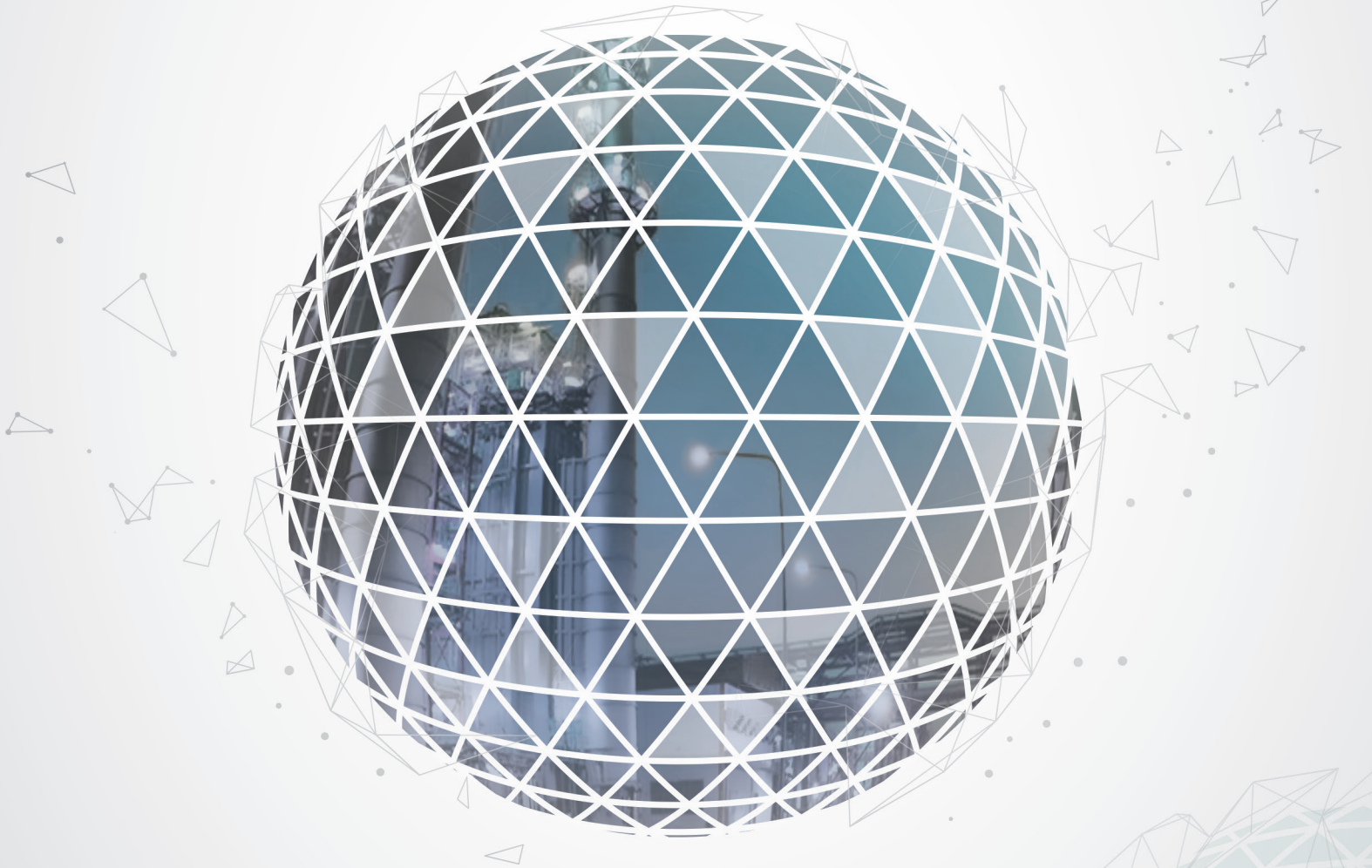


# 2019 KOMIPO SUSTAINABILITY REPORT



## About This Report

KOMIPO has issued sustainable management reports every other year since 2006 and shared its activities and major achievements with stakeholders. This report is the seventh sustainable management report of KOMIPO and includes financial achievements as well as non-financial achievements to create social values.

**Reporting Principles** Prepared in accordance with the Global Reporting Initiative (GRI) Standards to fulfill the requirements of the core option (in accordance with) regarding the 'Principles for Defining Report Content' and the 'Principles for Defining Report Quality'

**Reporting Scope** Domestic business sites (headquarters and Boryeong Power Generation Site Division, etc.), including overseas business sites within a limited scope

**Reporting Period** Focus on activities and performance from Jan. 1, 2017 to Dec. 31, 2019. The details of major management activities are included in the whole of 2019. For quantitative results, data for at least two years (2017 - 2019.2Q) is provided to enable analysis of trends by year

**Independent Assurance** Third-Party Assurance Statement

**Reporting Frequency** Biennial reporting

**Disclosing Principles** Disclosed at all times via the website (www.komipo.co.kr)

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**Letter from CEO**



Dear Valued Stakeholders,

I would like to express my sincere appreciation to our stakeholders for their unwavering interest and support. In the past year, KOMIPO had accomplished meaningful results because of your attention and encouragement. First off, we received Grade A, the highest grade in management evaluation of the government ever since the designation as a market type public enterprise in 2011. We also produced various tangible outcomes, such as the selection of the best institution in the integrity evaluation from the Anti-Corruption & Civil Rights Commission for four consecutive years, entry into the European wind power market for the first time among Korean companies, and creation of the largest ground power (AMP) infrastructure among power generators. In terms of social values, KOMIPO achieved the highest grade of shared growth evaluation by the Ministry of SMEs and Startups for four consecutive years and recorded the highest reduction of air pollutant emissions among five power generation companies. Moreover, KOMIPO showed some important performances in the history of power generation in Korea, such as the construction of the world's first large-capacity urban underground power plant and the world's longest trouble-free operation (Boryeong Power Generation Site Division, 6,600 days).

Despite such results, the latest power market is exposed to a rapidly changing management environment caused by the launching of a new climate regime, the shutdown of old coal-fired power plants, and the increase of fuel prices. Accordingly, KOMIPO strives to prepare for proactive responses to risks and to develop future growth engines. We will settle down as a public energy enterprise trusted by the people by focusing on the following strategies and promoting continuous growth in the changing market.

**First, we will lead eco-friendly energy businesses.**

The international society is paying attention to the global environment with the launching of a new climate regime, 'The Renewable Energy 3020' policy of the government, and 'The Comprehensive Action Plan on Fine Dust'. KOMIPO has established the 'The Renewable Energy 3020' road map and is securing competitiveness in new and renewable energy by developing large-scale photovoltaic and wind power complexes, pioneering resting energy through multilateral collaboration, conducting new and renewable, hydrogen convergence businesses, and discovering resident participatory new and renewable energy businesses.

Furthermore, we make efforts to cope with the Special Act on Fine Dust and the environmental demands of residents. We plan to reduce our coal-fired air pollutant emissions by 80% until 2025 compared to 2015, investing about KRW 1.8 trillion and managing the life cycle of fuel in an eco-friendly manner through the improvement of the latest environmental facilities, increased purchase of ultra-low sulfur coal, transition of transport vessel fuels to low sulfur coal, and use of indoor coal yards.

**Second, we will supply secure and stable power.**

The duty of KOMIPO is to supply high-quality and stable power. KOMIPO has developed a failure prediction system based on big data with an accuracy of 98.4% to increase the reliability of its facilities. In addition, we manage our power generation facilities in an organized way by conducting predictive maintenance and analyzing vulnerabilities.

Such efforts to supply stable power become meaningless if the safety of our workers and partners cannot be ensured. KOMIPO responds actively to human accidents by operating a human-centered safety management system. We endeavor to prevent large-scale accidents from human mistakes by prohibiting unskilled workers from working alone, promoting zero hazardous chemicals at the site, and creating fool-proof work sites. We reduce risk factors by engaging in active communication with partners. There are various efforts to promote human-centered safety management, such as safety measures to increase the safety of partners and vulnerable workers, support of safe technologies, and safety education on employees of partners.

**Third, we will attain social values as a public energy enterprise.**

KOMIPO is an energy enterprise. We contribute to the development and inclusive growth of communities in all areas including society, economy, environment, and culture by fully utilizing our core capabilities and resources. We set forth three strategic directions to create high-quality jobs, which include the establishment of a job management system, spreading of job creation efforts, and improvement of employment quality. We have a variety of tasks in place, such as the growth of socioeconomic enterprises, encouragement of innovative startups.

We also contribute to vitalizing the regional economy by promoting regional cooperation businesses accommodating the local needs, implementing regional social contribution programs. KOMIPO identifies and fulfills the needs of local communities overseas as well. We strive to satisfy residents by creating shared values with customized businesses, such as the supply of cook stoves in Bangladesh, development of a mangrove forest on the coast of Cirebon, Indonesia, and improvement of educational infrastructures in underprivileged areas.

**Fourth, we will practice fair and transparent management.**

KOMIPO has been acknowledged for its integrity and transparent ethical management by achieving the highest score as the best institution in the integrity evaluation four consecutive years since 2016 and receiving the grand award in the category of integrity management for two consecutive years at the Global Standard Awards. In addition, we are improving human rights vulnerabilities by declaring the Human Rights Management Charter, launching the Human Rights Management Committee, and performing human rights impact assessment.

Under the banner that 'The integrity is the Organization's Life,' KOMIPO will make a clean organization and respected company by observing and internalizing the Code of Conduct to meet the social demand for cleanliness, ethics, and human rights.

Dear respected stakeholders, KOMIPO will continue its activities to supply high-quality and stable power to people by sticking to the basics. We are prepared to become a global energy leader that increases life values through ceaseless challenges and innovation. Please support and encourage us on our way to open the future.

Sincerely,  
President & CEO of KOMIPO, Hyung koo Park



# KOMIPO Sustainability Highlights



### Achieved Maximum Reduction of Air Pollutants Among Power Generators

KOMIPO has achieved a dramatic reduction in its sensitivity to reduce 21,117 tons (59.3% as of 2018) compared to 2015 by improving the performance of environmental facilities of coal thermal power and managing them intensively. By investing 1.1 trillion KRW in improving the performance of power generation facilities and environmental facilities by 2025, KOMIPO will reduce its air pollutant emissions by 80 percent in 2025. Under construction, Shin Seocheon Thermal Power will be operated at the highest level in Korea by constructing a design change with the level of an optimal prevention facility.



### Signed an Agreement to Conduct Large-Scale Water Solar Panel (Seokmun Lake, 80MW) for Residents Participating in the Project (Jan. 2018)

In January 2018, KOMIPO signed an agreement with Hanwha Group and Korea Rural Community Corporation to conduct 80MW water solar panel in Seokmun Lake, Dangjin. The Seokmun Lake Water Solar Panel, which will be promoted as a resident participation project, will be created as a luxury complex through the layout of modules considering the landscape and the creation of observatory and Dulle-gil Trail.



### Achieved the World's Best and Longest 6,500 Days (About 20years) of Trouble-free Operation

Boryeong Thermal Unit 3 at Boryeong Power Generation Site Division achieved the world's first and longest 6,500-day trouble-free operation as of March 4, 2018. Boryeong Thermal Unit 3 has become the first Korean Standard 500MW coal-fired power plant which was designed and built with domestic technologies, and it contributed in building Samcheonpo Thermal Units 5 and 6, Taean Thermal Units 1~4, along with Dangjin and Hadong Power Plants. This record is a symbolic achievement that shows KOMIPO's capability to operate power generation facilities at the highest level in the world. It is the best case of shared growth achieved by the combined technology of the Korean power industry, such as suppliers, equipment and materials.



### Awarded Smart Corporate Leader Award at 2019 Fourth Industrial Revolution Management Awards (Aug. 2018)

KOMIPO won the Smart Corporate Leader Award at the 2018 Fourth Industrial Revolution Management Awards. This award is presented to the head of the institution that contributed to the development of the industry through the introduction and implementation of the fourth industrial revolution. President Hyung koo Park of KOMIPO received the CEO award on the same day. KOMIPO has established the first intelligent digital power plant (IDPP) model in the history of electric power and received the Gold Prize for it's the Fourth Industrial Revolution technology at the Silicon Valley International Inventions Exhibition. KOMIPO is also doing its best as a leading energy company in the era of the fourth industrial revolution by developing big data, deep learning-based power plant failure prediction diagnosis system, Smart-PAM, and operating virtual reality (VR) based safety experience education system.



### Awarded the President's Recognition Award for the Use of the Shared Growth FTA (Oct. 2018)

In recognition of its achievement in exceeding its export target of USD 10 million by advancing together with SMEs to countries that have signed FTAs through 'K-Jang Bogo Project', the company received 'President's Recognition Award' at the weekly event for shared growth of 2018. 'K-Jang Bogo Project' is a specialized overseas investment project that was implemented in 2010 and the CEO of KOMIPO has made efforts to expand exports of SMEs by personally leading and visiting partner companies (20 companies such as Siemens, etc.) to the countries that have signed the FTA. As a result, 22 partner companies became global GE partners, and GE secured a supply contract with SMEs for the amount of power plant construction(worth KRW 24.2 billion).



### Awarded by Minister of Trade, Industry and Energy for Corporation Innovation (Dec. 2018)

At the 25th Corporate Innovation Awards held at the International Conference of the Korea Chamber of Commerce and Industry, we received both the Minister of Trade, Industry and Energy and the Chief Executive Officer Award. KOMIPO received excellent reviews in terms of goals and visions for innovative activities, improving competitiveness through innovation, and voluntary participation by members of the organization. In particular, it was highly evaluated that it successfully implemented 'K-Jang Bogo Project', a low-carbon management system that introduced fourth industrial revolution technologies such as drones into the power generation industry, and a joint overseas development project for SMEs.





# KOMIPO Sustainability Highlights

## Aggressive implementation for the transition of non-regular workers to full-time positions

We completed the transition of 451 non-regular workers to full-time positions until 2019 in an aggressive effort to expand the creation of public jobs. This was significant in that it was based on mutual trust-based consultations between management, company, and experts. In order to establish a family identity for KOMIPO and to integrate with existing employees, we held 'ONE KOMIPO Declaration' to foster a sense of unity with regular workers and spread the culture of respect for human rights in the company.



## Awarded for Secure Management and Shared Growth at '2019 National Industry Awards' (Apr. 2019)

At the '2019 National Industry Awards', we received two awards: 'Secure Management' and 'Shared Growth'. KOMIPO recently achieved the 'best' grade among public enterprises for four consecutive years (2015-2018) in the public sector growth assessment organized by the Ministry of SMEs and Startups and achieved the 'zero' mortality rate per 10 thousand employees for three years in a row by promoting smart and systematic safety management.



## Successful Export on its First In-House Venture Overseas (Apr. 2019)

Comitia Co., Ltd., a first in-house venture, exported its 'anti-slip device' to Indonesia's Wampu Hydroelectric Power Plant (45MW, Sumatra) and the Cirebon Coal-Fired Power Plant (660MW, Java). KOMIPO will continue to provide various support, including funds for overseas exploration projects and start-up businesses, to help companies succeed in technology development and exports, and will do the best as a leading public company to lead the creation of direct jobs in the private sector through in-house ventures.



## Selected as LEAD Member of UN Global Compact (UNGC)

KOMIPO has been selected as a LEAD member in 'Sustainable Energy' field by UNGC (United Nations Global Compact). UN Global Compact is the world's largest voluntary corporate citizen agreement that strives to achieve the UN Sustainable Development Goals (SDGs) and spread the ten major principles of the UN Global Compact, including human rights, labor, environment, and anti-corruption in conjunction with the UN, businesses, governments, and civil society. With this opportunity, KOMIPO plans to continuously expand investment and development of new and renewable energy at home and abroad in order to achieve sustainable growth.



## Awarded "Grand Award" in the Category of the Integrity Management for Two Consecutive Years at the '2019 Global Standard Management Awards' (Oct. 2019)

At the 2019 Global Standard Management Awards, organized by the Korea Management Certification Authority, we received the grand award in the category of the integrity management for two consecutive years in recognition of our integrity management plans and achievements in activities. KOMIPO was selected as a leading company in integrity management by receiving high marks in CEO's integrity management leadership, creation of eco-system for integrity management, culture expansion performance, and management and culture expansion system for executives and employees. This is the highest achievement of integrity management following the achievement of the best institution for four consecutive years in 2019 based on the results of measuring integrity under the supervision of the Anti-Corruption and Civil Rights Commission.



# Company Profile

## About KOMIPO

KOMIPO was founded in April 2001 following the restructuring of the power industry. For the purpose of developing power resources and providing secure power, the Boryeong Power Generation Site Division and six other power generation sites are operated. As of July 2019, the company has a total facility capacity of 9,553MW and is responsible for 8.2% of the nation's power supply. As a major power generation company that provides secure, economic and eco-friendly energy, we constantly strive to enhance competitiveness in power generation businesses and lead eco-friendly businesses. After moving our headquarters to Boryeong, Chungcheongnam-do in 2015, we have also actively contributed to creating social values such as revitalizing the local economy and improving public welfare.

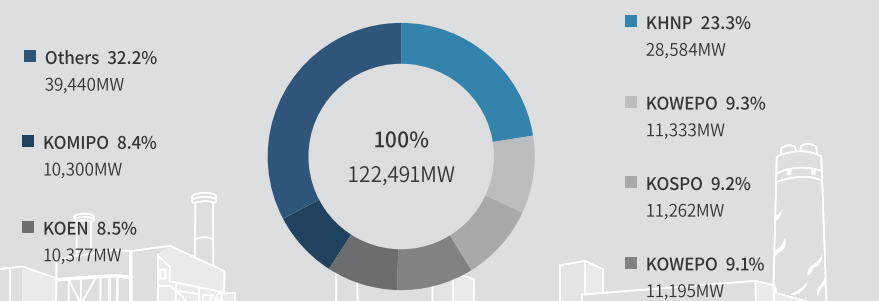
### Overview

As of December 31, 2018

Name of Company	Korea Midland Power Co., Ltd.
Foundation	April 2, 2001
Purpose of Establishment	Development of power resources and provision of secure power such as business regarding development
Source	Article 1-10 of Act on Promotion of Structural Reform in the Electric Power Industry
Agency in Charge	Ministry of Trade, Industry and Energy
CEO	Hyung koo Park
Total Asset	KRW 11.2603 trillion
Employees	2,797
Work Site	Boryeong (HQ)
HQ	(Daecheon-dong) 160 Boryeongbuk-ro, Boryeong-si Chungcheongnam-do

### Domestic power generation market share

As of September 2019, based on generation capacity

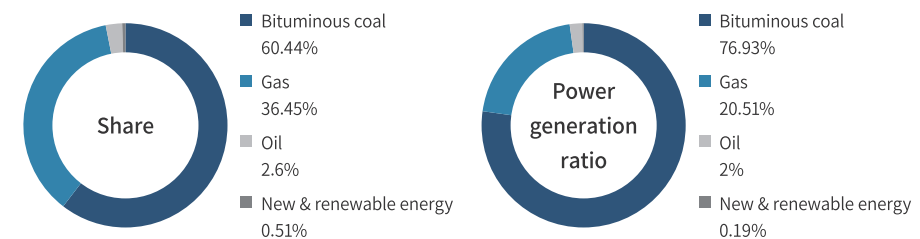


## Business Area

Based on world-class technologies for constructing and operating power plants, KOMIPO stably supplies high-quality electricity generated from wind, solar, SRF (Solid Reuse Fuel), and fuel cell power plants as well as thermal power plants (fueled by coal, LNG, and heavy oil). With the aim of supplying clean energy, we will upgrade environmental facilities of thermal power plants to world-class level by 2025, which will help operate safe power plants free from fine dust and environmental pollution. We also strive to develop new and renewable energy resources.

### Breakdown of power generation by energy source

As of December 2018



## Domestic Business

### Operation of Thermal Power Plant

KOMIPO has made high quality and stable power utilities the biggest goal of the company. By providing power in a secure manner through the establishment of a highly advanced facility management and preventive maintenance system, we greatly contribute to the enhancement of national competitiveness. Also, all employees thoroughly train for the emergency in case of force majeure such as fire or natural disasters.

**Bituminous coal** soft coal power is the main power plant of KOMIPO, which is the second most used energy source in Korea after nuclear power due to low costs. Bituminous coal has the most reserves and is easily burned out among coal, and is being introduced in Australia, Indonesia, Russia, and other countries.

**LNG combined** In facility market share and electricity production, it takes up the second largest ratio at KOMIPO after bituminous coal. The combined LNG power turns the gas turbine into a high-pressure gas through LNG combustion, producing the primary electricity, producing the high-temperature vapor from the hot exhaust generated, and then passing the steam turbine in the second to generate the power once more.

**Oil-Fired (Heavy Oil, Diesel)** Jeju Island, Korea's largest island and tour destination, has many restrictions on the introduction of fuel due to its geographical features and industrial characteristics. KOMIPO operates a thermal power plant with the most reliable heavy oil and light oil for storage.

### Thermal Power Plant Status

- Bituminous coal**  
Boryeong Power Generation Site Division #1~#8, Shin-Boryeong TPP #1 & #2
- Gas**  
Boryeong CCPP #1~#3, Incheon CCPP #1~#3, Sejong Power Generation Site Division, Jeju CCPP #1 & #2, Seoul CCPP #1 & #2
- Oil**  
Jeju Internal Combustion Power Plant #1 & #2, Jeju Steam Turbine Power Plant #2 & #3, Jeju Gas Turbine Power Plant Unit 3



### Development of New and Renewable Energy

KOMIPO constructs and operates facilities using various renewable energy sources, including solar, wind, bio, fuel cells, hydropower and marine energy. In the rapidly changing energy market, we are developing new and renewable energy businesses, and in particular, we are developing and producing businesses based on four core power sources: wind, bio, solar and fuel cells. The company also implements the Renewable Portfolio Standard (RPS) and contributes greatly to reducing greenhouse gas emissions.

#### Construction Status

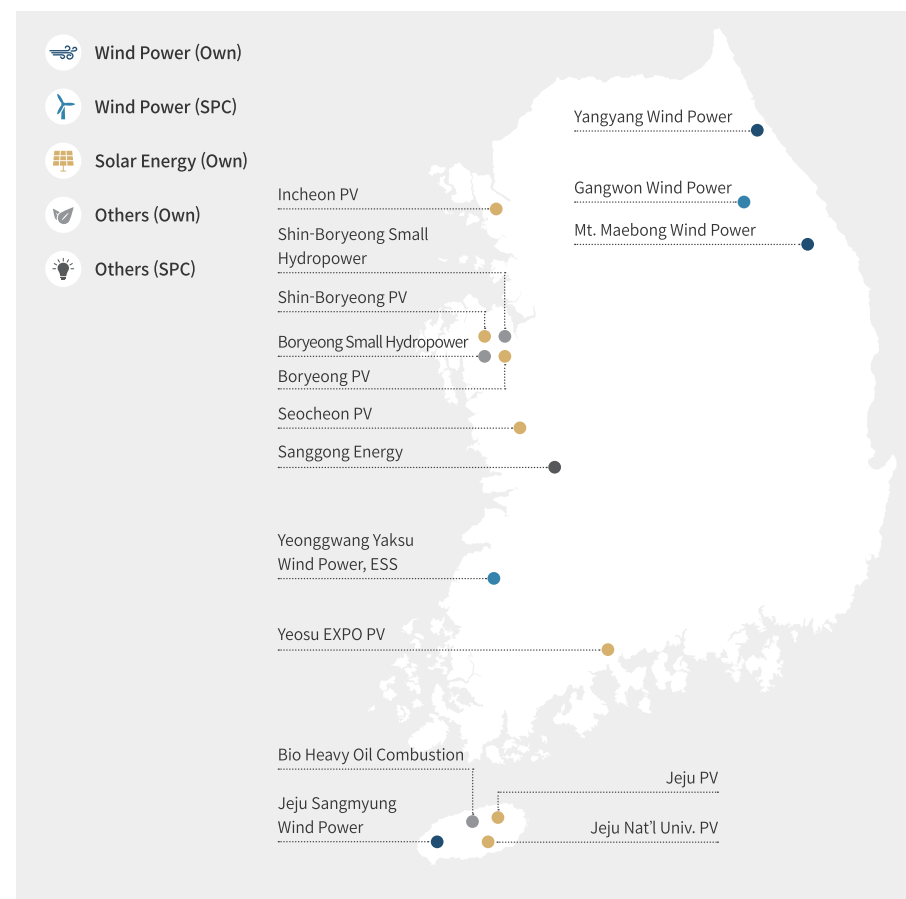
##### Seoul CCPP Units 1 & 2

- Construction Period: Jun. 2013 ~ Aug. 2018 (75 months)
- Facility type: Gas turbine-steam turbine combined cycle generation
- Capacity: 800MW (400MW X 2 units)

##### Shin Seochon TPP

- Construction Period: Jun. 2016 ~ Mar. 2020 (46 months)
- Facility type: Coal-fired, USC
- Capacity: 1,000MW (1,000MW x 1 unit)

### Status of Renewable Energy Operations



### Construction of Power Plant

The average life span of a fire power generation is usually 30 years, and after this period, the life span is extended or abolished through performance improvement work. Therefore, it is necessary to continuously build new power plants for secure power supply. Since its foundation, KOMIPO has been generating future growth engines through the construction of new power plants such as combined heat, water, internal combustion, Combined Heat and Power (CHP), hydropower, wind and solar energy.

### SPC Business

KOMIPO is participating in various energy business fields in Korea through investment. It especially leads the eco-friendly power supply through active business development in the renewable energy sector.

#### SPC Business Overview

Company	Project Period	Project Type	Fuel	Facility Capacity
Hyundai Green Power (Dangjin)	2007~2039	BOO Build, Own, Operate	By-product gases from steel works (BFG, COG, LDG)	800MW (100MW×8 units)
Sanggong Energy (Iksan)	2012~	BOO Build, Own, Operate	Woodgrain BTO-SRF	9.8MW
Gangwon Wind Power (Pyeongchang)	2007~2039	BOO Build, Own, Operate	Renewable energy (wind power)	98MW (2MWX 49 units)
Yaksu ESS	2017~2031	BOO Build, Own, Operate	Renewable energy (wind power)	PCS 4MW, BAT 12MW
Korea Offshore Wind Power	2020~2040	Joint investment	Offshore wind power	60MW (to expand up to 2.3GW in the future)
Gunsan Bio	2017~2020	Joint investment	Wood pellet	200MW (100MW×2units)
Hatvit Saessak Power Plant	2016~2039	Joint investment	Renewable energy (solar energy)	200MW
Yeonggwang-Yaksu Wind Power	2017~2036	BOO Build, Own, Operate	Renewable energy (wind power)	19.8MW (3.3MW X 6 units)

### Development Training Business

The Human Resources Development Institute of KOMIPO provides equipment operation practical training for domestic and foreign power generation operators and power industry officials. The Human Resources Development Institute, located within Boryeong Power Generation Site Division, offers customized development operation training services at the request of the participants and continues to develop new education courses.

### New Energy Business

KOMIPO wants to take the lead in securing new growth engines and global competitiveness through new energy projects. To reduce greenhouse gas emissions compared to the POST 2020 new climate system, we have installed and operated carbon dioxide collection and storage facilities in power plants for the first time in Korea, recycled by-products generated after the first localization of critical thermal power generation technologies that are more efficient than conventional coal-fired thermal power plants, and contributed in reducing energy and greenhouse gas emissions. To diversify new and renewable energy sources, biofuels using waste (water sludge, paper) are newly developed and used as fuel sources for power plants. In addition, we are planning to expand our new and renewable energy business overseas by entering not only domestic but also Indonesia and the top energy country, U.S.

