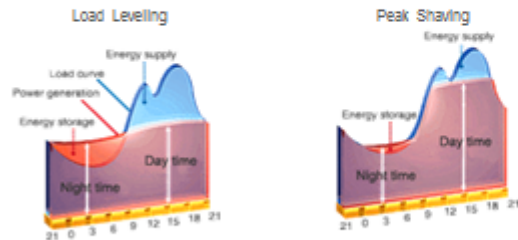
ESS(Energy Storage System) includes PCS(Power Conversion System) and battery, and make an efficient way of use electricity power

## Concept of ESS



## Function of ESS

➤ Peak Shaving, Load Leveling



➤ Renewable Energy Smoothing



➤ Frequency Regulation



• EMS : Energy Management System

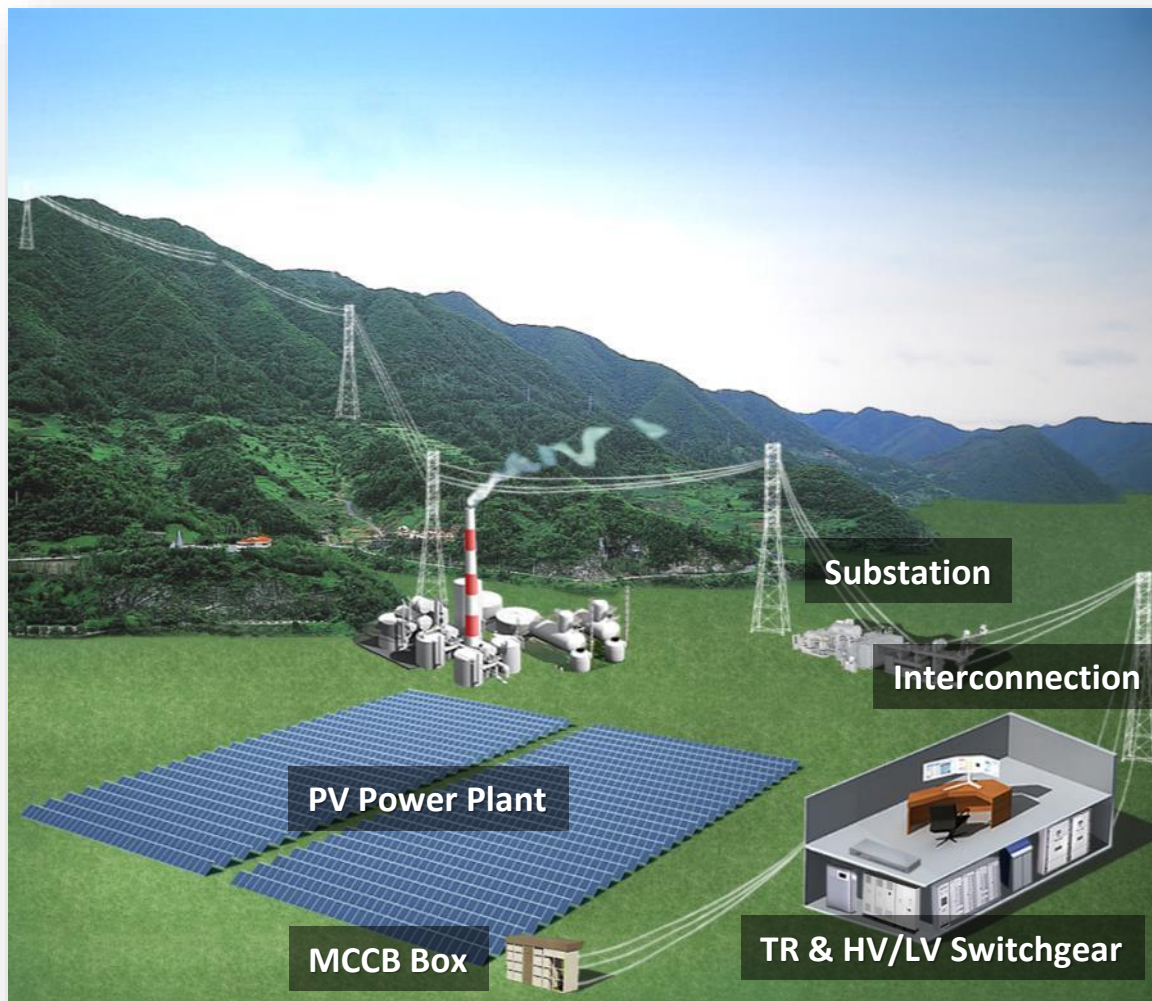
• PCS : Power Conditioning System

• PMS : Power Management System

• BMS : Battery Management System

# PV Power Plant

We provide total solution for PV Power Plant. In addition to PV products, we can provide customers with all kinds of electric power equipment manufactured by LSIS.



## System Components



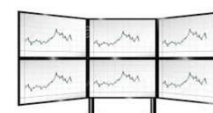
**PV Power System**  
- Module  
- Inverter  
- Balance of System



- HV Switchgear  
- MV Switchgear  
- LV Switchgear



**Transformer**



**Monitoring(SCADA)**

# III. Appendix

# Appendix 1. Condensed Statement

## Income statement

(unit : bwn, %)

Segment	3Q 2018	2Q 2019	3Q 2019	YoY	QoQ
Sales	602	581	548	△9.0%	△5.6%
Cost of Sales	△484	△464	△430	△11.1%	△7.3%
Gross Profit	119	117	118	△0.3%	1.2%
(%)	(19.7%)	(20.1%)	(21.6%)	-	-
SG&A	△66	△73	△65	△1.3%	△11.2%
Operating Profit	53	43	53	1.1%	22.3%
(%)	(8.7%)	(7.5%)	(9.7%)	-	-
Non-OP and Loss	△7	△5	△2	△78.5%	△71.2%
Profit before tax	45	38	52	13.8%	35.6%
Net Income	35	26	38	8.7%	46.8%
(%)	(5.8%)	(4.5%)	(6.9%)	-	-
EBITDA Margin	11.4%	9.9%	12.8%	-	-

