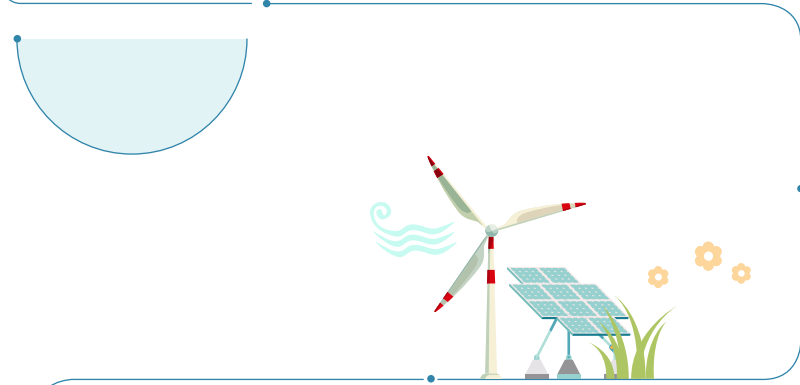


# BEYOND ENERGY, CREATE HAPPINESS

SUMMARY OF 2020 SUSTAINABILITY REPORT



Energy Company Creating  
People's Happiness  
KOREA WESTERN POWER



## ABOUT THIS REPORT

### Reporting Scope

Korea Western Power Head Office and four domestic operation sites (Taeon, Pyeongtaek, Seoincheon, Gunsan), overseas operation site

### Reporting Period

From January 1, 2018 to December 31, 2019 (including performance of the first half of 2020)

### Inquiries

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## CEO Message



“  
With heart set on being the best,  
KOWEPO will continue taking on  
challenges to become a global leader  
in sustainable management.”

August 2020  
**Kim Byung-sook**  
President & CEO of Korea Western Power Co., Ltd.

Dear stakeholders,

As a public energy company, Korea Western Power (KOWEPO) is deeply committed to contributing to national economic development and to people's happiness through our mission, which is to supply high-quality electricity in a stable and economical manner. As a power-generating public corporation that enriches people's lives, KOWEPO strives to fulfill its economic, social and environmental responsibilities, and is faithfully implementing international norms and principles for sustainable management and growth. By publishing the 8<sup>th</sup> Sustainability Report in 2020, KOWEPO is committed to informing our stakeholders of the company's sustainability management performance and make the following commitments for further growth.

● ● ● **KOWEPO will supply stable and economical electricity**

KOWEPO considers the stable and economical supply of high-quality power as its most basic responsibility. KOWEPO has achieved the highest level of facility reliability by enhancing the operating capabilities of its power-generation facilities, strengthening collaboration with experts, and introducing new technologies based on deep learning. KOWEPO has made diverse efforts to faithfully fulfill its basic responsibilities in this respect, such as by improving economic efficiency and stabilizing supply and demand management of bituminous coal through efficient operation at all stages of the fuel supply and demand.

● ● ● **KOWEPO will lead the eco-friendly energy business**

KOWEPO has established a 'New & Renewable Energy 3025 Roadmap' to focus on enhancing competitiveness in the new and renewable energy sectors, such as solar power, wind power, and fuel cell businesses. KOWEPO is also leading the development of eco-friendly hydrogen energy by securing the basis for commercialization of hydrogen for the first time in Korea. In addition, to reduce greenhouse gas emissions, KOWEPO will conduct business in an eco-friendly manner by expanding UN-approved external reduction projects concerning agriculture, forestry, SMEs, and buildings. In order to reduce air pollution, KOWEPO will proactively implement fine dust reduction measures that have been tailored to meet the characteristics of each power supply, as well as increasing the recycling of the by-products of power-generation.

● ● ● **KOWEPO will prioritize safety-first management**

KOWEPO made safety the top priority in management and established a safety-first management business system. In addition, the company strives to make safe workplaces for on-site workers by continuously inspecting high-risk areas, quickly removing on-site risk factors, prohibiting unskilled workers from working alone, and establishing a smart safety management system based on the 4<sup>th</sup> industrial era technologies. KOWEPO will continue to overcome various safety-management related limits and create an even more advanced safety system so that KOWEPO can be the safest power plants in Korea.

● ● ● **KOWEPO will create happiness for people by actualizing various social values**

KOWEPO is committed to contributing to the development and inclusive growth of the community. KOWEPO does this by actively utilizing its competence and resources. In particular, KOWEPO actively implements job-oriented management to create decent jobs, promote localization of generator materials to expand mutual growth with SMEs, develop business models to revitalize the local economy, and implement community-based social contribution programs that conforms to the needs of the local community. By doing so, the company will create happiness for people by creating various social values.

KOWEPO hopes that this Sustainability Report containing the commitments of KOWEPO in 2018-2019 becomes a communication channel that enhances trust and expectations of stakeholders, and we look forward to your continued interest and encouragement.

Thank you.

PART

# 01

# INTRODUCTION

08p



Company Introduction

10p



Major Business Performance

12p



Business Introduction

20p



Sustainable Value-Creation Process

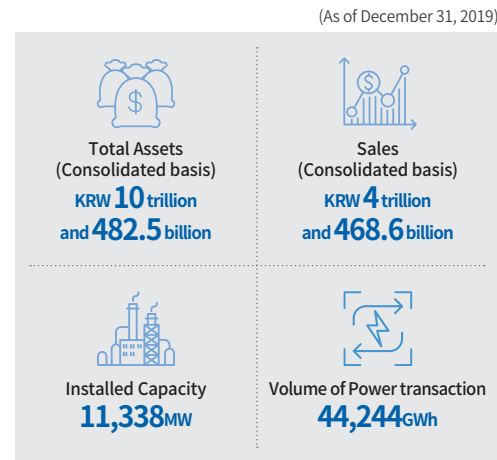
KOWEPO is a public energy company that creates happiness for people and realizes sustainable development through stable and economical supply of power.

# Company Introduction

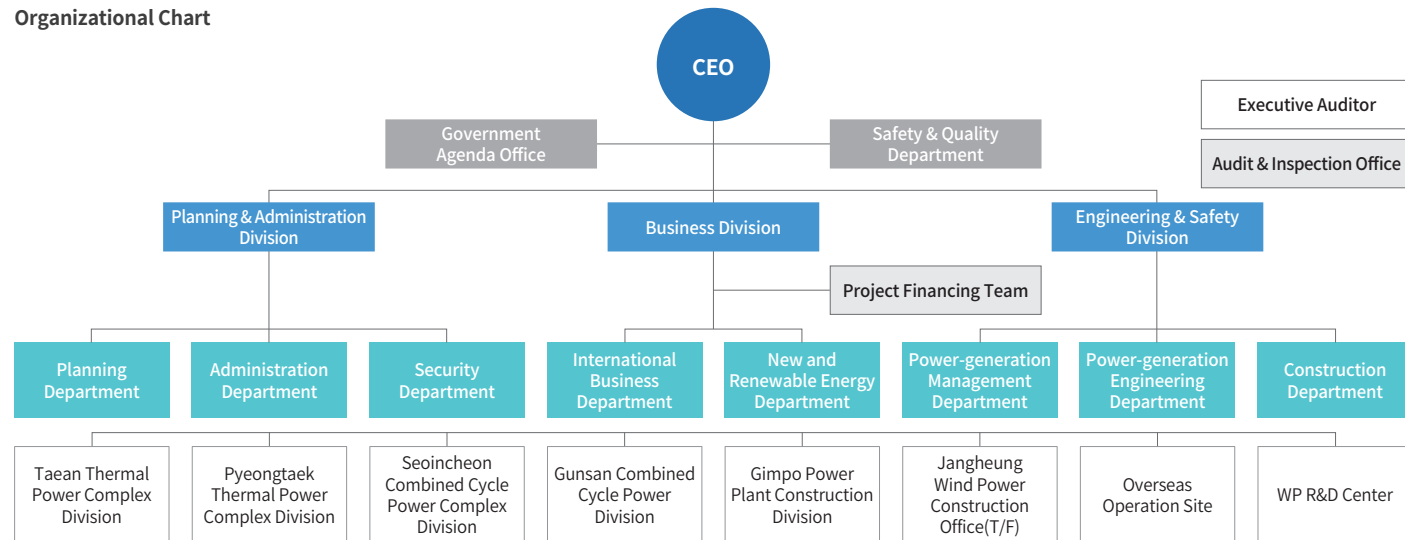
KOWEPO is a public corporation specializing in power generation established with the aim of contributing to the sound development of the power industry. KOWEPO does this by enhancing the competitiveness of the power industry and improving the service level for electricity users. With the vision of 'Beyond Energy, Create Happiness', KOWEPO supplies high-quality electricity in a stable and economical manner to create happiness for people and to practice sustainable development.

## Company Overview

Company Name	Korea Western Power Co., Ltd.
Corporation Type	Joint-stock Company
Date of Establishment	April 2, 2001
CEO	Kim Byung-sook
Address of Headquarters	285, Jungang-ro, Taeon-eup, Taeon-gun, Chungcheongnam-do, Republic of Korea
Main Business Domain	Electric Power
Total Capital	KRW 3 trillion and 838.1 billion
Shareholders	Korea Electric Power Corporation 100%
Number of Employees	2,505