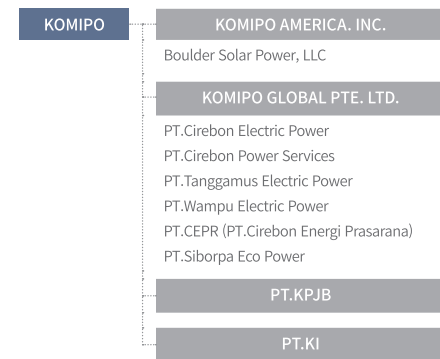
#### Domestic Technical Education

- 2017.04.17~2017.04.19(3 days)  
KEPID Technical team for maintenance of power generation facilities (Tanjung OH)  
Education Target: KEPID Power generation operator / No. of Persons: 6
- 2017.05.29~2017.05.31(3 days)  
KOWEPO Standardized Force Simulator Advanced Class  
Education Target: KOWEPO Taaen Development Headquarters Institute of Power Engineering / No. of Persons: 22
- 2018.07.16~2018.07.19(3days)  
KPX Combined Fire Field Staff Group  
Education Target: KPX Staff / No. of Persons: 6
- 2018.07.18~2018.07.20(3 days)  
KEPID Technical team for maintenance of power generation facilities (Tanjung OH)  
Education Target: KEPID Staff / No. of Persons: 7
- 2018.09.03~2018.09.06(4 days)  
Algeria Ain Arnat CCPP Course  
Education Target: Algeria Ain Arnat Combined Power Plant Staff / No. of Persons: 11

#### Worldwide Technical Education

- 2017.02.13~2017.02.15(3 days)  
Power Plant Simulator Training Course (Botswana)  
Education Target: Botswana Power Plant Simulator / No. of Persons: 3
- 2017.06.29~2017.06.30(2 days)  
Thermal Power Plant Operation Training Course (Vinh Tan4, Vietnam)  
Education Target: Vinh Tan 4(Vietnam) Staff/ No. of Persons: 50
- 2017.09.17~2017.09.23(7 days)  
Power Plant Operation & General Management Training Course  
Education Target: Indonesia Cirebon Power Plant Staff / No. of Persons: 10
- 2017.10.22~2017.10.29(8 days)  
Power Plant Operation & General Management Training Course  
Education Target: Indonesia Tanjung-Jati Power Plant Staff / No. of Persons: 10
- 2018.10.21~2018.10.28(8 days)  
Power Plant General Management Training Course, PT.KPJB  
Education Target: Indonesia Tanjung-Jati Power Plant Staff / No. of Persons: 10
- 2018.10.28~2018.11.03(7 days)  
Power Plant General Management Training Course, PT.CPS  
Education Target: Indonesia Cirebon Power Plant Staff / No. of Persons: 10

Status of Overseas Businesses in Operation / Promotion



**Overseas Business**

On the strength of its excellent power plant operating technologies and knowhow, KOMIPO is actively pioneering overseas markets. Throughout the world, the company is providing diverse and professional services, ranging from the power plant construction to operation, maintenance to technical consulting, and growing into a world-class energy enterprise while expanding its business scale and exchanges with countries gradually.

**Thermal Power Plants**

Based on its abundant power plant operation and maintenance experience and achievements accumulated over several decades, KOMIPO provides a world-class professional O&M service.

**New and Renewable Energy**

As a leading eco-friendly enterprise, KOMIPO is actively promoting the overseas advance of new & renewable energy businesses, along with export of thermal power plants, the main business for thermal power generation.

**Technical Advisory**

Through our extensive experience and technical expertise of KOMIPO, we provide our customers around the world with technical advisory services for improving the reliability of power supply, development assistance for the power sector, and global environmental issues. We also prepare a foundation for sound overseas projects through the exchange of enterprising technical information, such as overseas business-related government employees, training by inviting professionals, and employee exchange programs.



**PV Power Plant in Boulder City, USA**

**Project Period** 35 years after completion  
 #Stage1 : Construction('15.12 ~ '16.12), O&M('16.12 ~ '51.12) / #Stage2 : Construction('16.07 ~ '17.01), O&M('17.01 ~ '52.01) / #Stage3 : Construction scheduled for 2021

**Provided** #Stage1,2 : O&M, #Stage3 : Undetermined

**Capacity** Total 278MW #Stage1 : 100MW / #Stage2 : 50MW / #Stage3 : 128MW

**Location** Dry Lake Bed South Site, Boulder City, Nevada, USA

**Shuweihat S2 Project in UAE**

**Project Period** Jan. 2010 ~ Nov. 2011

**Contract Party** Samsung C&T Corp. (EPC contractor)

**Provided Services** Power plant commissioning, Technical consulting on commissioning, Education for operators

As the demand for power plants with linked desalination facilities is on the rise, the S2 Power & Desalination Plant, the development of which was planned by the Dubai Electricity & Water Authority, will produce 1,500MW of electric power and 454,610 tons of desalinated water following a 26-month construction period (July 2008 ~ Sept. 2011). Samsung C&T was selected as the EPC contractor for power generation facilities and KOMIPO provided professional consulting service for the project.



**Wampu Hydropower Plant in Indonesia**

**Project Period** Apr. 2016 ~ Apr. 2046 (30 years after completion)

**Participating Companies** KOMIPO, POSCO Engineering, PT. MPM

**Project Type** BOO (Build, Own, and Operate)

**Content of Service** Financing, technical service, EPC management, commissioning, power plant O&M

**Project Owner** Indonesia State Electricity Corporation (PT. PLN)



**Tanggamus Hydropower Plant in Indonesia**

**Project Period** Jul. 2018 ~ Jun. 2048 (30 years after completion)

**Participating Companies** KOMIPO, POSCO Engineering, PT. BS Energy, PT. Nusantara Hydro Alam, Korea Eximbank (financial investor)

**Project Type** BOO (Build, Own, and Operate)

**Content of Service** Financing, technical service, EPC management and O&M

**Project Owner** Indonesia State Electricity Corporation (PT. PLN)



**Sipborpa Hydropower Plant in Indonesia**

**Project Period** 30 years after completion

**Local Corporation** PT. SEP (Shiborpa Eco Power)

**Project Type** BOOT (Build, Own, Operate and Transfer)

**Capacity** 114MW

**Content of Service** Investment, O&M, Technical support services

**Project Owner** Indonesia State Electricity Corporation (PT. PLN)

**Technical Assessment of Dalanzadgad CHPP in Mongolia**

**Service Period** Jul. 2008 ~ Oct. 2008

**Contract Party** K-EXIM

The Dalanzadgad Combined Heat & Power Plant (facility capacity: 6MW) was built in 2000 with support from Korea's Economic Development Cooperation Fund (EDCF). Due to a lack of maintenance, including facility investment, for nine years, however, the plant reached a state where electric power production was impossible. Therefore, KOMIPO concluded a technical assessment contract for the standardization of the power plant, and the company's internal experts equipped with sufficient professional knowledge resolved various kinds of problems for functional improvement of the plant.



**Operation & Maintenance of Tanjung Jati Coal-Fired TPP #3 & #4 in Indonesia**

**Project Period** Jul. 2010 ~ Jan. 2032 (20 years after completion)

**Local Corporation** PT. KPJB (equities: KOMIPO 51%, PT. PJB 49%)

**Project Type** O&M (Operation & Management)

**Participating Companies** KOMIPO, PT.PJB

**Capacity / Fuel** 1,320MW (660MW X 2) / Bituminous coal

**Content of Service** Power plant O&M, Coal ash unloading management, Recruitment & personnel management

**Project Owner** Indonesia State Electricity Corporation (PT. PLN)



**Cirebon Coal-Fired Thermal Power Plant in Indonesia**

**Project Period** Jul. 2012~ Jul. 2042 (30 years after completion)

**Local Corporation** PT. CEP (Cirebon Electric Power)

**Project Type** BOO (Build, Own, and Operate)

**Participating Companies** KOMIPO, Marubeni, Samtan, PT. Indika

**Capacity / Fuel** 660MW / Sub-bituminous coal

**Content of Service** Power Plant O&M, EPC technical support service

**Project Owner** Indonesia State Electricity Corporation (PT. PLN)

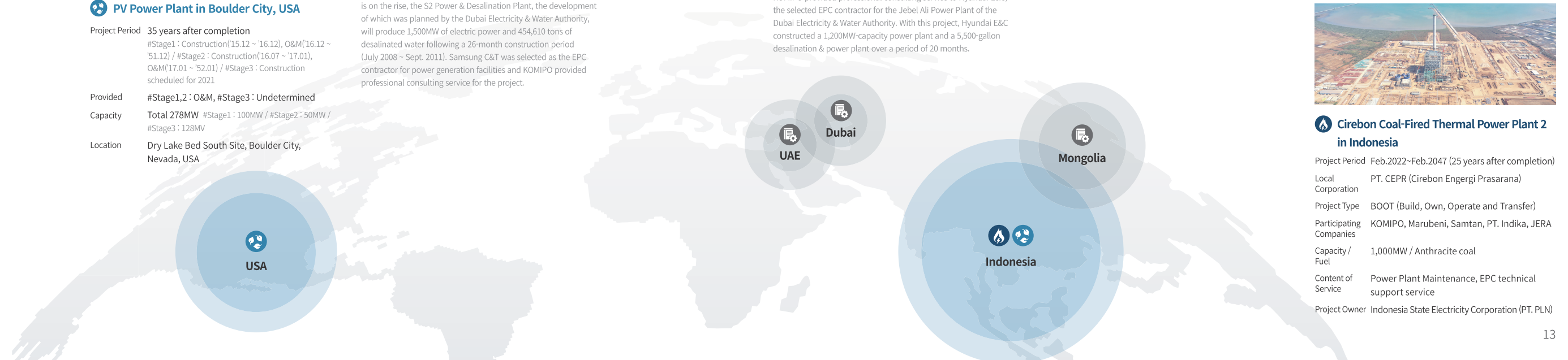
**Jebel Ali Power Plant in Dubai**

**Project Period** Oct. 2007 ~ Feb. 2008

**Contract Party** Hyundai E&C (EPC contractor)

**Provided Services** Power plant commissioning, Technical consulting on commissioning, Education for operators

KOMIPO provided professional consulting service to Hyundai E&C, the selected EPC contractor for the Jebel Ali Power Plant of the Dubai Electricity & Water Authority. With this project, Hyundai E&C constructed a 1,200MW-capacity power plant and a 5,500-gallon desalination & power plant over a period of 20 months.



**Cirebon Coal-Fired Thermal Power Plant 2 in Indonesia**

**Project Period** Feb.2022~Feb.2047 (25 years after completion)

**Local Corporation** PT. CEPR (Cirebon Energi Prasarana)

**Project Type** BOOT (Build, Own, Operate and Transfer)

**Participating Companies** KOMIPO, Marubeni, Samtan, PT. Indika, JERA

**Capacity / Fuel** 1,000MW / Anthracite coal

**Content of Service** Power Plant Maintenance, EPC technical support service

**Project Owner** Indonesia State Electricity Corporation (PT. PLN)



# Vision & Strategy

## Vision 2030

KOMIPO has established a vision of “A Global Energy Leader Raising the Values of Life” and established a management strategy system to respond to changes in the management environment and ensure the continuous creation of social values. We have also established four strategic initiatives such as ‘Securing Eco-Friendly Leadership’, ‘Safe and Stable Power Supply’, ‘Establishment of A Growing Energy Ecosystem’, and ‘Improve Public Trust by Reforming the Management Structure’. We are faithfully carrying out the related detailed tasks.

### Vision 2030 Management Strategy System

Purpose	Contribute to the development of the country and the improvement of the quality of people's lives through the safe and stable supply of eco-friendly energy.				
2030 Vision	A Global Energy Leader Raising the Values of Life				
Core Values and Management	Core Values Safety   Innovation   Trust   Co-existence		CEO Management Trust   Value   Happiness		
Mid-to-Long term Management Goal	Renewable energy generation ratio 20%	Mortality Rate per ten thousand employees 0‰	Secure 160 core technologies	90,000 jobs created (accumulated)	No. 1 public enterprise for Integrity Score
	Air Pollutants Reduction Rate 80%	Amount of eco-friendly power generation facility in overseas projects 25%	Maintain a score of 95 or higher on the KOSPI	Debt ratio 170%	Training of 200 key personnel
Strategy Goal	Sustainable and safe power supply	Leading Eco-Friendly energy industry	Advance the future growth base	Reinforcement of Social Value Realization Leadership	Improve the National Trust by Innovating the Management System
Strategy Task	Reinforce human-centered disaster safety management Maximizing reduction of environmental pollution Improve reliability and efficiency of power generation operations	Expanding the development of large new and renewable energy Diversify eco-friendly overseas projects Expending eco-friendly fuel transformation	Development and commercialization of future core technologies Enhancement of human resources-oriented future business capabilities Improving the competitiveness of power generation coast	Creating jobs with the people Development of industrial ecosystem focused on localization Activate the development of regional communities	Activate open engagement innovation Fair and transparent human rights-based organization management Development of management system for qualitative growth
Detailed Task	10 tasks including strengthening the accident prevention system for employees	7 tasks including developing large-scale new and renewable projects and expanding operations	6 tasks including developing core strategy technology	7 tasks including creation of private jobs and etc.	10 tasks including promotion of innovation in the form of national participation

## Sustainability Management Strategy

### Sustainability Management Action System

As a global energy corporation, KOMIPO strives to do its best to realize economic, social, and environmental values. Our sustainability management activities are promoted under the 4 goals and 12 strategic tasks.

### Sustainability Management Vision and Strategic System

Vision	Korea's Happiness Generator that leaps higher by realizing economic, social and environmental values			
Goal	Laying the foundation for sustainability management	Realizing economic value	Satisfying stakeholders	Conducting eco-friendly management
Strategy Task	Promoting ethical management Enhancing stakeholder communication Providing user-oriented services	Expanding global business and advancing into emerging markets Reinforcing technological innovation and investment Supplying power stably	Supporting mutual partnership and shared growth Establishing a sound labor-management culture Building a fair HR and assessment systems	Operating eco-friendly power plants and providing a safe workplace Implementing the RPS faithfully Securing carbon emission rights

### Sustainability Management Committee

KOMIPO operates the Sustainability Management Committee under the BOD which is in charge of making more rational and efficient major decision on sustainability management activities. It consists of 7 members: the CEO, executive auditor, executive vice presidents of the administration and engineering divisions, and non-standing directors. Backed by efforts made by all employees, KOMIPO acquired the highest grade for sustainability management (AAA grade) in the Korea Business Ethics Index Sustainability Management (KOBEX SM) hosted by the Ministry of Trade, Industry and Energy.

### Operation of the Sustainability Management Committee

Subcommittee by sector	Ethical management	Management strategy and future growth	External cooperation	Safety management
Goal	Laying the foundation for sustainability management	Realizing economic value	Satisfying stakeholders	Conducting eco-friendly management
Role	Analyzing investigation results by each ethical management sector	Reviewing strategic management plans for Vision 2030 and new businesses at home and abroad	Establishing basic plans for shared growth	Reporting comprehensive safety management action plans
Major performances	Inspected ethical management practice plans Deliberated comprehensive action plans for eradicating corruption in personal affair	Reviewed operation plans by overseas subsidiary Deliberated affiliates' debt reduction plans	Contributed money for investment in shared growth Reviewed annual PR plans	Reviewed the ISRS-C plans Deliberated the advancement plan for chemical substance management



Awarded for Secure Management and Shared Growth at '2019 National Industry Awards'



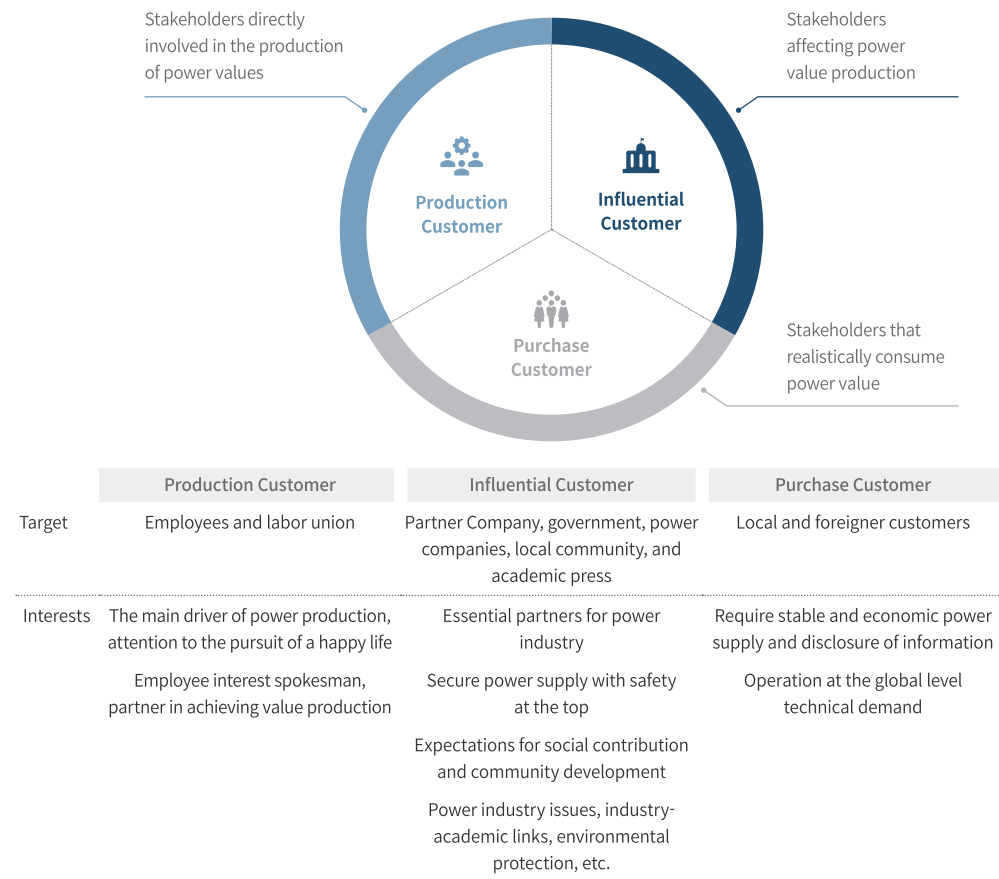
'2019 National Industry Awards' Winner of Safety Management and Shared Growth

# Communication with Stakeholders

## Definition and Classification of Stakeholders

Based on the value of 'Power', KOMIPO has set up stakeholders as production customers who participate directly in power value production, impact customers that affect power value production, and purchase customers that actually consume power value. We are doing our best to identify areas of interest according to the major targets of each stakeholder group and to operate customized communication channels to ensure smooth communication.

### Definition of Stakeholders of KOMIPO



## Communication Channel of Stakeholders

KOMIPO reorganized and enhanced communication channels to establish and operate stakeholder communication channels. We operate the Social Value Innovation Office as a communication channel control tower and have prepared seven communication channels for each topic of innovation. To enhance the accessibility of communication channels, we diversify our online communication methods and actively utilize promotional tools other than press releases. By actively reflecting opinions of stakeholders gathered through communication channels in actual management activities, the company solidifies the mutual trust relationship based on communication and practices a sincere management.

## Compose Stakeholder Groups by Innovation Theme and Acquire Various Online-Offline Communication Channels

Innovation Theme	Main Stakeholders	Main communication channels and 2018 performances
Eco-friendly	Local residents, local governments, local agencies, environmental experts, civic groups	Community Communication Day, climate environment forum, co-existence development council and etc. Total of 280 people participated 13 times to resolve 28 environmental proposals
New and renewable enterprise	Local residents, local governments, cooperative institutions, private renewable operators	A total of 234 business briefings, including meetings with resident-participating new and renewable private business operators, participation of 1,276 local residents and agreed to participate in the project
Co-existent cooperation	Small business partners, local small business economists, local governments, and related public agencies	Committee to improve contract system, open platform for shared growth, forum for shared growth 365 (Consult of business partners), KOMIPO-100 etc. 199 teams participating 7 times, improved 3 main contract systems (reflected KRW 410.2 billion)
Innovation growth	People (wanted to start a business), leading small and medium business partners	Start-up competition, on-site R&D collaboration, overseas investment promotion council, etc. 228 teams participated, 12 start-ups, 7 overseas exhibitions (102 companies, USD 54.93 million)
Confidence management	Civic groups, ethics experts, job seekers, people, local residents, local governments	Integrity Ombudsman, open recruiting session, open chat room and etc. (Ombudsman) total 4 times with 25 people, (fair employment) 2,000 participants, improved 7 systems
Job	Job seekers, trade unions, community organizations, related agencies, local governments	Workshop to create jobs, seminars on starting local social enterprises, and etc. Total of 250 participants 8 times, finding new jobs for 100 people
New technology	a startup aspirant; a small- and medium-sized cooperative enterprise; a venture businessman.	Cooperation of the Fourth Industrial Revolution Committee and field R&D Three forums, 173 participants, and 33 field R&D tasks completed

## Response of Stakeholders

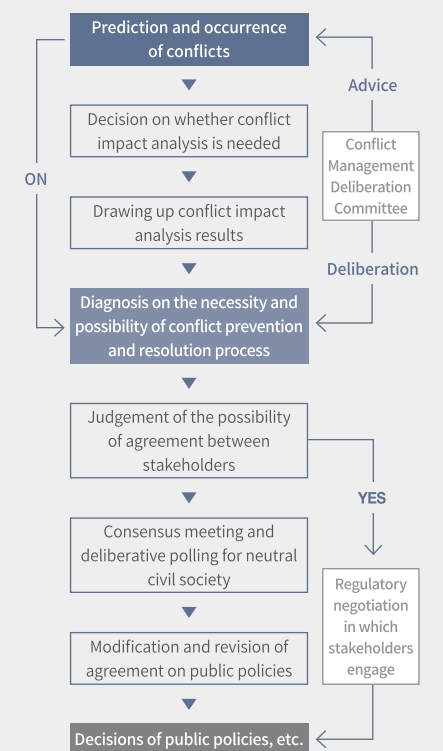
### Conflict Management System

KOMIPO established the conflict management operation guidelines in 2014 and is organizing and operating a conflict management review committee and a conflict coordination council. In 2015, we established the Conflict Management Standard Manual to help all employees understand, prevent and manage conflicts, and in 2016 we established the roles of the Conflict Management Department and the subordinate departments in order to manage conflicts.

### Composition and Role of the Conflict Management Deliberation Committee and Conflict Mediation Council

The Conflict Management Deliberation Committee is chaired by the head of Planning Management Division and consists of seven members. Major roles include establishing standard manuals for conflict management and practicing the conflict impact analysis etc. The Conflict Mediation Council consists of the Conflict Management Division, employees of the division, outside members, stakeholders and public officials from the Ministry of Trade, Industry and Energy (if necessary). Major roles include deliberating and mediating conflicts arising from projects and reviewing and operating matters delegated from the Conflict Management Deliberation Committee.

### Conflict Prevention Process

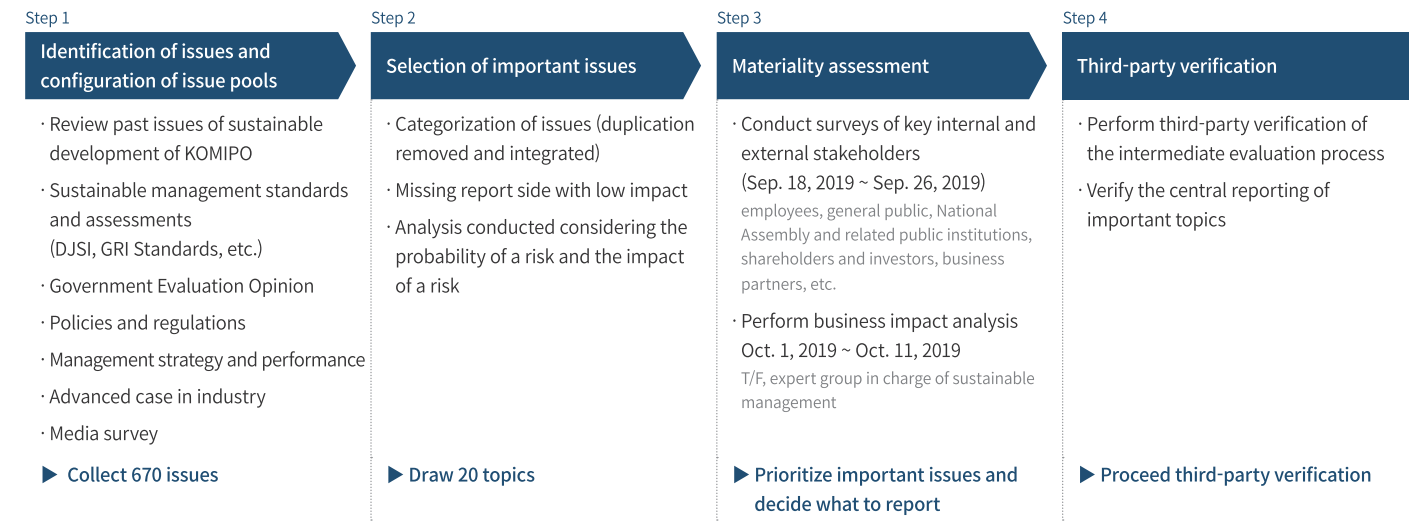




# Materiality Assessment

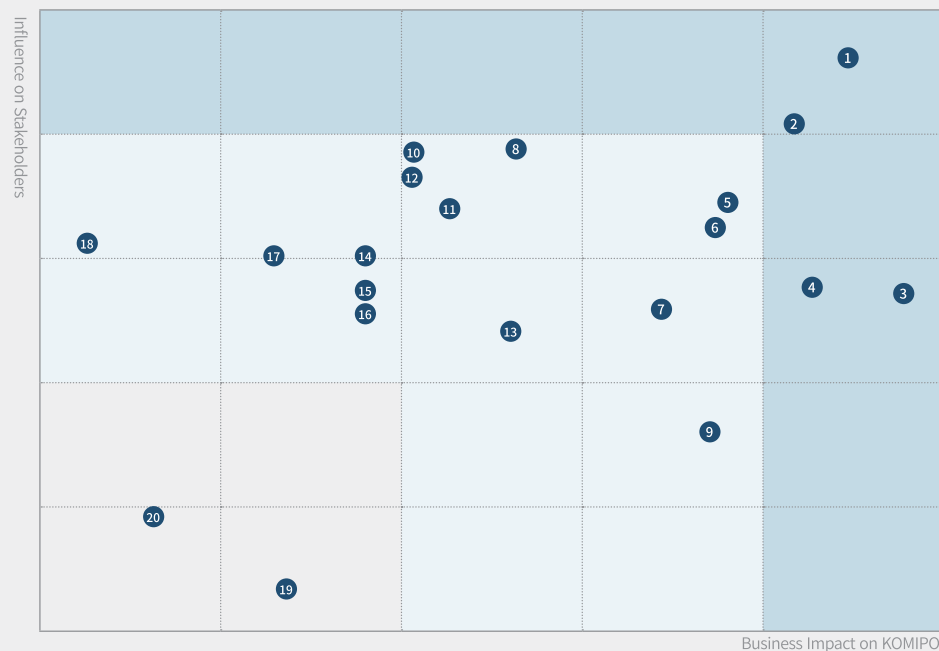
## Materiality Assessment Process

KOMIPO decided on the contents of 2019 Sustainable Management Report and conducted a materiality assessment to identify and select sustainable management issues that need to be managed with emphasis in the future. To identify sustainable management issues and form an issue pool, we analyzed management strategies and performance, external evaluations, policies and regulations, and advanced cases in the industry, and further analyzed issues related to KOMIPO exposed to external media. As a result, stakeholder impact and business impact analysis were conducted and final reporting issues were selected based on the results of the analysis.



## Result of Materiality Assessment

According to the results of the materiality assessment, important issues were divided into key reporting issues, priority reporting issues, and selection reporting issues. Secure power supply, eco-friendly energy business lead, enhanced competitiveness in power generation business, raw materials procurement, industrial safety health and greenhouse gas reduction were selected as key reporting issues, and priority reporting issues for economic performance creation, respect for human rights, expansion of overseas business, spreading ethics and cleanliness culture, risk management, waste water and waste discharge, and strengthening shared growth. We did our best to report all other important issues for KOMIPO by putting them in the report.



• **Business Impact:**  
Financial, Operational, and Strategic Influence

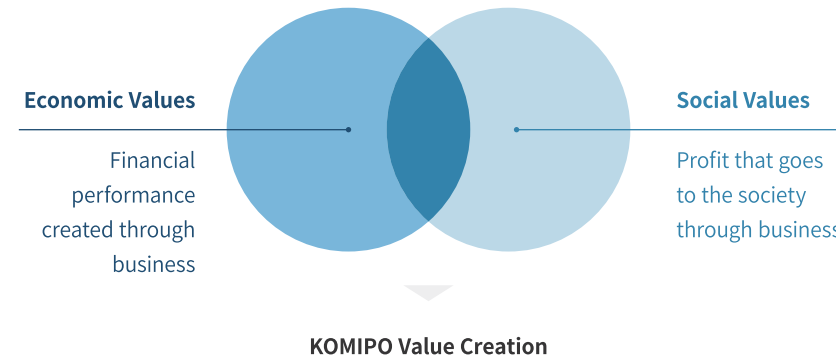
• **Influence:**  
Corporate image and reputation influence

2019 Priorities	Topic	Report category	Business impact on KOMIPO	
			Score (X-Axis)	Influence on stakeholder Score (Y-Axis)
1	Secure power supply	Value Adding Activities 2. Safe and Stable Power Supply	94.92	85.09
2	Leading the eco-friendly energy business	Value Adding Activities 1. Securing Eco-Friendly Leadership	92.74	83.12
3	Improving the competitiveness of power generation projects	Value Adding Activities 2. Safe and Stable Power Supply	97.10	77.74
4	Raw material procurement	Value Adding Activities 1. Securing Eco-Friendly Leadership	93.47	78.02
5	Industrial Safety and Health	Value Adding Activities 2. Safe and Stable Power Supply	90.08	80.57
6	Greenhouse gas reduction	Value Adding Activities 1. Securing Eco-Friendly Leadership	89.59	79.83
7	Creating economic performance	Appendix. Social responsibilities management performance	87.42	77.28
8	Respect for human rights	Sustainability Management System. Human Rights Management	81.61	82.20
9	Expansion of overseas business	Value Adding Activities 3. Establishment of A Growing Energy Ecosystem	89.35	73.48
10	Diffusing of ethics and integrity culture	Sustainability Management System. Ethical Management	77.51	82.10
11	Risk management	Sustainability Management System. Risk management	78.95	80.39
12	Wastewater and waste discharge	Sustainability Management System. Social Responsibility Management performance	77.49	81.32
13	Strengthening shared growth	Value Adding Activities 3. Establishment of A Growing Energy Ecosystem	81.37	76.62
14	Energy use	Appendix. Social responsibilities management performance	75.57	78.91
15	Win-Win with Community	Value Adding Activities 3. Establishment of A Growing Energy Ecosystem	75.57	77.87
16	Talent management	Sustainability Management System. Talent Management	75.57	77.45
17	Information security (personal information protection)	Appendix. Social responsibilities management performance	71.94	78.90
18	Establishment of wholesome governance structure	Sustainability Management System. Governance	64.45	79.29
19	Employment of executives and employees	Appendix. Social responsibilities management performance	72.42	68.68
20	Stakeholder participation	Overview. Communication with Stakeholders	67.11	70.91

# Social Value System

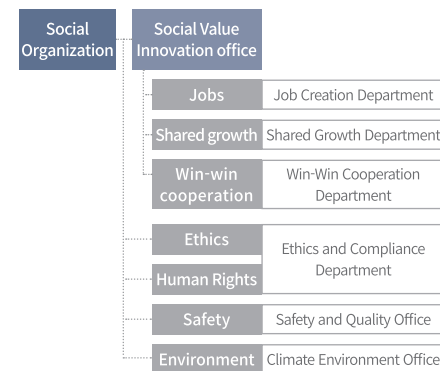
## Background for Promotion

KOMIPO seeks to strengthen the public nature of its institutions and the happiness of its stakeholders through the harmony of economic and social values. By doing so, we want to reduce the social risks that can arise in the business and achieve a happy, sustainable growth for businesses and societies together.



