



# **FUTURING SMART ENERGY**

**4Q 2018 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

# 4Q 2018 Total Results

**Sales 630bwn (YoY 26bwn increased), Operating Profit 32bwn (YoY 8bwn increased)**

**Electric Infra led to the Sales/ Sales profit increase**

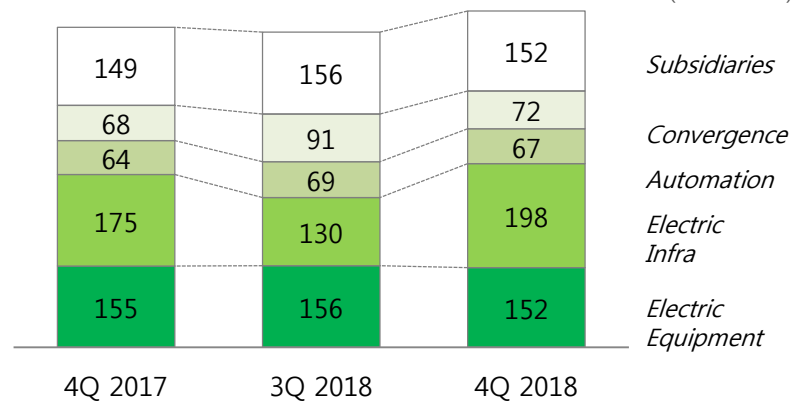
## Income Statement

(unit : bwn)

Segment	4Q 2017	3Q 2018	4Q 2018	YoY	QoQ
Sales	605	602	630	26	28
Operating Profit	23	53	32	8	△21
Profit before tax	24	45	23	△1	△22
Net income	16	35	14	△1	△21

## 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.

# 4Q 2018 Financial Position

**Total assets 2,406bwn (YoY 150bwn increased)**

**Total liabilities/Equity Ratios dropped 7%p (YoY, 92%→85%)**

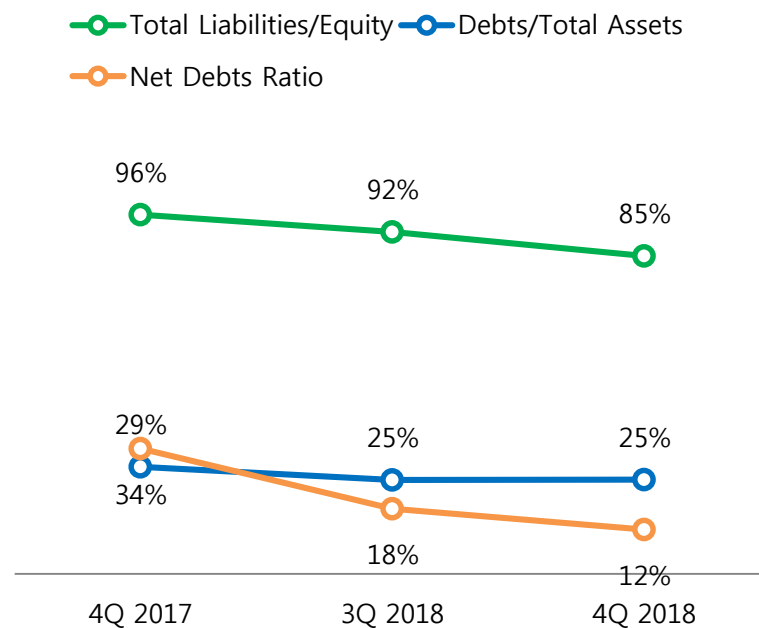
## Financial Statement

(unit : bwn)

Segment	4Q 2017	3Q 2018	4Q 2018	YoY	QoQ
Total Assets	2,256	2,359	2,406	150	47
Current Assets	1,416	1,553	1,536	120	△17
Cash & cash equivalent	262	379	456	194	77
Total Liabilities	1,108	1,129	1,108	1	△21
Debts	648	595	610	△38	16
Net Debts	387	216	155	△232	△61
Equity	1,148	1,229	1,297	149	68

## Financial Ratios

(unit : %)