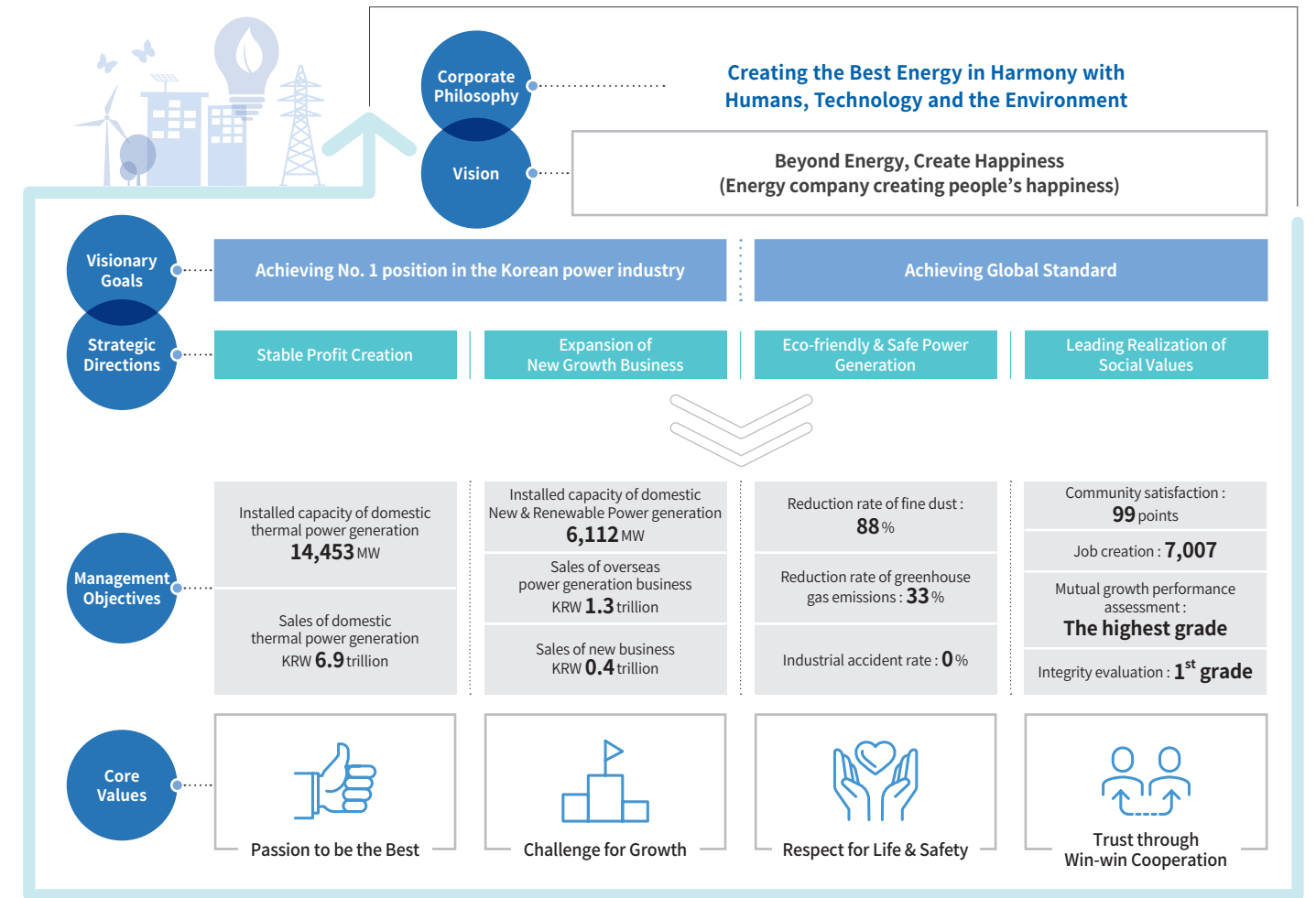


## Organizational Chart



## KOWEPO Vision 2030

In supporting people's everyday lives with a stable power supply, KOWEPO has established the 'KOWEPO Vision 2030' in order to preemptively respond to changes in the external environment and market conditions, and to ultimately create happiness for people. KOWEPO is committed to laying the foundation for the stable and economical supply of energy to the people — and furthermore, to creating a sustainable future by generating the best- quality energy through harmonization among humans, technology, and the environment.



## Major History



# Major Business Performance



Laid the foundation for the commercialization of hydrogen production for the first time in Korea  
November 2019



United Nations Framework Convention on Climate Change-Conference of Parties Announced best practices for greenhouse gas reduction  
December 2019



Achieved an industrial accident rate of 0.05% lowest in the power-generation industry, lowest to date  
2019



Korea Social Innovation Change Maker Hosted Awards Ceremony  
December 2019

7 AFFORDABLE AND CLEAN ENERGY

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

13 CLIMATE ACTION

3 GOOD HEALTH AND WELL-BEING

11 SUSTAINABLE CITIES AND COMMUNITIES

SUSTAINABLE DEVELOPMENT GOALS

Created Sustainability Management Value

8 DECENT WORK AND ECONOMIC GROWTH

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

14 LIFE BELOW WATER



The 4<sup>th</sup> Industrial Revolution Conference at the National Assembly Awarded Smart Enterprise Leader  
August 2019



Eco-friendly Management Grand Prize Awarded Grand Prize  
July 2019



8 DECENT WORK AND ECONOMIC GROWTH

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

Hosted roadshow for localization of generator materials for the first time among public corporations to support new SMEs  
October 2019

8 DECENT WORK AND ECONOMIC GROWTH

Job Creation Exemplary Management Prize of Korea awarded Grand Prize for jobs created for the socially and economically vulnerable  
September 2019



# Business Introduction

## Power Generation

### Taeon Thermal Power Complex Division



### Pyeongtaek Thermal Power Complex Division



### Seoincheon Combined Cycle Power Complex Division



### Gunsan Combined Cycle Power Division



#### Heart of KOWEPO

The Taeon Thermal Power Complex Division is the core power-generation complex of KOWEPO. It is a thermal power plant responsible for 6,470.8MW or 57% of the company's generation facility capacity and is equipped with cutting-edge automatic control facilities. For the first time among domestic power plants, KOWEPO acquired ISO14001 (Environmental Management System) certification, as well as the ISO14001 and ISO9001 (Quality Management System) certifications. As an energy leader opening up the era of the West Coast, this power complex, located on a 4.6 million m<sup>2</sup> site to the side of the beautiful Taeon Coastal National Park, is producing clean energy through eco-friendly power plant operations.

#### The largest hub power plant in the metropolitan area

The Pyeongtaek Thermal Power Complex Division has contributed significantly to the development of the national power industry through stable power-generation, with the completion of the first power-generation unit in 1980. It is the largest hub power plant in the metropolitan area with a total 2,280.2MW of power-generation capacity, including 1400MW of steam power and 869MW combined cycle power. Possessing both steam power generation and combined power generation facilities that use natural gas, this power plant is being reborn as an eco-friendly plant equipped with technology and environmental facilities (DeNox facility) that are world-class in the facility operation sector.

#### Exemplary Model of Green Power Plant

The Seoincheon Combined Cycle Power Complex Division is an eco-friendly power plant that uses clean fuel derived from natural gas, generating almost no air pollution. It continues to be an exemplary model of an eco-friendly power plant as it is equipped with a state-of-the-art facility that can quickly start and stop gas turbine generators, allowing it to immediately respond to changes in power demand. Located on a site of 310,000m<sup>2</sup> next to Yeongjong Bridge, the gateway to Incheon International Airport, the Seoincheon Combined Cycle Power Complex Division was established in November 1992 with a low construction cost of approximately KRW 500,000 per 1 kW. It was also awarded the 'Power Plant of the Year' award from EPI, the U.S. prominent power-generation magazine.

#### Park-type power plant serving the local community

Since the decommissioning of the Gunsan thermal power plant in 2004, the Gunsan Combined Cycle Power Division launched an eco-friendly, combined cycle power plant equipped with cutting-edge power generation facilities on the same site in 2010. Although it was built in a densely populated area within the city, it is regarded as a leading example of urban-type power plants through its use of strict environmental management and clean fuels to solve environmental issues, as well as through the creation of an open theme park for the enjoyment of local residents. In addition, it is the first location in Korea to apply the new G-class gas turbine, providing the highest power-generation efficiency and supplying electricity to more than 30% of users in the Jeollabuk-do region - with a total capacity of 751.6MW.

<b>Year of Completion</b>		<b>Installed Capacity</b>	
1995 ~ 2018		Thermal Power 6,100.0MW	
		New & Renewable Energy 370.8MW	
<b>Power-generation fuel</b>		<b>No. of Units</b>	
Bituminous coal (coal), Small hydro power, Solar power		Thermal Power 10 units	
		New & Renewable Energy 11 units	

<b>Year of Completion</b>		<b>Installed Capacity</b>	
1980 ~ 2018		Thermal Power 2,268.5MW	
		New & Renewable Energy 11.7MW	
<b>Power-generation fuel</b>		<b>No. of Units</b>	
LNG, Solar power		Thermal Power 5 units	
		New & Renewable Energy 7 units	

<b>Year of Completion</b>		<b>Installed Capacity</b>	
1992 ~ 2020		Thermal Power 1,800.0MW	
		New & Renewable Energy 57.9MW	
<b>Power-generation fuel</b>		<b>No. of Units</b>	
LNG, Fuel cell, Solar power		Thermal Power 8 units	
		New & Renewable Energy 6 units	

<b>Year of Completion</b>		<b>Installed Capacity</b>	
2010 ~ 2017		Thermal Power 718.4MW	
		New & Renewable Energy 33.2MW	
<b>Power-generation fuel</b>		<b>No. of Units</b>	
LNG, Solar power, Wind power		Thermal Power 1 units	
		New & Renewable Energy 6 units	

# Business Introduction

## New Construction

### Gimpo Combined Heat & Power Plant



As KOWEPO's first collective energy project to provide a stable supply of electricity and heating to the Metropolitan and Gimpo areas respectively, the Gimpo Combined Heat & Power Plant is currently under construction with expected completion by June 2023. The plant has a generation capacity of 510MW in terms of electricity and 281 Gcal/hour in terms of heating. When it is in operation, the plant will supply electricity and heating energy to 500,000 and 70,000 households respectively in the Metropolitan and Gimpo areas.

### Jangheung Wind Power Plant



KOWEPO plans to increase the rate of new and renewable energy generation to more than 25% by 2030 in order to comply with its RPS<sup>1)</sup> acquisition plan, as well as the government's energy transition and Green New Deal policies that aim to expand the use of low-carbon green energy. The construction of Jangheung Wind Power Plant will be completed by July 2021 in the Jangheung area, Jeollanamdo. When the power plant is completed, it will contribute to reducing carbon emissions and provide a stable power supply.

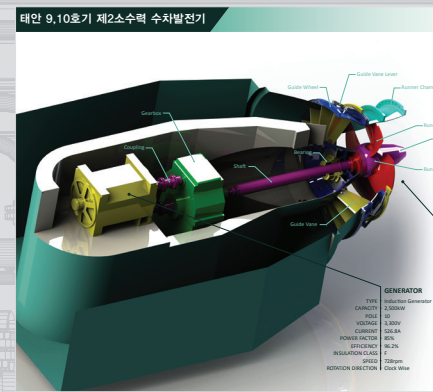
1) Renewable Portfolio Standards (RPS) : A system that requires electricity providers (suppliers) with power-generation facilities over a certain capacity to supply a specified amount of energy in new and renewable energy.

### Hwaseong Namyang Fuel Cell Power Plant



The Hwaseong Namyang Fuel Cell Power Plant is a construction project that KOWEPO is undertaking to comply with energy transition policies, and to promote the hydrogen economy. KOWEPO aims to complete this project by April 2021, and hence expects to provide stable power in the Hwaseong area with a high-efficiency clean energy source.