For this, all employees of KOMIPO actively shared their core capabilities and resources as energy companies to create social values and ultimately contribute to the development and engagement of the community in all areas, including society, economy, environment, and culture, in 2019.

<p>We deal with our work in a way that creates positive value for the people.</p> <p>We value maintaining human dignity first through fair society without discrimination and human rights management.</p> <p>We take the lead in providing equal opportunities and promoting social integration by creating good jobs and increasing employment support for the vulnerable.</p>	<p>We create a business ecosystem of win-win cooperation between large businesses and SMEs, and realize a well-off, innovative and inclusive nation.</p> <p>Through social dialogue and open communication, we support customized services to the people and boost vitality to the local economy.</p> <p>We fulfill the sustainable social values of the public sector, including safety, environment, and consideration for the socially disadvantaged, and play a leading role in the private sector.</p>
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## System to Promote Social Values

On March 6, 2018, KOMIPO has formed an organization dedicated to social value-related tasks to carry out systematic and professional tasks. We have also newly formed a “Social Value Innovation Office” to enhance its business synergy. The Social Value Innovation Office is in charge of the management innovation department, the job creation department, the shared growth department, the win-win cooperation department, the safety and quality department, the ethics and compliance department, and the climate environment department, which are responsible for other disaster management and industrial safety.

## Social Value Vision System

KOMIPO has established and managed a vision strategy system to enhance social value by linking it with management visionary personnel and achieving goals. We have selected 4 strategies and 8 areas that need to focus on realization of social values in connection with the social issues that need to be resolved, and we continue to resolve problems through tasks of each area.

2030 Vision	A Global Energy Leader Raising the Value of Life			
Vision	An energy partner that makes social values by embracing the lives of the people			
Goal	Achieve the highest level of public enterprise in all fields by creating innovative results 90,000 public and private job creation, ISO 45001 certification, award for corporate innovation, and best ratings for four consecutive years of shared growth			
4 strategies	Operate institution based on social values	Cooperation with national participation	Innovative growth through co-existence	Increase publicity of inherent work
8 areas	Improve the safety and quality of life of the people Collect the company's capabilities to create jobs	Extensive and deep expansion of people's participation Contribution of regional economy to sharing profits through participation of the people	Enable SMEs to enter global markets together Develop SMEs through cooperation and support	Win-win cooperation with partner companies that are developing Innovation of work process through application of fourth industrial revolution technologies

## Social Value Management Index

KOMIPO systematically manages indicators by strategic goal in order to achieve social value goals. To that end, we reset our management goals from 2018 to remove sales, overseas business sales weight, and core talent from the institutional management index such as ‘Morality Rate(‰)’ meaning death toll per 10,000 people to strengthen the human centric enterprise safety management system.

Four strategies	Management Index	Unit	2017	2018	2030 vision
Operation of Institution based on Social Values	Mortality Rate per ten thousand employees	‰	0	0	0
	No. of job creation	Number (accumulated)	13,912	27,949	90,000
	Integrity Score (Public Business Rank)	Rank	1	1	1
Participation of the people and cooperation	Citizen Participation Communication Channel	Number	15	17	30
	Rate of reflection of implementation tasks focused on citizen proposal	%	25	30	60
Innovative growth through win-win	Export amount of Overseas SMEs	KRW Billion	88	654	3,000
	Shared growth rank	Rank	Excellent	Excellent	Best Rank
Improving the Publicity of Unique Work	Ratio of renewable energy generation	%	2.6	2.9	20
	Ratio of renewable energy generation	%	42	59	80
	Greenhouse gas reduction rate	% (Compare to BAU)	6.5	7.8	31.2



# Social Value Creation Process

As of 2018





# Execution and Performance of UN SDGs

In 2015, the UN recognized the need for the world to join hands, not at the corporate or individual level but in addressing social issues and resolving the Sustainable Development Goals (UN SDGs). With these 17 goals and 169 detailed tasks, SDGs cover a wide range of economic, social and environmental topics for sustainable development in all countries around the world. As an energy company and a responsible member of the international community, KOMIPO also contributes to achieving SDGs' goals by utilizing the characteristics and capabilities of its business.

## Goal 2. Zero Hunger



**Potential influence** | Support for ensuring sustainability in farming and fishing villages through the promotion of win-win cooperation projects

**Actions** | Promotion of social welfare services in rural areas, use of power plants to support increased fishing resources, and support marine acquisition facilities in fishing villages

## Goal 4. Quality Education



**Potential influence** | Support the enhancement of power generation capabilities of SMEs and overseas countries through technical training

**Actions** | Provide programs to enhance technological capabilities for SMEs, and promoting projects to improve the educational environment of KOMIPO schools and new overseas corporations in Indonesia

## Goal 8. Decent work and Economic Growth



**Potential influence** | Contribute to economic growth through good job creation

**Actions** | Continue private and public sector jobs through business promotion and achieving '0' mortality rate per ten thousand employees by creating a safe workplace

## Goal 9. Industry, Innovation and Infrastructure



**Potential influence** | Contribution of infrastructure through localization of key power plant technologies and project promotion

**Actions** | Construction of new power plants for stable power supply, the first 1,000MW USC localization and commercialization in Korea

## Goal 5. Gender Equality



**Potential influence** | Support women's human rights promotion and capacity building through institutional support and education

**Actions** | Operating a gender-free personnel system, and one-stop service for pregnant, pregnant and child women

## Goal 7. Affordable and Clean Energy



**Potential influence** | Contribute to sustainable energy delivery by expanding the supply of renewable energy

**Actions** | Promote renewable energy projects for solar and wind power, and push for a new renewable-hydrogen fusion project

## Goal 13. Climate Action



**Potential influence** | Direct and indirect impacts on climate change and air pollution

**Actions** | Large-scale new and renewable energy projects, promotion of zero hazardous chemicals, and reduction of fine dust emissions by improving the performance of each generator

## Goal 11. Sustainable Cities and Communities





**Potential influence** | Ensure public safety by establishing a systematic disaster management system

**Actions** | Improve the reliability of power generation facilities by introducing an advanced predictive diagnosis system and promote activities to spread safety culture to the public (education, etc.)



Value Adding Activities 01

# Securing Eco-Friendly Leadership

-  Goal 7. Affordable and Clean Energy
-  Goal 13. Climate Action



Percentage of renewable energy generation

**2.9** %

## Context

Concerns over environmental problems are increasing throughout the world. The international society has launched a new climate regime by participating in greenhouse gas reduction, and leading global companies are expanding the implementation of sustainable development goals enacted by the UN. Amid threats on environment and ecology, conversion into clean and sustainable energy has become a must. Our government has also been strengthening eco-friendly energy policy and the regulations on Air Pollutant Emissions by presenting Renewable Energy 3020, which includes regulatory policies on coal-fire power plants and The Comprehensive Action Plan on Fine Dust. As energy conversion policy is accelerating, reorganization of eco-friendly energy supply system and capability concentration are becoming more necessary. Also, barrier to enter the new and renewable energy market is lowering and competitions to secure renewable energy resources according to the technology generation are becoming more intense. In order to be more competitive and grow sustainably in a changing environment, it is necessary to actively respond to the flow of global energy market by expanding business portfolio further from coal-fired power centered management.

## Our Approach

To lead the development of domestic and overseas new and renewable businesses, Korea Midland Power is striving to establish a portfolio centered on renewable energy and secure competitiveness in new and renewable energy. To preemptively respond to the changing market environment, we are trying to establish a renewable energy 3020 roadmap, pioneer resting energy through multilateral cooperation, and discover new and renewable-hydrogen convergence businesses as well as citizen-participatory new and renewable business. Meanwhile, in order to minimize environmental damages, Korea Midland Power is actively promoting greenhouse gas reduction activities in all processes of business by establishing a medium and long-term response strategy for climate change. Furthermore, as a responsible public institution of the energy sector, Korea Midland Power is carrying out various businesses of win-win greenhouse gas reduction businesses in the domestic and the overseas market. To respond to the Special Act on Fine Dust and local residents' environment-related demand, Korea Midland Power carries out eco-friendly management of all process of fuel procurement. In 2018, it has achieved the best results in securing eco-friendly carbons of five ower plants by expanding the purchase of ultra-low sulfur below 0.1% in 2018.

## Our Performance

Rate of air pollution reduction (As of 2015)

**59** %

Amount of air pollution emission reduction (As of 2015)

**21,177** Ton

Expansion of new and renewable businesses

**3,571** MW

① Stakeholder's opinion

- Lead and prioritizes on eco-friendly businesses
- Use efficient resources and minimize environment impact
- Maximize the reduction of environment impact substances

② GRI Aspect

- Internal Issue
- Raw Materials
- Emission

③ (Priority) Core topics

Securing Eco-Friendly Leadership

- (2) Lead eco-friendly energy
- (4) Raw material procurement
- (6) Greenhouse gas reduction

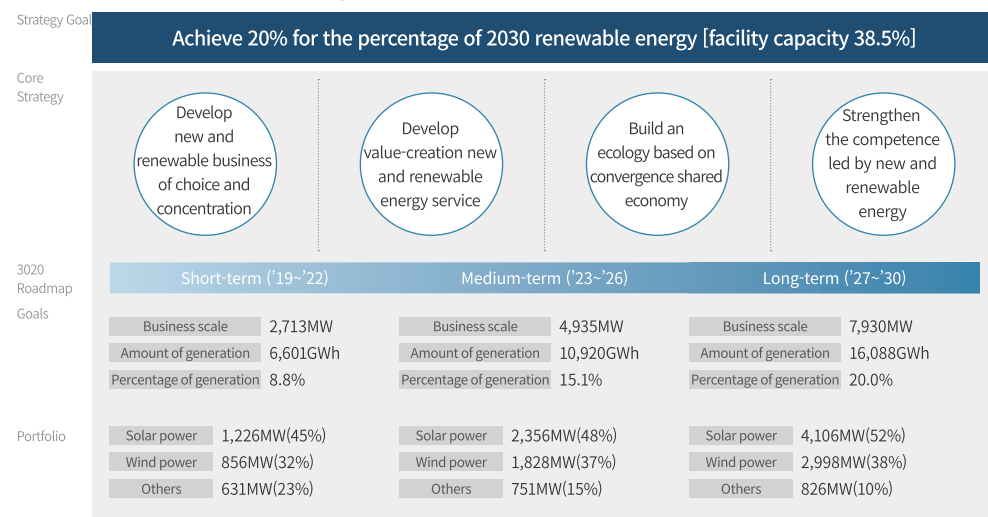
# Leading Domestic and Overseas New and Renewable Electricity Generation

As environmental issues such as fine dust and climate change are becoming more serious and the government is implementing the energy conversion policy, the paradigm of energy industry is shifting to eco-friendliness. In response, Korea Midland Power is focusing on establishing a renewable energy roadmap, portfolio centered on renewable energy, and securing the competitiveness of new and renewable energy.

## Leading the Development of New and Renewable Energy Businesses

To convert into safe and clean energy, Korea Midland Power established 'KOMIPO Renewable Energy 3020' in March 2018. 'KOMIPO Renewable Energy 3020' is a portfolio centered on renewable energy such as solar and wind power, through the policy of renewable energy expansion by the government. Our company plans to expand the proportion of renewable energy generation to 20% (7,930MW) by 2030.

### KOMIPO Renewable Energy 3020 Roadmap

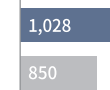


Status of new and renewable energy

■ '18 ■ '17

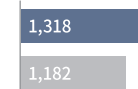
Increase of REC supply by 21%

Unit: One thousand REC



Increase of new and renewable generation by 11%

Unit: GWh



Expansion of new business by 1.6 GW

Unit: MW



To carry out 'KOMIPO Renewable Energy 3020', Korea Midland Power is also proactively executing the renewable energy business under CLEAN-HI Strategy. CLEAN-HI Strategy consists of 6 specific assignments which are: 'Competitiveness (strengthening competitiveness by minimizing location conflicts), Large-scale (large-scale solar power and wind power development), Energy Sharing (expanding new and renewable energy in the vulnerable class), Ability up (securing development, operation, and risk response system), New Technology (Market preoccupation based on new technology and new industries), Hydrogen-Innovation (Leading hydrogen economy and Creating future growth engine). This business acts as a key in the strategy of expanding Midland Power renewable energy. For your knowledge, KOMIPO has achieved remarkable results of an increase of 2018 REC (certificate of new and renewable energy supply, Renewable Energy Certificates) in the renewable energy field, a 11% increase of new and renewable generation, and an expansion of new business by 1.6GW.

## Pioneering Resting Energy Through Multilateral Collaboration

Based on the new perspectives of land site for solar power plant facilities, KOMIPO is expanding the renewable energy market. First, we plan to distribute 7.2MW-level solar power facility (roof-type 1.6MW + ground-type 5.6MW) for trial to idle land site in army division and contribute to the improvement of military personnel's welfare by sharing power generation profits. At the same time, the project expects to help create new jobs by employing discharged soldiers as managers in power plant facilities. In addition, Korea Midland Power is actively carrying out solar power businesses using idle land site on railroad and highways in the country. Our company is continuously striving to pioneer the new renewable energy market by proposing solar power generation businesses to increase agriculture income.

Category	Business Details	Business Outcomes
Military unit	Promoted solar power trial businesses using idle military land site	· Initially selected as the Ministry of National Defense trial business (7.2MW) ('18)
Railway & roads	Promoted of solar power businesses using abandoned railroad idle land site and national highway idle land site and facilities caused by the railway straightening business	· Voted by the board of directors on the solar power business (8.5MW) on idle railway site · Completed and started the highway solar power business (20MW) development act permit ('18. 4)
Type of farming	Suggested a solar power trial business for farmers in reclaimed farmland of the west coast and power plant	· 4 out of 6 places wishing to participate in farming solar power trial business confirmed (350kW, area 8,000m <sup>2</sup> ) · Seosan salt-affected farm farming-type solar power (100MW) generation business MOU signed ('18. 11)

## Leading Renewable Energy Businesses through Wind Power Generation

Domestic wind power generation complexes have 70% of them installed in mountainous regions and 30% in others, thus mostly installed in mountainous regions. In addition, there are difficulties in securing new land site and carrying out projects due to concerns over environmental damage and the saturation of development leading to restrictions on development locations. Therefore, KOMIPO is turning away from the mountains to the sea, expanding its development of maritime wind power complex businesses on coastal areas with excellent wind and reclaimed land of the west and south coasts.

Category	Details	Business Achievements of 2018
Maritime wind power	Promoted maritime wind power belts around the west and south coasts	· Southwest Maritime Wind Power (60MW) to be completed in November 2019 · Jeju Hallim Maritime Wind Power (100MW) currently under the bidding cycle of the largest domestic wind power and to start construction in 2020 · Carried out the development of Yeongkwang Maritime Wind Power (100MW) · Carried out the development of Seocheon Maritime Wind Power (100MW)
Coast wind power	Promoted developments in windy coastal plains near shoreline	· Carried out the development of Yeongam Samho Wind Power (120MW) · Prepared for licensing of Gimje Changshin Wind Power (39MW) · Constructed Wando Shinji Wind Power (17.3MW)

Launched in July 2019, the Swedish wind power generation project aims to build 62 generators of 4.1 MW-level wind power (254.2 MW) in Basternolan, Sweden, and is thus a large-scale wind power project that costs about KRW 360 billion. KOMIPO plans to invest about KRW 20 billion of the total project cost and expect to generate electricity sales of EUR 23,209,000 a year (about KRW 31.1 billion) by operating power plants for 25 years after completion.



Increase rate of new and renewable generation



Expansion width of new business

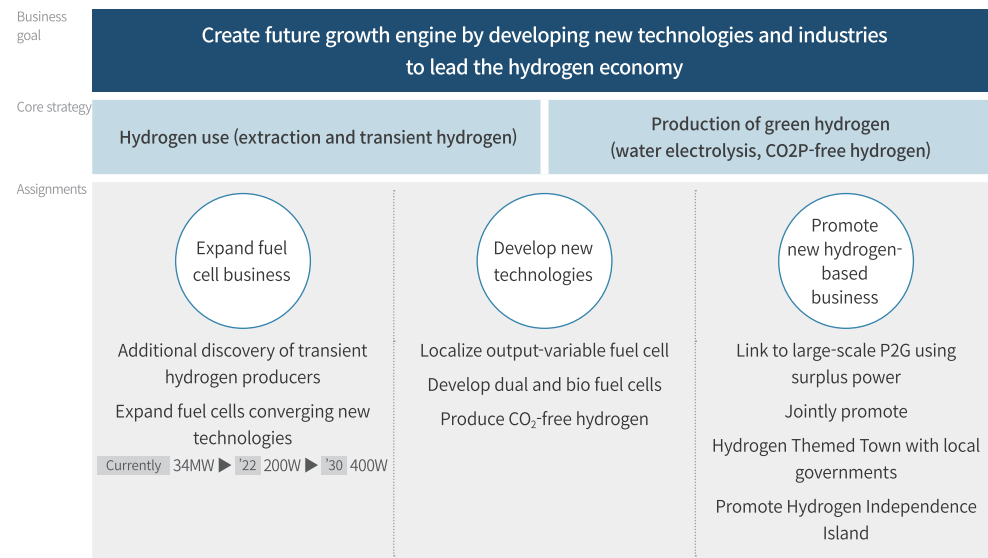


# 1GW by 2040

Fuel cell facility

## Promotion of New and Renewable-Hydrogen Convergence Business

To revitalize the hydrogen economy and secure future growth engines, KOMIPO has established the 'Execution Strategy of KOMIPO 2040 Hydrogen Business' and is strengthening business foundations and development. In addition, KOMIPO is increasing its competitiveness in hydrogen business by aiming to expand the capacity of fuel cell facility to 400MW by 2030 and to 1GW by 2040, and by striving to develop new technology and promote hydrogen-based new businesses.



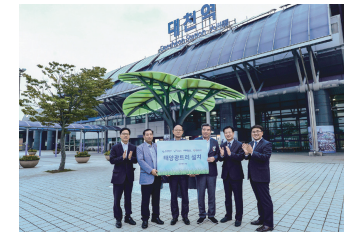
We are currently constructing a total of 29MW at the Incheon, Sejong, and Seoul Power Generation Site Divisions using idle land-sites in-house, and are introducing waste heat utility power plant facilities to improve the economics and heat utilization of fuel cells. In addition, we are actively participating in various new business model developments, such as the promotion of LNG-LPG dual type model fuel cell, which can be used for flexible fuel supply and as distributed power source in areas short of gas infrastructure, and low-purity transient hydrogenic fuel cell using transient hydrogen generated in petrochemical process. For the conversion of hydrogen production paradigm, our company is carrying out the 'Development of CO<sub>2</sub> Free Hydrogen Production Technology for Fuel Cell Generation' with KEPCO, aiming for hydrogen production from fossil fuel without CO<sub>2</sub> emission in the atmosphere for the first time in Korea. Moreover, we are conducting research on the complementation of system load change in renewable energy and on green hydrogen production, such as the '500kW-level Hybrid Hydrogen Conversion and Development of Power Generation System', 'Production of 2MW-level P2G Hybrid Electrolysis Green Hydrogen and the Development of Storage System'

## Discovery of Citizen-Participatory New and Renewable Projects

KOMIPO is promoting citizen-participatory new and renewable projects to increase local residents' income and support local economies. we have developed two business models, the resident union type and the citizen fund type, to help anyone in the community easily participate, and based on these, we are currently developing various citizen-participatory new and renewable businesses.



Citizen-Participatory Geumbong Wind Power business



Installation of solar power tree in daecheon station

Support for the resident association formation	Recruiting citizen fund
<ul style="list-style-type: none"> <li>Collect funds from local residents after raising prepayment rent</li> <li>▶ SPC investment after raising a resident fund</li> <li>Any residents without a large sum can also participate</li> </ul>	<ul style="list-style-type: none"> <li>Carry out open recruitment of fixed-rate citizen funds</li> <li>Small investment / Remote residents available to participate</li> <li>Regional residents given preferential treatment by special interest rates</li> </ul>

In addition to citizen-participatory businesses, KOMIPO is expanding its new and renewable energy welfare businesses for neglected neighbors and public safety through the 'Hope Nuri Business.' By using solar power donation and matching grant in 2017, we distributed 122kW private solar power plant facilities to 17 places including Sejongyongnah's House; we also installed 43 kW of Sharing Welfare Solar Power Unit 1 in 2018 by organically sharing roles and cooperating with the private/public sectors and government institutions. In 2019, we expanded the social contribution fund from KRW 150 million to KRW 450 million and installed solar power trees in three places in Boryeong, including Daecheon Station, Daecheon Beach, and KOMIPO Headquarters. We expect to revitalize dark urban areas by providing fine dust information and smartphone wireless charging using upper solar power module, and by using LED lights at night.

### BEST PRACTICE

## Promoting Seokmunho Water Solar Power (80MW) Business with Local Residents

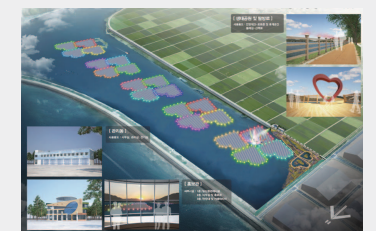
KOMIPO is carrying out Sukmunho Water Solar Power Business as a citizen-participatory power generation. The business's purpose is to build a complex of water solar power generation business with local residents, citizens, environmental organizations, and local governments, and we are working on the business by actively communicating with various stakeholders to increase the business effectiveness. As a business that directly connects to local residents' income and job, Sukmunho Water Solar Power Business is expected to increase residents' income by KRW 20 billion for the next 20 years. It is also forecasted to contribute to creating jobs for local residents and companies by providing jobs to local residents first in construction and operation, in addition to profit-making. For you reference, this business completed citizens' participation in 10% of the business share in December 2018, started the construction in 2020, and plans to operate from 2021.

### Expected Business Effects



**Increased income for farmers**  
Local residents' participation by 10%  
**KRW 10 billion**  
Provided 2MW to local residents  
**KRW 10 billion**

**Plans for Regional Developers**  
Financial support for areas around the power plant **KRW 3.5 billion**  
Economic vitalization by creating tourism resources in the surrounding area





# Maximize the Reduction of Environmental Pollutants

By establishing medium and long-term response strategies of climate change and carrying out intensive activities of greenhouse gas reduction, KOMIPO is striving to minimize environmental pollution that can be generated through business operation.

## Customized Reduction of Fine Dust Emission by Generator

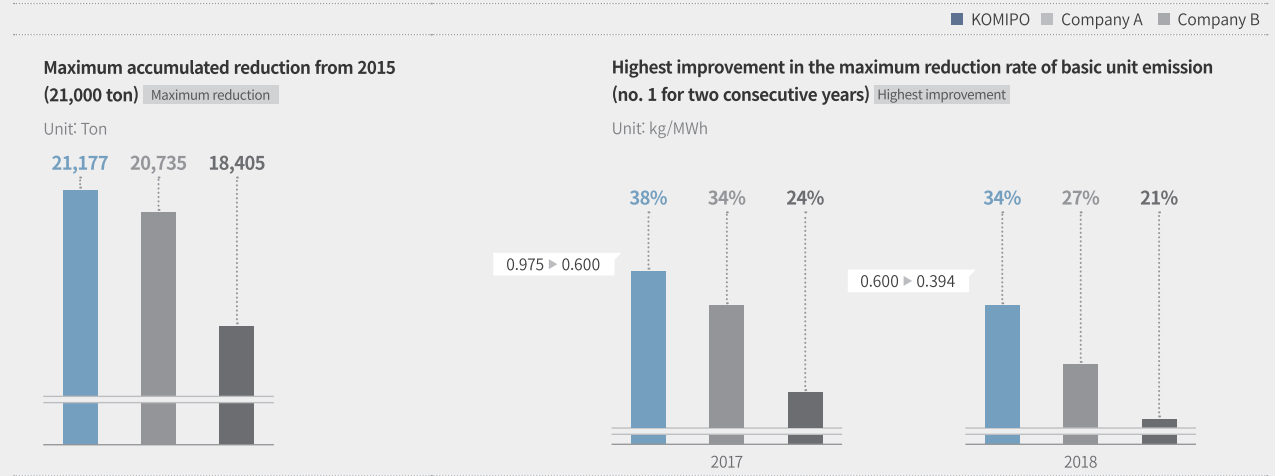
Through investing KRW 1.8 trillion by 2025, KOMIPO has established a goal of reducing coal-fire air pollutions by 80% and has systematically managed it. Especially, our company replaces the environmental facilities of currently operating generators with the world's top-notch facilities and reduces the fine dust emission by changing the design into optimal prevention facilities or higher for newly constructed generators.

**BEST PRACTICE**

### Air pollution reduction through the performance improvement of coal-fire environment facility

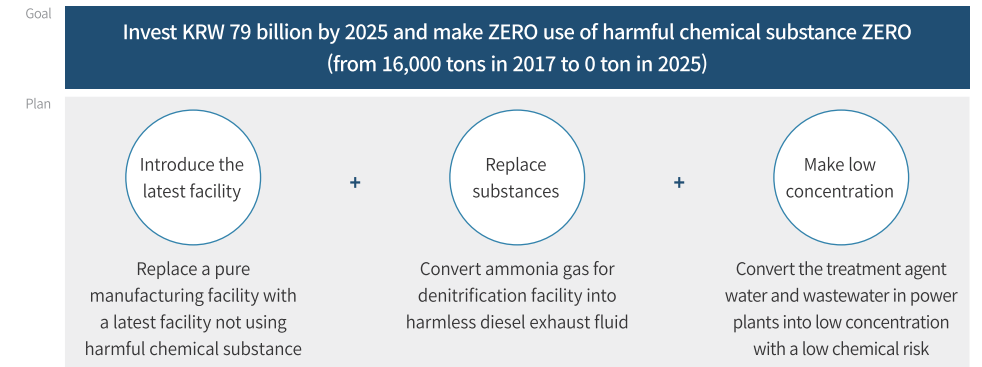
By improving environmental facility performance optimized in generators, KOMIPO has reached the maximum reduction of air pollutions among five power generation companies. First, as for Boryeong Units 1 and 2, we have made regular operation suspension in spring (March – June) and been improving environmental facilities by investing about KRW 9 billion during the operation suspension period. In addition, Boryeong Units 3-6 have realized coal-fire above LNG generation through the performance improvement of power plant facilities and replacement of world's top-class environment facilities. For Boryeong Units 7 and 8, we have also focused on atmosphere pollution reduction through performance improvement by deciding on early performance improvement of desulfurization and formulating long-term budget. For Boryeong Units 1 and 2, the latest generators, we have set a separate suspension period (130 days) to improve environmental facilities and additionally invested KRW 38 billion, improving the environmental facility performance beyond the metropolitan emission standard.

Thanks to such efforts for environment facility improvement, KOMIPO has achieved the maximum reduction of air pollutants among five power plants with an accumulated reduction by 59.3% or 21,000 tons from 2015. In 2017 and 2018, KOMIPO also achieved the highest reduction rate per basic unit emission among the five power plants, achieving no. 1 reduction rate in emission amount for two consecutive years.



# Making 'ZERO' Harmful Chemical Substances

To solve the fundamental problems of harmful chemical substances, KOMIPO is promoting 'ZERO Harmful Chemical Substances project,' which is carried out for the first time among the five domestic power plant companies. Its goal is to make 16,000 tons of harmful substance use as of 2017 to 'ZERO' by 2025. To be more specific, we plan to invest KRW 79 billion of budget into the 'Zero Harmful Chemical Substances' and reduce the percentage of harmful chemical substances by 2025.



