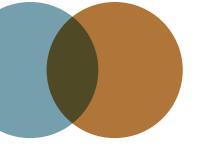
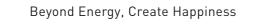
# Korea Western Power 2018

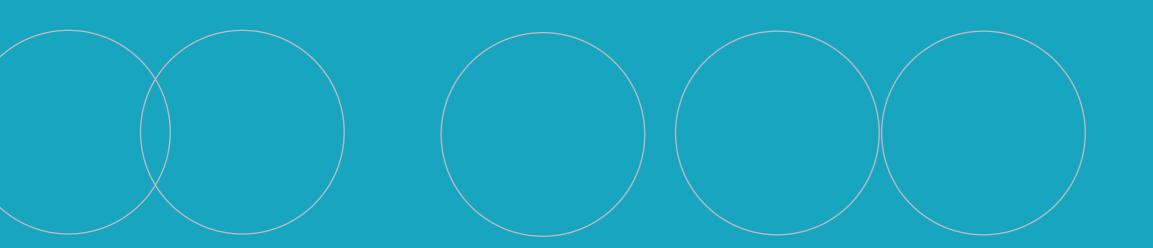


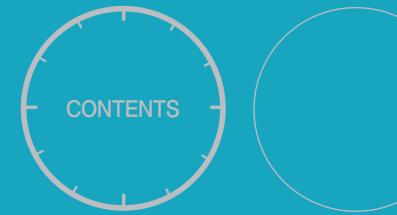












### • Introducing KOWEPO

- Message from CEO / 06
- History / 08
- Vision 2030 / 10
- Mission Statement / 12

### KOWEPO Business

- Domestic Business / 16
- Overseas Business / 18

### o KOWEPO Future Energy

- New Renewable Energy / 22
- 4<sup>th</sup> Industrial Revolution and R&D / 24

### Realizing Social Values

- Realizing Social Values / 27

Beyond Energy, Create Happiness

## **KOREA WESTERN POWER**



# A new dawn of Korea Western Power begins

Harmony of human technology and environment creating the greatest energy

# **KOWEPO** Vision 2030

All employees at Korea Western Power (KOWEPO) establish and execute mid to long-term management strategies to proactively adapt to fast-changing management environment and policies and create happiness for Korean citizens.

- Message from CEO
- History
- Vision 2030
- Mission Statement



President & CEO **Kim Byung Sook** Korea Western Power Co., Ltd

# Thank you for your concern and support for Korea Western Power.

Korea Western Power Co., Ltd (KOWEPO) is a public enterprise for power generation with the remarkabl growth every year since separated from Korea Electric Power Corporation (KEPCO) on April 2, 2001.

KOWEPO is operating and maintaining power generation facilities with a total capacity of 11,310 MW at four power complexes in Taean, Pyeongtaek, Seoincheon, and Gunsan, which is equivalent to 10% of nation's total facilities' capacity. We, more than 2,350 employees are doing our best to enhance national economic development and national life by providing stable and economical high-quality electricity.

In line with the government's policy for expanding new and renewable energy generation, we plan to increase the percentage of new and renewable energy generation up to 20% of our gross generation by 2030, and we are also making efforts continuously to develop new overseas businesses for the next growth engine. We are involved in power plant construction & operation all over the World such as Indonesia, Laos, Myanmar, and India.

KOWEPO pursues the harmony between human and environment. We plan to drastically enhance the environmental facilities of coal-fired power plants and adopt new technologies to reduce 61% of pollutant emission of fine dusts by 2025 compared to 2015.

In addition, we will create a healthy business eco-system through mutual growth and co-existence with business partners and become a good neighbor for local community through various social contribution activities.

We ask for your continuous interest and participation for our company.

Thank you.