### Taeon No.2 Small Hydro Power Plant



KOWEPO plans to increase the rate of new and renewable energy generation to more than 25% of total power-generation by 2030, in line with the government's policy to expand the supply of new and renewable energy. In order to achieve this, the company has begun construction of the Taeon No. 2 Small Hydro Power Plant, a small hydro power-generation facility that uses the pressure head of cooling water drainage, in 2017, with expected completion by November 2020. The operation of this power plant will contribute to the reduction of carbon emissions and the stable supply of electricity.

### Seoincheon Fuel Cell Power Plant



The Seoincheon Fuel Cell Power Plant is being developed as a new energy source that utilizes eco-friendly, highly-efficient, and clean energy that's in line with the National Hydrogen Roadmap. 4<sup>th</sup> phase construction of the Seoincheon Fuel Cell Power Plant has been completed (total 56.24MW), and the plant has begun commercial operation. The 5<sup>th</sup> phase is scheduled to be completed by July 2021. The Seoincheon Fuel Cell Power Plant is expected to contribute to promoting hydrogen economy and providing a stable power supply in the Incheon area.

### Uiwang Fuel Cell Power Plant, Korea Rail Network Authority



In order to guarantee a stable power supply in the Uiwang area, and to promote the hydrogen economy, KOWEPO is pursuing the construction of the Korea Rail Network Authority Uiwang Fuel Cell Power Plant. Commercial operations are aimed to begin in June 2021, with the Uiwang Fuel Cell Power Plant constituting an exemplary case of cooperation between public institutions utilizing state-owned land possessed by the Korea Rail Network Authority.

**Installed Capacity**

Electricity of **510MW**  
Heating energy of **281 Gcal/h**

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**Construction Period**

The second half of 2020 - June 2023

**Installed Capacity**

**18MW**

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**Construction Period**

March 2020 - July 2021

**Installed Capacity**

**20.24MW**

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**Construction Period**

May 2020 - April 2021

**Installed Capacity**

**5MW**

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**Construction Period**

July 2017 - November 2020

**Installed Capacity**

**20.24MW**

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**Construction Period**

July 2020 - July 2021

**Installed Capacity**

**9.9MW**

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**Construction Period**

June 2020 - June 2021

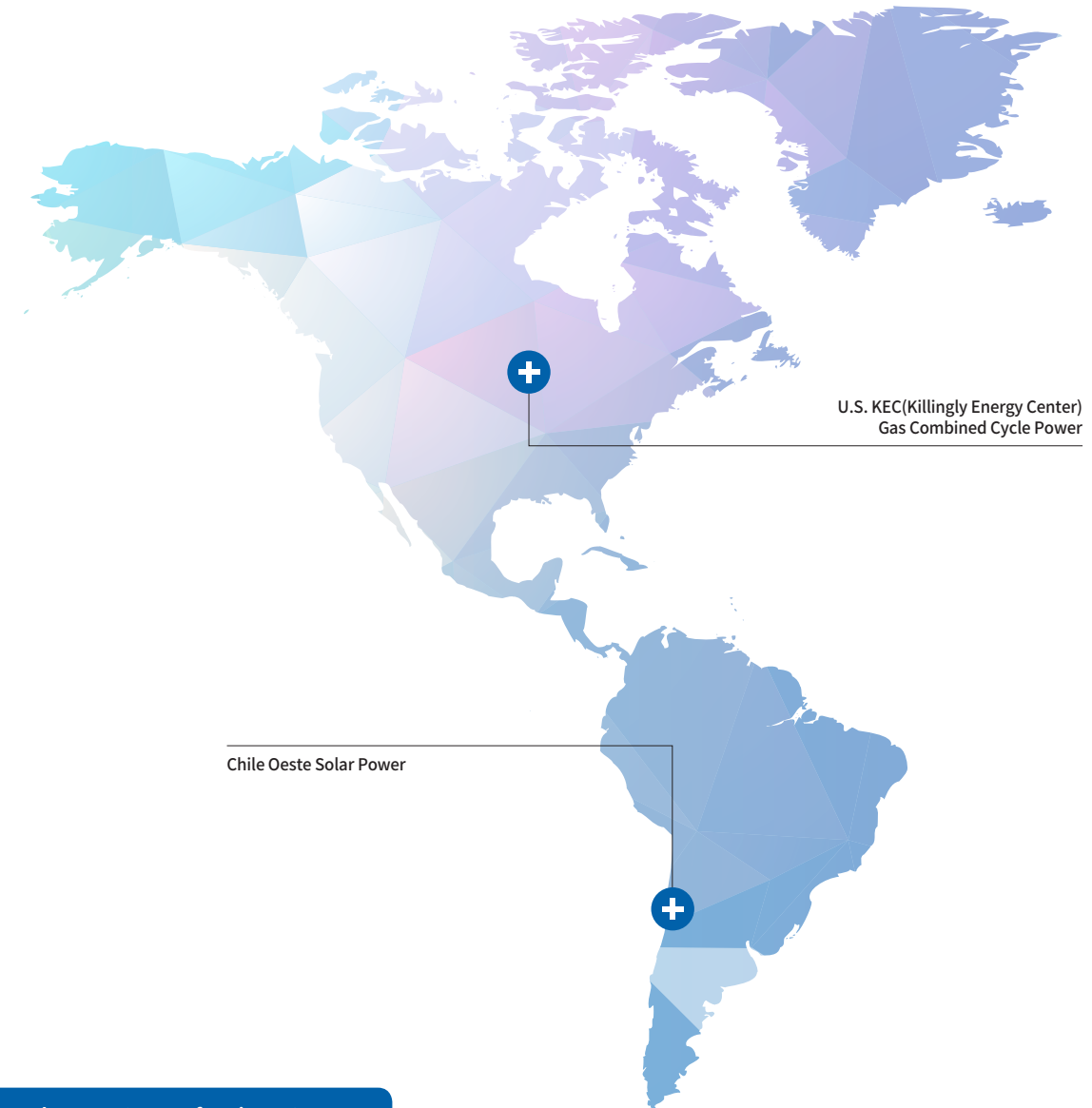
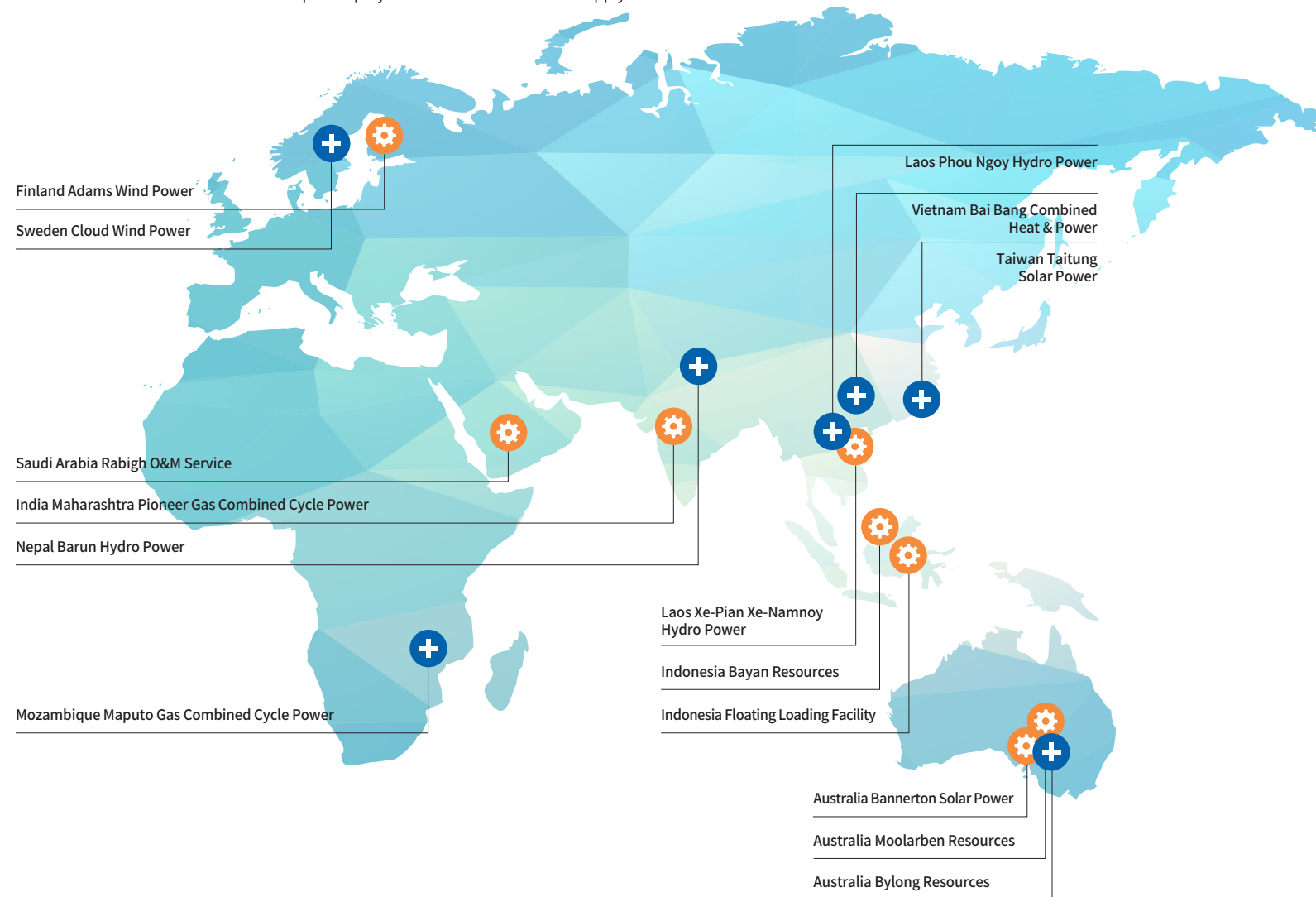


# Business Introduction

## Overseas business

Based on power plant construction and its O&M (operation and maintenance) technologies, KOWEPO is engaging in diverse overseas projects in collaboration with Korean companies. In addition, the company is solidifying its foundation for sustainable growth from multiple perspectives through participation in overseas resource development projects to secure a stable fuel supply.