Declares implementation of Zero harmful chemical substances throughout the company

For reference, we started a pure manufacturing facility design to replace the pure manufacturing facility in Boryeong and Jeju Site Divisions into the latest facilities not using harmful chemical substance in 2018. At work sites in Seoul, Incheon, and Shin Seocheon, we completed the conversion of chemicals for processing wastewater in power plants into low-concentration chemicals, and not harmful chemical substance. Moreover, we reflect the use of chemical substances into work site assessment and inspect them regularly and systematically, in order to secure the momentum of our proposed plan. Meanwhile, in order to successfully achieve its goal, KOMIPO carried out 'Implementation Proclamation Ceremony' in August 2018 and publicly proclaimed its determination for 'Zero Harmful Substances,' making all-company efforts not to use harmful substances in all parts of its businesses.

## Expanding Win-Win Greenhouse Gas Reduction Businesses

As a responsible public institution in the energy sector, KOMIPO is carrying out various businesses of win-win greenhouse gas reduction businesses in both domestic and overseas markets.

### [Domestic] Expanding greenhouse gas reduction business connecting small and medium-sized enterprise · agriculture

KOMIPO pursues win-win development with SMEs and is taking the lead in realizing social values through greenhouse gas reduction business. Since 2013, it has participated in the Korea Energy Agency's 'Walking with Energy' business to help the energy consumption status and management system improvement of SMEs. Since 2016, KOMIPO has also assisted greenhouse gas reduction efforts of SMEs by participating in a green credit business. In December 2018, it entered a business agreement with the Korea Rural Community Corporation on 'Agricultural-Business for Win-Win Greenhouse Gas,' supporting the greenhouse gas business of agricultural regions.



Implementation of Zero harmful chemical substances until 2025

**Activities and Achievements of Win-Win Greenhouse Gas Reduction Business**

Category	Details	Performance and Expected Outcome
Small and medium-sized enterprises	Green credit	<ul style="list-style-type: none"> <li>Improvement efficiency of facility operation with the support of facility investments by small and medium-sized enterprises (carried out 6 businesses and invested 500 million KRW)</li> <li>42 businesses of greenhouse gas reduction and 20,000 tons of reduction in 10 years</li> <li>Received the President's Award at Korea Energy Agency 2018</li> </ul>
	'Walk with Energy' business	<ul style="list-style-type: none"> <li>Diagnose the energy consumption of small and medium-sized enterprises and improve the management (carried out 36 businesses in total)</li> </ul>
Agriculture	Reduction business contest	<ul style="list-style-type: none"> <li>Greenhouse gas reduction business contest for small and medium-sized enterprises and farmers (17 contests as of 2018)</li> <li>Reduced 17,000 tons of greenhouse gas (for 10 years)</li> <li>Greenhouse gas reduction by consulting support such as building a business model</li> </ul>
	Ministry of Agriculture and Forestry, Korea Rural Community Corporation	<ul style="list-style-type: none"> <li>Connect with the energy reduction business and greenhouse gas reduction by the Ministry of Agriculture and Forestry</li> <li>KOMIPO Secured greenhouse gas emission rights (expands 2,000 tons every year, 10,000 ton/year in 2023)</li> <li>Farmlands Additional income by selling energy saving and greenhouse gas emission rights (200 million KRW, '23)</li> </ul>

**17,000** Ton

Greenhouse Gas Reduction

**No.1** registered

Providing cook stoves in Bangladesh business was selected for no.1 registered on the Clean Development Mechanism (CDM)



Provide high efficiency cook stoves for Bangladesh families

**[Overseas] Expanding greenhouse gas reduction businesses to energy-vulnerable countries**

KOMIPO is carrying out energy and water to energy-vulnerable countries and contributing to their greenhouse gas reduction. First, in Bangladesh, KOMIPO is promoting a business to reduce greenhouse gas by investing USD 6 million (about KRW 7 billion) in Bangladesh homes with poor cooking environment and by providing 600,000 high-efficiency cook stoves. This business is no. 1 registered business on the Clean Development Mechanism (CDM)<sup>(1)</sup> system among the greenhouse gas reduction businesses carried out by Korean companies abroad, since the revised guideline for external greenhouse gas businesses by the Korean government in May 2015. After it was approved by the Environmental Office in Bangladesh in June 2018, it was registered as a CDM business under the UN Climate Change Convention in August of the same year. Through this business, we expect to reduce 2.4 million tons of greenhouse business and create meaningful social values such as improved health of local residents and forestry protection. In Myanmar, KOMIPO also started a business to develop water treatment facility CDM to distribute water facilities to areas without a waterworks facility. Carried out by our company, this business is expected to reduce 200,000 tons of greenhouse gas for the next 10 years and contribute to the improvement of residents' living conditions.

(1) Clean Development Mechanism (CDM) : Article 12 of the Kyoto Protocol, which allows developed countries to reflect the reduction in greenhouse gas emissions caused by investments made by advanced countries in B developing countries, thereby cost-effectively reducing greenhouse gas emissions while developing countries receive technical and economic support.

**Expanding Eco-Friendly Fuel Procurement**

KOMIPO is focusing on procuring eco-friendly fuels to secure the future growth engine and respond to changes in the power market environment, such as the Special Act on Fine Dust ('18. 8), strengthening of regulations on maritime pollution prevention, and increased environmental demands by local residents.

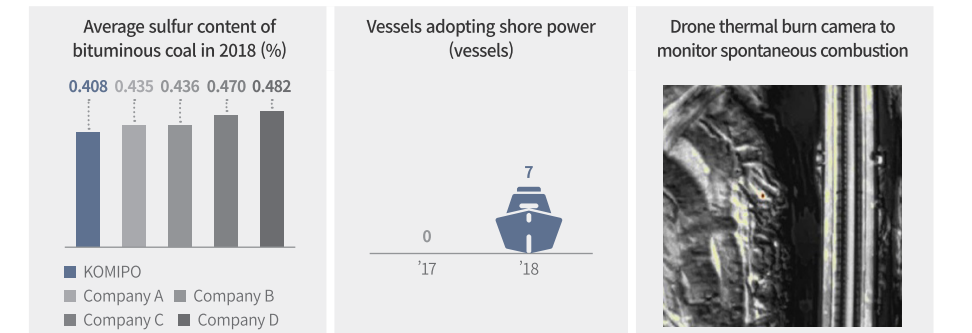
**Eco-Friendly Management of All Fuel Procurement Processes**

We carry out eco-friendly management of all processes in purchase-transport-low carbon. We are expanding the percentage of low sulfur carbon in the purchase stage, while trying to reduce environmentally harmful substances by strongly propelling the installation of eco-friendly shore power<sup>(1)</sup> rather than using low sulfur oil. In addition, we are striving to reduce fine dust emissions by installing low coal protection fences before making internal coal yard and by running vacuum absorption cleaner.

Purchase	Transport	Storage
<p><b>Bituminous coal</b></p> <ul style="list-style-type: none"> <li>Discover new low sulfur carbon (4 types)</li> <li>Increase the proportion of low sulfur carbon purchase, '17 3 million ton, 17.8% ▶ '18 9.47 million ton, 68.0%</li> <li>Achieved the lowest sulfur content in history</li> <li>Dramatically expanded strategic ultra-low sulfur carbon Bayan-coal (0.1%) 1.1 million ton</li> </ul> <p><b>LNG</b></p> <ul style="list-style-type: none"> <li>Increase economic feasibility by saving purchase cost through direct introduction (KRW 104.9 billion for 4 years) and strengthened the foundation of a role as an energy conversion bridge</li> </ul> <p><b>Heavy Oil</b></p> <ul style="list-style-type: none"> <li>Use eco-friendly bio heavy oil whose sulfur content is 17% (0.30% 0.05%) compared to regular heavy oil (Jeju Site Division)</li> </ul>	<p><b>Vessel fuel</b></p> <ul style="list-style-type: none"> <li>Expand conversion of low sulfur oil for vessel fuel (3.5% ▶ 0.1%), '17 7 vessels ▶ '18 11 vessels</li> </ul> <p><b>Shore power</b></p> <ul style="list-style-type: none"> <li>Reduce air pollutant emissions of vessel engines by supplying shore power supply when anchoring for fuel loading/unloading</li> <li>Agree to install in 50% of long-term chartered ships</li> <li>Agreed on 7 vessels among 14 long-term chartered ships ▶ Achieved no. 1 percentage of introduction among five power plant companies</li> <li>Reflected on designing of two coast transport vessels</li> </ul>	<p><b>Indoor coal yard</b></p> <ul style="list-style-type: none"> <li>Make all coal yard indoor by 2026; blocks the source of scattering dust by making all outdoor coal yards indoor through an investment of KRW 500 billion</li> <li>Install indoor thermal plants in Shin Boryeong and Shin Seocheon</li> </ul> <p><b>Before Indoor Completion</b></p> <ul style="list-style-type: none"> <li>Reduce scattering dust by installing additional dust-protective fences ('21), operate a vacuum pumper, and build a monitoring system</li> </ul> <p><b>Smart reserved coal management</b></p> <ul style="list-style-type: none"> <li>Measure reserved coal using drone; prevent spontaneous combustion through infrared light monitoring</li> </ul> <p><b>Improvement of coal transport</b></p> <ul style="list-style-type: none"> <li>Reduce scattering dust by adopting a closed-coal distribution device and improve working environment in the Boryeong Site Division</li> </ul>

**Best Result**

Achieved the Best Result in Securing Eco-Friendly Coal Among Five Power Plant Companies



Also, we achieved the best performances in the securement of eco-friendly carbon among five power plants by expanding the purchase of ultra-low sulfur carbon below 0.1% in 2018.

(1) Shore power: Reduces environmental pollutants from self-generation by supplying power needed for anchoring ships; also called S2S (Shore to Ship) as power is supplied from shore.



Value Adding Activities 02

# Safe and Stable Power Supply

Goal 9  
Industry, Innovation and Infrastructure



Causalities(‰)

# Zero

### Context

Today, we live in a society where it is difficult to live without electricity. It does not only cause inconvenient to the lives of the people when electricity is cut off, but it also increases the responsibility of power generators because a huge economic and social cost occurs to our society as a whole. With the recent surge in seasonal electricity usage and the advancement of industries, every year the highest power consumption is being recorded, demanding the need to supply secure power. On the other hand, safe power generation must be operated in order to ensure secure power supply. In particular, as natural disasters such as earthquakes, heavy rain, and heat waves increase and the concerns of people grow, it is becoming more important to respond secure and stable power supply. Safety accidents in the power generation industry also require a secure and stable power supply of electricity not only from the sustainability of the company but also from the environmental and social aspects because of the big and comprehensive damages such as casualties and environmental damage.

### Our Approach

KOMIPO is providing power to the people safely and reliably through a big data-based and advanced predictive system. Through the development and supply of high-tech equipment and related personnel training, we were able to fully respond to 40 crisis cases of suspension of development as of 2018, prevent KRW 103.7 billion in opportunity loss and provide stable power to the people. Also, we have been pushing forward for ISO 9001 Certification, Quality Circles Activity, and supplementation of equipment for each generator to supply high-quality power. Following the fourth industrial revolution, we clean the roof solar energy at risk of safety accidents with a self-developed robot, and we are improving our efficiency by adopting mobile business systems. Meanwhile, KOMIPO is responding to human disasters through a person-centered safety management system. We are striving to prevent human error from leading to major disasters by banning untrained workers from working alone and reducing harmful chemicals in the field. We actively communicate with business partners by reducing risk factors in advance. In addition, we have established a disaster response system for prevention-preparation-response/recovery management process and a cooperative system of experts to prepare for natural disasters. In recognition of this, we have achieved a safe power plant by receiving "A" Grade in national infrastructure disaster management assessment.

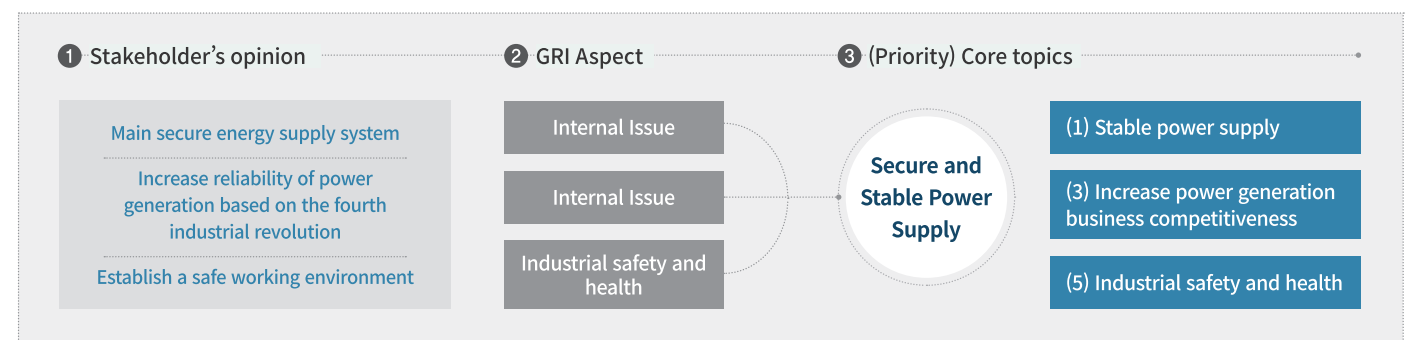
### Our Performance

Forced Outage Rate

# 0.051 %

National infrastructure disaster management assessment

# A Grade





# Improving Human-Centric Accident and Safety Management

KOMIPO has carried out innovative and intensive management activities in order to protect the safety of the people and workers. As a result, we achieved “A” grade for 3 consecutive years (2016~2018) in the National infrastructure disaster management assessment hosted by the Ministry of Public Administration and Security, and we are fulfilling national safety plan by achieving ‘0 (Zero)’ mortality rate<sup>(1)</sup> for three consecutive years.

## Improving Employee Accident Prevention System

In the power industry where risk factors coexist, such as large construction projects and hazardous substances, ‘employee’s safety’ is a greater value than creating income through business operation. As a result, KOMIPO is strengthening its accident prevention system based on the workers in order to ensure the safety of the employees during the process of promoting projects.

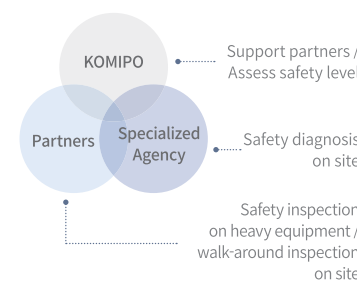
### Promotion of Improving the Safety Capacity of Business Partners

As a result of investigating and analyzing the accidents in the power industry, it was confirmed that most disasters are caused by untrained workers that violate the safety precautions or those that are day laborers. As a result, KOMIPO focused on improving the safety capabilities of its business partners by implementing innovative system improvement through the entire process from contract to evaluation. We also operate a safety checklist for each work stage, discover and take corrective actions (in five measures), and systematically manage the safety of workers.

**3** consecutive years

Achieved the highest ‘A’ grade in national infrastructure disaster management for three consecutive years

Establish Triangle of Win-Win, Safety Coordination System



Classification	Performance of improvement of the system by stage	Details
Contract	Expand scope of application for industrial safety and health management expenses	Expand the scope of application of industrial safety and health management expenses to 100% of the order construction
Preparation	Improve the risk assessment for protecting vulnerable workers and enhance their performance	<ul style="list-style-type: none"> <li><b>Vulnerable workers</b> Establishment of target classification and safety management measures including untrained and elderly workers</li> <li><b>Improve performance</b> Clear responsibility by pre-designation of management personnel by work stage</li> <li><b>Case analysis</b> Standardization of 350 cases of dangerous work</li> <li><b>Training internalization</b> Provide safety guidelines and similar accident cases using QR codes (80 cases)</li> </ul>
Work	Support for safety technologies of business partners for prevention-oriented safety management and increase the number of employees dedicated to them	<ul style="list-style-type: none"> <li>Extend safety quick call<sup>(2)</sup> safety technology support request authority to partner companies.</li> <li>Enhance activity of site inspection of internal and external experts (2017: Two times/month ▶ 2018: Three times / month)</li> <li>Integrate inspection and improvement of crane and input safety patrol into the marine construction sites.</li> </ul>
Assessment and Certification	Assessment and certification support for the establishment of a win-win safety culture	<ul style="list-style-type: none"> <li>Expand the scope of participation in risk assessment competitions to business partners</li> <li><b>'17</b> 8 cases ▶ <b>'18</b> 26 cases (six cases of business partners)</li> <li>Extend support for certification of electric power industry technical standards and safety quality management system</li> <li><b>'17</b> 64 companies ▶ <b>'18</b> 80 companies</li> </ul>

(1) Mortality rate: Ratio of deaths that occur per 10,000 salary workers

(2) Safety quick call: Immediate response system about professional requirements of safety management on the site

Safety training programs and communications

<b>KOMIPO Safety School</b>
Customized training for each class of manager and workers (Including Partner Companies) Participants: 273
<b>Outreach Safety Training</b>
Support on the guidance of ‘Safety Policy Briefing’ on 50 supervising departments Participants: 470
Execute safety itinerant training based on the regulations and accident cases on 40 partner companies Participants: 522
<b>Experience-type Safety Training</b>
In parallel with the experience-based training program for each working group during the special training of dangerous workers Participants: 1,340
<b>Others</b>
Safety Act based on the risk factors and safety accidents (Employees participate in writing the scenario)
Hold planning sessions for participation and communication to prevent industrial disasters
<b>Total participants: 2,605</b>

## Implement Fool-Proof Workplace where Human Errors Do Not Lead to Accidents

KOMIPO is implementing a fool-proof workplace where human errors do not lead to accidents. This is done by improving the work environment, removing hazardous substances, and promoting zero hazardous chemicals. To improve the working environment, we find and continuously improve on-site risk factors based on active communication with our business partners. We also conduct a two-person inspection of the hazardous facilities for the operating workers of the fuel environment facilities, and new employees of business partners with less than six months of working experience are prohibited from working alone. In addition, we put effort to eliminate risk factors in the field by improving open coal distribution systems to fully sealed system and develop remote-controlled high-pressure shut-off equipment to eliminate risk factors in the field.

### Improve Employee Safety Awareness by Expanding Safety Training and Communication

Through training programs such as KOMIPO Safety School as well as Outreach Safety Training, we raise the awareness of safety of all employees in the field. We are also expanding the number of participants in the working-level meetings that only related departments in the central power generation to business partners, actively communicating with the suppliers, and reducing the risk factors of industrial accidents and safety accidents. For reference, a total of 2,606 people participated in the safety training program in 2018.

Furthermore, we proactively eliminate the cause of accidents at construction sites by establishing a triangle of win-win safety coordination system, focus on disaster prevention management using monitoring results, and keep employees safe.

### BEST PRACTICE

## Minimization of Safety Blind Spots through Smart Safety management Incorporating New Technology

KOMIPO is improving safety on site by removing safety blind spots through smart safety management with advanced technology.

- Establishing RFID-based Entry Management System for Construction Sites**  
KOMIPO manages the employees on site in real-time and an RFID-based access control system has been established in order to enable rapid head count in the event of a disaster.
- Development of Non-Slip Safety System for Ladders and Establishment of the First In-house Venture among power generation public enterprises**  
We added anti-slip plate and installed it to the construction sites. In October of 2018, KOMIPO established the first in-house venture COMITIA Co., Ltd., and received the first business registration among power generation public enterprises (Registration No. 111-81-34449) to commercialize anti-slip plate.
- Improvement and Expansion of Virtual Reality (VR) Hands-on Safety Training System**  
The drones equipped with thermal imaging cameras and monitors are automatically operated to monitor the possibility of ignition of the bituminous coal in the coal yard. This system protects employees from being caught in fire and harmful gases caused by natural fires. In July 2018, KOMIPO’s coal yard ignition surveillance system (drone) received Gold Prize at the ‘2018 Silicon Valley International Invention Festival’ which was held in Silicon Valley of the U.S.
- Establish Fire Monitoring System for Coal Yard Ignition Surveillance by using Drones**  
We provide a total of seven types of virtual experience training contents to the employees in the workplace. The VR safety experience training system in KOMIPO is designed to enhance the employee’s safety awareness and safety capabilities. It has been developed and manufactured to provide realistic training for risk assessment in which disaster situations such as falls and crashes, which have a high rate of causalities among industrial accidents, can be experienced through VR. Meanwhile, KOMIPO plans to expand its system, which was deployed at Seocheon Construction Site Division in July 2018, to all power plants and all employees (including partners).

## Expanding National Compassion Safety Culture Trusted by the People and Workers

### Making a Human-Centric Power Plant

KOMIPO strives to implement a 'human-centric safety power plant' that considers the safety and health of employees first. Through the 'Win-Win Happy Care' program, we provide partners with the same level of EAP<sup>(1)</sup> as KOMIPO employees, and we prevent secondary industrial disasters such as post-traumatic stress. We are also strengthening the health and safety management system to help all employees and even partners to work safely.

Classification	Contents
Emotional labor	<ul style="list-style-type: none"> <li>Operation of 'external customer/civilians response manual' for employees who perform foreign affairs such as civil complaints</li> <li>Record the response measures to a citizen's psychological type or malicious behavior</li> <li>Implement EAP to resolve work-life imbalance ('18 standard: 275 participants, 629 times)</li> <li>Hopeful employees including partners: Operate healing programs with metropolitan mental health promotion centers ('18 standard: 38 participants)</li> </ul>
Health Promotion	<ul style="list-style-type: none"> <li><b>Risk Factor</b> Employees exposed to noise due to the noise generating equipment have concerns about deafness</li> <li><b>Protection measures</b> Operate hearing preservation programs for shift employees</li> </ul>
	<ul style="list-style-type: none"> <li><b>Risk Factor</b> Respiratory diseases caused by dust from coal, metals, and ash</li> <li><b>Protection measures</b> Measure and improve the risk of exposure to harmful factors by measuring the working environment</li> </ul>
	<ul style="list-style-type: none"> <li><b>Risk Factor</b> Suffocation by harmful gases on the site when working in an enclosed space</li> <li><b>Protection measures</b> Monitor the concentration of harmful gases in real-time and check the status of workers by using smart bands</li> </ul>

### Diffuse Safety Culture in the People through Safety-Skinship Activities

To diffuse the safety culture to the public, various safety training and safety sharing projects are being carried out at the public interface. First, 'KOMIPO Safety Experience Group' is operated to foster future safety experts and enhance the effectiveness of safety training by adding VR training programs to the public disaster safety promotion campaign. We are also protecting the safety and health of the people by promoting Jomdori safety sharing activities of love as follows.



"Jomdori Safety Sharing Activities of Love" Safety Culture Campaign

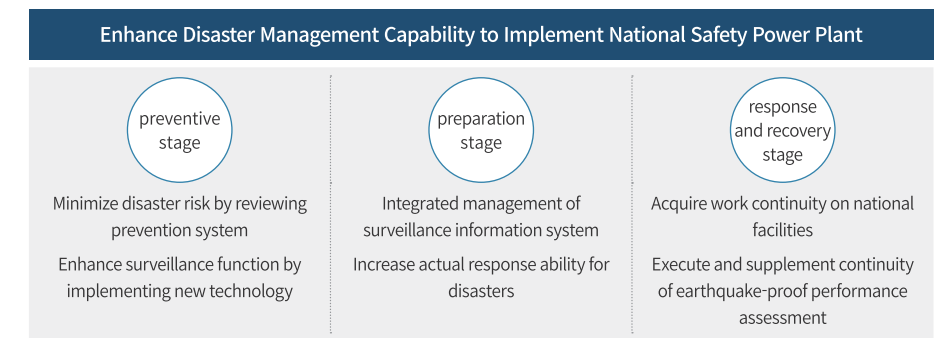
Classification	Target	Contents (As of 2018)
Daily Safety	Senior citizens (that live alone) and traditional market vendors	<ul style="list-style-type: none"> <li>Inspection of gas, electricity, and fire extinguish equipment and replacing old facilities (1,171 homes for five years)</li> <li>Support installation of fire extinguishers (832 homes for five years) and fire alarms (800 homes for five years)</li> </ul>
Health Care	Traditional market users and senior citizens (that live alone)	<ul style="list-style-type: none"> <li>Support basic health care and execute anti-smoking training campaign</li> <li>Provide CPR experience training</li> </ul>
Heat Wave Support	Vulnerable class of energy and senior citizen center	<ul style="list-style-type: none"> <li>Execute support business for 'Cool Summer'</li> <li>410 unites of air conditioning equipment in 26 facilities and 325 homes, operate free meals</li> </ul>

(1) EAP: Comprehensive counseling and training support programs to improve employee's desire to work and help them manage mental health

## Advancement of Disaster Response System

### Implement a Systematic Disaster Management System to Fulfill Public Safety Power Plant

KOMIPO has establishes systematic disaster management system and puts effort to continuously fulfill a national safety power plant in accordance with the disaster management process for prevention-preparation-response-recovery.



In the preventive stage, we minimize disaster risk through a disaster-prevention design review and enhance the monitoring function of new technologies at all times to reduce the risk of power generation facilities through preemptive risk discovery and improvement. In the preparation stage, we enhance our capabilities against disasters by integrating surveillance information and expanding the number of local residents by strengthening our role as a control tower for disaster response through integrated monitoring system (a comprehensive disaster safety situation room) and looking into new disaster scenarios such as sinkholes.

KOMIPO minimizes casualties and property damages through the disaster safety situation room, which acts as a 24-hour monitoring and comprehensive control tower. We also established a satellite communication system that enables communication in extreme situations to operate in any disaster situation. To protect golden time for disaster safety in the event of a disaster, we established a network of mutual support for disaster safety situation rooms and nearby fire personnel and equipment by site. Finally, in the response and recovery stage, we put the effort to protect the national infrastructure system through uninterrupted power supply by ensuring continuity of state infrastructure work through the certification of the business continuity management system and continuously implementing and reinforcing earthquake-proof performance evaluations.

### Acquisition of National Safety through Multilateral Disaster Risk Management

The importance of managing multiple disaster risks is increasing. As a result, KOMIPO has strengthened its disaster management activities by increasing its crisis response capabilities and taking preemptive measures against vulnerable elements through systematic risk management. We also help the public and employees develop their ability to respond to disasters. Meanwhile, KOMIPO achieved 'Zero' fire accidents by strengthening its internal and external expert cooperative system in the disaster prevention field, such as fire and explosion, and achieved the highest 'A' grade for 3 consecutive years in the national infrastructure disaster management assessment.

### Establish and operate safety situation room

Monitor 24 hours and Role as a control tower

### Zero

Achieved Zero fire accidents throughout the company



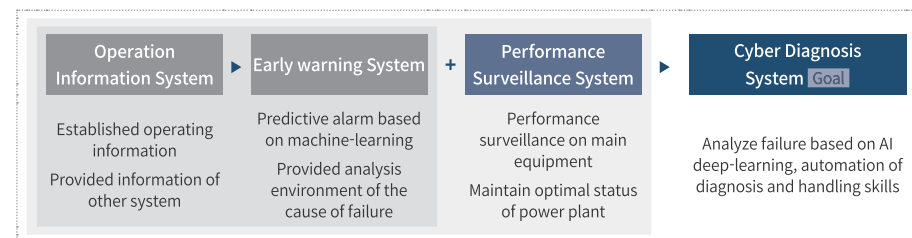
# Increase Reliability of Power Generation Equipment

The need for stable power supply is increasing, with seasonal electricity usage soaring as well as the record-breaking demand each year. In response to this, KOMIPO has developed its own advanced predictive diagnosis system, reinforced power generation equipment, and enhanced reliability of power generation equipment based on the perception that power stability is a national benefit.

## Continuously Promoting Forced Outage ZERO

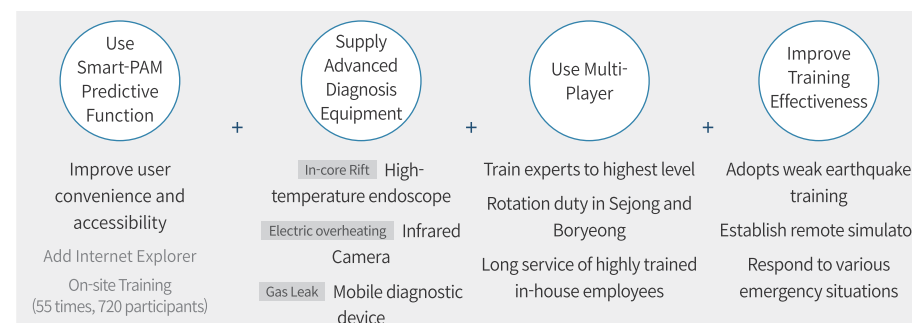
Due to the hard efforts to increase trust on the equipment, KOMIPO recorded the best forced outage rate for two consecutive years after its foundation (2017: 0.061%, 2018: 0.051%), and Boryeong Thermal Unit 3 achieved a 6,600-day trouble-free operation. For this, we developed our own failure prediction system with an accuracy of 98.4% based on big data, developed SMART-PAM (Smart-Performance Analysis & Monitoring System) and utilized it to conduct predictive maintenance and facility vulnerability analysis to supplement the equipment systematically.