Nov

Jun Jul Aug

Sep

Oct

0



# Solution

### Business Strategy

Branding Solution Marketing Analysis Ideas Success Managemen

Innovation Branding Solution Marketing Analysis Ideas Success Management

SOCIAL NETWORK

Dec





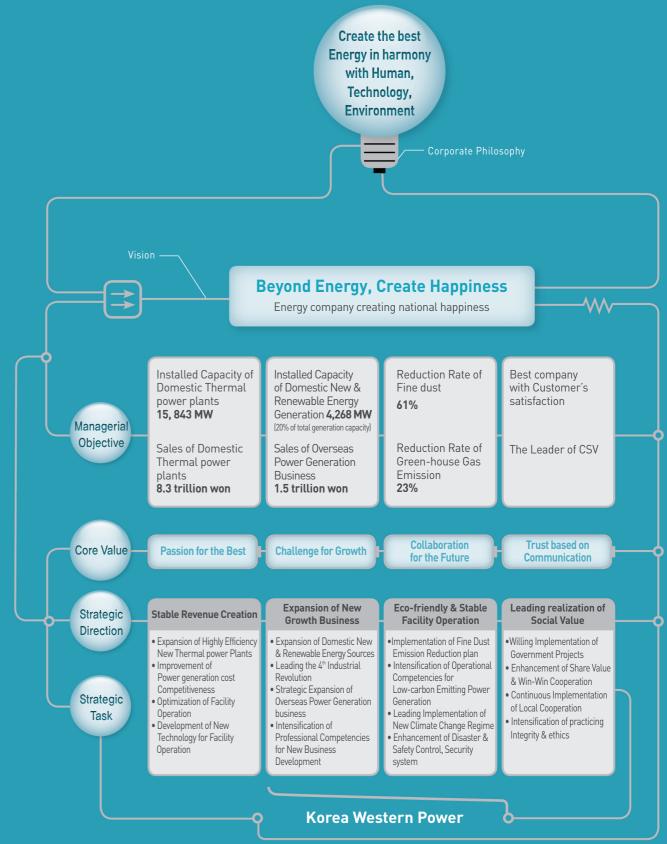
0

- **11** Groundbreaking Taean Units 7 & 8
- **11** Won the Presidential Prize at National Quality Awards

- 12 Won the Grand Prize at Safety Management

**08** MOU singed on Laos electric power joint development project **10** MOU signed on power plant construction and O&M participation with the 'Pioneer', India

# **KOWEPO Vision 2030**



### [ Mission Statement ]

KOWEPO is a future-oriented 'energy corporation', and it provides a new strategic direction to create happiness for Korean citizens. Based on a 'Stable Profit Creation' from its key business sectors, it is growing into an eco-friendly global energy powerhouse through 'Expansion of New Growth Business'. By 'Eco-friendly & Stable Facility Operation' in response to an energy paradigm shift and 'Leading realization of Social Value', KOWEPO will fulfill its social duties as a public enterprise trusted by its people.



### **Stable Revenue Creation**

- Expansion of Highly Efficiency New Thermal power Plants
- Improvement of Power generation cost Competitiveness
- Optimization of Facility Operation
- Development of New Technology for Facility Operation

We will cement our foundation for sustainability and future growth through strengthening

### Eco-friendly & Stable Facility Operation

- Implementation of Fine Dust Emission Reduction plan
- Intensification of Operational Competencies for Low-carbon Emitting Power Generation
- Leading Implementation of New Climate Change Regime
- Enhancement of Disaster & Safety Control, Security system

Responding proactively to the needs of our time in the power industry such as environment friendly and safety issue,, we will secure our business sustainability based on Korean citizens'



### **Expansion of New Growth Business**

- Expansion of Domestic New & Renewable Energy Sources
- Leading the 4th Industrial Revolution
- Strategic Expansion of Overseas Power Generation business
- Intensification of Professional Competencies for New Business Development

Based on stable profit, we will secure a momentum for future growth through preemptive investments in preparation for changes in the



Leading realization of Social Value

- Willing Implementation of Government Projects
- Enhancement of Share Value & Win-Win Cooperation
- Continuous Implementation of Local Cooperation
- Intensification of practicing Integrity & ethics

We will strengthen our duty to the society as a public enterprise for proactive compliance to government policies and sharing values with

KOWEPO, the exemplary public energy enterprise

# Current Status and Domestic & overseas business plan

A time to begin a new day as the dawn breaks. Beyond Korea's public energy enterprise creating happy energy for Korean citizens, KOWEPO strives to be a new global energy powerhouse.