Operation Development



### Operation Status of Overseas Business

Saudi Arabia Rabigh O&M Service O&M <b>1,204 MW</b>	India Maharashtra Pioneer Gas Combined Cycle Power Investment in Power Generation <b>388 MW</b>	Laos Xe-Pian Xe-Namnoy Hydro Power Investment in Power Generation, O&M <b>410 MW</b>	Finland Adams Wind Power Investment in Power Generation <b>73 MW</b>
Australia Bannerton Solar Power Investment in Power Generation <b>110 MW</b>	Australia Moolarben Resources Resource Development <b>16 million tons/year</b>	Indonesia Bayan Resources Resource Development <b>30 million tons/year</b>	Indonesia Floating Loading Facility Resource Development <b>8 million tons/year</b>

### Development Status of Business Overseas

U.S. KEC(Killingly Energy Center) Gas Combined Cycle Power Investment in Power Generation <b>632 MW</b>	Mozambique Maputo Gas Combined Cycle Power Investment in Power Generation, O&M <b>1,000 MW</b>	Vietnam Bai Bang Combined Heat & Power Investment in Power Generation, O&M <b>25 MW</b>	Laos Phou Ngoy Hydro Power Investment in Power Generation, O&M <b>728 MW</b>	Nepal Barun Hydro Power Investment in Power Generation, O&M <b>132 MW</b>
Taiwan Taitung Solar Power Investment in Power Generation, O&M <b>32 MW</b>	Chile Oeste Solar Power Investment in Power Generation, O&M <b>60 MW</b>	Sweden Cloud Wind Power Investment in Power Generation <b>241 MW</b>	Australia Bylong Resources Resource Development <b>3.6 million tons/year</b>	

# Business Introduction

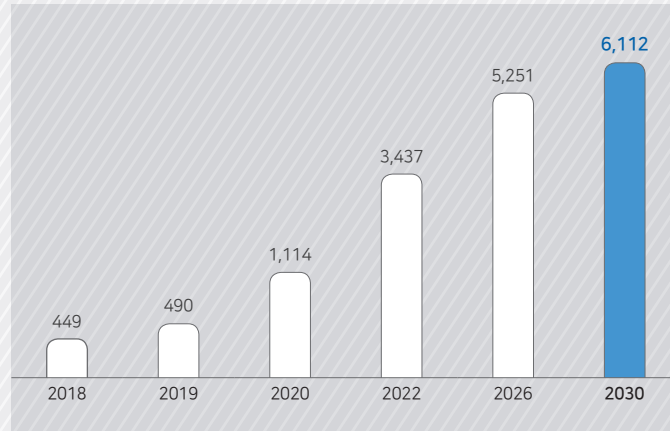
## New & Renewable Energy Business

KOWEPO aims to strengthen its role in the large-scale, new and renewable energy business sector by securing new growth engines from eco-friendly energy sources, and by actively responding to the government's new and renewable energy promotion policies. With the goal of expanding new and renewable energy to 25 percent or more of total power generation by 2030, KOWEPO has established a 'New & Renewable Energy 3025 Roadmap' and expanded the scope of its projects.

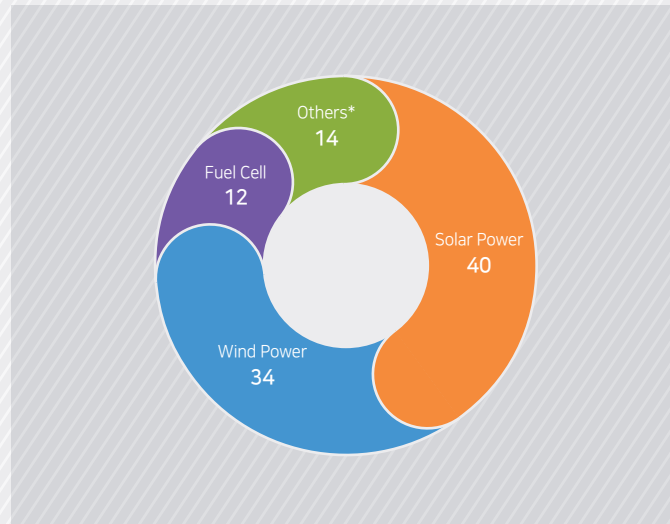


### New & Renewable Energy 3025 Roadmap

Plan to Expand Installed Capacity of New & Renewable Power Generation  
(Unit: MW)



Composition of New & Renewable Energy Facilities in 2030  
(Unit: %)



\*Others: IGCC, Small Hydro Power

Operation Status of New & Renewable Business  
(As of June 30, 2020)

<b>Solar Power</b> 	<b>47.175 MW</b> (28 locations)
<b>Wind Power</b> 	<b>16.00 MW</b> (1 location)
<b>Fuel Cell</b> 	<b>61.965 MW</b> (5 locations)
<b>Others (IGCC, Small Hydro Power)</b> 	<b>348.5 MW</b> (2 locations)



# Sustainable Value-Creation Process

(As of 2019)

## INPUT VALUE

### Financial value

Assets	KRW 10 trillion and 482.4 billion
Liabilities	KRW 6 trillion and 644.3 billion
Capital	KRW 3 trillion and 838.1 billion

### Production value

Installed capacity	11,338 MW
Volume of power generation	46,481 GWh
Tangible assets	KRW 8 trillion and 831.7 billion

### Environmental value

Total environmental investment	KRW 91,647 million
Operating costs in environmental sector	KRW 176,216 million
Development costs in environmental sector	KRW 1,113 million

### Innovation value

Holdings of intangible assets (industrial property rights)	396 cases
R&D investment	KRW 12.1 billion
R&D personnel	23 persons

### Human resource value

Number of employees	2,505 persons
Training hours per person	118.84 hours
Training cost per person	KRW 2,596,000

### Social value

Donation	KRW 8 billion
Number of volunteers	1,982 persons
Hours of volunteer works	36,006 hours

## BUSINESS ACTIVITIES



## OUTPUT VALUE

### Financial value

Sales	KRW 4 trillion and 468.5 billion
Distribution to vendors	KRW 4 trillion and 205.2 billion
Distribution to employees	KRW 259.7 billion

### Production value

Volume of power transmission	43,464 GWh
Volume of power transaction	44,244 GWh
Market share	9.00%

### Environmental value

Greenhouse gas reduction	1.97 million tons
Air pollutant reduction rate	69.6%
Waste recycling amount (ratio)	33,946 tons (79%)

### Innovation value

Implementation rate of five core technology developments	19.7%
Registration of industrial property rights	36 cases
Jobs	113 persons

### Human resource value

Female employees (ratio)	303 (12.1%)
Education satisfaction level	79.4 points
Number of union members (enrollment rate)	1,734 persons (97.3%)

### Social value

Contributing to the local community and pursuing social contribution work by conducting career counseling for youth, creating jobs for the elderly, and building up a market for local floriculture farmers	Community Satisfaction level	86 points
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# PART 02

## SUSTAINABILITY MANAGEMENT

24p



Corporate Governance

25p



Ethics and Human Rights Management

28p



Stakeholder Communication and Engagement

KOWEPO has established a sound corporate governance and strengthened ethics and human rights management and communication with stakeholders in order to actively implement sustainable management.

## Corporate Governance

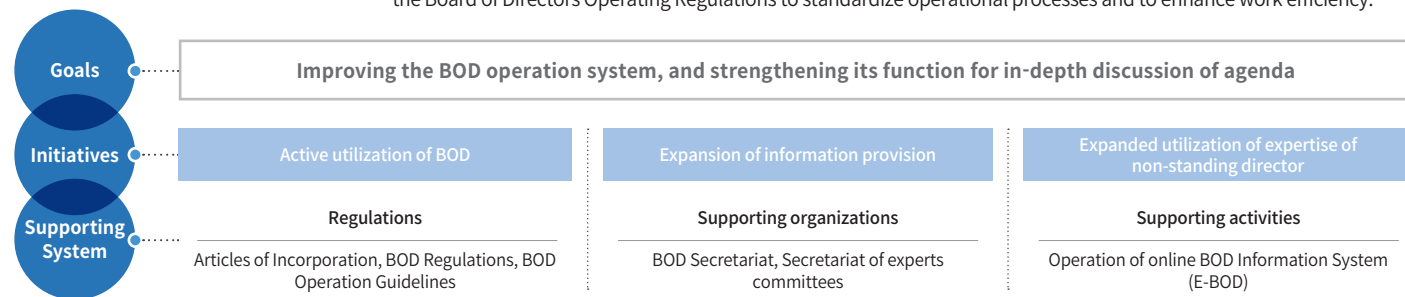
### Composition of the Board of Directors

KOWEPO has enhanced the expertise, independence and diversity of the board of directors by establishing sound corporate governance. The board of directors consists of four standing directors, including the president and executive auditor, and five non-standing directors. The chairman of the board is appointed among the non-standing directors. In addition, in order to achieve gender equality in the board of directors, the “Gender Equality Executive Appointment Target System” was introduced to ensure that female executives may hold more than 20% of the available positions.

### Operation of the BOD

#### Promoting the Effectiveness of the Board

KOWEPO makes diverse efforts to promote the sound operation of the board of directors. It has a secretariat of the board of directors, a dedicated supporting organization, and operates an online Board of Directors Information System (E-BOD) to resolve information imbalance between standing and non-standing directors. In addition, KOWEPO provides data on management issues and power industry trends to non-standing directors on a regular basis, and established the Board of Directors Operating Regulations to standardize operational processes and to enhance work efficiency.



#### Committees Under BOD

KOWEPO has expert committees to review the major issues of the proposed agenda in advance before it reaches the board of directors. Each expert committee is composed of 2-3 non-standing directors and 1-2 standing directors, depending on one’s expertise and job relevance that’s been comprehensively examined.