### Establishment of AI-Based Surveillance System using SMART-PAM based on Big Data



KOMIPO is also putting effort by expanding its predictive equipment and enhancing the response capabilities of related personnel in order to improve the initial response capability during the golden time period, which determined the extent of damage. For reference, we have fully responded to 40 suspension crises in 2018 alone by developing, distributing, and responding systems to advanced equipment, preventing 103.7 billion KRW in plant opportunity loss costs.

### Establishment of the Cost and Response System to Improve the Early Response Capability



Prevent Plant Opportunity Loss of KRW 103.7 Billion Through Systematic Response to 40 Suspension Crises

Boryeong Site Division	Sejong Site Division	Incheon Site Division	Jeju Site Division
24 Cases	3 Cases	9 Cases	4 Cases
Initial response in lump coal inside the coal feeder	Initial response of gas turbine cooling air leak	Initial handling of medium pressure steam turbine leak	Response at the right time for coolant inflow

Real-Time Equipment Operation Status Surveillance Converged with Big Data and Machine-Learning Technology

- Big Data Operation Information System**
  - Provides real-time power plant equipment operation information
  - Provides fuel information and environment information
  - Data** Dispersed management of business site
  - Collection** Use PDA, save data
  - Data** Integrated Management of all business sites
  - Collection** Connect with control equipment, save real-time
- Machine Learning Early Warning System**
  - Compare forecast value/actual value in real-time
  - Early warning after analyzing comparison result
  - Surveillance** Control room + Forecast Diagnosis Department
  - Shiftwork in control room
  - Occur when the current value reaches the warning value
  - Surveillance** Control room + Forecast Diagnosis Department
  - Early warning according to the change of the trend of current value on 15 units completed in Boryeong, Incheon, and Sejong Site Divisions
- Diagnosis/Analysis Performance Surveillance System**
  - Monitor performance and efficiency of power plant equipment in real-time
  - Compare expected performance/current performance in real-time
  - Surveillance** Real-time system management
  - Diagnosis** System auto predictive diagnosis Completed Boryeong Thermal Units 7 and 8, Sejong Site Division
  - Surveillance** Separate management system absent
  - Diagnosis** Not many experts, rely on equipment

# Enhancement of Quality Control of Power Generation Equipment

## Promote Quality Improvement in the Power Industry

KOMIPO promotes high intensity quality management and contributes to a stable power supply based on the firm belief that 'quality is the life of equipment'. We have demonstrated the highest quality management ability in the world by promoting quality division activities that are formed on a small scale within a company to improve quality, and participating in the National Convention Quality Control Circles every year since its inception and winning the gold award for 18 years in a row. In order to manage the management system efficiently, KOMIPO integrated ISO 9001 Quality Management System, ISO 14001, KSI 7001, 7002 Environment, and Green Management System in 2015. The company reorganized ISO 9001 into High Level Structure (HLS), which is a standard in 2015, to enhance the quality management system by introducing performance-oriented, understanding organizational situations, and risk-based approaches. Meanwhile, KOMIPO was named a quality competitive company for 11 years in a row for the highest quality competitiveness recognized by the company, and it was dedicated to the Hall of Fame for the first time in its history in the field.



Named a quality competitive company for 11 years in a row



All Coal-Fired Thermal Power Plants

## Promote Equipment Reinforcement by Type of Generator

KOMIPO promoted facility reinforcement such as improvement of environmental facilities, promotion of state-based maintenance, and high performance of central control facilities according to the type of generator and improved the stability and environment of the facilities based on the vulnerability analysis of each type of generator.

Direction of Promotion Promotion of Equipment Reinforcement by Analyzing Vulnerability over 5 Years for Each Type of Generator			
Type	Target	Problems	Measures
Korean Standard Thermal Power Plant, First Generation	Boryeong Thermal Power Units 1 & 2 (2 units)	Power plant targeted for operation suspension during the spring	Promote reinforcement of all environment equipment
Korean Standard Thermal Power Plant, Seoncd Generation	Boryeong Thermal Power Units 3 ~ 6 (4 units)	Boiler tube leak	Overall reinforcement of power plant construction level
Korean Standard Thermal Power Plant, Third Generation	Boryeong Thermal Power Units 7 & 8 (2 units)	Management Data ▲ Main Control Handling Speed ▼	Improve control equipment performance and prepare for the fourth industrial revolution

Improving efficiency and environment

- Detrification**
  - Efficiency 34% ▲
  - Reinforcement** Replaced 264 old sites
  - New** Added 132 detrification units
  - Result** Efficiency 34% ▲, 45ppm ▶ 30ppm
- Desulfurization**
  - 30% ▼ in contrast to discharge allowance
  - Performance** Absorption tower injection angle 90° ▶ 120°
  - Replacement** Six moisture remover, stirrer, etc.
  - Result** 30% ▼ operation relative to the allowable emission value
- Dust collector**
  - Dust 20% ▼
  - Replacement** 1,868 parts, including discharge electrode
  - Maintenance** 47 units including rectification transformer
  - Result** Discharge concentration 5mg/m<sup>2</sup> ▶ 4mg/m<sup>2</sup>

In the case of the old Boryeong Thermal Power Units 1-2, we focused on improving denitrification and desulfurization collection performance, reducing the original unit emissions by 17% year-on-year (17 0.785kg/MWh → 18 0.632kg/MWh) and improving the environment as well.

Also, Boryeong Thermal Units 3~6 steadily supplied 1,281 MWh of additional power generation during the summer peak period by fully reinforcing the boiler tube vulnerability forecast. It also recorded the achievement trouble-free operation of all coal-fired power plants. By improving the performance of the central control facilities, Boryeong Thermal Units 7 and 8 were also improved with control stability of the plant suitable for the fourth industrial revolution, including doubling the processing speed and capacity of the central control center.

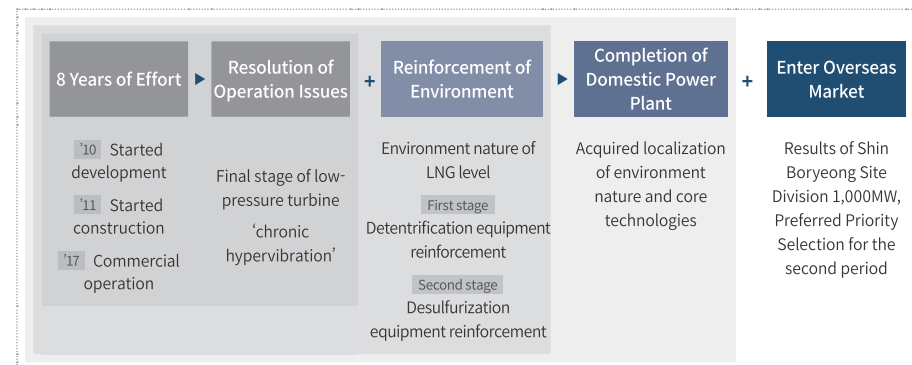
## Development of Core Technologies to Operate Power Plant

Although the proportion of LNG and renewable energy power generation equipment have been increasing recently along with the environmental issues, in Korea, LNG gas turbines and fine dust reduction equipment are dependent on foreign manufacturers due to lack of original technology. As a result, KOMIPO has been stepping up its efforts to localize its original technologies and prove its global competitiveness in LNG and renewable energy technologies to secure core technologies at the global level.

### Effort for Localization of Eco-Friendly Power Generation Equipment

Classification	Promotion Activity	Results
Localization of LNG power generation gas turbine core parts	<ul style="list-style-type: none"> <li>Expanding the range of localization: The development of technologies focused on low temperature components, and the promotion of localization of high temperature components</li> <li>Joint Research: Securing source technology by developing joint technology with small and medium enterprises</li> </ul>	<ul style="list-style-type: none"> <li>Reduced maintenance costs through R&amp;D technology for manufacturing high temperature components (a 20% reduction compared to the previous period)</li> <li>Preparing the basis for domestic and overseas gas turbine power generation market by securing track record</li> </ul>
Development of Hydrogen ESS connected to renewable energy	Promote localization of 'hydrogen energy storage and utilization technology' to lay the foundation for leading hydrogen economy	Develop technology for commercializing hydrogen energy storage and power generation system using surplus power of Sangmyeong Wind Power at Jeju Site Division
Development of source technology for reducing fine dust	Reduce fine dust emission concentration to LNG power generation level by localizing high-efficiency environmental facilities	Successful in localization and commercialization of high-efficiency micro-dust reduction technology for the fundamental prevention of fine dust

The 1,000MW ultra-critical (USC)<sup>(1)</sup> power plant has been monopolized by a handful of advanced companies such as the U.S. and Japan, and it was imperative to develop localized technologies to strengthen national competitiveness and secure competitiveness in eco-friendly technologies. As a result, KOMIPO started a pilot project to commercialize USC thermal power generation technology for the first time in Korea and started commercial operation of USC power plants using pure localization technology in 2017 to prepare a turning point for the history of domestic electricity. KOMIPO is also increasing its share of overseas markets by actively exploring overseas markets, such as advancing into overseas markets based on locally developed technologies.



In so doing, KOMIPO was selected as the R&D investment merit public institution at the 2017 National R&D Excellence Awards in recognition of its contribution to R&D activation.

(1) USC (Ultra Super Critical) Pressure: Power plant with temperature conditions and vapor pressure that exceed the super-critical pressure (coal standard)

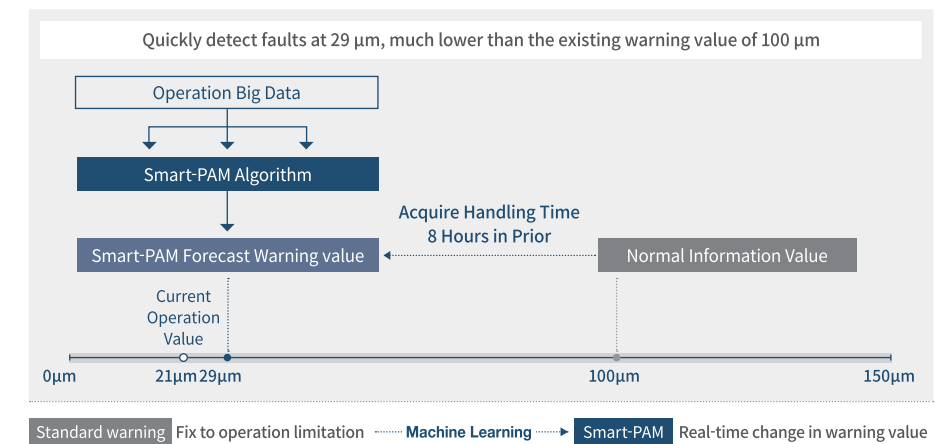
## Establishment of Smart Power Plant with Convergence of New Technology

Digital power plants have recently been selected as an innovative growth large-scale collaborative task of government, and the interest and importance of smart plants have been increased along with technological innovation in the fourth industrial revolution. KOMIPO has been striving to build smart power plants by establishing a long-term road maps to lead the fourth industrial revolution and establishing its own advanced predictive diagnosis system.

### Advancement of Predictive Diagnosis System and Equipment Diagnosis Method

The field of predictive diagnosis is regarded as one of the pillars of the 4th industrial revolution, and its importance is growing. Recognizing the importance of the field of predictive diagnosis, KOMIPO also developed its own advanced predictive maintenance system and Smart-PAM. The non-planned loss rate and forced outage rate increased by 23.7% (non-planned loss rate: '17: 0.058% → '18: 0.045%) and 15.4% (forced outage rate: '17: 0/061% → '18: 0.051%), respectively thus, reducing opportunity loss of KRW 103.7 billion and preventing 40 power failure cases.

#### Smart-PAM Algorithm



In addition, due to concerns about safety accidents in high place work, such as applying intellectual solar cleaning robots to solar power plants, we created the effect of reducing risks and increasing solar power output (5.9%). In February 2018, KOMIPO developed mobile business systems that are free from time and space constraints and increased efficiency in processing tasks. In November of the same year, we developed an integrated management system for information and communication technologies and mobile convergence new and renewable power facilities, and induced facility management convenience and efficiency improvement.

As reference, KOMIPO won the Smart Enterprise Leader Award in the 4th industrial revolution Management Awards in August 2018 in recognition of its technological innovation efforts in the 4th industrial revolution, and in December of the same year, we won the Best CEO Award and the Minister Award at the Corporate Innovation Awards.

## 1,000MW

Succeeded in Commercialization and Promotion of Localizing the first USC (Ultra Super Critical) Pressure of 1,000 MW

## Award Minister prize in Ministry of Science and ICT

2017 National Research and Development Excellence Awards

## Smart Enterprise Leader Award

Won the Smart Enterprise Leader Award in the 4th industrial revolution Management Awards in August 2018




## Best CEO Award & Minister Award

Won the Best CEO Award and the Minister Award at the Corporate Innovation Awards



Value Adding Activities 03

# Establishment of A Growing Energy Ecosystem

-  Goal 2. Zero Hunger
-  Goal 4. Quality Education
-  Goal 8. Decent work and Economic Growth



Number of Jobs Created

# 14,042

### Context

As a member of society, the social needs of companies are increasing both in Korea and abroad. The UN has set 17 Sustainable Development Goals and laid out directions for companies to implement as a milestone to grow together. The Korean government has also selected the fulfillment of social values of public institutions as its key policy agenda, urging the participation of public institutions for common goals. In 2018, we added 'improvement of quality of life' and 'cooperation and participation' as major revisions for evaluation of public institutions, calling for concrete and practical actions that can contribute to society rather than just participation. To live up to this trend and further become a social value leader, a higher sense of corporate citizenship is required. As a leading company in the energy ecosystem, we need to not only create quality jobs but also lead the supply chain and the community with a sense of responsibility.

### Our Approach

KOMIPO has reorganized its job creation strategy system based on government policy, stakeholder's needs, and CEO's management philosophy to draw on major issues of strengthening public character, improving quality of employment, and leading innovative growth. Detailed strategy systems such as 'improving systems based on jobs', 'expansion of flexible work', and 'composing workplace without discrimination' were set to put effort in providing good-quality jobs. Also, by faithfully implementing the shared growth system, we are making a healthy power generation industry ecosystem. We lead sustainable shared growth and realize innovative growth through 15 detailed strategic tasks, including joint advancement into overseas markets and joint R&D technology development. Along with the shared growth of cooperating companies, KOMIPO is contributing in the development of local community. With-KOMIPO is a regional win-win vision system of KOMIPO, which aims to develop regional cooperation projects and find economic uses of local resources, not just donate or share them. Under this vision, we have created 77 regional jobs as of 2018 and are helping to find economic uses of local resources with social entrepreneurship training and start-up recommendations. Also, ELSA<sup>(1)</sup> program provides benefits to communities in the community and the infrastructure for development.

(1) ELSA (Entertainment, Leisure, Sport, Art) Project: Support of areas around the plant and economic revitalization projects



### Our Performance

Amount of Exports to SMEs of Overseas Operations

# 56.8

 billion KRW

Public Integrity Score Ranked by Public Enterprises

# No.1

Shared Growth Evaluation

# Excellent

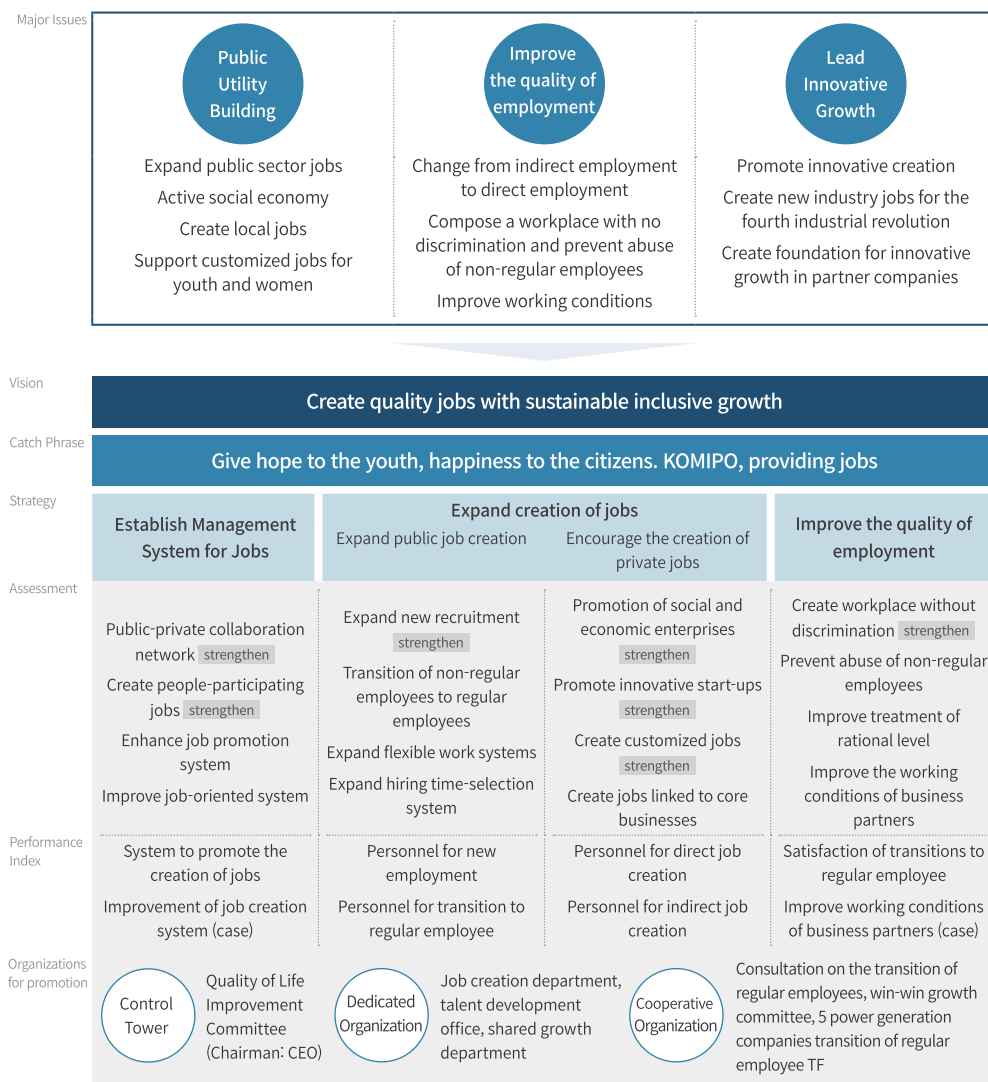
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## Creating Better Jobs

Creating sustainable, high-quality jobs is increasingly important as an economic and social issue that the government, public institutions and businesses must address together. As a result, KOMIPO is making various efforts to create sustainable, inclusive and growth-oriented jobs by reorganizing its job creation strategy system with major issues at the center and establishing a process to implement job creation that is directly taken care of by themselves. For reference, KOMIPO created over 10,000 jobs for five consecutive years from 2014 to 2018 due to its active but systematic efforts to create jobs.

### Job Creation Strategy System

In order to promote effective job creation activities, we also derived major job issues based on government policies, stakeholder's needs, and CEO management philosophy, and reorganized our job creation strategy system in a direction to address major issues. KOMIPO has also enhanced its internal drive for job creation by establishing CEO-led job creation processes and creating internal performance indicators to enhance its performance.



**10,000 jobs**  
Created over 10,000 jobs for five consecutive years from 2014 to 2018

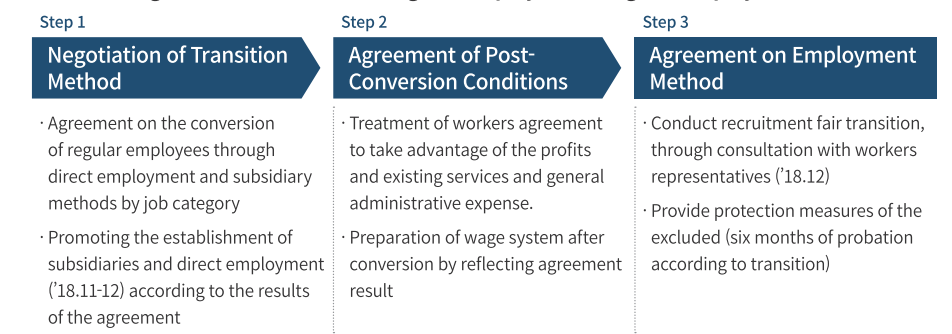


ONE-KOMIPO Family Event Celebrating the 1st Anniversary of the Transition of Non-regular employees to regular employees

## Efforts to Convert Non-regular employees into Regular employees

KOMIPO established a subsidiary for transition of non-regular employees to regular employees in November 2018, for the first time among power generation public enterprises, and completed the transition of 432 dispatched and serviced workers from five jobs to regular employees in order to implement the government's policy for non-regular employees in the public sector. For reference, KOMIPO converted 432 full-time employees from its goal of 444 full-time employees as of 2018, the largest percentage of regular employees among the power generation companies (97.3%). Also, the company strives to protect non-regular employees by providing protection measures for 12 workers (that need social negotiation (7 fire fighters) and protectors (5 drivers)) who are excluded from the transition to permanent positions. Even if it takes time, KOMIPO supports the rational decision making through a consultation process by stage of transition to regular employees, and strives to create a workplace that is free of discrimination by applying the same remuneration system as existing employees and paying KRW 1.9 million per person per year in-house work welfare fund even after transition to regular employees.

### Detailed Stages of Transition of Non-regular Employees to Regular Employee



**97.3%**

2018 Convert rate from non-regular employee into regular employee

## Effort and Performance of Creating Public and Private Jobs

KOMIPO has been efficiently operating jobs with the industrial complex and has been actively promoting creation of public and private jobs based on innovative ideas and execution. First, we formed the Quality of Life Committee under the CEO in June 2017 to carry out state affairs, and we have contributed to improving the quality of life through jobs.

### Effort to Create Public and Private Jobs

In order to create more public jobs by using effective workforce, we established three major job creation strategies (job creation, job sharing and filling jobs) and achieved the largest employment record among the five development companies as of 2018. KOMIPO is also leading the way in creating private jobs, including creating private jobs in connection with power generation projects, establishing an in-house venture for the first time among the power generation companies, and opening a MAKERSPACE for the first time as a public enterprise.

**Largest employment record**

Achieved the largest employment record among the five development companies as of 2018.



## 5 teams

Operate 5 teams of in-house ventures in Safety and eco-friendly field



Launch of "Venture-Topia<sup>(2)</sup>," an in-house venture incubation program

Classification		Details
Creating Public Jobs	Job Creation	· Acquire continuous quota through expansion of future business such as new renewable energy · Increase quota regularly and at any time
	Job Sharing	· Introduction of various types of work, such as recruitment of new employees, improvement of long-term working culture, and promotion of flexible work, and realization of job sharing by reducing labor costs
	Filling Jobs	· Improve the number of employees by improving the calculation method and improving the operation method of the qualified persons
Creating Private Jobs	Establishment and Support of In-House Ventures	· Revision of regulations related to in-house ventures, support for start-up funds, and support for the promotion of in-house ventures, including placement of employees dedicated to start-up support (the establishment and successful commercialization of the power company's first in-house venture corporation)
	Open MAKERSPACE <sup>(1)</sup>	· In order to create innovative direct jobs through technology start-ups, public enterprises open a MAKERSPACE for civilians and expand their entire businesses for the first time.
	Create New R&D Jobs	· Support job creation in the R&D sector of small businesses through multilateral technology sharing and collaboration
	Create Private Jobs connected to Power Generation	· Relate jobs through the creation of jobs in the private sector, fostering small and medium-sized enterprises, inducing hiring in the R&D sector, and overseas · Create indirect jobs through timely investments, such as large-scale construction projects and support for small and medium-sized enterprises
	Establish Excavation of Ideas and Execution System to Create Jobs in a public-private way	· Discover and execute ideas for creating jobs through public recruitment method · Promote ideas for employees and execute excellent ideas
	Create Community-specific Jobs	· Instruct social economic entrepreneurs to establish corporations and create jobs (five companies, 26 jobs as of 2018) · Support the creation of real community jobs, such as holding a job fair · Promote projects to support start-ups to create jobs for young, middle and senior citizens
Transition of Non-regular employees to Regular employees	Implement the Transition of Non-regular employees to Regular employees	· Instruct subsidiaries and collecting opinions from stakeholders for the transition of non-regular employees to regular employees

### Job Creation Performances

As a result of various efforts to create jobs in the private and public sectors, KOMIPO achieved more than 10,000 jobs for five consecutive years.

Category	Unit	2017	2018	
Public job creation	New employees	Person	148	165
	Regular employees (Converted)		1	432
Private job creation	Direct creation of jobs for youths		92	92
	Direct creation of jobs excluding youth			99
	Indirect job creation		13,671	13,254
<b>Total</b>			<b>13,912</b>	<b>14,042</b>

(1) MAKERSPACE: A workplace with the tools and equipment to implement business ideas

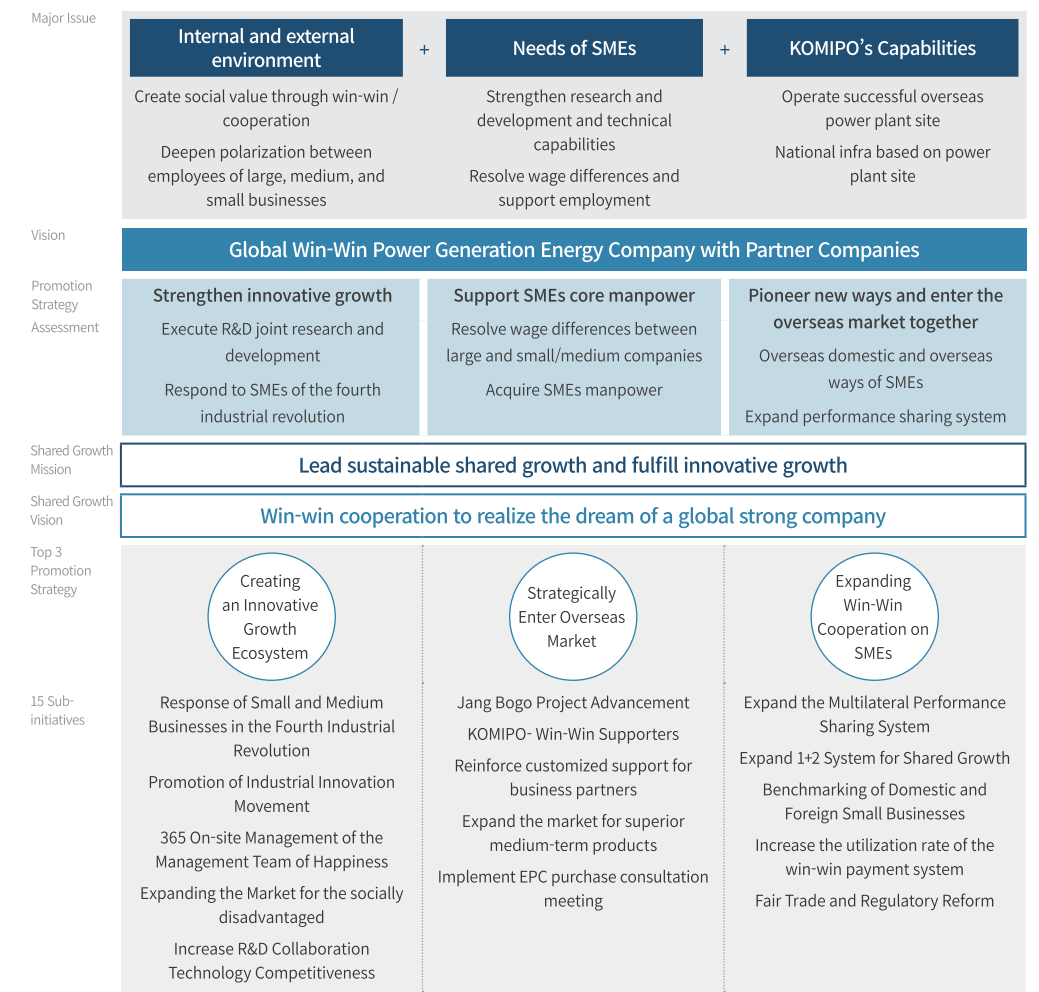
(2) This is a combination of Venture and Utopia, which means an in-house venture incubation program that actively supports in-house venture growth by creating an ideal environment to successfully foster in-house venture.

## Strengthen Win-Win in the Power Generation Industry Ecosystem

KOMIPO carries out a systematic and practical shared growth policy for partner companies to establish themselves as global SMEs. In addition, we received external recognition for its efforts to promote win-win cooperation with SMEs by achieving the highest grade of 'best' in four years from 2015 to 2018 in evaluation of shared growth in public institutions and winning the 'Special President Award for Utilizing Shared Growth FTA' given by the Korea Federation of Small and Medium Business.

### Shared Growth Promotion System

For win-win cooperation with small and medium enterprises, we select and implement three major initiatives such as 'Creating an Innovative Growth Ecosystem', 'Strategically Enter Overseas Market' and 'Expanding Win-Win Cooperation in Small and Medium Business' and 15 sub-initiatives. In order to promote effective shared growth, we have drawn up the direction of shared growth by reflecting the characteristics of institutions, government policies, and needs of small and medium-sized enterprises, and we have designated 2019 as the year of the Quantum Jump for shared growth for large and small businesses to provide on-site support.