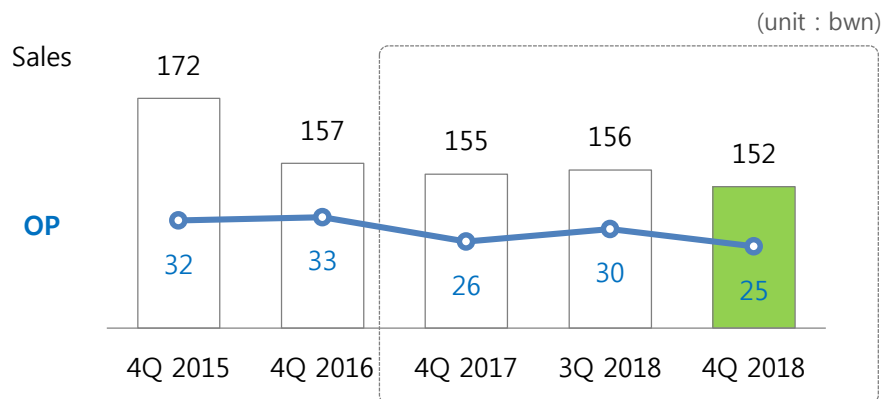


# Business Results & Outlook

**Electric Equipment – Sales increased in Domestic mkt & Vietnam mkt**

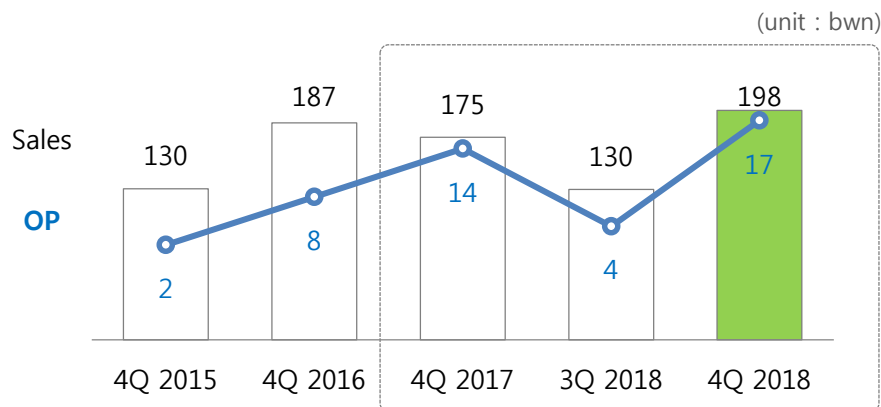
**Electric Infra – Sales profit increased due to SWGR and TR Sales in Domestic mkt (Chemicals)**

## Electric Equipment



- Sales decreased YoY 2%, OP decreased YoY 2%
  - Sales decreased by Domestic mkt
  - Sales increased in South-East Asia/North America
- For the 2019,
  - Strengthen Global DC Equipment mkt
  - Expansion into SE Asia mkt

## Electric Infra



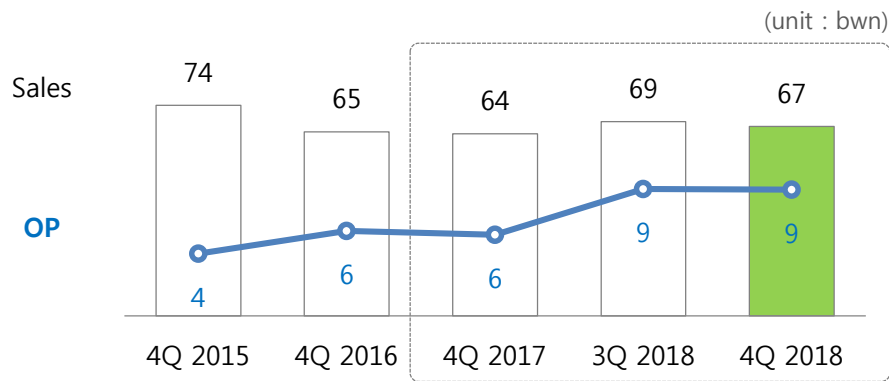
- Sales increased YoY 13%, OP increased YoY 24%
  - Domestic sales increased by demand in Chemical mkt
  - Increase profitability due to SWGR projects
- Expect to bid HVDC PJT in domestic & oversea mkt  
Jeju island, western Sea, Yang Ju PJT