Names of Committees	Roles	Members (As of 2019)	Number of Committee Meetings Held	
			2018	2019
Strategic Management Expert Committee	<ul style="list-style-type: none"> <li>Review of internal implementation plan and performance to carry out national projects</li> <li>Preliminary review of agenda items regarding management goals, strategies, or innovation</li> </ul>	3	2	1
Financial Management Expert Committee	<ul style="list-style-type: none"> <li>Preliminary review of budget, funds, mid-and long-term financial management plans, and long-term borrowing</li> <li>Preliminary review of agenda items related to plant construction, investment or contribution</li> <li>Review of debt management such as the development of business for sensible management</li> </ul>	4	10	9
Ethics Management Expert Committee	<ul style="list-style-type: none"> <li>Preliminary review of agenda items related to ethics and human rights management and mutual growth</li> </ul>	3	1	2

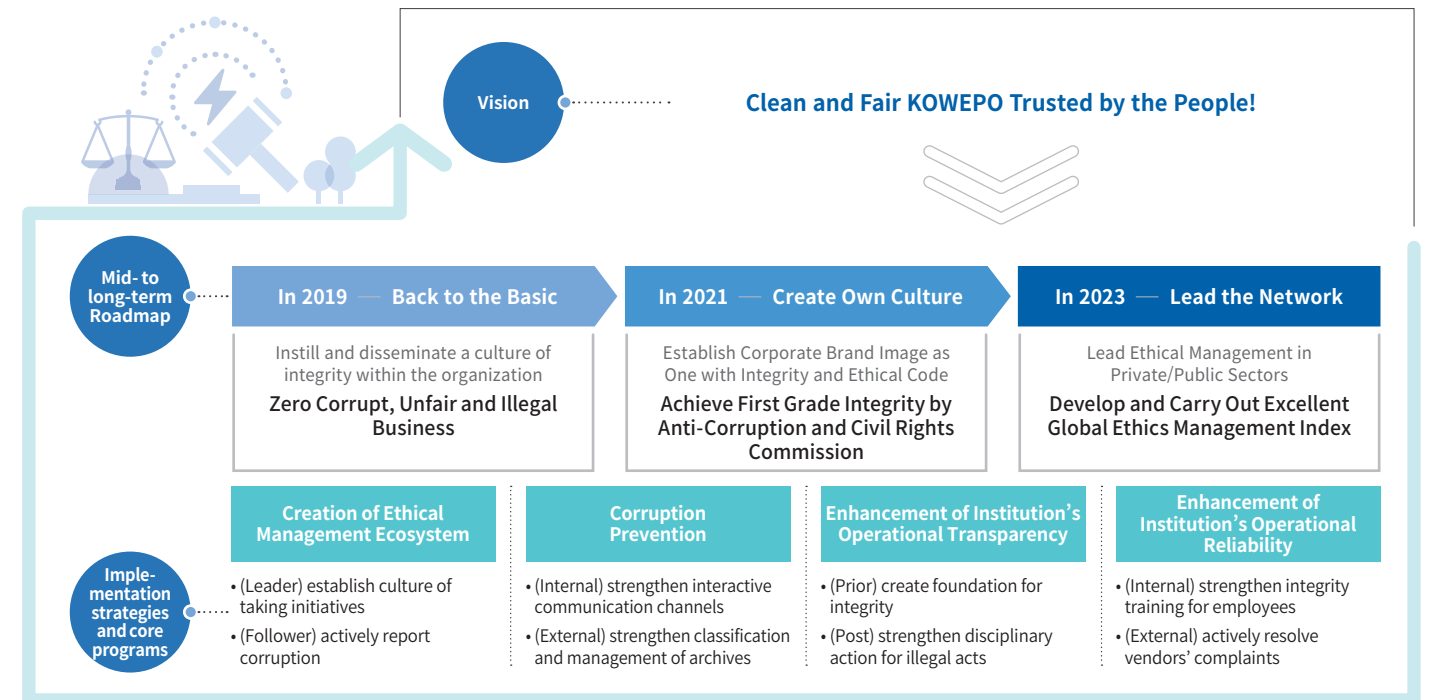
#### Audit Committee

KOWEPO operates an Audit Committee to perform audits on major business performance and accounting. Two out of three Audit Committee members including the chairman are non-standing directors, and one of the audit committee members is appointed among accounting or financial experts in accordance with relevant regulations to ensure independence and expertise.

## Ethics and Human Rights Management

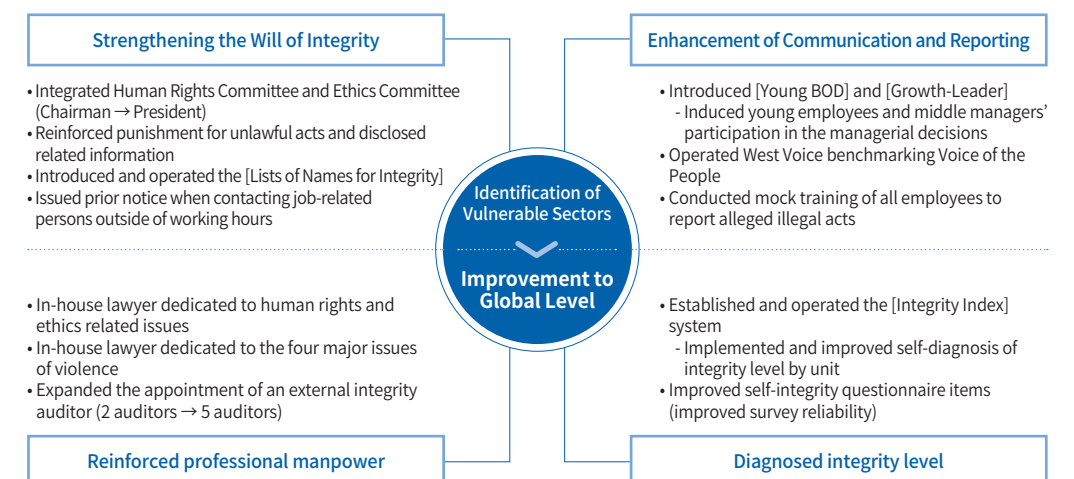
### Ethical Management System

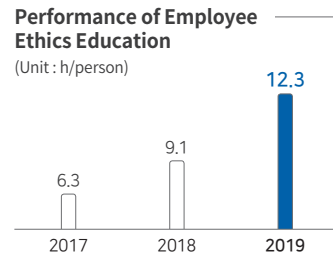
KOWEPO has selected four implementation strategies — namely, ethical management ecosystem creation; corruption prevention; institution’s operational transparency enhancement; and institution’s operational reliability enhancement — and eight core programs to apply ethical management, aiming at becoming a clean and fair public corporation trusted by the people to practice ethical management.



### Establishment of Advanced Ethical Management System

KOWEPO has established an advanced ethical management system at the global level (ISO37001) by improving the ethical management system in all aspects from A to Z. KOWEPO has introduced new systems such as Young BOD, Growth-Leader, West Voice, and Integrity Index.





## Implementation of Ethical Management

### Strengthening Ethics Education for all Employees and Spreading it in the Local Communities

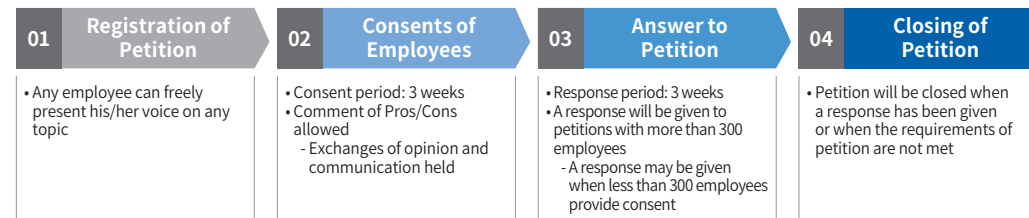
KOWEPO strives to spread the culture of integrity both internally and externally, by conducting class-wise and job category-wise customized integrity and ethics education, sharing and distributing the “Improper business instructions case book” to 17 competent authorities in the public sector, and holding an integrity experience class for 350 local students jointly with the Anti-Corruption and Civil Rights Commission (ACRC).

### Bolstering the Culture of Reporting

KOWEPO has strengthened the related regulations and systems such as stipulating the provisions of protection and confidentiality of the identity of the notifier, and strengthening the disciplinary measures imposed upon persons engaging in misconduct to the highest level of ‘dismissal.’ To this end, the company conducts mock training of reporting alleged misconduct for all employees once a year to encourage employees to report misconduct.

### Introduction of West Voice

In order to create a culture of integrity and strengthen the interactive communication channel within the organization, KOWEPO has introduced and operated ‘West Voice,’ the official communication channel through which any employee can freely voice his/her views on any topic.



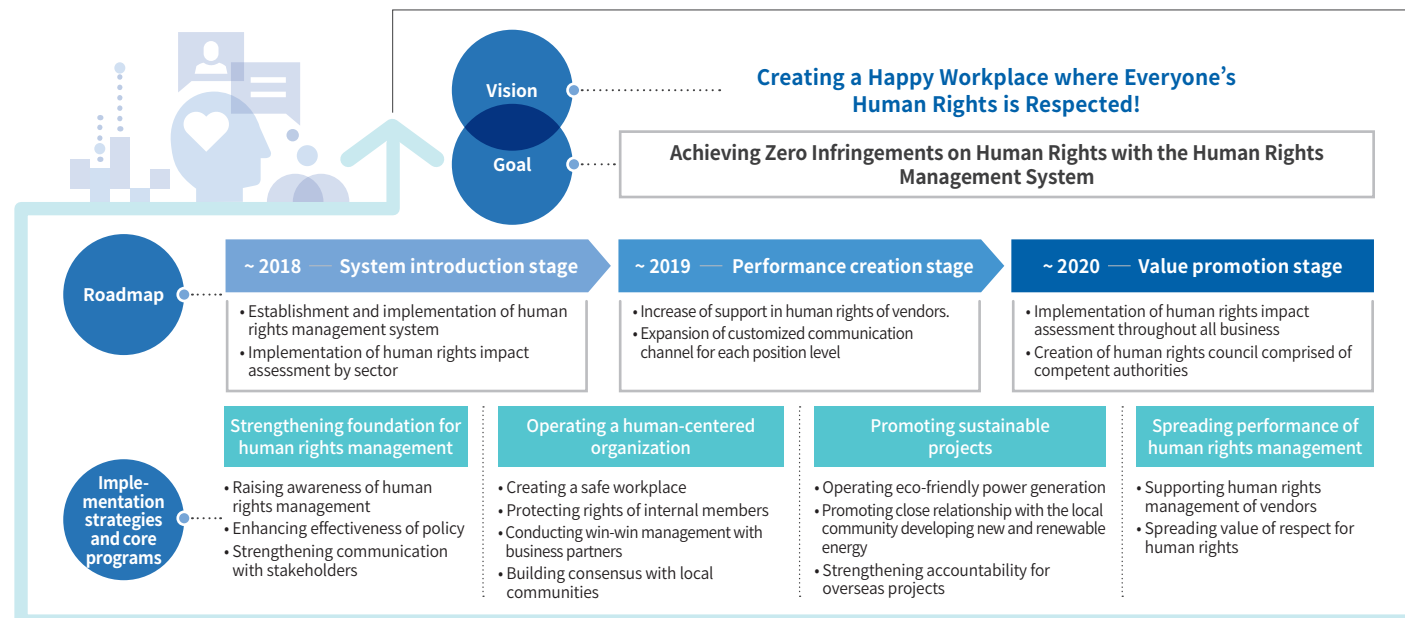
**Number of Petitions**  
**130 cases**

**Number of Response**  
**28 cases**

**CEO Answer**  
**12 cases**

## Human Rights Management System

KOWEPO proclaimed and proactively implemented the ‘WP Human Rights Management Charter’, which reflects international human rights standards such as the UN Guiding Principles on Business and Human Rights (UNGPs) and the 10 principles of the UN Global Compact (UNGC). In addition, under the vision of ‘Creating a happy workplace where everyone’s human rights are respected,’ KOWEPO has established its 12<sup>th</sup> mid- to long-term roadmap reflecting social responsibility related international standards (ISO26000), and strived to protect the human rights of all stakeholders.