KOWEPO creates happy energy that ignites an energetic morning.

1111111

**WP** 한국서북

RA 83:00





### [Domestic Business]

KOWEPO is operating 4 power generating complexes in Taean, Pyeongtaek, Seoincheon and Gunsan, and about 2,300 executives and employees are working very hard to supply quality power in stable, economical ways.



# Mecca of Korean Thermal Power Complexes Taean Thermal Power Complex Division

The largest thermal power complex in Korea, Taean Division is a key power plant for KOWEPO accounting for about 57% of KOWEPO's total installed capacity with state-of-the-art automated control facility. Having implemented the new cyclone desulfurization and dust collection technology for the first time in Korea to reduce fine dust, it is striving to realize an eco-friendly power plant. It is considered the Mecca of thermal power plants in Korea through building Taean IGCC, Korea's first coal gas thermal power plant (Aug '16) and Korea's largest Taean Units 9 and 10 (Oct '16 and Jun '17), contributing to creating KOWEPO's future growth momentum.

No. of Units

11

Installed Capacity 6,446 MW



Largest Eco-friendly Hub Power Plant in Greater Seoul Area

### Pyeongtaek Thermal Power Complex Division

Pyeongtaek Thermal Power Complex Division is the largest hub power plant in the Seoul metropolitan area, contributing to generating power for Korea's electricity industry through stabled power generation. The quality power generated at Pyeongtaek is supplied mostly to the Greater Seoul area and used to stabilize power supply and maintain system frequency. Striving to contribute to the society through generating the best energy through harmony among people, technology and environment, Pyeongtaek Division will take on the challenge to be the new center to lead the looming age of the northwestern sea in the 21st century based on stable power generation and eco-friendly facility operation through securing trust for power facilities and reducing production cost.

No. of Units

7

Installed Capacity





### A clean fuel power plant using LNG Seoincheon Combined Cycle Power Complex Division

A certified 'green corporation' eco-friendly power plant that uses LNG, a clean fuel, as its main fuel, Seoincheon Power Complex hardly creates any environmental pollution, and its load follow that can flexibly respond to electric supply requests and a quick unit commitment capability contribute to a stable operation of the power system. Along with a heat supply project that provides heating to 100,000 households in Cheongla, Shinhyeon and Gimpo, it operates 15 MW of fuel cell, 1.2 MW of solar energy, and it will play a pivotal role in Seoincheon by securing 35% of new renewable energy ('21).

No. of Units

16

Installed Capacity

**1,800** MW



### A city power plant coexisting with local community Gunsan Combined Cycle Power Division

Gunsan Combined Cycle Power Division is an eco- friendly power plant using LNG as its fuel to account for 30% of power demands in the North Jeolla region. Though built in the middle of a populous city, it employs strict environment management and clean fuel, perfectly solving environmental concerns and contributing to the local economy. It has applied G-Class gas turbine for the first time in Korea which also makes it a power plant with the highest power generation efficiency in Korea. Gunsan Combined Cycle Power Division will continue to grow as a prop to the Saemangeum area which is surfacing as the economic center of Southeast Asia.

No. of Units

3

Installed Capacity 718.4 MW

### [Overseas Business]

In order to respond preemptively to the fast-changing management environment, KOWEPO is actively promoting projects outside Korea. Through expanding the existing foothold for growth such as securing a new platform to advance to global markets, KOWEPO is creating a diversified profit-generating structure for the future.