# Business Results & Outlook

**Automation – Sales increased in Domestic (Machinery mkt )**

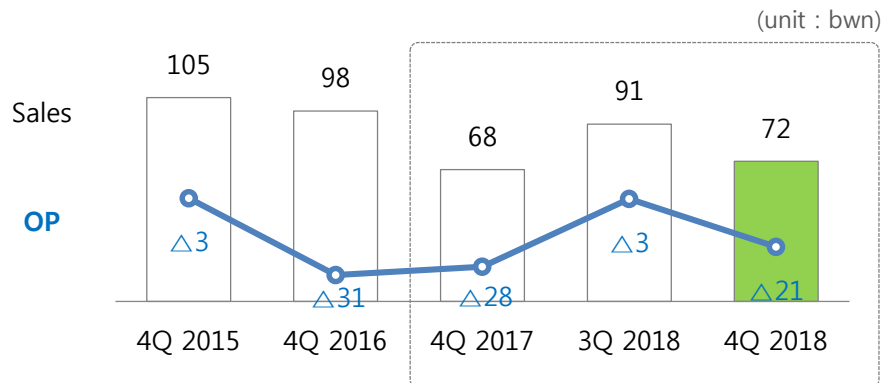
**Convergence- Sales increase in Smart-Grid (ESS) , EV components keep profit status**

## Automation



- Sales increased YoY 4%, OP increased YoY 51%
  - Sales increase in Domestic mkt (Machinery mkt)
  - Sales decreased in Overseas (Middle East - Iran)
- For the 2019,
  - Strengthen Overseas sales in Target Area (South-East Asia, North America)

## Convergence Business

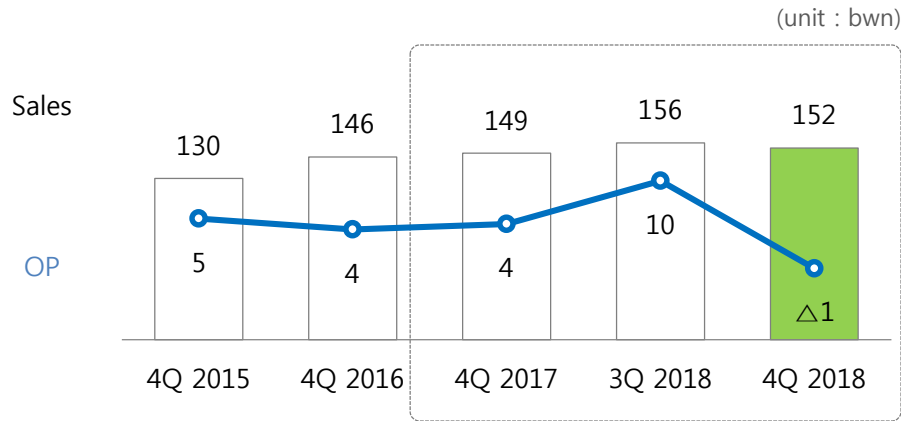


- Sales increased YoY 6%, OP increased YoY 23%
  - Sales increased Smart-Grid mkt (ESS)
  - Sales profit including PJT expenses
- For the 2019,
  - Expand floating Solar EPC (20~40MW Scale)
  - Expand Smart-Grid mkt (ESS system in Solar mkt)
  - Expand EV components in China mkt

# Business Results & Outlook

Wuxi & Dalian Sales decreased by Electric equipment / Korean PJT mkt  
LS Metal – Sales increased by strong demand in Copper & Stainless steel

## Subsidiaries



- Sales increased YoY 3%, OP YoY 128% decreased
  - LS Metals improved due to strong demand in construction and Electronic mkt
  - Wuxi performance decreased in Equipment mkt
  - Dalian sales decreased by Korean PJT mkt
- For the 2019,
  - LS Metals performance keep improving in Domestic mkt
  - Wuxi performance improving by better Electric Car mkt condition in China.