### Establishment of WP Human Rights Center

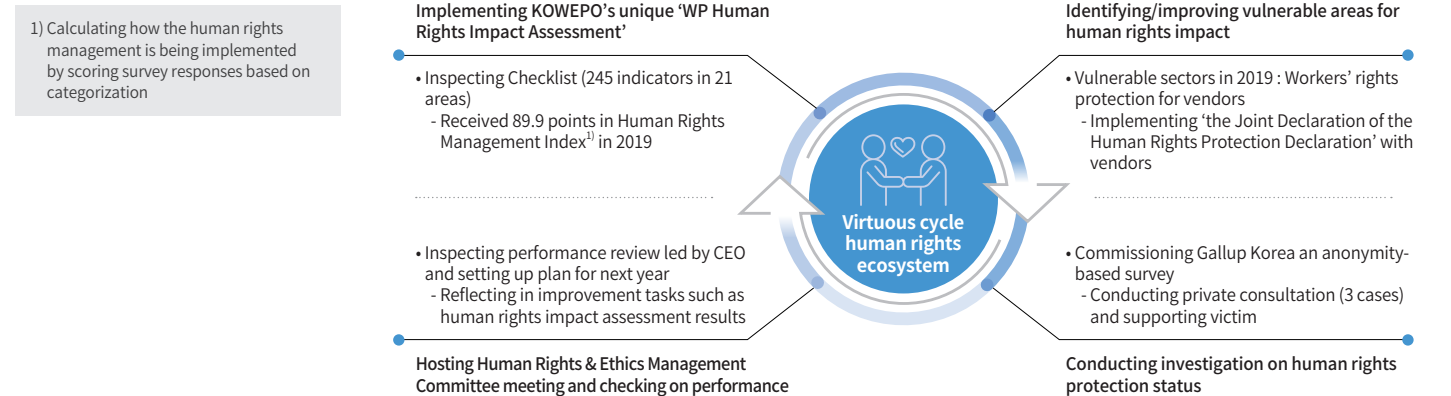
KOWEPO established the ‘WP Human Rights Center’ in January 2019 to protect the human rights of all persons who have direct and indirect interests in the company’s management activities. The company has provided counseling on human rights violations, received reports and investigated human rights violations, and protected the victims and notifiers of human rights violations.

### Development of WP Sexual Harassment and Sexual Assault Report Application (Listen2ME)

Since 2020, KOWEPO has developed and operated the ‘WP Sexual Harassment Report App (Listen2ME)’, an application to prevent and report violation, which has various functions including a sexual molestation and sexual abuse record creation tool; guidance for responding to sexual violence reviewed by experts; reporting and transmitting stored violations; and joint reporting of habitual criminals.

## Virtuous Cycle Human Rights Ecosystem Operating System

KOWEPO operates a virtuous cycle human rights ecosystem operation system that checks the progress of human rights management and provides feedback on improvements to decrease human rights violations and prevent secondary victimization. In addition, the company established the ‘Manual for Consultation and Investigation of Human Rights Violations,’ for the first time as a public corporation, and shared the manual with competent authorities in order to contribute to securing the effectiveness of relief of the victims and strengthening the foundation for the relief of the victims of human rights violations in the public sector.



## Performance of Human Rights Management

### Declaration of WP Human Rights Management and Implementation of Human Rights Education

- Shared status of human rights and conducted relevant trainings for the management and partner firms (five times)
- Improved four internal regulations, including strengthening of disciplinary rules for misconduct
- Investigated current status of human rights protection and operated the WP Human Rights Center to provide relief for five human rights victims and prevent secondary victimization



Declaration Ceremony of WP Human Rights Management

### Signing a Joint Human Rights Management Agreement with Partner Firms

- Supported assessments of human rights impact and education programs for key partner firms
- Signed a joint human rights management agreement with vendors (eight companies) in the main business sectors

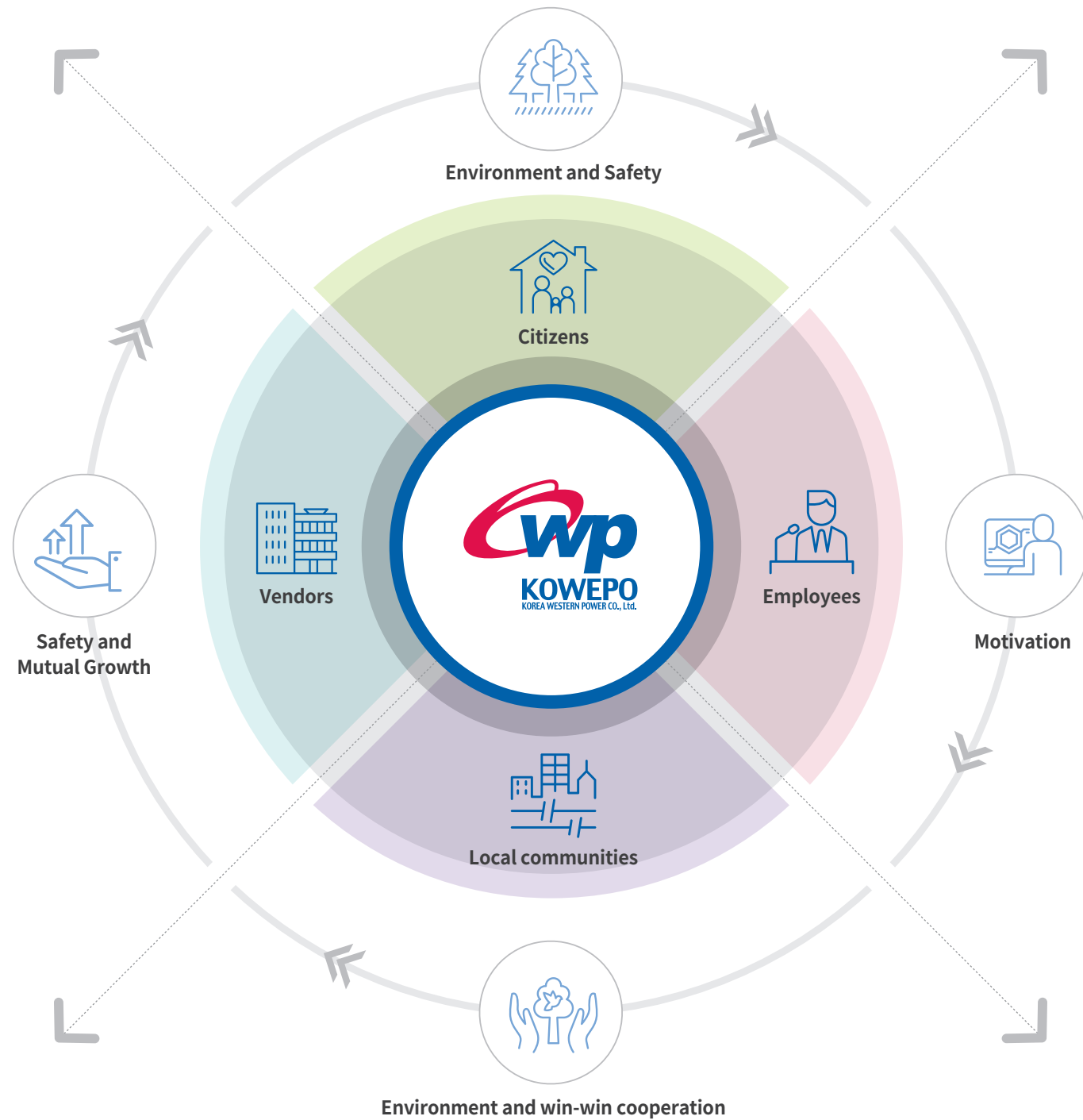


Declarative Statement of Partner Firm's Human Rights Protection Agreement

# Stakeholder Communication and Engagement

## Close Communication with Stakeholders

Stakeholders are those who influence the organization's decision-making, or are affected by the business activities of the organization. Companies are required to communicate with stakeholders to discover and resolve their key needs. KOWEPO defines its major stakeholders as the citizens, employees, vendors, and local communities in order to lead an open communication with them. KOWEPO's actively implements the interests of the stakeholders that have been identified through various channels of close communication in management activities to create sustainable management performance that the stakeholders agree with.