### • Export World's Best Power Plant Operation Capacity

Having analyzed the global energy consumption trend based on its experience in operating a worldclass power plant, KOWEPO has been focusing its resources on coal and gas power generation for which a sustained consumption increase is expected, hydroelectric generation which is thought to create stable revenue, power plant operation and maintenance (0&M) which can maximize profit with minimum investments using core resources, pilot operation business, aging power plant rehabilitation operation maintenance and management (ROMM) business and construction management (CM) business using in-house personnel.

### • Expand Sales in Overseas business

Currently operating and developing 12 business sectors outside Korea in 9 countries including Australia, Saudi Arabia, Laos, Indonesia and Panama, KOWEPO is improving facility operation rate by training local personnel in Korea, conducting routine field inspections, and providing real-time technical support, preventing facility malfunctions and shutdowns. Based on successful construction of a combined complex (388MW) in India and a hydroelectric plant (410MW) being built in Pakse, Laos, KOWEPO is promoting a new large-scale hydroelectric project (728MW) along the Mekong River. Also, based on amicable bonds with the local community in Laos, KOWEPO is evaluating additional projects, anticipating a subsequent increase in global sales.

### Expand Projects Based on Existing Footholds

KOWEPO is analyzing risks and opportunities, working hard to expand market share in markets with a high growth potential. One area of focus is maximizing integration effect of investments and 0&M projects. On that note, KOWEPO has selected Indonesia as the initial target to expand power generation 0&M orders in Indonesia leveraging maintenance personnel and materials at Sumsel-5 0&M, Indonesia which have been already secured.

### Advance to Global New Renewable Energy Arena

Actively utilizing the recently surging global IPP market, KOWEPO is making bold strides into the global new renewable energy projects; KOWEPO is promoting large-scale projects in Vietnam including a solar panel project (204MW) and wind power project (48MW), a wind power project (50MW) in Iran for the Middle East and a geothermal power (35MW) 0&M project in Kenya for Africa. In response to the current global trend, KOWEPO is expanding its territory not only in Southeast Asian growth footholds such as Laos and Vietnam, but it is also advancing to the biomass power project (100MW) in Japan. Also, KOWEPO is the first power generation company to advance to the Australian power market (110MW in solar energy), making bold steps into strong and new global new renewable energy markets to diversify revenue structure.

Colon CCPP Commissioning, Panama

0



Maharashtra Complex, India

Xe Namnoy Hydroelectric, Laos

Sumatera Selatan-5 0&M, Indonesia

Rabigh O&M, Saudi Arabia

# **KOWEPO** leads **future-oriented energy business** for tomorrow

As a public energy enterprise, KOWEPO will fulfill its public duty with a new renewable energy roadmap 3020 for a transition into safe, clean energy. Surfing over the wave of the 4<sup>th</sup> Industrial Revolution with early investments and R&D, KOWEPO is fulfilling the dream of a future-oriented energy company.

• 4<sup>th</sup> Industrial Revolution and R&D

Preparing cleaner, purer energy for tomorrow

# New Renewable Energy, 4<sup>th</sup> Industrial Revolution and R&D

### [New Renewable Energy]

### • Develop Large-scale New Renewable Energy Customized for Each Region

About 70% of Korea's land is mountainous, which is not conducive to expanding solar energy. It takes about 4 acres of land to create 1MB of solar energy, and areas with great wind conditions are either natural ecology protection area or part of the Bakdudaegan Mountain Range, ineligible for development. For effective development of the Korean territory and increasing resident acceptance, KOWEPO is focusing on large-scale offshore solar panels customized for each region and offshore wind power plants. It is promoting co- development efforts with public institutions through signing an offshore wind power facility development MOU with Jindo-gun and a 150MW offshore wind power facility MOU with Wando-gun.