Achieved the highest grade of 'best' in shared growth evaluation in four years from 2015 to 2018



Opening ceremony of Foreign Trade Corporation (Cheonghaejin) of Small and Medium Businesses in Indonesia



A Signature Ceremony for the Purchase of Small and Medium Business Products from Indonesia's Cirebon Power Plant

Trading Company Cheonghaejin support contents

- An annual limit of KRW 50 million
- Marketing costs for local network utilization
- Office rent for local office provision
- Required equipment rental costs and labor costs for local employees

Cheonghaejin 1	Country	Jakarta (Indonesia)
	Operation	Seongsan Co., Ltd.
Cheonghaejin 2	Country	Kuala Lumpur (Malaysia)
	Operation	Class Co., Ltd.
Cheonghaejin 3	Country	Cirebon (Indonesia)
	Operation	Seongsan Co., Ltd.

### Strengthen SMEs Overseas Capabilities and Support Market Pioneering

To meet the government's New Southern Policy, we are preparing a system of cooperation between large business and SMEs to help more partner companies advance into emerging ASEAN countries. By sharing our brand power, we are increasing our trust in our products and contributing to our export growth.

#### Entering Overseas Market Together and Conference on Export Promotion

In January 2018, we invited a person in charge of purchasing, dispatched from a foreign operation to hold a meeting. In this meeting, we checked the possibility of application of O/H construction schedule by overseas business sites and the promotion of strategic products by SMEs. In December, we prepared the stage of communication with the heads of overseas business corporations with direct purchasing authority, and four power generation corporate heads and 21 partner companies participated to explore ways to jointly enter the electricity market in Indonesia.

#### Operation of Pilot Projects for Export of Overseas Establishment

KOMIPO introduces a pilot project to export overseas operations to carry out on-site demonstration of SMEs' products that can be used in overseas power plants. We provide up to KRW 100 million per company within 75% of the project cost to support on-site technical support and installation costs.

#### Operation of Overseas Trading Company Cheonghaejin

We operate overseas trading company Cheonghaejin to help local SMEs enter the overseas market successfully by sharing information and the network of successful companies.

### Expansion of SMEs Technical Capability Support

#### Technical Development through Joint R&D

In 2018, through joint R&D with small and medium businesses, we succeeded in developing a coal yard management drone robot that reduces natural ignition by 35% and reduces measurement error of coal stock amount. As a result, we received the Gold Award and Special Award from the Silicon Valley International Inventions Exhibition in the. In addition, through joint research with environmental facility manufacturers, we have reduced emissions of SOx, which is a source of fine dust, and reduced dust by 70% and 80% and succeeded in localization.

Standard	Developed Technology	Improvement
Rotation Type ▶ Gas Leak SOx concentration increase by around 10ppm	Desulfurization equipment Non-leak heat exchanger	Rotation Type (Tube) ▶ Discharged gas 'Zero'
Remove more than 20µm floating substance inertial method	Fine dust pile up equipment using electrostatic force	Remove ultrafine dust below PM 2.5 wet + static method
Expected effect Reduction of particulate matters SOx ▼70%, Dust ▼80%		

#### Support Establishment of SMEs SMARTFACTORY

We support the deployment of smart factory for business partners who need to develop new technologies. We provide KRW 50 million per company, including 3D printers, 3D scanners, IoT, and ERP deployment, and has implemented benchmarking and training for leading companies related to the fourth industrial revolution. In order to secure the fourth industrial revolution and enhance R&D capabilities of small and medium businesses, we open 'Small and Medium Business Research Support Centers' and provide development sites and related data.

### Jointly Entering the Non-pioneered Overseas Market and Providing Bridgehead for Advanced Market

#### Operate 'K-Jang Bogo Project' to jointly enter the overseas market

The K-Jang Bogo Project of KOMIPO is a specialized support business that started in 2015 for quantum jump as a global strong company. It is executed in a customized way by company: Stage 1 (Youth) → Stage 2 (Cheonghaejin) → Stage 3 (King of the Seas) → Stage 4 (King of Trade). It invites buyers to hold export consultation meetings. It also promotes one-on-one matching and 'purchasing consultation meetings' with the person in charge of purchasing power plants in the region. In 2018, the company held export counseling sessions to promote outstanding new products (NEP) and maintenance technologies from 14 companies that focus on and nurture KOMIPO in the Malaysian and Vietnamese power markets. In addition, we visited the Foreign Trade Corporation (KLES JAYA) operated by KOMIPO to check the status of support and operation of small businesses, and provided convenience to partner companies operating in Malaysia. Export consultation through this market opening group was about USD 22 million, and the actual value of the purchase letter contract was about USD 3 million.

In 2019, KOMIPO held an emergency meeting of business partners under Japanese export regulations and organized a 'K-Jang Bogo Project' market development team to Vietnam and Indonesia to seek breakthroughs in the wake of the economic recession. Among the companies that participated in the joint R&D project with KOMIPO, 18 companies have been selected to localize key components of power generation facilities, and nine of them are SMEs designated as development products. In Vietnam and Indonesia, we developed 'KOMIPO-EPA (Export Partners Association)', which is a common brand of shared growth for KOMIPO and the partner companies, and produced and distributed English-language brochures for excellent products from 60 partner companies to local buyers in advance. Three participating companies, including Hyunsung Pump, have signed on-site contracts worth a total of USD 260,000 and received letters of intent for the purchase worth about USD 5.2 million.

#### Support Registration of Global Company Vendor

KOMIPO is in charge of acting as a bridge between a foreign company specializing in power generation facilities and a small company in Korea so that Korean quality companies can register with vendors of global power generation facilities. Over the past three years, 21 GE companies, 17 MHPS companies, and 15 MHPS companies have been registered in 2017. In June 2018, SMEs such as Sunghwa Industry, a company specializing in plumbing, performed export performance of electric power generation facilities worth KRW 12 billion.



K-Jang Bogo market development group (Indonesia)



K-Jang Bogo market development group (Hungary)



K-Jang Bogo market development group (Czech Republic)



K-Jang Bogo market development group (Malaysia)



## Support Activation of Social Economic Business

### Business Platform to Train Social Economic Businessmen

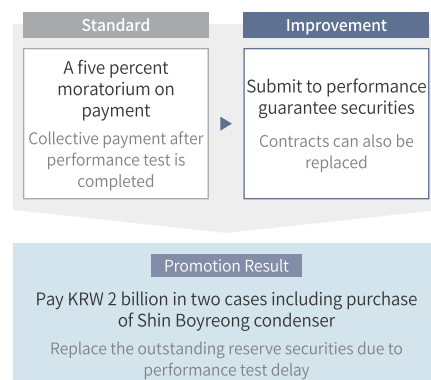
To activate the social economy, we support the entire process of starting a business in order to create more social and economic companies. In 2018, we prepared support measures to foster social economic businessmen along with Chungnam Social Economic Network, a specialized social-economic support organization, and provided various ways to five selected social enterprises, including support for start-ups, product purchases, and promotion. We also prepared training programs to foster social economic businessmen who are preparing to start their own businesses and trained about 200 people a year.

### Settlement of Fair Economic Order

KOMIPO strives to provide win-win environment and establish a fair economic order between large business and SMEs by selecting and actively pushing ahead with the priority promotion tasks in each procurement process stage.

Main Stage	Preparation for Bidding	Assessment for Bidding	Contract	Post-management
Main Duty	<ul style="list-style-type: none"> <li>Review of qualification for bidding</li> <li>Determination and announcement of bidding method</li> </ul>	<ul style="list-style-type: none"> <li>Bidding and opening</li> <li>Evaluation such as qualification examination</li> </ul>	<ul style="list-style-type: none"> <li>Decision of the winning bidder</li> <li>Preparation of contract and guarantee of performance</li> </ul>	<ul style="list-style-type: none"> <li>Inspection and payment</li> <li>Manage contracts, such as self-assurance</li> </ul>
Assessment for Central Promotion	<ul style="list-style-type: none"> <li>Improve contract transparency</li> <li>Enforcement of training for business partners</li> </ul>	<ul style="list-style-type: none"> <li>Improve Priority Procurement Contract Bidding Method</li> <li>Execution of performance below the notice amount</li> </ul>	<ul style="list-style-type: none"> <li>Expanding the scope and additional items of companies to be created in jobs</li> </ul>	<ul style="list-style-type: none"> <li>Expand direct payment for subcontracting</li> <li>Replace performance reserve securities</li> </ul>

First of all, in the bidding preparation stage, we apply the multiple reserve price<sup>(1)</sup> system to all competitive bid. In the bidding evaluation stage, we improve the bidding method through priority procurement contracts for SMEs and grant them bidding price points, thereby increasing the chances of winning orders. In the process of obtaining a contract, the company implements a contract deposit exemption system for job-creating companies. Finally, the company improves the payment process during the post-management stage, contributing to the establishment of a fair transaction order in the power generation industry. KOMIPO improved the payment environment by replacing Performance Reserve<sup>(2)</sup> into guaranteed securities for the first time among power companies to improve the actual payment environment, such as excessive deposit reserve practices of partner companies, and by introducing an incentive system that supports 100% of the recognition tax and 50% of the prepayment fee when using the win-win settlement system, resulted in a significant increase in the amount of win-win settlement system and the number of payments (2017: 17 →188 cases). In order to secure cash flow and improve the stability of fund management by SMEs, the advance payment rate was raised to 70% of the contract amount. In addition, the advance payment application is promptly paid within 14 days.



(1) Multiple Reserve Price: 15 randomly selected prices in the procurement system based on the basic reserve price (the expected price is determined by the arithmetic average of the four frequencies selected by the bidder.)

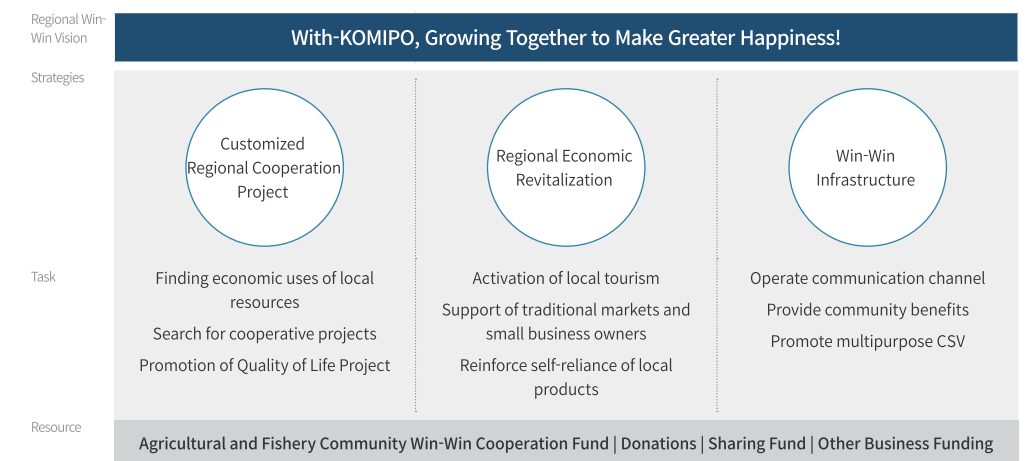
(2) Performance Reserve: Amount reserved on payment for guarantee performance collateral in performance guarantee conditional contract (contract amount 5%)

## Participation and Sharing in the Community

KOMIPO is promoting community support projects to meet the needs of the community and to actively utilize our capabilities. We are also constantly communicating with local residents and specialized institutions to develop and improve community issues in order to promote customized projects that are specialized to the local community.

### Establishment of Regional Win-Win Vision System

In order to achieve harmonious co-prosperity with the local community, KOMIPO has established a “With-KOMIPO” vision for regional win-win and carried out various regional win-win projects under the three major initiatives of 1) customized regional cooperation projects, 2) regional economic revitalization, and 3) win-win infrastructure.



### Promote Customized Regional Cooperation Project

KOMIPO utilizes the capabilities and resources of the institution to help build a growth base for the community. Through the promotion of regional specialization projects, we are improving the residential conditions of the population reduction areas and helping the transformation of residential areas into residential areas. As of 2018, we are contributing to the revitalization of the local community by creating regional jobs (by creating 77 local jobs) and improving regional infrastructure.

#### Support Activities for Local Cooperation Business by Utilizing Regional Products

Needs of Community	Business Name	Promotion	Employment Creation
Business and Promotion of Traditional Food	(Jeju) Ssale	Experience center for Jeju's traditional food (bread rice cake) and operate café	10
Expand consumption of rice and harming	(Seocheon) Gosurok	Promote consumption of agricultural products through ramie rice cake business	19
Search to enter overseas with regional product (dried laver)	(Seocheon) Seoreya	Develop and produce stick packaging dried laver and carry forward HMART entrance	10
Expand consumption of fruit farming	(Sejong) Rang	Business for cup fruits connected to fruit farming	12



Hope Job Sharing Opening Ceremony



Operate 'Private Sales Supports Group' for Social and Economic Products Market pioneering

**Activities and Performance of Customized Regional Cooperation Projects (as of 2018)**

- Finding Economic Uses of Local Resources**
  - Discover business ideas using special products and support senior company start-ups
  - Create 26 jobs through training for local social entrepreneurs (200 employees) and support start-ups (five companies)
- Search for Cooperative Projects**
  - Self-cooperation** Provide training for women from multicultural families and support for the establishment of cafes for social enterprises
  - Communication of local residents** Four seasons for fry discharge due to warm water effect equipment improvement to the cultivation facility ▶ Raising KRW 2.6 billion in income for fishermen
  - Communication of local residents** Implement a sewage reuse project (10,000 tons/day) led by KOMIPO ▶ Solve the shortage of water in Boryeong Dam
- Improvement in Quality of Life**
  - Project to provide new nesting places to vulnerable people from 2007 (Currently 21 'House of Hopes')
  - Remodel old houses to compose small community centers to share information about business
  - Provide real-time mobile app about fine dusts around the power plant according to the interest on environmental issues of local citizens
  - Cooperate in 'City Regeneration New Deal' to activate old cities ▶ Joint promotion with Boryeong City until 2022.

**Expand Support for Activation of Regional Economy**

In order to promote activities specialized in community needs, we actively seek out and implement projects that will satisfy local residents based on communication with local residents and local governments. First of all, we are trying to play our role as a member of the community by helping the local community in various ways, purchasing local agricultural products, and promoting talent donation activities for the local community.

**Promotion Activity for the Activation of Regional Economy**

- Support for Activation of Local Tourism**
  - Support festivals by customized regions by cooperating with local governments
  - Support successful Pyeongchang Olympic Games with the entire nation as an energy company
  - 8,000 persons' price tickets for university students
  - Support to watch games at local children's center (around 600 persons)
  - Donate 10,000 tons of carbon credits and sponsor KRW 5 billion in cash
  - Create future energy industry public relations center and sponsor KRW 5 billion in cash
- Support for Traditional Markets and Small Business Owners**
  - Operate 'Share-Café' within the local traditional market
  - Employee Pro Bono: Provide in-house lawyer/tax accountant consulting
  - Ease entry barriers for SMEs to participate in bidding in the region
  - Participation of regional SMEs to construction projects (two cases, participate in 10% of the constructions)
- Strengthen Self-Reliance of Local Products**
  - Support increase of regional products by opening online market by using in-house IT resource
  - Cultural support and purchase of regional products
  - Support promotion on consuming regional products

Support Activity for Festivals by Region

Regional Festivals	Negotiations with Local Government During Festival Period
Boryeong Mud Festival	<ul style="list-style-type: none"> <li>Supports shuttle bus operation in vulnerable areas of public transportation</li> <li>Overseas business manager = English interpreter, Safety Manager = Safety leader with partner company</li> </ul>
Seocheon Camellia and Webfoot Octopus Festival	<ul style="list-style-type: none"> <li>Provide reclamation site as a parking lot and a folk play experience hall</li> <li>Support electricity and water supply facilities and implement environmental purification activities</li> </ul>
Jeju Traditional market Fall Festival	<ul style="list-style-type: none"> <li>Open Jeju dialect experience event in the sister traditional market</li> <li>Replace old electricity equipment and LED high-efficiency lights within the traditional market</li> </ul>
Dangjin Tourist Product Development	<ul style="list-style-type: none"> <li>Activate regional economy by composing Dulle road and observatory around Seokmun Lake water solar power.</li> <li>Share income with shares participation of local citizens (10%) and donate 2MW power plant equipment</li> <li>▶ Create additional value of KRW 23.5 billion</li> </ul>

**Foster Win-Win Infrastructure for Local Community Development**

Classification	Promotion Activity																
Operate communication channel	Implementation of survey on social contribution for local residents, welfare organizations, and local government officials As of 2015, 140 shareholders have gone through diagnosis on activity status and survey to receive opinions																
Provide benefits for local society	Promotion of ELSA Project																
	<table border="1"> <thead> <tr> <th>Entertainment</th> <th>Leisure</th> <th>Sport</th> <th>Art</th> </tr> </thead> <tbody> <tr> <td>Watching movies with local residents using high-definition video equipment</td> <td>Compose and open carbon forest in Shin Boryeong Site Division treatment plant</td> <td>Support unpopular sports facilities by region (Sepak takraw)</td> <td>Open art exhibition with residents by utilizing in-house park</td> </tr> <tr> <td>Support local festivals and link tourism to energy promotion centers</td> <td>Compose citizen's park in Seoul Thermal Power Plant</td> <td>Provide construction land for convenience facility in Mapo-gu of Seoul Thermal Power Plant</td> <td>Construct power plant in Seoul Thermal Power Plant, 'Tate Modern' of Korea</td> </tr> <tr> <td>Open the Abolished Power Plant to the Movie Theater</td> <td>Create and open café with Hangang River view on the rooftop of the new building of Seoul Site Division</td> <td>Open sports facility in the power plant as a venue for local sports competition</td> <td>Open art exhibition by utilizing Sacheon Marine Wastes</td> </tr> </tbody> </table>	Entertainment	Leisure	Sport	Art	Watching movies with local residents using high-definition video equipment	Compose and open carbon forest in Shin Boryeong Site Division treatment plant	Support unpopular sports facilities by region (Sepak takraw)	Open art exhibition with residents by utilizing in-house park	Support local festivals and link tourism to energy promotion centers	Compose citizen's park in Seoul Thermal Power Plant	Provide construction land for convenience facility in Mapo-gu of Seoul Thermal Power Plant	Construct power plant in Seoul Thermal Power Plant, 'Tate Modern' of Korea	Open the Abolished Power Plant to the Movie Theater	Create and open café with Hangang River view on the rooftop of the new building of Seoul Site Division	Open sports facility in the power plant as a venue for local sports competition	Open art exhibition by utilizing Sacheon Marine Wastes
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Promote multilateral CSV	Community donation through recycling and free donation of unused materials to abolished power plants, such as soil and materials																

**Create Shared Values of Community in Overseas Businesses**

In overseas markets, we are leading inclusive growth with shared value-creating activities that are specialized for the needs of the community. Since 2017, we have been carrying out a forest-building project to plant 10,000 mangroves along the coast of Cirebon, Indonesia, improving the training infrastructure of underdeveloped areas, and actively participating in regional reconstruction activities in the event of disasters such as earthquakes and tsunamis. We especially communicate with local residents at individual overseas sites and understand their needs in order to develop projects that local residents need the most. In the future, we will take the lead in solving foreign community issues and creating value by actively utilizing KOMIPO's business capabilities and infrastructure based on sincere concerns about the countries that are advancing into the global market.

**BEST PRACTICE**

**Joint Establishment of Development and Training Center for Indonesia's Ministry of Industry and KOMIPO**

This project meets the needs of the central power company, the local company of the Cirebon, and the Indonesian government. Through this project, the Indonesian government expects the project to generate achievements such as fostering high-quality human resources and providing job support in the field of power generation, and ensuring a stable operation of power plants by securing skilled professionals, while KOMIPO improves global partnerships and ensures a sustainable overseas business foundation. KOMIPO has continuously returned some of its profits from overseas projects to the local community, and the Power Generation Training Center has also been promoted as part of the CSV (Creating Shared Value) activities of KOMIPO. KOMIPO has dispatched a development expert to this development training center, which was established in Cirebon, West Java, Indonesia, to support lectures, provide training curriculum, and provide 20,000 dollars' worth of training materials.



# Sustainability Management System

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## Governance

### BOD composition and operation

The Board of Directors of KOMIPO is a top decision-making body, and it is transparently disclosing the outcome of its deliberations and decisions. The board has an audit committee, a non-executive board, and a professional committee within the board to enhance the rational and transparent decision making, checking, and monitoring functions. Currently, the total number of directors is eight, including the chairman, and it consists of four standing directors, including the CEO and four non-standing directors.

#### Composition of the Board of Directors

As of the Second Quarter of 2019

Name	Sector	Position	Career	Name	Sector	Position	Career
Hyung koo Park	Public Sector	President	· Head of Power Generation Safety HQ (Standing Director), KOMIPO · Head of Seoul Power Generation Site Division, KOMIPO	Eun a Ko	Environment Organization	Non-standing Director	· Director of Education of Daejeon Environmental Movement Association · Administrator of Daejeon Environmental Movement Association · Head of Training Department of Daejeon Environmental Movement Association
Dong hwan Han	Public Sector	Standing Auditor	· Administration Auditor of Citizens' Coalition for Economic Justice of Chuncheon · Director of Training of the Presidential Committee · Director of Chuncheon International Water Forum	Kyung shick Shin	Legal Arena	Non-standing Director	· Head Lawyer of Law Firm Hwa Hyeon · Director of Prosecutor's office at Suwon District Prosecutors' Office · Director of Prosecutor's Office at Cheongju District Prosecutors' Office
Shin hyung Kim	Public Sector	Head of Planning HQ	· Administrator of Planning Committee of KOMIPO · Head of Sejong Power Generation Site Division, KOMIPO	Yong sang Jeon	Public Sector	Non-standing Director	· SM ENC Auditor (present) · Secretary General of Seosan/Taeon Regional Committee of the Democratic United Party · Assistant Secretary of State
Ho bin Kim	Public Sector	Director of Technical HQ	· Head of State Affairs Task Force of KOMIPO · Head of Energy New Industry of KOMIPO	Shi je Cho	Power Industry	Non-standing Director	· Head of KEPCO Seongnam Branch · Head of KEPCO Gyeonggi Bukbu Branch · Chief of Supply Management of KEPCO

We are making efforts to vitalize the management of the Board of Directors through internalization of the support system for the Board. We operated a professionalism program for new non-standing directors and induced them to participate in management activities by expanding the briefing sessions and meeting the regular board meeting schedule. This has resulted in a significant increase in attendance at the board meeting despite 90% of the board members being replaced and restrictions on their place of residence in 2018.

#### Major Performances in the BOD Operation

Category	Unit	2017	2018	2019
No. of the BOD Meetings	Time	15	13	12
Agendas Deliberated	Case	40	40	57
Preliminary Deliberation Rate	%	100	100	100
No. of Agendas Modified	Case	2	0	1
No. of Items Reported	Case	14	10	14
Attendance Rate of the BOD	%	95	99.2	98.3
Attendance Rate of Non-standing Directors	%	91.5	98.5	97.4
No. of Management Proposals	Case	50	34	38

## BOD Operation System

According to the Act on the Management of Public Institutions, BOD members are recommended by the Director Recommendation Committee in view of independence, understanding of sustainability management, and professionalism in our business. The Committee consists of external experts and non-standing directors to ensure independence and entire recommendation processes are conducted transparently. In addition, an internal staff selected on the executive board of Youth Council junior board to adopt a system of the previous examination. By reviewing the proposal and using this opinion as a judgment by the BOD, the junior board contributes to improving transparency in governance. The standing directors, including the president, and the standing auditors are compensated through basic annual salary and performance bonuses in accordance with internal regulations. In the case of performance bonus, the president is calculated on the basis of the management contract, and the standing auditor and the standing director are paid compensation according to the internal management performance evaluation method and results within 100% of the basic salary. The non-standing directors follow separate regulations.

### BOD Operation and Goals

Promotion Strategy	Substantiality of Operating BOD	Strengthening BOD Transparency	Performance in contrast to previous year of strengthening non-standing director
Promotion Task	Operate program to increase understanding of non-standing directors	Organize and operate professional committees by sector	Secure board members with expertise
	Increase attendance rate of BOD for non-standing directors	Improve transparency in BOD governance	Improve management procedure of management proposal
	Strengthen agenda deliberation function	Operate fair executive recommendation committee	Execute work assessment and feedback
Performance Index	100% of preliminary deliberation rate	Attendance rate of BOD above 95%	More than 32 performance evaluations
Monitoring and Feedback	<b>Establish evaluation plan</b>	<b>BOD Activity</b>	<b>Operational performance evaluation</b>
	Set evaluation items and goals	Perform duties	Comprehensive evaluation and survey
			<b>Evaluation and Feedback</b>
			Derivation and reflection of improvement tasks

## Strengthen Participation of Non-standing Directors

The company strives to implement the responsibility management by strengthening non-standing directors' management activities. In order to enhance the level of the project sites of the new non-standing directors, we operate a program to enhance the company's overall understanding and enhance its expertise in the power generation industry. In addition, we share the roles of non-standing directors in each sector to maximize their participation in management. We secured major management suggestions and secured major achievements including social values by securing expertise in connection with company management. Also, we were able to improve the management suggestion management procedure of non-standing directors to strengthen performance management, clarify responsible materials, and improve the verification of the results of actions. We continue to strengthen the role of the BOD, including non-standing directors, by sub-dividing the outcome management by self-assessment of job activities and implementing feedback.

## Risk Management

### Deriving Risks

KOMIPO has established and operated an integrated system for pre-inspection and response to financial risks and related areas. We establish a timely risk response system by operating key indicators through internal and external environmental analysis.

#### BOD Members

Internal/External Environment	Company-Wide Risk Management	Intensive Monitoring
Expansion of new and renewable investment and measures to reduce fine dust Higher oil and fuel unit prices Changes in exchange rate and interest rate due to changes in international situation	Hold Risk Management Committee Select focused management risks Upgrade risk alert standards	Financial structure risk Debt ratio, operating profit ratio Market risk (Fluctuating fuel costs)

As changes in the financial structure are expected due to recent changes in the government policy and overseas business environment, we analyzed the internal and external environment so that we can immediately respond to the rapidly changing business environment. We also derived risks subject to intensive monitoring and management by taking into account the risk factors resulting from it.

#### Selection of Intensive Management Risks

Management Environment	Predicted Risks	Influence	Intensive Monitoring Subjects
The Renewable Energy 3020	Increased deb due to expansion of new and renewable energy investment	Increase of Debt rate	Financial Risk (Debt Ratio)
Fine Dust Reduction Measures	Reduced sales amount due to suspension of operation of old thermoelectric power plant	Decrease of operating profit rate	Financial Risk (Operating Profit Rate)
Fuel Ratio Increase	Reduced sales amount due to increase of ingredient costs and decrease of settlement adjustment factor	Increase of fuel costs Decrease of operating profit rate	Market Risk (change of fuel costs) Financial Risk (Operating Profit Rate)
Increase of Industrial Safety Expectations	Decrease of trust by the citizens due to industrial accidents	Increase of accident occurrence rate	Operation Risk (Safety Accidents)
Increase of Competition in overseas business	Increase of risk for construction and operation such as overseas hydroelectric power generation accidents	Reduced strategy execution rate	Strategy Risk (Failure of New Business)

## Strengthening Risk Management

To strengthen real-time monitoring of selected risks, we operate a systematic risk-hedging system. We divide the risks under intensive management into market risk, financial risk, strategic risk, and operation risk, and operates a real-time monitoring system accordingly. Also, we expanded response activities to each risk. These risk monitoring activities have helped minimize risk losses by responding quickly to risks in the financial and fuel sectors. In particular, financial risks increased in 2018 due to changes in the environment in the fuel cost and power trading markets, and we activated the emergency management system by detecting them in advance. As a result, we have significantly reduced our losses through our enterprise-wide cost reduction activities. In the future, we intend to maintain and continuously develop the company's risk management system to operate a risk management system that can immediately respond to changes in the internal and external environment.