Stakeholders	Efforts to communicate	Major needs	Implementation Details
<p>Citizens</p>	<ul style="list-style-type: none"> <li>Operating a monitoring group for public communication</li> <li>Leading a public voice forum on WP website</li> </ul>	<ul style="list-style-type: none"> <li>Proactive feedback on issues regarding fine-dust of power plant, develop eco-friendly methods</li> <li>Preventing recurrence of disasters through strict follow-up measures based on safety accident in Taean</li> </ul>	<ul style="list-style-type: none"> <li>Preemptively disclosing interested information and conducting continued PR on fine-dust reduction efforts on social network <b>37</b> times</li> <li>Actively disclosing improvement result of field risk factors <b>6,326</b> cases</li> </ul>
<p>Employees</p>	<ul style="list-style-type: none"> <li>Direct communication with CEO (West Voice)</li> <li>Operating Young BOD</li> <li>Growth-Leader</li> </ul>	<ul style="list-style-type: none"> <li>Stabilizing organization and boosting morality</li> <li>Realizing a workplace where employees want to work</li> <li>Creating safe work environments</li> </ul>	<ul style="list-style-type: none"> <li>Proclaiming labor-management joint declaration to overcome economic crisis</li> <li>Hosting labor-management open forum on management issues in five areas and host event for a harmonious partnership</li> <li>Frequently sharing of CEO messages <b>76</b> times</li> </ul>
<p>Vendors</p>	<ul style="list-style-type: none"> <li>Council of 2<sup>nd</sup> &amp; 3<sup>rd</sup> tier consignment vendors</li> <li>Overseas sales support council</li> <li>Visits to vendors</li> </ul>	<ul style="list-style-type: none"> <li>Creating safe working environments</li> <li>Supporting SMEs in exploring overseas sales channels</li> <li>Supporting small-sized new and renewable energy providers</li> </ul>	<ul style="list-style-type: none"> <li>Identifying and improving risks factors jointly with vendors <b>60</b> cases</li> <li>Operating overseas market exploration teams and supporting obtaining of AEO</li> <li>Creating integrated fund for small-sized photovoltaic projects</li> </ul>
<p>Local communities</p>	<ul style="list-style-type: none"> <li>Expanding on operation of committee that promotes social values</li> <li>Attending meetings with head of community organizations (monthly)</li> </ul>	<ul style="list-style-type: none"> <li>Improving reliability of fine dust measurement results that surround power plants</li> <li>Implementing projects that may provide direct contributions to the local communities such as strengthening independence of local communities</li> </ul>	<ul style="list-style-type: none"> <li>Strengthening fine-dust monitoring levels surrounding the power plants</li> <li>Implementing regeneration projects in rural villages</li> <li>Leading improvement of medical service quality of public hospitals in the key regions (Taean, Seosan)</li> </ul>

PART

# 03

# SUSTAINABILITY ISSUES

32p



Economy

40p



Environment

46p



Safety

52p



Social Responsibility

KOWEPO strives to fulfill its economic, environmental, safety, and social responsibilities, and contributes to national economic development and people's happiness through sustainable management.



ISSUES  
01



# Economy

### The Importance of Economic Issues

Stable power supply by power-generation companies is highly important. Today, electricity has become an indispensable and essential energy source, and interruptions of power-supply result in enormous economic and social costs in our society. At the same time, seamless power supply requires sustainable management by the power-generation company. Accordingly, power-generation companies should ensure a stable operation of facilities and continuous profit generation, as well as strengthen the ability to develop new businesses for future growth. In addition, power-generation companies should proactively respond to paradigm shifts in the energy industry by supplying electricity in an eco-friendly manner.

### KOWEPO's Response

KOWEPO has improved the reliability of power-generation facilities to the highest level in order to stably supply electricity to the people, and is supplying power-generation fuels in accordance with demand. In addition, KOWEPO manages domestic thermal power projects in an eco-friendly manner in order to actively comply with the government's energy-transition policy. In addition, KOWEPO has expanded the new and renewable energy business both at home and abroad to actively contribute to efforts to enhance the competitiveness of the domestic power-generation industry. Furthermore, KOWEPO strives to create continued financial value by strengthening new project capabilities, such as fostering the ecosystem for the 4<sup>th</sup> industrial era, and securing the foundation for commercialization of hydrogen production for the first time in Korea.

### Targets Relating to the UN SDGs



### KOWEPO HIGHLIGHTS

**Forced Outrage Factor**  
(As of 2019)

**0.018 %**

**Sales**  
(As of 2019)

**KRW 4.46 trillion**

**Installed Capacity of New & Renewable Power Generation**  
(Based on domestic capacity as of 2019)

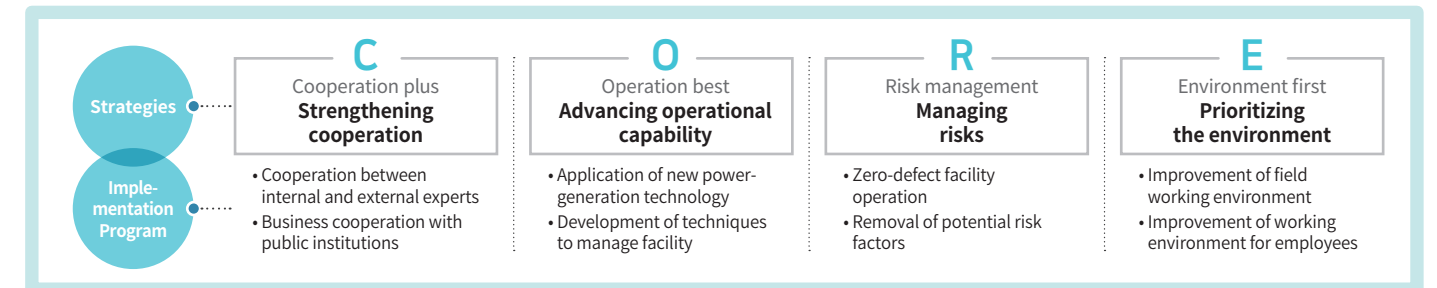
**490 MW**

## Stable and Economical Supply of Power

## Improvement of Facility Reliability

### Implementation Programs for Facility Reliability

KOWEPO set itself the goal of 'Achieving the Highest Reliability of Facility through Actualizing 4 Zeros (zero faults, zero accidents, zero defects, zero losses) via CORE Activities,' aiming to rapidly improve the reliability of power-generation facilities. KOWEPO identified four major strategies and eight implementation programs to secure facility reliability.



### Securing Facility Reliability

KOWEPO strengthened collaboration with external facility experts (researchers, manufacturers, and specialized companies) and related competent authorities in order to improve the reliability of power-generation facilities. The company conducted technical diagnoses by dividing the facilities into core facilities, non-core facilities, and safety areas — in collaboration with experts, to analyze the fundamental factors causing forced outage. The company has realized zero occurrences of major forced outage by identifying the cause of forced outage tailored to each facility and supplementing the facilities.

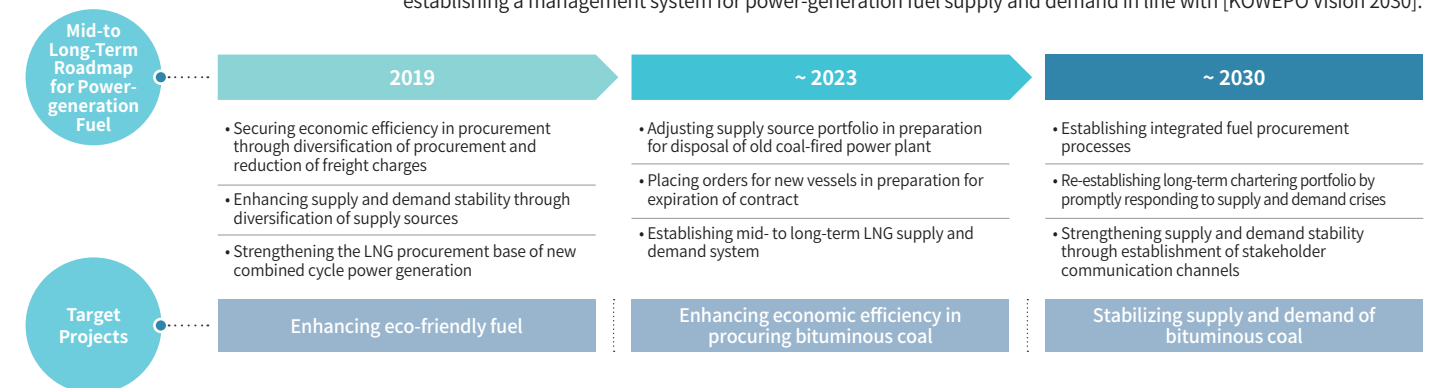
### Improvement of Forced Outrage Factor

In 2019, KOWEPO improved forced outage factor by 85% compared to the previous year by establishing a forced outage prediction system that applies new technologies such as deep learning-based abnormal prediction system, IoT wireless piping leak monitoring, AR audio image analysis, etc. Moreover, we developed the nation's first 'generator stator winding forward/reverse switching type cleaning apparatus' to improve efficiency in maintenance technique, thus reducing the number of maintenance days by 92% (25 days → 2 days), and maintenance costs by KRW 7.3 billion.

## Supply and Demand of Power-generation Fuel

### Mid- to Long-Term Roadmap for Power-generation Fuel

KOWEPO has secured fuel in a stable and economic way through efficient operation at all stages of supplying fuel. KOWEPO actively expanded the introduction of eco-friendly fuels to supply high-quality power nationwide by establishing a management system for power-generation fuel supply and demand in line with [KOWEPO Vision 2030].



### Enhancement of Eco-friendly Fuel

KOWEPO strives to harmonize environmental value and economic efficiency in supplying electricity in response to environmental dispatch by improving eco-friendliness in the fuel supply and demand process, and reducing environmental costs. The company has purchased low sulfur coal and low ash coal, and signed an agreement to install a sulfur oxide reduction device (Scrubber) for ships, in response to international environmental regulations. This reduces the occurrence of fine dust in the transportation and berthing stages, and we installed alternative maritime power (AMP) system.

### Enhancement of Economic Efficiency in Procuring Bituminous Coal

In order to take advantage of the downward trend in the market, the company purchases bituminous coal through distributed lagging procurement based on the monthly required amount to minimize inventory management risk; and we reduce costs by applying various procurement techniques to improve the economic feasibility of procuring bituminous coal. Through such efforts, in 2019, the company achieved the highest savings rate (18%) compared to the market prices, despite the difficulty of showing savings in a situation where the market prices have plummeted by more than 30% compared to 2018.

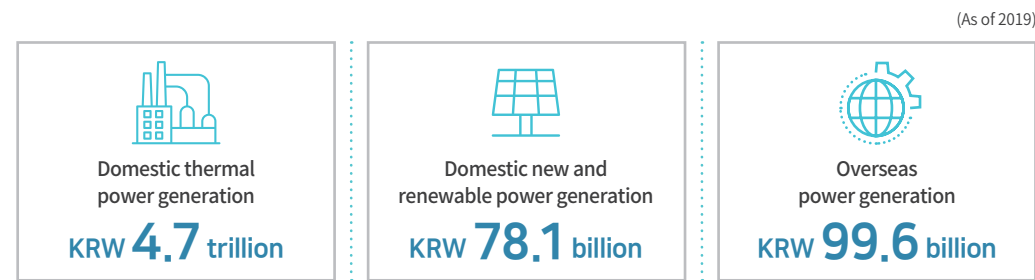
### Stabilization of Bituminous Coal's Supply and Demand

The company has diversified its supply sources in order to reduce dependence on specific countries and to stabilize the supply and demand of bituminous coal. KOWEPO extended the import of Colombian coal to reduce dependence on Australia for its high-calorie coal. In order to secure a stable supply of low-calorie coal, the company increased the proportion of Russian coal and reduced that of Indonesian coal.