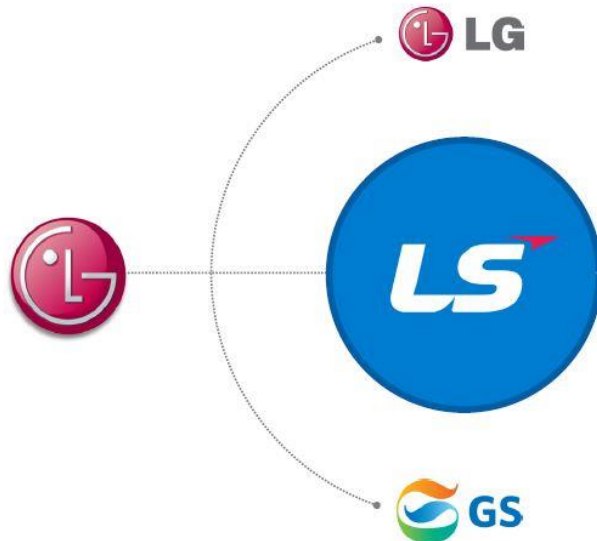


## II. Company & Business Introduction

## 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	2,344billion(KRW)
Employees	3,538
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 Semittech 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 ~)

**2017** Mar. Selected as one of the Top 100 patent application corp. in Europe  
Jun. Awarded the Best Korean Company Grand Award  
Oct. Completed the Solar Power Station in Hokkaido Japan

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

**2013** Apr. Awarded the Great Place to Work Award for 2 consecutive years  
May. Concluded contract for the transfer of HVDC technology, and partnered with KAPES and Alstom  
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



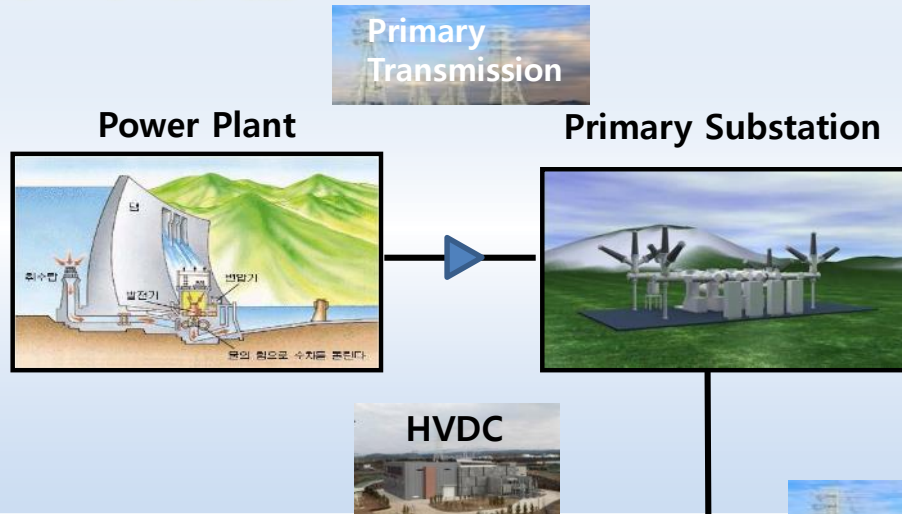
**2014** Jan. Launched new strategic automation product lines for A&D  
May. LSIS Vice Chairman Ja-kyun Koo Received Gold Tower Order of Industrial Service Merit  
May. Won the World's Largest Order for Smart Grid Project in Iraq  
Jun. Awarded the Best Korean Company Grand Award for 7 consecutive years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

**2016** Jan. Selected as one of the Top 100 Global Innovators by Thompson Reuters  
Mar. R&D campus achieved the first BEMS certification  
Jun. Awarded the Best Korean Company Grand Award  
Sep. R&D campus equipped ESS for emergency electric power supply