## Statements of Cash Flows

(unit : bwn)

Segment	'18.3Q	'19.3Q	YoY
Cash and cash equivalents at the beginning of year	262	456	194
Cash Flows From Operating Activities	127	173	46
Cash Flows From Investing Activities	92	△105	△196
Capex	△34	△51	△18
R&D	△9	△7	2
Others	134	△47	△180
Cash Flows From Financing Activities	△103	△104	△1
Effect of exchange rate changes on cash and cash equivalents	2	1	△1
Cash and cash equivalents	379	421	42

## Statement of Financial position

(unit : bwn, %)

Segment	3Q 2018	2Q 2019	3Q 2019	QoQ	YoY
<b>Total Assets</b>	<b>2,359</b>	<b>2,407</b>	<b>2,436</b>	<b>3%</b>	<b>1%</b>
Current Assets	1,553	1,497	1,543	△1%	3%
Cash&Cash Equivalents	379	414	421	11%	1%
Inventories	208	188	206	△1%	10%
Other Current Assets	965	895	917	△5%	2%
Non-Current Assets	806	909	893	11%	△2%
Tangible Assets	565	548	553	△2%	1%
Intangible Assets	116	125	125	8%	△0%
Other Non-Current Assets	125	236	214	71%	△9%
<b>Total Liabilities</b>	<b>1,129</b>	<b>1,088</b>	<b>1,077</b>	<b>△5%</b>	<b>△1%</b>
Current Liabilities	714	752	738	3%	△2%
Short-term borrowings	195	308	249	27%	△19%
Non-Current Liabilities	415	336	340	△18%	1%
Long-term borrowings	399	299	299	△25%	0%
<b>Equity</b>	<b>1,229</b>	<b>1,318</b>	<b>1,358</b>	<b>11%</b>	<b>3%</b>
<b>Current Ratio</b>	218%	199%	209%	△4%	5%
<b>Equity/Total Assets</b>	52%	55%	56%	7%	2%
<b>Total Liabilities/Equity</b>	92%	83%	79%	△14%	△4%
<b>Net debts Ratio</b>	18%	15%	9%	△46%	△36%