### **RPS** Details

Energy Source	Project	Capacity (MW)	Completion
	Gunsan Solar Power (RPA)	0.265	2010.07
	Taean Building Rooftop Solar Power	0.556	2012.01
	Sejong city Solar Power	5.004	2012.06
	Ansan Solar Power	2.501	2012.12
	Youngam F1 Solar Power	13.296	2012.12
	Pyeongtaek Solar Power #2	0.455	2014.11
	Taean Floating Solar Power	1.836	2016.05
Solar Power	Pyeongtaek Solar Power #1	2.220	2017.05
	Seoincheon Solar Power #1	1.100	2017.06
	Taean Solar Power #1	1.884	2017.06
	Seokjeong Solar Power	0.198	2017.10
	Gunsan Solar Power #2	0.686	2017.11
	Saebit Solar Power	0.129	2017.11
	Seoincheon Solar Power #2	0.090	2017.11
	Taean Solar Power #2	9.988	2017.12
Wind Power	Hwasun Wind Power	16.000	2015.11
Biomass Co-Firing	Taean #3,4 Bio-SRF	75.000	2015.12
	Taean #1~4, 7, 8 Wood Pellet	90.000	2014.01
	Pyeongtaek #1~4 Bio-Heavy Oil	70.000	2014.03
Fuel Cell	Seoincheon Fuel Cell #1	11.200	2014.08
	Seoincheon Fuel Cell #2	5.005	2016.04
ESS	Hwasun Wind Power ESS	1.250	2015.11
	Sejong City ESS	1.000	2017.04
IGCC	Taean IGCC	346.000	2016.08
Total		655.661	

### Establish New Renewable Energy Roadmap 3020

For a transition into safe, clean energy, the Korean government is promoting a policy to expand the ratio of new renewable energy to total energy to 20% by 2030. In response to the government policy, KOWEPO as a public power corporation has put together the 'New Renewable Energy Roadmap 3020'. Among the total thermal power generated by KOWEPO of 57,768GWh by 2030, KOWEPO seeks to supply 20% (14,486GWh) in new renewable energy. For this goal, KOWEPO is planning on expanding the installed capacity for new renewable energy to 4,268MW.

**NEW RENEWABLE ROADMAP 3020** 



### Establish Onshore Wind Power Belt

For diverse new renewable power developments, KOWEPO is promoting a construction of a new renewable complex by building an onshore wind power belt. With the construction of Hwasun Wind Power facility in 2015 as a start, KOWEPO has responded to the government's system stabilization policy through an ESS connection of the onshore wind power facility.

### Promote Offshore Wind Power in Southwestern Sea 0

Along with 6 other power generation companies, KOWEPO has consolidated the capacities of Korean companies related to offshore wind power through developing a offshore wind power facility in the Southwestern Sea of Korea, creating a newly growing industry for Korea. The new facility is expected to produce 6,680GWh a year starting in 2023, which is the final diffusion stage. KOWEPO is making efforts to create values for the local community and environment by using Korean-made components as much as possible and minimizing environmental impact of the facility.



Bitgoeul Renewable Solar Power Plant in Gwangju Sewage Disposal Plant



Aerial View of Lee Won Ho Offshore Solar Power Plant

Seoincheon Hydrogen Fuel Cell

Solar Power Plant in Youngam F1Circuit



Taean Offshore Solar Power



un Wind Power Generati



### [4<sup>th</sup> Industrial Revolution and R&D]



### O Realize Smart Power Plants

In order to realize the WP-Smart Plan in response to the 4<sup>th</sup> Industrial Revolution, KOWEPO is conducting a continuous work innovation including building M&D (maintenance and diagnostics) centers for big data-based power generation facilities, expanding areas that use drones such as new renewable energy facilities inspection, developing virtual training system and smart inspection system. In addition, KOWEPO is planning on developing and implementing integrated technologies that make efficient operations possible including new ICTs and new power generation technologies to lead the 4<sup>th</sup> Industrial Revolution in Korea.