**Risk Monitoring System**

Internal/External environment preventive risk	Intensive management risk	Core risk index	Managing Department	Monitoring System	Response Activity
<b>Increase of Fuel Costs:</b> Decrease of sales amount due to increase of ingredient costs and decrease of settlement adjustment factors	Market risk	Changes in exchange rate and interest rate Risk of changes in fuel price	Department of Finance and Budget Department of Fuel	Integrative Fuel Information System (SSo-FM) Bloomberg Info Max information integrative management	Respond to changes of exchange rate, increase speed Always predict fuel price
<b>The Renewable Energy 3020:</b> Increase of debt due to expansion of new and renewable energy investment <b>Fine dust reduction measures:</b> Reduce sales due to suspension of old thermoelectric power plant	Financial Risk	Increased debt ratio Decreased operating profit rate	Department of Finance and Budget	Separated accounting system Financial performance and prediction program	Reduced debt and connection to financial risk Always check the annual finance
<b>Intensive Competition of Overseas Business:</b> Increase of operation risk and construction such as overseas hydroelectric power generation accidents	Strategic Risk	Risk of failing new business Risk of not executing RPS goal	New growth Business Group	Separated accounting system New Business Information System	Warning for risk stage of weak business Real-time management of RPS execution amount
<b>Increased Expectation of Industrial Safety:</b> Decreased trust of the citizens due to industrial accidents	Operation Risk	Disaster safety accident Suspension of fuel supply	Industrial Safety Office Department of Fuel	New Business Information System Integrative Fuel Information System (SSo-FM)	Real-time monitoring on safety accidents Announcement of boundary on the days of safety accidents

**Case on Financial Risk Time Response through Operation of Early Warning System**

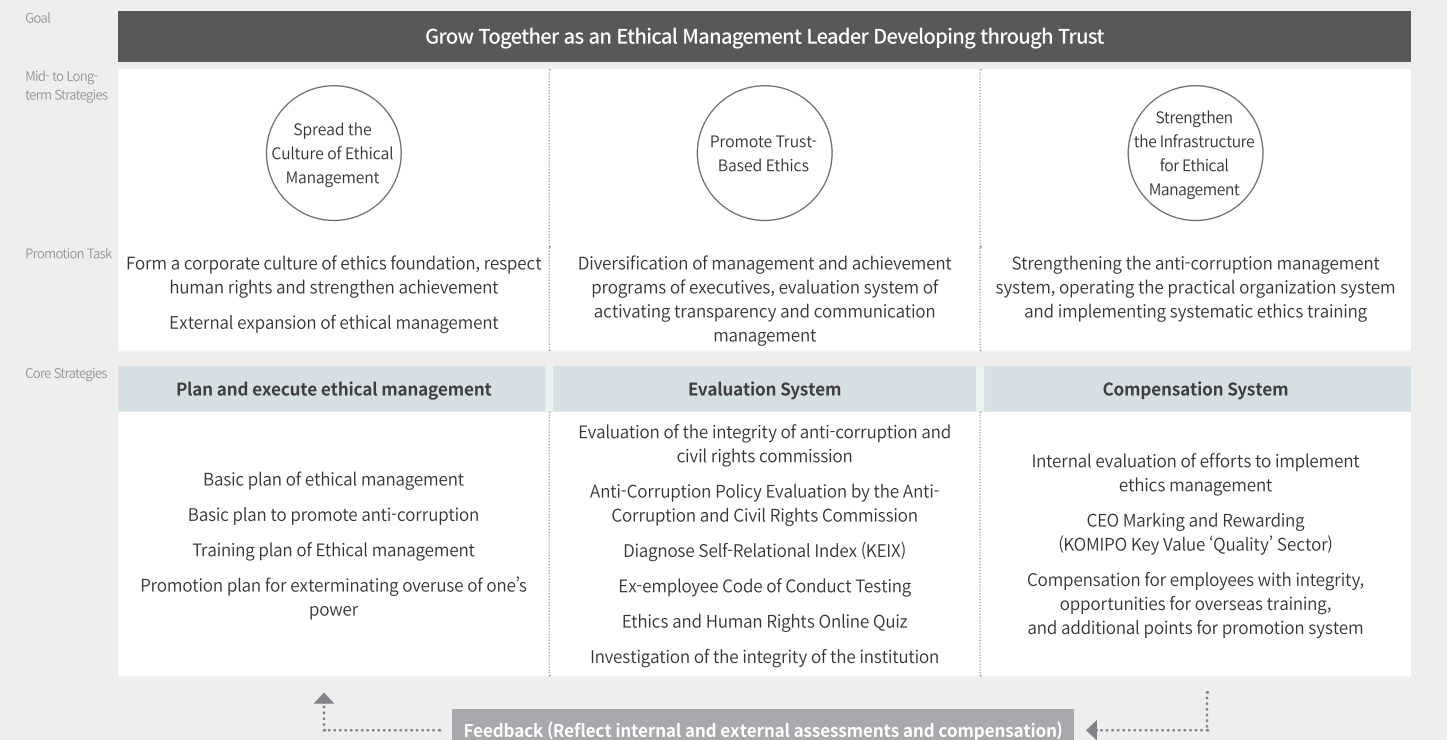
Occurrence Situation	Response	Result
Increase volatility with continuous increase of U.S. interest rates Large-scale shortage fund	Precise monitoring for Korea and U.S. bond market Identify investor preference, demand, and liquidity through the integrated information of Bloomberg and INFOMAX	Issue company's first 30 years, issue minimum interest bond of generator 30 years 2.240%, 20 years 2.485% *Generator average 2.575%, 2.668%
Increased foreign exchange risk due to increased exchange rate volatility	100% Hedging with exchange risk management committee every quarter Real-time exchange management using the Integrated Fuel Information System	2018: around USD 1.5 billion, around 220 shipments were carried out for foreign exchange transaction ▶ Exchange profit of KRW 1.2 billion was fulfilled
Increase of risk and lack of volume due to limitations of LNG storage	Establish supply and demand emergency plan with an overseas LNG company Enable exchange of volumes (swap) between terminal users	Executed 248,000 tons (17 times) of LNG supply exchange

**Ethical Management**

**Providing Base to Achieve Ethical Management**

**Ethical Management Promotion System**

Our vision for ethical management is 'Grow Together as an Ethical Management Leader Developing through Trust'. To achieve this, we established three mid- to long-term strategies, including spreading the culture of ethical management, promoting trust-based ethics, and strengthening the infrastructure for ethical management. We have also derived detailed implementation tasks accordingly. In addition, the Department of Ethics and Compliance was newly established and reinforced to strengthen the organizational system of ethical management.



**Expansion of Ethical Management Culture**

**Expressing the Will to Practice Ethical Management**

To strengthen ethical leadership, we have signed a job request contract that states that all new management members will collect up to 100% of their performance bonus in case of violating the duty of integrity, and we have launched a direct call to the CEO hotline regarding sexual harassment and overuse of power. In addition, we are expanding our ethics management culture by taking the initiative in participating in the UN Global Compact Fair Player Club's anti-corruption pledge.

### Ethical Management Training

We have newly established various ethics training programs and provided customized ethics training separately for each life cycle to maximize the effectiveness of training in order to spread the right culture of ethical management. In particular, for the newly added ethics training program, communication, participation, and interest factors have been considered, and the participants receive great response.

Classification	Training	Main Contents and Performance
Ethics Training Program for Communication, Participation, and Entertainment	Integral Ethics Day	Exchange opinions between employees in comments after watching training Five times, 3,578 comments
	Ethics Golden Bell	Quiz type for interest, motivates participation by showing real-time rankings
	Ethics Together with CEO	Ethics training to communicate with the CEO with a topic Total three times
	Cartoon on Action Regulations	Produce cartoons for training data by selecting 10 main revisions of Code of Conduct and Prohibition of Claims
	Ethics Magazine	Produce and distribute the best cases of global ethics management, ethics management news, and Q&A in magazine format
Ethical Training by Life Cycle	Ethics Training for New Employees	Provide training on integrity and ethics for 153 new employees
	Ethics Training for New Managers	Training on the meaning of integrity ethics for 37 new managers
	Ethics Training for Senior Managers	Training on anti-graft law for 167 senior managers
	Ethics Training for Management and Senior Executives	Provide integrity leadership training for 22 executives and senior executives
Integral Ethics Training on All Employees	Collecting Training (Invite External instructor)	Total of 1,123 persons
	National Anti-Corruption and Civil Rights Commission Integral Cyber Training Institute	Total of 2,139 persons

### Activities to Promote Anti-Corruption

In recent years, the government has been expanding its policy on rooting out corruption, including hiring irregularities and the eradication of overuse of power in public institutions. Along with this trend, we contribute to the eradication of corruption by developing our promotion activities and reorganizing our management system. We are especially improving our code of conduct in order to strengthen preventative corruption. We newly established a report of personal interests with job related persons and a report of personal contact with job-related retirees. A ban on private labor demands such as overusing power was newly established, and a ban on illegal solicitation such as hiring was strengthened. Based on the revision of these codes of conduct, the basis for cancellation of employment for those who fail to comply with the Personnel Management Regulations was stipulated and the strict treatment of those who are involved in the hiring scandal was also specified.

### Ethical Management Evaluation Result and Feedback

Category	2016	2017	2018	
Evaluation of Integrity of Anti-Corruption and Civil Rights Commission	Comprehensive Integrity	8.83 points	8.85 points	8.99 points
	External Integrity	9.02 points	8.92 points	9.10 points
	Internal Integrity	9.15 points	8.80 points	9.24 points
	Policy Customer Evaluation	7.74 points	8.64 points	8.15 points
Evaluation of Anti-Corruption Prevention Policy by the Anti-Corruption and Civil Rights Commission	Excellent	Good	Waiver <sup>(1)</sup>	
KOMIPO Ethics Index	8.70 points	8.53 points	8.59 points	

(1) Receiving 'Good' for 2 consecutive years on integrity evaluation gives the opportunity for waiver.

## Human Rights Management

### Establish Human Rights Management Promotion System

We have executed internal and external environmental analysis to step up as a leading company for human rights management, and we have established a human rights management promotion system. Under the goal of 'A Leading Company that Fulfills Human-Centric Human Rights Management', we have set top three tasks. To promote human rights management, we launched a human rights management committee consisting of internal and external members and established a department in charge of human rights management to strengthen the human rights management organization. In addition, we conduct an annual human rights impact evaluation on the operation of the institution based on the 'Guidelines for Human Rights Management of Public Institutions' presented by the National Human Rights Commission in order to manage human rights risks that may occur during management activities in advance.

### Human Rights Management Strategic System

Vision	Global Win-Win Power Generation Energy Company Made with the Partners		
Promotion Task	<b>Reinforce infrastructure for human rights management</b>	<b>Improve the performance of human rights</b>	<b>Spread values of human rights management</b>
Promotion Strategy	Readjustment of human rights management regulations Empower human rights understanding and capacity perate human rights counseling and report center	Human rights impact evaluation Development internal evaluation index Operate foreign consultative group	Spread human rights management internally and externally Deliver human rights respect culture of stakeholders

### Role of Human Rights Management Committee

Items on planning and evaluation regarding human rights management	Investigation and review on the human rights violations
Items on human rights management system and policies	Decided items that need deliberation by the chairman or president
Items on human rights practice and inspection obligations, such as human rights impact evaluation	

### Consideration and Decision

### Efforts to Expand Human Rights Management

#### Execute Training to Prevent Human Rights Violation

KOMIPO provides case-oriented training for all executives and employees to prevent the violation of human rights in order to improve human rights sensitivity. In order to enhance the level of participation of executives and employees, we awarded excellence by operating a human rights quiz program. We plan to provide various training programs to prevent human rights violations in advance.



**Execute Training to Prevent Human Rights Violation (As of 2018)**

Classification	Main Contents	Participants
Human Rights Management Video Training	All employees pledge to comply with the Human Rights Management Charter, prevent discrimination, and prevent overuse of power	2,148
Overuse of Power and Unfair Business Instruction Case Training	Casebook for internal training and disclosed to the outside	2,064
Sexual Harassment Prevention Training	Invite external instructor for preventive training such as sexual violence and sexual harassment prevention	2,259
Implementation of training to improve awareness of the disabled in the workplace	Training to understand the types of disability and about employment promotion	2,286
Human Rights Quiz	Quiz to improve the understanding of human rights management, reward outstanding people	431

**Activation of the Ombudsman System**

We operate a customized ombudsman system for each area. In the human resources field, we guarantee a reduction in maternity leave and working hours for pregnant women in order to relieve their child-rearing difficulties by operating one-stop service, and we deal with personal problems of employees such as family problems, legal counseling, and career counseling through external professional counseling agencies. We also operate communication channels through regular meetings with business partners to receive and resolve the difficulties of business partners. Furthermore, we operate reporting centers such as Red Whistle, Sinmungo, and KOMIPO Yellow Card to prevent bullying and overuse of power in the workplace to protect human rights of our employees and partner companies.

**Charter of Human Rights Management**

We contribute to national development by providing secure power supply based on technological innovation and eco-friendly management, while promoting a fair society without discrimination and human rights management with the people in mind. We declare the KOMIPO Human Rights Management Charter as follows and pledge to implement it as a standard that executives and employees should abide by for the enhancement of human dignity and value in all management activities domestically and abroad.

<p>One, we shall respect and support international standards and regulations on human rights, such as the UN Universal Declaration of Human Rights.</p> <p>One, we shall not discriminate in employment and work on the grounds of ‘difference’ such as gender, race, religion, disability, age, place of birth, academic background and political views, and form an organizational culture of mutual respect and consideration.</p> <p>One, we shall guarantee the freedom of association and collective bargaining rights of employees as stipulated in the Constitution.</p> <p>One, we shall prohibit forced labor and child labor in any form.</p> <p>One, we shall create a working environment in which employees’ safety and health are considered as top priority.</p> <p>One, we shall be committed to complying with domestic and international environmental laws and shall prevent environmental pollution and environmental disasters.</p> <p>One, we shall strive for win-win cooperation as an equal relationship with partner companies.</p> <p>One, we shall respect the human rights of local residents and all stakeholders both domestically and abroad, and we shall pursue win-win development.</p> <p>One, we shall strive to protect personal information and business-related information acquired in the course of management and business promotion.</p> <p>One, we shall prevent grievances and human rights violations arising in the course of the institution’s management activities in advance and shall strive for active relief.</p>
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# Talent Management

## Establishment of Employee-oriented Safety Workplace

KOMIPO continues its safety management and health promotion activities to establish an employee-oriented workplace. Safety management activities include eliminating threats to the workplace that threaten the safety of employees, and by 2025, KOMIPO aims for zero harmful chemical substances and is committed to creating a safe workplace. To improve the health of employees, we also operate a hearing preservation program for employees who are exposed to noise and an EAP linked to psychological counseling. By expanding the scope of safety management to business partners, we assure non-differentiated safety through the same EAP support as the executives and also provide ‘Happy Care’, which is a comprehensive program by stages that is responsible for entering the hospital, outpatient treatment, and recovery. In addition, the company is fully committed to the safety of its employees by including industrial safety and health management expenses in all the ordered construction projects, and continues customized management activities considering the safety of vulnerable employees of the partner company such as the disabled, pregnant women, and foreigners.

## Acquire Balance of Work and Life

We possess the promotion system for the balance of work and life to seek happiness within life and family. Also, we continue to find ways to improve this. We have set the goal ‘Work Smart! Life Smile!’ and also provide childcare support activities, improvement of long-term working culture, and flexible working style.

### Flexible Working Method

Flexible working style is an area that is being pursued with a strong will of the head of the institution, and in 2018 various efforts were made to eliminate obstacles to the spread of flexible working system. We implemented early leave on Fridays by utilizing flexible work system, and improved rigid practices that are passive in using flexible work system, such as the notice of a boss, through collective implementation of flexible work system. As a result of such efforts, the number of employees using flexible work system totaled 976 employees in 2018, and utilization rate increased by 17.0%p compared to the previous year. Especially, the number of flexible working hours increased by 341 employees compared to the previous year, resulting in a roughly 7-fold increase in usage.

### Improving Long Working Culture

To change long working culture, we strive to settle the 52-hour working system and carry out diverse efforts through continuous improvement of the system and reinforcement of replacement workers by utilizing the peak wage system. We also set the number of days of annual leave in order to encourage annual leave and activated the annual leave by establishing an annual selection system and an annual savings system. The company is also leading the way in improving the working culture through intensive work hours, broadcasting for getting off work, and operating programs to support self-development and encourage leisure for individuals and their families. In 2018, overtime work hours for employees decreased by 25,000 hours compared to the previous year, while working hours per person decreased by 11 hours. In addition, the usage rate for annual leave rose 12.1% year-on-year to 78.1%.

### Support Childcare

The maternity and paternity leave period is set at up to three years for each child and working hours can be shortened during pregnancy and childcare. Also, by operating a daycare center at work, we contribute to solving the difficulties of parenting. Furthermore, we continue to improve the system for the expansion of the culture of male employees’ participation in childcare, and as a result of this, the use rate of paternity leave was 100%.

**Improve System to Expand Participation in Childcare for Fathers**

Goal	Improvements
Increase the use of paternity leave	From second child, all leave period of one or more years is counted in the years of service
Increase the use of spouse maternity leave	Paid maternity leave period expanded from 5 days to 10 days
Increase the use of male parenting	Recognition of child care now including all employees (including male)

**Improve the Fairness of Hiring and Personnel Management**

As one of Korea’s leading power generation public enterprises, we operate a hiring and performance evaluation system that considers diversity and fairness. In the future, KOMIPO will continue to fulfill social responsibilities through thorough management and operation.

**Fair Employment**

KOMIPO is fully implementing the government’s measures to root out corruption in hiring and operating a flawless recruitment system through additional system upgrades in order to maintain fairness and transparency in hiring. In 2018, we conducted a resolution conference to root out corruption among management personnel and distributed/trained the hiring manager’s behavior manual. As part of follow-up management, we have prepared a procedure for the relief of victims of employment corruption that complies with government guidelines. Also, to enhance fairness and transparency in each of the stages of admission, we operate a customized recruitment process that connects from the employment planning stage to the decision of qualifiers.

**Strengthen Fairness and Transparency of Each Stage**

Category	Fairness	Transparency
Establishment of Employment Plan	Reviewed by the standing personnel committee based on standards and for recruitment personnel (in parallel with daily audit and external auditor participating when composing committee)	Derive improvements through employment effectiveness analysis (expanded scope of information disclosure for recruitment and enhanced external functions)
Selection of Agency	Bidding for open competition for recruitment services External committee member evaluation participation when evaluating proposal	Regular inspection of the agency’s personal information management status
Employment Notice	Prohibition of arbitrary change of public notice (approved by the standing personnel committee) Disclosed competitive employment principle, notice less than 15 days	Enforcement of cleanliness education before hiring is implemented
Confirmation of Documents	Delete document type, check basic qualifications Improve qualification standard for ties (remove standard regarding age) Compose online pledge to comply with the anti-graft law	Pre-release of job descriptions and written test subjects
Writing Test	Admission to the audit department and the recruitment department of the course of application, printing, delivery, and grading. Clarification of test coverage by job category	FAQ bulletin boards providing answers to multiple questions on a regular basis.
Interview	Expand the number of members participating from external committees (More than the majority) Execute blind interview training for interviewers Sign the pledge to prevent leakage of bias-including factors during interview process	Apply the principle of minimum collection of personal information
Qualifiers	Reflect the score of writing test and interview (Effect of reflecting score to employment)	Indicate notice based on self-introduction statement insincere writers (response to the same content, list of meaningless symbols)

**Expand Social Equity-based Employment**

KOMIPO creates social value by setting its own goals exceeding the government’s goals in order to expand its social equity-based recruitment. We set young people, high school graduates, former local residents, non-capital area talents, and disabled people among the non-employment small classes, and we constantly put the effort to achieve our own goals every year.

**Status of Social Equity-based Employment**

Category	Government Standard	Autonomous Goal	Performance in 2018 (persons)
Youth	3% of all	5% of all	5.4%(147)
High school graduates	10% of recruited people	15% of recruited people	16.3%(27)
Former location residents	18% of obligated people	18% of obligated people	22.8%(23)
Non-capital area talents	35% of recruited people	40% of recruited people	48.4%(80)
Disabled	3.2% of employed people	3.4% of employed people	3.54%(88)
Persons subject to employment protection	9% of all recruited people	9.1% of all recruited people	9.2%(231)

**Fair Performance Evaluation and Compensation**

KOMIPO has established and implemented a job-oriented wage system strategy to implement government policy change in a leading way. Also, through a roadmap aimed at 2024, we will establish a job value-based wage system to achieve the social value of labor respect.

Before Adopting (~2017)	During Adoption (2018)	Formation Period (2019)	Growth Period (~2024)
Adopt employee performance annual salary system (*16) and abolish (*17)	Form a consensus on reforming the wage system	Introduce non-executive position salary system	Manage PAYBAND by job grade
Advance executive performance annual salary system	Expand acceptability at the executive level	Assure position-level resource	Apply differentiation of evaluation and extra pay
Continue simplification of rate of benefit	Efforts to simplify the wage system	Listen to opinions form surveys	Gradually adopt promoted job-level Increase ratio by job grade

**Operation of a Reasonable Benefit System**

We operate a welfare system that complies with all ‘public enterprise budgeting and execution guidelines’. Through the Welfare Inspection Committee, we continuously monitor compliance with the related guidelines and the execution of benefits, and transparently disclose the results of operation and execution of the benefits system through the Public Management Information Disclosure System (ALIO). In 2018, the company operated the welfare benefits system for all by listening to the opinions of our executives and business partners. Also, to analyze the requirements in the 2017 Welfare System Satisfaction Survey, we improved the system for loans, collective insurance, etc. The satisfaction level for the 2018 welfare system was 82.6 points.

**Acquire Expertise on Human Resource**

Since 2017, KOMIPO has been strengthening the expertise of its executives and employees in accordance with the Human Resource Development Roadmap. In 2018, training process by capacity and class was operated by reflecting the needs of the executives and employees based on the individual competence diagnosis results, and training was executed by expanding the online and mobile training contents by using ICT technology. The training investment increased by KRW 500 million in 2018 where the training hours per person was 92 hours (per year) and the satisfaction of training was 80.8%. Along with this, we operate open positions for private sector experts in order to enhance the expertise of human resources management. In 2018, we achieved the highest level of operation in the field of information security and disaster management by introducing the expertise of the private sector. We will be expanding the number of open positions from four in 2018 to 11 by 2021.



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## Social Responsibility Management Performance

### Economic Performance

#### Financial Performance

	Unit	2017	2018	2019 Second Quarter
Total assets	KRW 100 million	102,495	112,603	125,623
Debt-to-equity	%	168.3	192.1	228.7
Sales	KRW 100 million	42,607	44,583	20,034
Net profit (loss)	KRW 100 million	1,173	(188)	(433)
EBITDA*	KRW 100 million	6,849	6,356	3,665
EBITDA/Interest expense (multiples)	-	9.0	5.0	4.9

#### Key Distribution Indicators

	Unit	2017	2018	2019 Second Quarter
Par value	KRW	5,000	5,000	5,000
(Separate) Net profit	KRW million	104,591	(38,142)	(56,078)
(Separate) Earnings per share	KRW	3,659	(1,334)	(1,962)
Total cash dividends	KRW million	26,581	-	-
Dividend payout ratio	%	25.4	-	-
Cash dividend per common share	KRW	930	-	-

#### Tax Payment

	Unit	2017	2018	2019 Second Quarter
Corporate tax	KRW 100 million	13	-	2
Value-added tax	KRW 100 million	(29)	(479)	(102)
Local tax	KRW 100 million	403	364	80
Others	KRW 100 million	12	8	-
Total	KRW 100 million	399	(107)	(20)

#### Interest expense

	Unit	2017	2018	2019 Second Quarter
Interest expense	KRW 100 million	761	1,280	754

### Environmental performance

#### Energy Use for Power Generation

	Unit	2017	2018	2019 Second Quarter
Coal	10,000 ton	1,658	1,452	558.9
LNG <sup>(2)</sup>	10,000 ton	143	139	52
Oil	10,000 ton	25.7	26.1	13.6

(1) EBITDA = Operating profit + depreciation costs

(2) Exclude heat supply NG, include commission test quantity

**GHG Emissions**

	Unit	2017	2018	2019 Second Quarter
Emissions intensity	tCO <sub>2</sub> e/MWh	0.805	0.746	0.694
Direct emissions (SCOPE1)	1,000tCO <sub>2</sub> e	40,486	35,700	12,203
Indirect emissions (SCOPE2)	1,000tCO <sub>2</sub> e	99	158	92
Total emissions	1,000tCO <sub>2</sub> e	40,585	35,858	12,295

**Pollutant Emission Control**

Air pollutant	Unit	2017	2018	2019 Second Quarter
Circuit (SO <sub>x</sub> , NO <sub>x</sub> , dust)	Ton / GWh	0.510	0.338	0.299
Coal-fired power	SO <sub>x</sub> emission	Ton / GWh	0.287	0.189
	NO <sub>x</sub> emission	Ton / GWh	0.319	0.184
	Dust emission	Ton / GWh	0.014	0.011
Compound	NO <sub>x</sub> emission	Ton / GWh	0.136	0.088

Water pollutant	Unit	2017	2018	2019 Second Quarter
Utilization rate of waste water products	%	72	74	70
COD emissions	kg / GWh	0.150	0.132	0.161
SS emissions	kg / GWh	0.034	0.046	0.075

**Management of Using Harmful Chemicals**

	Unit	2017	2018	2019 Second Quarter
Hydrochloric acid usage	Ton / GWh	0.4	0.6	0.8
Caustic soda usage	Ton / GWh	4.3	5.2	3.2
Ammonia usage	Ton / GWh	0.5	0.6	0.7

**Water usage**

	Unit	2017	2018	2019 Second Quarter
Water usage	Ton / GWh	200.7	226.8	245.2

**Social Performance**

**Employment Status**

	Unit	2017	2018	2019 Second Quarter
No. of employees	Person	2,633	2,694	2,797
Type of employment	Regular	Person	2,633	2,694
	Semi-regular	Person	0	0
	Non-regular	Person	3.75	4.5
Gender	Female	Person	284.125	310.75
	Male	Person	2,348.875	2,383.25

**Employment Status**

	Unit	2017	2018	2019 Second Quarter
Female employees status	Female manager	Person	35	38
	Female employee ratio	%	10.41	11.53
	Female manager <sup>(1)</sup> ratio	%	4.6	5.1

**Employment Status**

	Unit	2017	2018	2019 Second Quarter
Socially marginalized status	No. of the disabled	Person(%)	88(3.66)	91(3.41)
	National Veterans	Person(%)	236(9.05)	244(9.13)
Labor union membership status	Number of subjects of the labor union	Person	-	1,767
	Total number of Union Members	Person	-	1,651

**Status of Newly Hired Regular Employment**

	Unit	2017	2018	2019 Second Quarter
Youth	Person	142.75	145.75	57.5
Female	Person	32	32	9.5
The disabled	Person	10	11	6
Talents from non-capital regions	Person	62.75	80	33.75
Talent from local region	Person	22	28	9
High school graduates	Person	20	27	0
<b>Total</b>	<b>Person</b>	<b>147.5</b>	<b>165.25</b>	<b>62.5</b>

**Status of Youth Internship**

	Unit	2017		2018		2019 Second Quarter	
		Experience type	Recruitment type	Experience type	Recruitment type	Experience type	Recruitment type
Female	Person	56	8	65	9	-	-
The disabled	Person	0	2	0	0	-	-
Talents from non-capital regions	Person	114	20	106	14	-	-
Talent from local region	Person	38	6	32	3	-	-
High school graduates	Person	2	20	15	0	-	-
<b>Total</b>	<b>Person</b>	<b>163</b>	<b>39</b>	<b>173</b>	<b>30</b>	<b>-</b>	<b>-</b>

**Status of Flexible Working Systems**

	Unit	2017	2018	2019 Second Quarter
Flexible Work system	Flexible start and finish type	Person	391	457
	Working time selection type	Person	58	399
	Intense working type	Person	6	15
	Flexible work type	Person	639	784

(1) Female manager: Female employee above level 3, As of 2019



**Status of Flexible Working Systems**

	Unit	2017	2018	2019 Second Quarter
Flexitime	Person	38	89	16
Remote work	Person	36	16	8
Satisfaction of Flexible work system	%	82.9	86.5	-

**Childcare Leave**

	Unit	2017	2018	2019 Second Quarter	
Use of Childcare Leave	Male	Person	11	12	13
	Female	Person	27	41	41
Used Childcare Hours <sup>(1)</sup>	Male	Person	-	20	84
	Female	Person	17	24	8
Rate of use of Maternity Leave	%	96.30	100	-	

**Operation of Welfare Benefit System**

Welfare benefits equivalent to wage of public officials	
School expense for high school students	Providing school expense based on student grants for children of public officials
Non-monetary welfare benefits in compliance with related regulations and government policies	
Operation of workplace childcare facilities	Providing over 50% of expenses needed for operating workplace childcare facilities in compliance with related regulations including the Infant Care Act
Medical check	Supporting expenses for employees' medical check in compliance with the National Health Insurance Act
Support for events	Supporting expenses for athletic and diverse events in compliance with budget compilation guide
Culture and leisure	Supporting expenses for operating training institutes and leisure centers in compliance with budget compilation guide
Overtime meal	Supporting expenses for late-night meal and refreshments for employees who are working in special conditions in compliance with budget compilation guide
Refreshments for worker in national holidays	Supporting expenses for refreshments for employees who are working in national holidays in compliance with budget compilation guide
Gym clothes	Supporting a pair of gym clothes every two years in compliance with budget compilation guide

**Welfare Benefits per Employee and Satisfaction**

	Unit	2017	2018	2019 Second Quarter
Welfare Benefits per Employee	KRW 1,000	2,395	2,701	-
Satisfaction on Welfare Benefit System	Points	82	82.6	-

**Performance in SME supports**

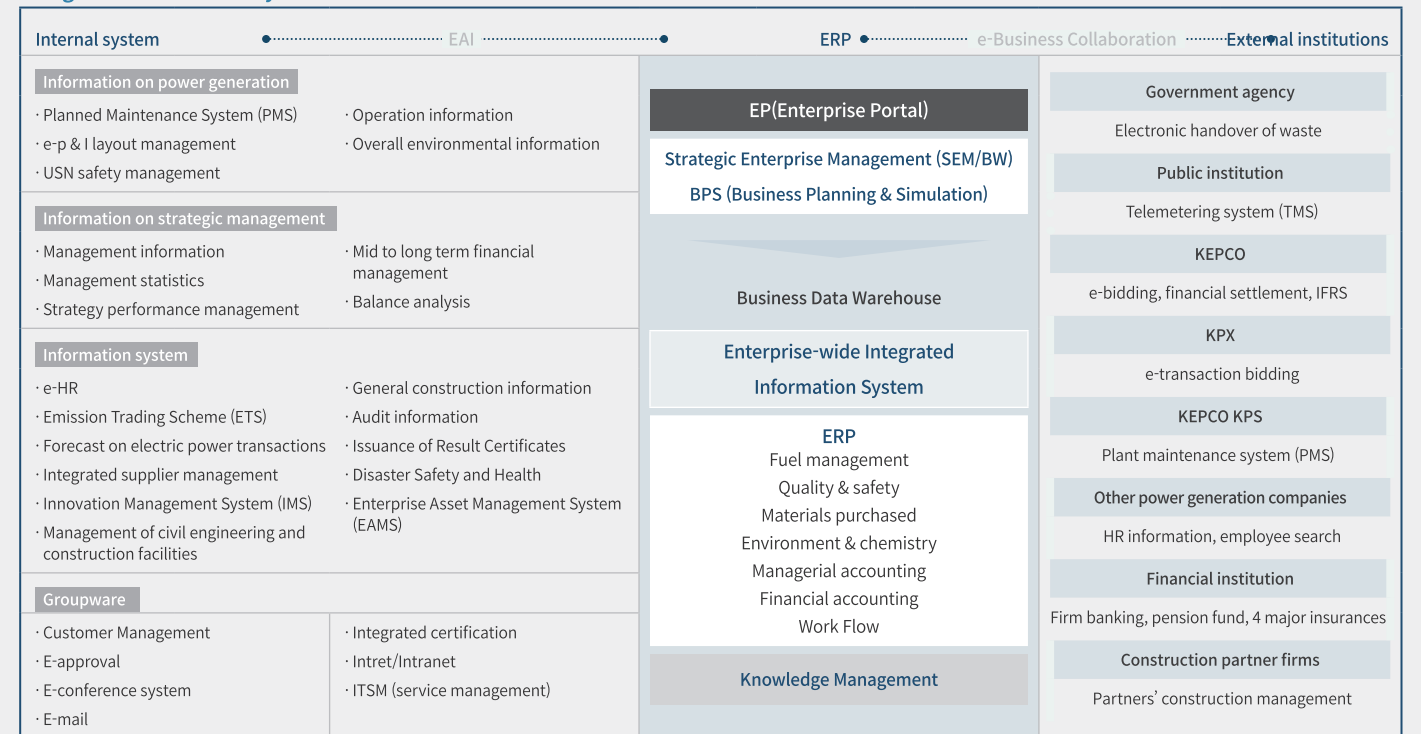
	Unit	2017	2018	2019 Second Quarter	
Sales of SMEs who participated in supporting market development	KRW 100 million	2,056	2,140	1,163	
Consultation meeting with EPC players, etc.	KRW 100 million	472	510	265	
Public purchasing for the socially marginalized	Technology development products	KRW 100 million	113	177	111
	Female-owned businesses	KRW 100 million	154	255	140
	Products of social enterprises	KRW 100 million	44	55	43

(1) Used childcare hours: From 2018, all male employees are included as well.