# Appendix 2. Results for the past 3 years

HQ

(unit : bwn)

Segment				16					17					18					19				Y-o-Y (4Q)
				1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	Total	
HQ	Electric Equipment	Sales	Domestic	95	101	102	101	399	115	111	109	100	435	111	107	106	95	419	109	103	105	317	△1%
			Overseas	61	62	55	57	235	59	61	56	55	230	52	56	50	57	215	52	68	64	184	29%
		Total		157	163	157	157	634	173	172	165	155	665	163	163	156	152	634	161	171	169	501	8%
		Operating Profit		36	36	37	33	142	40	36	37	26	139	34	32	30	25	121	31	35	34	101	16%
	Electric Infra	Sales	Domestic	64	82	105	141	392	90	106	131	120	447	134	115	107	161	516	90	115	113	318	6%
			Overseas	36	33	20	46	134	41	40	38	55	174	30	44	23	37	134	30	39	35	104	52%
		Total		100	114	125	187	526	130	147	169	175	621	164	159	130	198	650	120	154	148	422	14%
		Operating Profit		△5	0	△7	8	△4	0	2	13	14	29	14	10	4	17	45	1	0	△1	△1	△134%
	Automation	Sales	Domestic	46	48	47	45	186	48	49	51	44	193	54	56	48	49	207	44	47	47	138	△2%
			Overseas	26	23	19	20	88	24	24	26	20	94	26	21	21	18	86	21	21	19	61	△7%
		Total		72	71	66	65	274	72	73	77	64	287	80	78	69	67	293	65	68	66	199	△3%
		Operating Profit		9	6	6	6	27	8	10	12	6	36	11	12	9	9	40	5	6	7	18	△25%
	Convergence Business	Sales	Domestic	38	46	30	56	171	26	36	31	52	145	32	90	68	56	246	25	24	33	81	△51%
			Overseas	17	17	31	42	107	23	26	24	15	89	16	27	23	16	82	16	16	5	37	△77%
		Total		56	63	61	98	278	48	63	55	68	234	48	117	91	72	328	40	39	38	118	△58%
		Operating Profit		△10	△15	△11	△31	△67	△14	△9	△8	△28	△60	△8	1	△3	△21	△31	△9	△5	6	△7	284%
	Subtotal	Sales	Domestic	244	277	284	343	1,148	278	303	322	317	1,220	330	369	328	360	1,388	267	289	298	854	△9%
			Overseas	141	134	125	164	564	146	151	145	145	587	124	148	117	128	518	118	144	123	385	6%
		Total		385	411	409	507	1,712	425	454	467	461	1,807	455	517	445	489	1,905	386	432	421	1,239	△5%
		Operating Profit		29	27	25	16	97	34	38	53	18	143	50	55	39	30	175	28	36	46	111	18%

# Appendix 2. Results for the past 3 years

## Subsidiaries

(unit : bwn)