### • Create a Bond of Sympathy for 4<sup>th</sup> Industrial Revolution

In an effort to maintain all employees' understanding of the progress of the industrial revolution and major technologies and create a bond of empathy for realizing smart power plants, KOWEPO is continuously providing seminars and symposiums to introduce the 4th industrial revolution progress, internet of things (IoT), artificial intelligence (AI) and augmented/virtual reality (AR/VR), elevating its capacity.

### Lead Korean Gas Turbine and Custom Distributed Power Facility Technology

of the gas turbine technology acquired through consistent R&D. various integrated power generation research.

### • R&D in Five Core Technologies

KOWEPO has established the 'Five Core Technology Development' roadmap, a mid to long-term technology development strategy to focus on expanding mid to long-term R&D investments and developing core technologies, focusing on research and development. Upon selecting power generational facility operation technology, gas turbine localization technology, IGCC operation and connection technology, new renewable energy application technology and ecofriendly resource recycling technology as the five core technologies, KOWEPO is conducing open R&D project partnering with the industry, academy and the government.



Smart Mobile Safety Check System

KOWEPO is engaging in government-run projects to develop large-scale high-efficiency gas turbines to brings the combined thermal gas turbine technology to its feet which is responsible for over 100 units in Korea, and after a successful combustion test in 2015, it is about to secure the original O&M technology

Also, KOWEPO has developed a Korean integrated gasification combined cycle (IGCC) technology, which was acknowledged as a new energy technology and selected for a government-funded project. Currently, the IGCC facility is being perfected as a core technology to advance to the international market through

Safety checks using drones

Aerial View of Lee Won Ho Offshore Solar Power Plant

With Shared Energy for Better Tomorrow" as our social contribution vision, KOWEPO is fulfilling its corporate responsibility to create a warm world where people live along and get along.

Fulfilling corporate social responsibility **Realize social values** 

Beyond creating happiness for Korean citizens, KOWEPO is striving to realize a world where creating shared values and fulfilling corporate social responsibilities as our top priorities. Through invigorating local economy and supporting small and medium-sized companie preparing a brighter, warmer tomorrow



### [Realize Social Values]

### • Establish Coexisting Partnership with Small and Medium-sized **Corporations**

We at KOWEPO think that the true corporate competitiveness comes from the network of the entire corporate network including affiliates and partners. With that said, KOWEPO is creating a culture of coexistence with local and small and medium-sized corporations based on a vision 'From cooperation to coexistence'.

- Implemented The mutual growth payment system (about 1,600 cases, 300 billion won payed in 2017)
- Supported small and medium-sized corporations through 'Naeil Chaeum' mutual-aid project (132 applied in 2017; 30 additional applicants expected each year. reaching 222 in 2020)
- Technology protection service (overall package including technology protection diagnostics, consulting and technology leak prevention)
- Industrial innovation (supported small and medium-sized corporation in production innovation; 120 companies have participated through task execution 5<sup>th</sup> Year)

### • Create Good Jobs and Support Young Startups

KOWEPO has established a 'Two-track Strategy' for the public and private sectors, planning on creating over 60,000 jobs in the private sector and about a thousand jobs in the public arena by 2022.

Also, through an industry-academy-government business agreement to nurture talents of the local community, KOWEPO is creating new jobs for young adults along with various projects and programs such as young

- Created 'Good Job Creating Team'
- Chungnam industry-academy government business agreement
- 'Al-Sseul-Shin(new)-Job(Job) contest'
- Young adult startup contest

adult startup contest.







### Create Shared Values for Local Community

After relocating its head quarter to Taean in 2015, KOWEPO has been working hard to be a company that is loved and trusted by local residents. For this reason, KOWEPO has established various measures to realize social values such as creating sustainable jobs, growing local economy, constructing a local community welfare infrastructure and expanding social service regions.