**Information Disclosure**

KOMIPO operated the "Management Disclosure Control Guideline" for transparent disclosure in 2012 and established the "Information Release Handling Guideline" in 2013 to satisfy people's right to know. In 2014, the entity responsible for paying information disclosure expenses has been changed from applicant to company to set up a user-centered system, by revising the guideline for guaranteeing the status of persons who disclosed information. In order to ensure the accuracy of management disclosure and information disclosure, the roles of divisions in charge were segmented to conduct disclosure monitoring, while enhanced the accuracy and promptness by handling the information requested by customers within 10 days as stipulated in the Act on Disclosure of Information by Public Institutions. We also strive to improve management transparency and user-oriented customer satisfaction by selecting and disclosing 207 items on the company's website as of 2019 in addition to the ALIO items.

**Integrated Information System**



**Personal Information Management**

	Unit	2017	2018	2019 Second Quarter
Number of personal information leaks	Case	0	0	0
Evaluation of Personal Information Protection Management Levels	Points	78	97	100

**PIMS Certification**

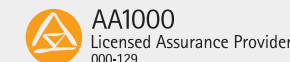
Certification scope	Outsiders' and employees' Personal information handling service
Period	Nov. 11, 2016 ~ Nov. 10, 2019 (yearly post-inspection)
Items	86 items in three categories
	Personal information protection management course: 16 items (policy setup, organization structure, risk management, etc.)
	Protection of life cycle and rights: 20 items (personal information protection, protection of information object's rights, etc.)
	Personal information protection plans: 50 items (managerial, physical, and technical protection activity, encryption control, etc.)
Authority	Korea Internet & Security Agency

## Third Party's Assurance Statement

To the Readers of 2019 KOMIPO Sustainability Report:	
Foreword	Korea Management Registrar Inc. (hereinafter "KMR") has been requested by of KOREA MIDLAND POWER Co., LTD. (Hereby referred to as "KOMIPO") to verify the contents of its 2019 Sustainability Report (Hereby referred to as "the Report"). KOMIPO is responsible for the collection and presentation of information included in the Report. KMR's responsibility is to carry out assurance engagement on specific data and information in the assurance scope stipulated below.
Scope and standard	<p>KOMIPO describes its efforts and achievements of the corporate social responsibility activities in the Report. KMR performed a type2, moderate level of assurance using AA1000AS (2008) and SRV1000 from KMR Global Sustainability Committee as assurance standards. KMR's assurance team(hereinafter "the team") evaluated the adherence to Principles of Inclusivity, Materiality and Responsiveness, and the reliability of the selected GRI Standards indices as below, where professional judgment of the team was exercised as materiality criteria.</p> <p>The team checked whether the Report has been prepared in accordance with the 'Core Option' of GRI Standards which covers the followings.</p> <ul style="list-style-type: none"> <li>· <b>GRI Standards Reporting Principles</b></li> <li>· <b>Universal Standards</b></li> <li>· <b>Topic Specific Standards</b></li> </ul> <p>Management approach of Topic Specific Standards</p> <p>Economic Performance: 201-1, 201-2                  Indirect Economic Impacts: 203-1, 203-2                  Procurement Practices: 204-1                  Anti-Corruption: 205-2                  Materials: 301-1                  Emissions: 305-1, 305-2, 305-4, 305-5, 305-7                  Employment: 401-1, 401-2, 401-3                  Occupational Health and Safety: 403-1                  Training and Education: 404-1, 404-2, 404-3                  Diversity and Equal Opportunity: 405-1                  Non-Discrimination: 406-1                  Local Communities: 413-1                  Customer Privacy: 418-1</p> <p>This Report excludes data sand information of joint corporate, contractor etc. which is outside of the organization, i.e. KOMIPO, among report boundaries.</p>
Our approach	<p>In order to verify the contents of the Report within an agreed scope of assurance in accordance with the assurance standard, the team has carried out an assurance engagement as follows:</p> <ul style="list-style-type: none"> <li>· Reviewed overall report</li> <li>· Reviewed materiality test process and methodology</li> <li>· Reviewed sustainability management strategies and targets</li> <li>· Reviewed stakeholder engagement activities</li> <li>· Interviewed people in charge of preparing the Report</li> </ul>

	<p>Based on the results we have obtained from material reviews and interviews, we had several discussions with KOMIPO on the revision of the Report. We reviewed the Report's final version in order to confirm that our recommendations for improvement and our revisions have been reflected. When reviewing the results of the assurance, the assurance team could not find any inappropriate contents in the Report to the compliance with the principles stipulated below. Nothing has come to our attention that causes us to believe that the data included in the verification scope are not presented appropriately.</p>
Our conclusion	<ul style="list-style-type: none"> <li>· <b>Inclusivity</b> Inclusivity is the participation of stakeholders in developing and achieving an accountable and strategic response to sustainability. KOMIPO is developing and maintaining stakeholder communication channels in various forms and levels in order to make a commitment to be responsible for the stakeholders. The assurance team could not find any critical stakeholder KOMIPO left out during this procedure</li> <li>· <b>Materiality</b> Materiality is determining the relevance and significance of an issue to an organization and its stakeholders. A material issue is an issue that will influence the decisions, actions, and performance of an organization or its stakeholders. KOMIPO is determining the materiality of issues found out through stakeholder communication channels through its own materiality evaluation process, and the assurance team could not find any critical issues left out in this process.</li> <li>· <b>Responsiveness</b> Responsiveness is an organization's response to stakeholder issues that affect its sustainability performance and is realized through decisions, actions, and performance, as well as communication with stakeholders. The assurance team could not find any evidence that KOMIPO's counter measures to critical stakeholder issues were inappropriately recorded in the Report.</li> </ul> <p>We could not find any evidence the Report was not prepared in accordance with the 'Core Option' of GRI standards.</p>
Recommendation for improvement	<p>We hope the Report is actively used as a communication tool with stakeholders and we recommend the following for continuous improvements.</p> <ul style="list-style-type: none"> <li>· <b>KOMIPO built a unique process to prevent conflict among stakeholders and produced an easy-to-understand report including performance in social value creation. The energy organization is advised to manage quantitative data with consistent standards and criteria for consistency and comparison, and report mid- to long-term goals under the sustainability strategy and its performance and progress with a goal of mid- to long-term sustainable management.</b></li> </ul>
Our independence	<p>With the exception of providing third party assurance services, KMR is not involved in any other KOMIPO's business operations that are aimed at making profit in order to avoid any conflicts of interest and to maintain independence.</p>

January 17, 2020



*E. J. Hwang*



# GRI Standards Index

## Universal Standards(GRI 100)

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## UN Global Compact

Since joining the UN Global Compact in 2006, KOMIPO has complied with ten major principles in the four areas of human rights, labor, environment, and anti-corruption. KOMIPO will strive to be a leading Korean company in global sustainable management by respecting international standards in sustainable management and fulfilling its social responsibility.

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Customer Privacy	418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	75

	Principles	Related Contents in This Report	Page
Human Rights	1. Businesses should support and respect the protection of internationally proclaimed human rights	<ul style="list-style-type: none"> <li>· Ethics Charter Respect individual dignity and values</li> <li>· Ethics Code Article 9 Respect for persons</li> <li>· Rules of Employment Article 10 Respect for subordinates' human nature</li> <li>· Collective Agreement Chapter 8 Protect human rights &amp; personal information</li> </ul>	63-66
	2. Make sure that they are not complicit in human rights abuses	<ul style="list-style-type: none"> <li>· Code of Conduct Article 23 Acquire and manage information in a fair and transparent manner</li> <li>· Foreign Worker Protection Guidelines Article 12 / Article 4 Prohibition of abuses/Protection of privacy</li> </ul>	
Labor	3. Uphold the freedom of association and the effective recognition of the right to collective bargaining	<ul style="list-style-type: none"> <li>· Collective Agreement Chapter 13 /Chapter 14 Safeguard right to collective bargaining and strikes</li> <li>· Foreign Worker Protection Guidelines Article 10 Uphold the freedom of association and collective bargaining</li> </ul>	67-69
	4. Eliminate all forms of forced and compulsory labor	<ul style="list-style-type: none"> <li>· Collective Agreement Chapter 7 / Chapter 8 Compliance with working hours, require employees' agreement for overtime works, prohibit overtime works for pregnant employees</li> <li>· Ethics Code Article 12 Improvement of working environment</li> <li>· Detailed Enforcement Rules for the Application of Remuneration Regulation Payment of reasonable wages</li> </ul>	
	5. Abolish child labor effectively	<ul style="list-style-type: none"> <li>· Foreign Worker Protection Guidelines Prohibition of child labor</li> <li>· Compliance with laws prohibiting child forced labor and all related laws in Labor Standard Law and International Labor Organization Regulations</li> </ul>	
	6. Eliminate discrimination in respect of employment and occupation	<ul style="list-style-type: none"> <li>· Ethics Code Article 10 Fair treatment</li> <li>· Collective Agreement Chapter 5/ Chapter 6/ Chapter 9 Fair treatment/ Equal payment for both genders/ Gender equality</li> <li>· Rules of Employment Article 5 Fair treatment</li> <li>· HR Management Regulation Article 2 Basic principles of HR management regarding fair treatment and management</li> <li>· Foreign Worker Protection Guidelines Article 1 Principles of nondiscrimination and equality of opportunity, etc.</li> </ul>	
Environment	7. Support a precautionary approach to environmental challenges	<ul style="list-style-type: none"> <li>· Green Management Policy Contribute to national development through power supply based on technical innovation and eco-friendly management</li> <li>· Green management goals Become a leading green management company that creates new values</li> <li>· Ethics Code Article 3 Commitment to preserve the environment</li> </ul>	26-35
	8. Undertake initiatives to promote greater environmental responsibility	<ul style="list-style-type: none"> <li>· Green Management Manual</li> <li>· Green Management Procedures</li> <li>· Mid to long-term master plan responding to climate change</li> <li>· Transaction system for emission rights</li> <li>· Target management system for greenhouse gases</li> </ul>	
	9. Encourage the development and diffusion of environmentally friendly technologies	<ul style="list-style-type: none"> <li>· Environmental Vision -Policy/ Ethics Code Article 3</li> <li>· Mid to long-term master plan responding to climate change</li> </ul>	
Anti-Corruption	10. Work against corruption in all its forms, including extortion and bribery	<ul style="list-style-type: none"> <li>· Ethics Charter / Ethics Code / Code of Conduct</li> <li>· Executives' occupational integrity pact management regulation Responsible for executives' avoidance of corruption in their duties and for dealing with violations</li> <li>· Behavioral guides for duty related persons Detailed behavioral standards of incorrupt ethics on duty related persons that employees shall abide by</li> <li>· Behavioral guides on contract duties with foreign companies Behavioral standards that employees shall abide by to enhance transparency and fairness of contracting duties with foreign companies</li> <li>· Guidelines for compensating and protecting internal reporters / Corporate Card Management Guides</li> </ul>	63-66



## Awards and Association Memberships

### 2018~2019 Awards

Award	Hosted by
Tanjung Jati Power Plant Selected as the Best Power Plant in 6 Domains by Indonesia State Electricity Corporation	Indonesia State Electricity Corporation (PT. PLN)
Received a Commendation from Jang, Byung-Wan, the Chairman of the Trade, Industry, Energy, SMEs and Startups Committee, at the 12th Best Companies to Work	Ministry of Trade, Industry and Energy, Ministry of Employment and Labor
Received Grand Award for Management Innovation (Public) at the Korean Innovation Frontier Award	Korean Standards Association
2018 Silicon Valley International Invention Festival (two gold awards, one special award)	Korea Invention Promotion Association
Grand Award for Public Innovation Leadership at the 2018 Korea Trusted Innovation Awards	Joongang Daily
Smart Leader Award at the 2018 Fourth Industrial Revolution Power Korea	National Assembly Convergent and Innovative Economy Forum, Association of Korean Journalists
44th National Quality Control Circles (two gold awards, two silver awards, two bronze awards)	Ministry of Trade, Industry and Energy
Award from Minister of Environment at the Green Company, Eco-Friendly Management Contest	Han River Basin Environmental Office
Power Plant of the Year Award at the Asian Power Awards	Asian Power Magazine
Citation of Prime Minister Celebrating 2018 World Standards Day	Ministry of Trade, Industry and Energy, Korean Agency for Technology and Standards
Grand Award for Environment at the 2018 Indonesia Best Electricity Award (IBEA)	Ministry of Energy and Mineral Resources of Indonesia
Best Project Award at the 2018 International Quality Control Circles (gold award)	Korean Standards Association
Presidential Citation for Shared Growth Week	Korea Federation of Small and Medium Business
Grand Award for Clean Management at the 2018 Global Standard Management Award	Korea Management Registrar
Good Korean Company Award at the 2018 Good Companies Award	Korean Standards Association
CEO Award at the 2018 Good Companies Award	Korean Standards Association
Award from Minister of Trade, Industry and Energy at the Korea Energy Efficiency Awards	Ministry of Trade, Industry and Energy
Selected as an Excellent Company for Quality Competitiveness at the National Quality Management Award	Ministry of Trade, Industry and Energy, Korean Agency for Technology and Standards
Grand Award for Enterprises at the 2018 Korea Ethical Management Awards	Korean Economic Magazine
Award from Minister of Trade, Industry and Energy at the 25th Corporate Innovation Awards	Ministry of Trade, Industry and Energy
Best CEO Award at the 25th Corporate Innovation Awards	Ministry of Trade, Industry and Energy

Award	Hosted by
Good Member to Participate in the Electricity Market in 2018	Electricity Market Surveillance Committee
Award for Safety Management and Win-win Growth Part of National Industrial Awards	The Institute for Industrial Policy Studies (IPS)
Indonesia's Health and Safety Excellence Award for Manpower in the Zero Accident Award Category	Ministry of Manpower of the Republic of Indonesia
2019 Green Enterprise Awards	Korea Environmental Industry & Technology Institute(KEITI), Council of Green Enterprises
Award for Best Evaluation of Voluntary Agreement on Air Quality Management in Metropolitan Area	Metropolitan Air Quality Management Office
Received Grand Award for Management Innovation (Public) at the Korean Innovation Frontier Award in 2019	Korean Standards Association (KSA)
2019 Korean Annual Awards on Green and Climate	National Assembly's Climate Change Forum
Excellent Institution for Low-income, Vulnerable People's Insurance Support	National Health Insurance Service
45th National Quality Control Circles (one gold award, two silver awards)	Ministry of Trade, Industry and Energy (MOTIE)
Award Environmental Upgrade of the Year & Innovative Power Technology of the Year	Asian Power Magazine
Selected as a Excellent Institution Related to Job Creation for the Elderly	Ministry of Health and Welfare(MOHW)
Prime Minister Citation for the Merit of Electricity Industry	Ministry of Trade, Industry and Energy (MOTIE)
Excellent CEO of the Information Security Security Security Division of the Korea CEO Hall of Fame	The Institute for Industrial Policy Studies (IPS)
Grand Award for Clean Management at the 2019 Global Standard Management Award	Korea management Registrar
2019 Winner of the 'Ministerial Award' for Win-win Cooperation Fund	Ministry of SMEs and Startups(MSS)
Excellence Award	Ministry of Cooperatives and SMEs of the Republic of Indonesia
Award for Excellence in Information Resource Management Based on EA in 2019	National Information Society Agency
Men of Merit Award at the Rural Community Win-win Corporation Fund 2019	Ministry of Agriculture, Food and Rural Affairs
Award from Minister of Trade, Industry and Energy at the Global CSR and the Raising the Nation Brand	Ministry of Trade, Industry and Energy

### Association Membership

Association	Department in Charge	Activities and Benefits
The Institute of Internal Auditors	Audit & Inspection Office	· Internal auditor's completion of professional audit education courses (33 courses for 232 hours) · Participating in the monthly breakfast meeting for auditors and acquiring audit information
Korea Public Institution Auditors Council	Audit & Inspection Office	· Completing audit education courses for public institutions hosted by the Audit and Inspection Training Institute (standing audit member) · Participating in seminars of the Energy Subcommittee (six times a year)
Auditors Council for Power Plant Companies	Audit & Inspection Office	· Having exchanges with auditors of power plant companies and acquiring information
Daejeon & Chungcheong Auditors Council	Audit & Inspection Office	· Acquiring audit information in Daejeon and Chungcheong regions · Enhancing the competitiveness of public institution by advancing audit activities
Korea Society of IT Services	Management Innovation Department	· Conducting research on IT services, facilitating exchanges, and advancing the knowledge system · Developing IT technologies, leading industrial application, and training of professionals
Korea Suggestion System Association	Strategic Innovation Department	· Sharing best practices with companies which lead suggestion activities - Exchanges for suggestion and small group with 21 companies (four times a year) · Acquiring information in the fields of innovation and suggestion - Association-led open training (twice a year) and workshop for theme research (twice a year)
Energy Future Forum	Planning & Coordination Office	· Participation of many power group companies, private power generation companies, and energy companies · Analyzing and cooperating internationally on various pending issues of domestic and overseas energy fields
IKEF (CSK) Future Energy Policy Institute	Planning & Coordination Office	· Devising joint responses of power generators to national power mix, power market operation, and climate change by reinforcing cooperation among power group companies and private power generation companies and operating a council
SERI CEO	Planning & Coordination Office	· Spreading internal and external excellent management information to CEOs and opinion leaders
Daejeon Chamber of Commerce and Industry	Planning & Coordination Office	· Supporting balanced growth of the regional economy as a natural member pursuant to Article 11 of the Enforcement Decree of the Chambers of Commerce and Industry Act
UN Global Compact Network Korea	Ethics and Compliance Department	· Participating in anti-corruption workshops and symposiums · Joined the fair player club ('17. 2) · Participating in the Annual General Meeting of the UN Global Compact ('17, second half)
Legal services (LAWnB)	Legal Team	· Providing precedent information and commentaries · Providing legal forms and administrative data different cases
Korea Personnel Improvement Association	HR Development Office	· Discussing HRD strategies and competence enhancement plans for performance creation · Acquiring HR related latest academic information and materials at home and abroad
Korea Employer's Federation	Labor Welfare Department	· Supporting legal advices and counterplans against the labor-management pending issues · Getting a discount on expenses for labor training courses by position and job (25%) · Contributing to winning the Korea Labor-Management Cooperation Award
Korea Electrical Manufacturers Association	Shared Growth Department	· Dispatching the Export Promotion Group and participating in overseas exhibitions more than three times · Supporting the participation in the Korea Electrical Industry Competition and maximizing promotion effects · Supporting funds for SMEs' technology development and identification of national research tasks
Korean Institute of Electrical Engineers	Technology Planning Department	· Attending international academic activities and research activities as a regular member (Technology Research Center) · Carrying out industry-academy-research cooperation tasks
The Korea Society for Energy	Technology Planning Department	· Attending internal and external academic activities and research activities as a regular member (Technology Research Center) · Serving as a director of the Korea Society for Energy (Head of Technology Division)

Association	Department in Charge	Activities and Benefits
Korea Institute of Plant Engineering & Construction	Technology Planning Department	· Enhancing owner's engineering capability · Cultivating EPC professionals in the plant business · Exchanging information and building human networks with plant builders at home and abroad
The Korean Society of Mechanical Engineers	Power Generation Operation Department	· Attending internal and external academic activities and research activities as a regular member (Technology Research Center) · Obtaining new technologies for boiler and turbine facilities and adopting them to worksites
WEC Korea	Electricity Transaction Department	· Translating and distributing WEC's major publications · Attending energy related academic conferences and seminars · Serving as a member of the executive committee of WEC Korea (the CEO)
Korea Industrial Asset Management Association	Electricity Transaction Department	· Holding meetings for promoting industrial asset management · Attending trainings for efficient industrial asset management · Conducting exchanges with industrial asset management related organizations at home and abroad
Korea Smart Grid Association	Electricity Transaction Department	· Participating in forums and expos for the standardization of smart grid · Sharing performances with regard to enhancing the reliability of power supply facilities · Sharing information for anticipating changes in power consumption and building intellectual power grid
KCCSA (Korea CCS Association)	Climate Environment Office	· Promoting up-to-date research tasks to reduce carbon emissions · Operating a channel to communicate with the government for suggesting practical CER actions · Serving as the Vice Chairman of KCCSA (Head of Technology Division)
Business Institute for Sustainable Development	Climate Environment Office	· Understanding climate change related domestic and international trends and government policies · Building cooperation governance with the government, civil groups, and companies
National Assembly's Climate Change Forum	Climate Environment Office	· Acquiring major information on climate change · Utilizing the forum as a channel to discuss climate change policies and legislation
Carbon Eye	Climate Environment Office	· Analyzing emissions and shortages in major industries including the power business · Identifying the recognition status of intermediate and offset trading and information on rights holders · Analyzing the transaction trends of emission trading rights and changes in prices · Offering weekly, monthly, quarterly reports · Providing offset trading rights database and opportunities for bidding KOC
Korea Business Council for Sustainable Development	Climate Environment Office	· Pursuing harmonious development of the economy, environment, and society · Creating an image of sustainable development company and making rational suggestions for irrational policies and regulations · Exchanging information and experience with CEOs and experts of leading companies
Resource Recycling Association	Climate Environment Office	· Promoting survey and distribution of fly ash recycling information and statistics · Public relations, domestic and international exchanges, and cooperation to promote recycling of fly ash resources · Suggesting improvement of systems to promote recycling of fly ash resources
Korea Project Management Association	Construction Planning Office	· Utilizing the association as a channel to communicate with the government for the establishment of plant business policies · Serving as a director of the Korea Project Management Association (Head of Construction Business Division) · Supporting the education for acquiring the construction PM qualification



Association	Department in Charge	Activities and Benefits
Korean Society for Quality Management	Quality Management Department	<ul style="list-style-type: none"> <li>· Participating in quality meetings and conferences of the society (8 persons/year)</li> <li>· Promoting conference journals (two times/year) and sharing information</li> <li>· Supporting internal quality seminars and consulting (once/year)</li> <li>· Participating in quality seminars and groups with quality personnel and managers</li> </ul>
Korea Electric Association (Korea Electric Power Industry Code (KEPIC))	Quality Management Department	<ul style="list-style-type: none"> <li>· Establishing technological standards for operating power generation facilities and supporting government relations</li> <li>· Managing researches on technological standards of the Electricity Enterprises Act</li> <li>· Operating the KEPIC's online e-book reading system</li> <li>· Operating the KEPIC's 7-stage projects since 2016 with a schedule to be completed in 2020</li> </ul>
Korea Standards Association 1. National Quality Award Winners (NQAW) 2. CEO Breakfast Meeting	Quality Management Department	<ul style="list-style-type: none"> <li>· Acquiring information on quality management and new technologies for improving quality</li> <li>· Offering online services about ISO 9001/14001 and KS</li> <li>· Getting a discount on training and workshop expenses hosted by KSA</li> <li>· Conducting information interchanges with members and benchmarking</li> </ul>
National Quality Masters Association	Quality Management Department	<ul style="list-style-type: none"> <li>· Increasing quality competitiveness by exchanging quality information with national quality managers</li> <li>· Engaging in continuous quality management activities</li> </ul>
Korea Plant Industries Association (KOPIA)	Business Operation Department	<ul style="list-style-type: none"> <li>· Supporting feasibility study on overseas plants</li> <li>· Conducting market survey on the plant industry and providing information</li> <li>· Inviting authorities of ordering bodies and providing counseling</li> <li>· Fostering plant professionals</li> </ul>
Korea Photovoltaic Industry Association	New and Renewable Energy Department	<ul style="list-style-type: none"> <li>· Suggesting RPS photovoltaic policies to the government</li> <li>· Participating in the new and renewable energy policy debate of the National Assembly</li> <li>· Securing international cooperation and coordination through the association</li> </ul>
Korean Society for New and Renewable Energy	Renewable Energy Department	<ul style="list-style-type: none"> <li>· Conducting academic and technical R&amp;D and academic exchanges related to new and renewable energy</li> <li>· Subscribing for periodicals and participating in domestic academic events</li> </ul>
Korea Photovoltaic Society	Renewable Energy Department	<ul style="list-style-type: none"> <li>· Supporting government's photovoltaic policies and fostering professionals through participation in conferences</li> <li>· Engaging in academic activities related to the photovoltaic field and providing technology and market information</li> <li>· Transferring and supporting technologies and cooperating on R&amp;D with related companies</li> </ul>
Korea New and Renewable Energy Association	Wind Power Business Department	<ul style="list-style-type: none"> <li>· Protecting rights of power generation companies and improving legal systems in preparation for the RPS</li> <li>· Supporting enactment and amendment of new and renewable energy systems and laws</li> </ul>
Korea Wind Energy Association	Wind Power Business Department	<ul style="list-style-type: none"> <li>· Collecting latest technology information and data related to wind energy</li> <li>· Fostering professionals through various workshops and conferences</li> </ul>
Fuel cell Industry Promotion Association	New Energy Business Department	<ul style="list-style-type: none"> <li>· Exchanging information among fuel cell companies and promoting to the government and people</li> <li>· Fostering and developing the fuel cell market, developing technologies, and preparing a support system</li> </ul>
Korea Hydrogen Industry Association	New Energy Business Department	<ul style="list-style-type: none"> <li>· Exchanging information related to hydrogen and fuel cells</li> <li>· Cooperating on early construction of hydrogen economy, participating in policy making, making suggestions, etc.</li> </ul>



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