# 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)
- 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

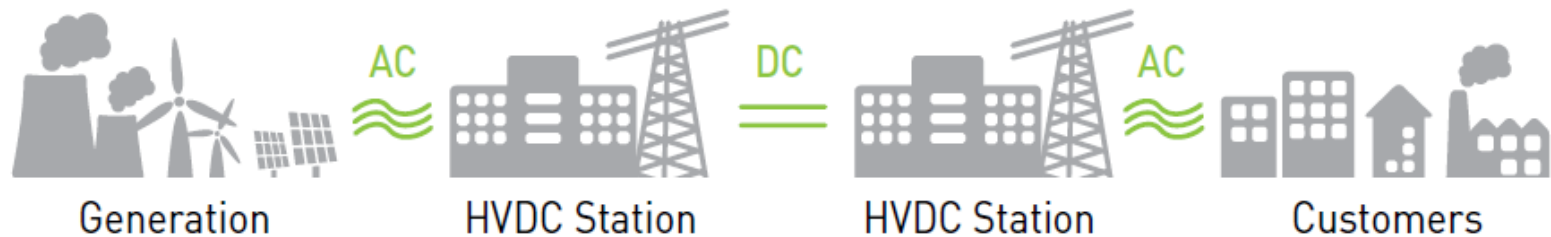


Railway System



# HVDC

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



## Long Distance Transmission with Lower Cost

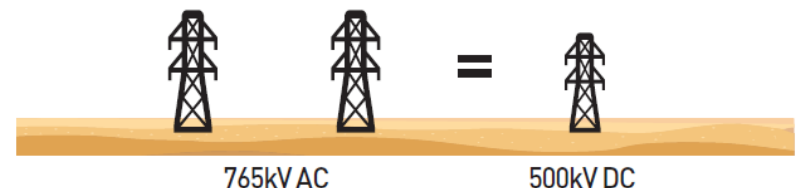
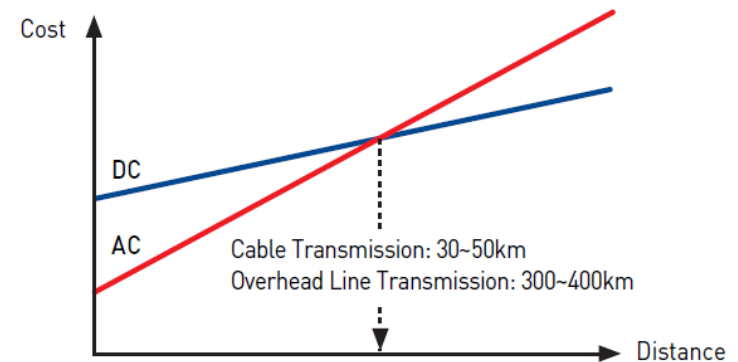
HVDC is the only option for the overhead transmission longer than 300km or submarine/underground 40km thanks to DC characteristics.

## 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

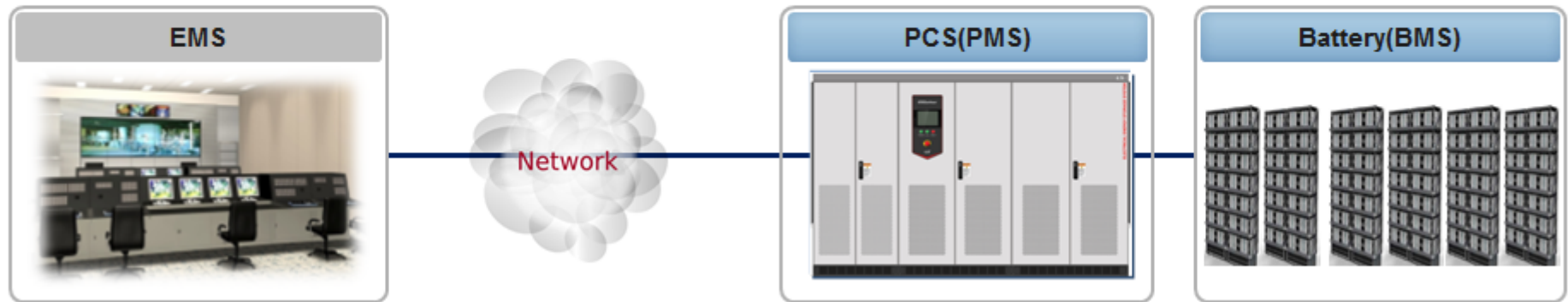
HVDC can directly interconnect load centers with huge energy sources efficiently. Therefore, negative impact on the grid is minimized. HVDC also improves the performance of AC grid by means of additional controllability.