- Happy Weepy School (Mentoring project for local students)
- Weepy Social Flower (Finding a market for flower farm & Emotional support program for welfare agency)
- Weepy Dream Book Hope-Sharing Project (The Project for Improving Educational environment in Community Child Center)
- Build smart farm horticultural complex using thermal effluent from power plant

### Establish KOWEPO Social Volunteer Corps

Since established in August 2004, KOWEPO Social Volunteer Corps has been actively supporting local communities in a systematic, continuous fashion. Under the slogan 'Happy energy, Loving neighbor,' the corps is working ceaselessly to create a brighter, healthier society by helping and sharing love with one another.

- 'Dream beyond Dream' career mentoring
- Didim Seeat bank account
- Establish 'Love Sharer' fund - Support local cultural performing arts
- Support traditional market visits





Visiting Traditional Market on Korean Thanksgiving



- Social service activities in each power plant for respective local communities



Field day for Taean Community Child Co



### Consolidated statements of financial position

(Units: KRW 100 million and %)

Classification	End of 2017	End of 2016	Gain & Loss	Gain & Loss Rate
Assets	96,287	97,931	△ 1,644	<b>△ 1.7%</b>
Current Assets	10,661	11,749	△ 1,088	<b>△</b> 9.3%
Non-current Assets	85,626	86,182	△ 556	<b>△</b> 0.6%
Liabilities	57,463	58,698	△ 1,235	<b>△ 2.1%</b>
Current Liabilities	12,974	16,505	△ 3,531	△ 21.4%
Non-current Liabilities	44,489	42,193	2,296	5.4%
Equity	38,824	39,233	<b>△ 409</b>	∆ <b>1.0%</b>
Paid-in Capital	12,729	12,729	-	-
Earned Surplus	26,392	25,934	458	1.8%
Other Capital Components	△ 360	507	△ 867	△ 171.0%
Non-controlling Interests	63	63	-	-

### Consolidated Statements of Income

...

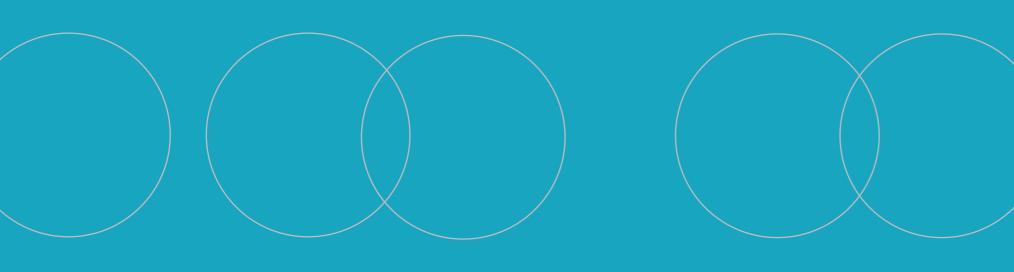
Classification	2017	2016	Gain & Loss	Gain & Loss Rate
Sales Revenue	42,224	41,798	426	1.0%
Electricity Sales Revenue	40,764	40,804	△ 40	<b>△</b> 0.1%
Subsidiary Business Revenue	1,460	994	466	46.9%
Cost of Sales	37,488	34,870	2,618	7.5%
Cost of Materials	27,311	26,121	1,190	4.6%
Payroll	1,894	1,509	385	25.5%
Expenses	8,283	7,240	1,043	14.4%
Gross Profit	4,736	6,928	△ 2,192	<b>△ 31.6%</b>
Selling & Admin. Expenses	1,121	1,042	79	7.6%
Business Profits	3,615	5,886	△ 2,271	<b>△ 38.6%</b>
Other Profits & Expenses	△ 108	82	△ 190	△ 231.7%
Financial Profits & Losses	△ 1,388	△ 723	∆ 665	∆ 92.0%
Affiliate-related Profits & Losses	∆ 630	△ 132	∆ 498	△ 377.3%
Pre-tax Profits	1,489	5,113	∆ 3,624	△ 70.9%
Net Revenue in Current Term	1,028	3,932	∆ <b>2,90</b> 4	<b>△ 73.9%</b>

. . . .

.  International Credit Ratings







KOREA WESTERN POWER CO., Ltd.