Segment				16					17					18					19				Y-o-Y (4Q)
				1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	Total	
Subsidiaries	LS Metal	Sales	Domestic	25	28	33	40	126	34	37	41	43	156	39	41	33	40	153	43	43	42	129	27%
			Overseas	45	36	29	37	147	49	39	37	43	167	48	38	38	46	169	31	38	25	95	△33%
		Total		70	64	62	77	273	83	76	79	85	323	87	79	71	85	322	75	81	68	223	△5%
		Operating Profit		1	1	△1	△0	0	0	△0	△1	1	△0	△0	△0	1	1	2	△2	2	△0	△0	△122%
	Subsidiaries (Korea)	Sales		10	11	13	25	58	16	22	19	16	72	15	15	17	13	59	10	15	9	33	△48%
		Operating Profit		△0	△0	1	2	2	1	3	2	1	7	2	2	1	△0	4	△1	△1	△1	△3	△251%
	Subsidiaries (China)	Sales		49	53	42	44	188	39	45	38	48	170	39	82	63	41	225	57	61	57	176	△9%
		Operating Profit		5	5	4	2	16	1	3	0	3	6	1	10	8	△2	16	5	9	5	19	△30%
	Subsidiaries (Vietnam)	Sales		0	0	0	0	0	0	0	0	0	0	4	6	6	13	29	6	10	5	21	△11%
		Operating Profit		0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	△1	0	△562%
	Subtotal	Sales		129	128	117	146	519	138	143	135	149	565	145	182	156	152	636	147	167	139	453	△11%
		Operating Profit		5	5	4	4	18	2	6	1	4	13	3	12	10	△1	23	3	10	3	16	△64%

## Consolidated

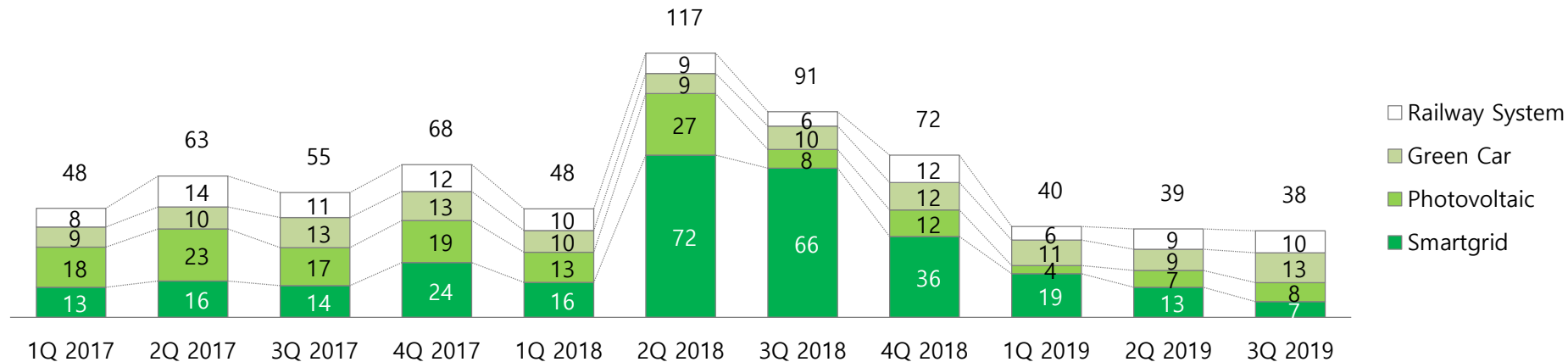
(unit : bwn)

Segment				16					17					18					19				Y-o-Y (4Q)
				1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	Total	
Consolidation adjustment for Sales				△12	△14	△2	10	△18	△3	△9	△11	△5	△29	△8	△39	1	△10	△56	△14	△18	△11	△44	△906%
Consolidation adjustment for OP				0	0	1	8	9	0	△0	1	1	3	2	△2	4	3	7	△2	△3	3	△1	△8%
Total Sales				501	525	524	663	2,214	559	588	591	605	2,344	592	661	602	630	2,485	519	581	548	1,648	△9%
Total Operating Profit				35	32	30	28	124	36	44	55	23	158	55	65	53	32	205	29	43	53	125	1%

# Appendix 3. Sales details for Convergence & Subsidiaries

## Convergence

(unit : bwn)



## Subsidiaries

(unit : bwn)