# ESS Applications

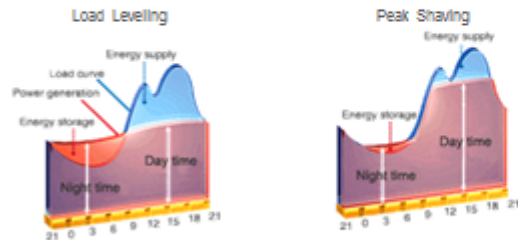
ESS(Energy Storage System) includes PCS(Power Conversion System) and battery, and make an efficient way of use electricity power

## Concept of ESS



## Function of ESS

➤ Peak Shaving, Load Leveling



➤ Renewable Energy Smoothing



➤ Frequency Regulation



• EMS : Energy Management System

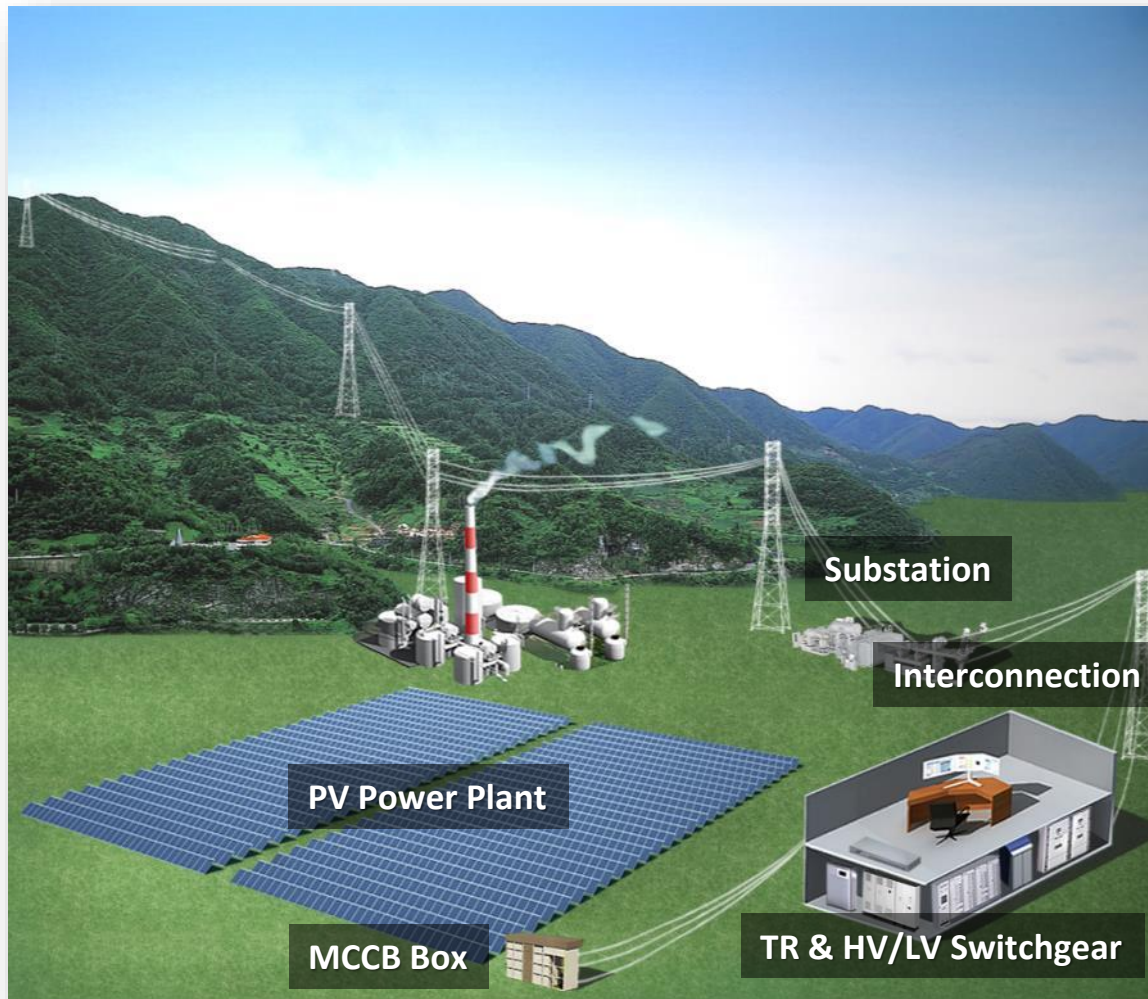
• PCS : Power Conditioning System

• 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

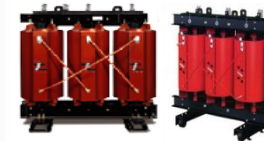


**PV Power System**

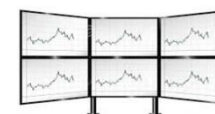
- Module
- Inverter
- Balance of System



- HV Switchgear
- MV Switchgear
- LV Switchgear



**Transformer**



**Monitoring(SCADA)**

# III. Appendix

# Appendix 1. Condensed Statement

## Income statement

(unit : bwn, %)

Segment	4Q 2017	3Q 2018	4Q 2018	YoY	QoQ
Sales	605	602	630	4.3%	4.6%
Cost of Sales	△505	△484	△525	4.0%	8.5%
Gross Profit	100	119	106	5.6%	△11.0%
(%)	(16.5%)	(19.7%)	(16.8%)	-	-
SG&A	△77	△66	△74	△3.5%	11.9%
Operating Profit	23	53	32	35.2%	△39.7%
(%)	(3.9%)	(8.7%)	(5.0%)	-	-
Non-OP and Loss	0	△7	△9	△8,217.0%	19.9%
Profit before tax	24	45	23	△2.4%	△49.3%
Net Income	16	35	14	△7.9%	△58.8%
(%)	(2.6%)	(5.8%)	(2.3%)	-	-
EBITDA Margin	8.0%	11.4%	7.2%	-	-

## Statement of Financial position

(unit : bwn, %)

Segment	4Q 2017	3Q 2018	4Q 2018	QoQ	YoY
<b>Total Assets</b>	<b>2,256</b>	<b>2,359</b>	<b>2,406</b>	<b>7%</b>	<b>2%</b>
Current Assets	1,416	1,553	1,536	8%	△1%
Cash&Cash Equivalents	262	379	456	74%	20%
Inventories	167	208	197	18%	△6%
Other Current Assets	988	965	884	△11%	△8%
Non-Current Assets	840	806	870	4%	8%
Tangible Assets	577	565	554	△4%	△2%
Intangible Assets	116	116	127	10%	10%
Other Non-Current Assets	146	125	189	29%	51%
<b>Total Liabilities</b>	<b>1,108</b>	<b>1,129</b>	<b>1,108</b>	<b>0%</b>	<b>△2%</b>
Current Liabilities	650	714	700	8%	△2%
Short-term borrowings	199	195	211	6%	8%
Non-Current Liabilities	458	415	408	△11%	△2%
Long-term borrowings	449	399	399	△11%	△0%
<b>Equity</b>	<b>1,148</b>	<b>1,229</b>	<b>1,297</b>	<b>13%</b>	<b>6%</b>
<b>Current Ratio</b>	218%	218%	219%	1%	1%
<b>Equity/Total Assets</b>	51%	52%	54%	6%	3%
<b>Total Liabilities/Equity</b>	96%	92%	85%	△11%	△7%
<b>Net debts Ratio</b>	34%	18%	12%	△65%	△32%

## Statements of Cash Flows

(unit : bwn)

Segment	'17.4Q	'18.4Q	YoY
Cash and cash equivalents at the beginning of year	340	262	△79
Cash Flows From Operating Activities	145	205	60
Cash Flows From Investing Activities	△164	67	231
Capex	△42	△37	5
R&D	△12	△11	1
Others	△110	116	226
Cash Flows From Financing Activities	△54	△81	△26
Effect of exchange rate changes on cash and cash equivalents	△5	3	8
Cash and cash equivalents	262	456	194

# Appendix 2. Results for the past 3 years

HQ

(unit : bwn)

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



# Appendix 2. Results for the past 3 years

## Subsidiaries

(unit : bwn)

Segment				16					17					18					Y-o-Y (4Q)
				1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	4Q	Total	
Subsidiaries	LS Metal	Sales	Domestic	25	28	33	40	126	34	37	41	43	156	39	41	33	40	153	△7%
			Overseas	45	36	29	37	147	49	39	37	43	167	48	38	38	46	169	8%
		Total		70	64	62	77	273	83	76	79	85	323	87	79	71	85	322	0%
		Operating Profit		1	1	△1	△0	0	0	△0	△1	1	△0	△0	△0	1	1	2	9%
	Subsidiaries (Korea)	Sales		10	11	13	25	58	16	22	19	16	72	15	15	17	13	59	△18%
		Operating Profit		△0	△0	1	2	2	1	3	2	1	7	2	2	1	△0	4	△136%
	Subsidiaries (China)	Sales		49	53	42	44	188	39	45	38	48	170	39	82	63	41	225	△14%
		Operating Profit		5	5	4	2	16	1	3	0	3	6	1	10	8	△2	16	△196%
	Subsidiaries (Vietnam)	Sales		0	0	0	0	0	0	0	0	0	0	4	6	6	13	29	
		Operating Profit		0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
Subtotal		Sales		129	128	117	146	519	138	143	135	149	565	145	182	156	152	636	3%
		Operating Profit		5	5	4	4	18	2	6	1	4	13	3	12	10	△1	23	△128%

## Consolidated

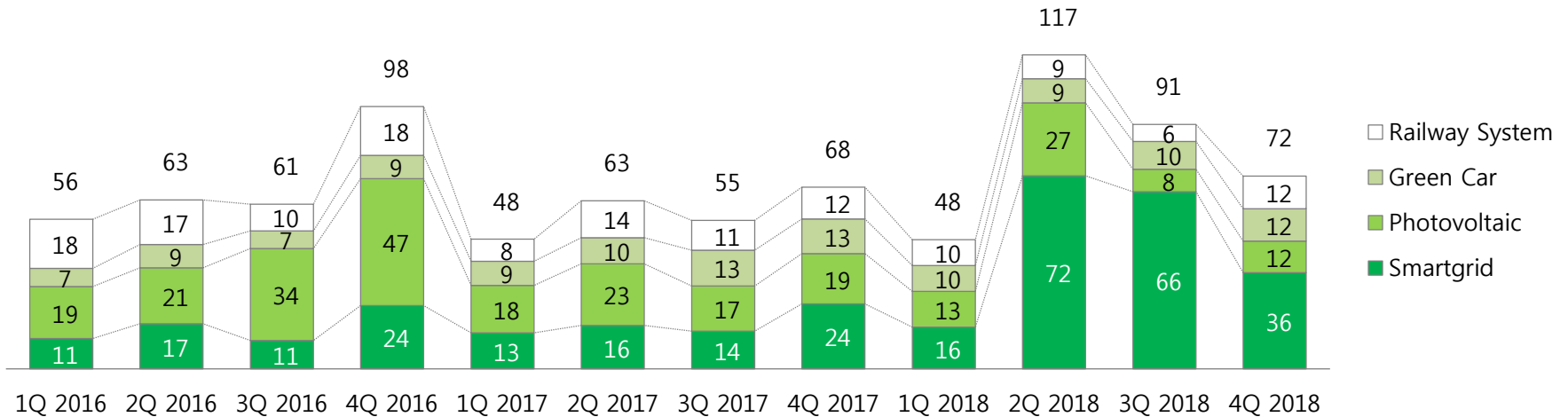
(unit : bwn)

Segment				16					17					18					Y-o-Y (4Q)
				1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	4Q	Total	1Q	2Q	3Q	4Q	Total	
Consolidation adjustment for Sales				△12	△14	△2	10	△18	△3	△9	△11	△5	△29	△8	△39	1	△10	△56	△92%
Consolidation adjustment for OP				0	0	1	8	9	0	△0	1	1	3	2	△2	4	3	7	112%
Total Sales				501	525	524	663	2,214	559	588	591	605	2,344	592	661	602	630	2,485	4%
Total Operating Profit				35	32	30	28	124	36	44	55	23	158	55	65	53	32	205	35%

# Appendix 3. Sales details for Convergence & Subsidiaries

## Convergence

(unit : bwn)



## Subsidiaries

(unit : bwn)