## Creation of Financial Value

### Income-Generation Performance

KOWEPO continues to generate profit by stably managing the existing domestic thermal power generation projects and by securing future new growth engines. New growth engines are secured through active expansion of domestic new and renewable power generation and overseas power generation projects.

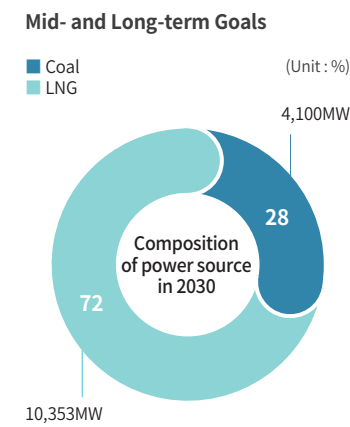


※ Equity sales from equity investment project is included

### Improvement of Financial Structure

As of 2019, KOWEPO improved income of KRW 38.6 billion by increasing the power-generation capacity in order to secure financial soundness in response to the power plant shutdown situation. The company has secured additional cash flow of KRW 38.6 billion by reducing transportation and maintenance costs (KRW 260.9 billion), selling idle assets and canceling unnecessary projects, resulting in a total of KRW 338.1 billion of financial improvement.

## Expansion of Eco-friendly Domestic Business



## Thermal Power Business

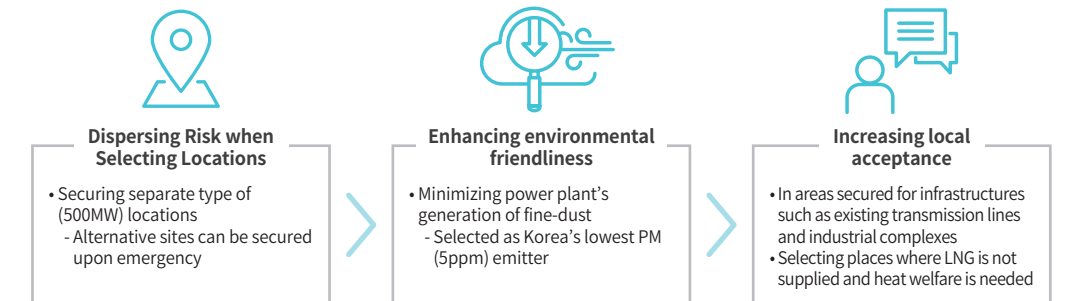
### Roadmap for Mid- to Long-Term Thermal Power business

KOWEPO has established a domestic thermal power plant roadmap and has implemented the project to expand new high-efficiency combined cycle power plants, such as establishing a Korean gas turbine demonstration base.

	Short-term (2019)	Mid-term (2023)	Long-term (2030)
Securing business alternatives to coal-fired power generation	<ul style="list-style-type: none"> <li>Securing alternative businesses for Taean 1~4 units</li> <li>- Reviewing business feasibility such as infrastructure and local acceptance</li> </ul>	<ul style="list-style-type: none"> <li>Installed capacity 1GW</li> <li>Starting construction of alternative Taean 1,2 units Combined cycle plants</li> <li>Promoting additional substitution (Taean 3, 4 units)</li> </ul>	<ul style="list-style-type: none"> <li>Installed capacity 2GW</li> <li>Completing Taean 1~4 units alternative businesses</li> <li>Preparing for Taean 5,6 units alternative businesses</li> </ul>
The nation's first gas turbine demonstration	<ul style="list-style-type: none"> <li>Gas turbine capacity 270MW</li> <li>Establishing basic plan for construction of Gimpo Combined Heat &amp; Power Plant based on gas turbine demonstration</li> </ul>	<ul style="list-style-type: none"> <li>Installed capacity 408MW</li> <li>Starting demonstrative operation of Korean-type Combined cycle</li> <li>- Demonstration period: Two years</li> </ul>	<ul style="list-style-type: none"> <li>Installed capacity 510MW</li> <li>Increasing capacity of Korean-type Combined cycle</li> <li>Newly developing of Korean-type Combined cycle power complex</li> </ul>

### Securing a New Gas Combined Cycle Power to Replace Old Coal-fired Power Plants

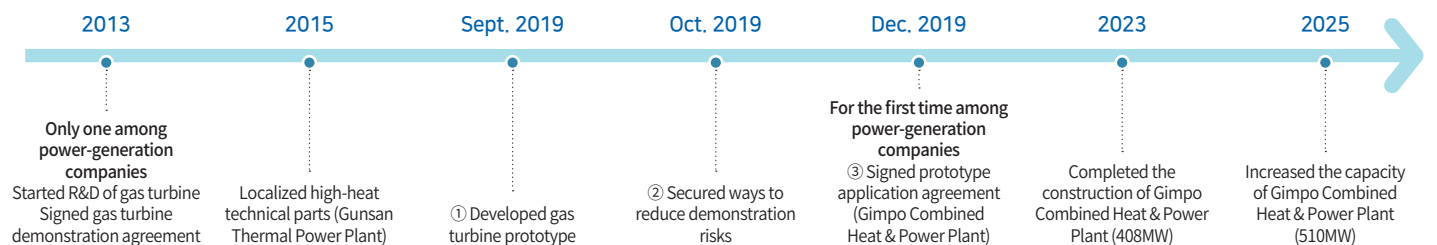
KOWEPO set strategic priority (three steps) and selected five community-friendly candidate sites in order to replace the aging coal-fired thermal power plants with new gas-fired power plants. KOWEPO plans to actively implement new projects by successfully carrying out the government's energy-transition policy and by coexisting with local communities.



### Creation of Korea's First Domestic Gas Turbine Demonstration Base

KOWEPO is preparing to construct the Gimpo Combined Heat & Power Plant (408MW) to demonstrate a power turbine for the first time among power-generation companies in order to enhance the competitiveness of the domestic power-generation industry through localization of gas turbines. The construction of Gimpo Combined Heat & Power Plant is expected to start in the second half of 2020. Development of a domestic large-scale gas turbine (270MW) prototype was completed through the sharing of 2019 technical operation data, and technical risks resulting from localization have been supplemented, laying the foundation for successful construction.

### WP History of Gas Turbine Localization

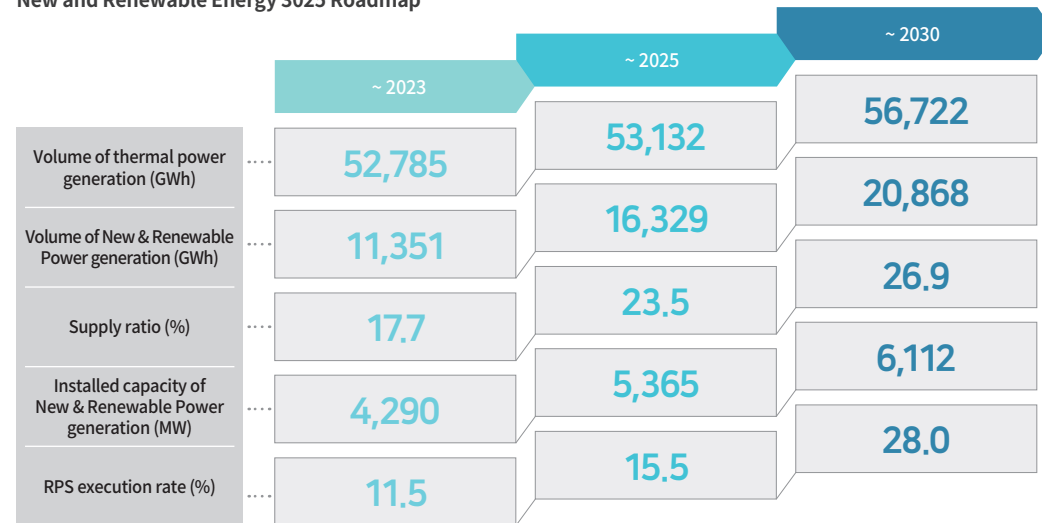


## New & Renewable Energy Business

### New & Renewable Energy Business Roadmap

KOWEPO established the 'New & Renewable Energy 3025 Roadmap' to invest KRW 6.26 trillion in order to expand new and renewable power generation facilities by 2030 and to increase the supply of new and renewable energy to 25% or more of total power-generation capacity. As such, KOWEPO is committed to becoming a leader regarding eco-friendly energy.

#### New and Renewable Energy 3025 Roadmap



Samyang 17MW Solar Power

### Expansion of Photovoltaic Business Based on Private and Public Collaboration

Samyang Photovoltaic Power Plan, completed in June 2020 (located in Anmyeon-do, Taean County, South Chungcheong Province), invested KRW 55.7 billion in approximately 220,000 square meters of fish farms and salt farms. It installed 17MW solar power-generation facilities and 40MWh energy storage system (ESS), thereby contributing to stable transmission of power. KOWEPO expects that it can create social value of about KRW 80 million annually with residents and collaborations with local residents by donating 400kW of village-type photovoltaic facilities through the Samyang Photovoltaic Power Project.



Jangbogo Offshore Wind Power

### Implementation of Large-scale Offshore Wind Power Farms

KOWEPO is pursuing the 'Wando Jangbogo 400MW Offshore Wind Power Project' in Wando County, Jeollanam-do through cooperation with local governments, local companies, and fishermen. It is a model of maritime industry coexisting with offshore wind power, multi-purpose fish farms, and tourism. When the 400MW offshore wind power farm is constructed in 2026, it will be a representative new and renewable energy project, linking port with the fisheries and tourism industries. In addition, KOWEPO completed the construction of a 7.5MW offshore wind farm demonstration complex in the Southwest Sea, and is now preparing to commence the construction of 'Gunsan Ariul 500MW Offshore Wind Power' and 'Ansan Pungdo 200MW Offshore Wind Power Plant' to cultivate industries that can stimulate the local economy in Gunsan in cooperation with public institutions.



Seoicheon Fuel Cell 1-4 Stages

### Implementation of Social Value Creating Fuel Cell Business

KOWEPO carries out fuel cell business mainly in unsold industrial complexes nationwide in order to create partnering values with local communities. This is done by sharing the burden of local governments resulting from the increase in unsold industrial complexes and creating high-quality jobs. In addition, the company is also pursuing a win-win project where KOWEPO, local farms, and collective energy providers benefit from utilizing the byproduct of generated heat during the power-generation process of fuel cell. The representative business, 'Smart Farm-Linked Fuel Cell Business', contributes to reducing energy costs and increasing income for farmers by supplying the heat produced as a byproduct to heating and cooling systems.

## Expansion of Overseas Business



Finland Adams Wind Power Plant



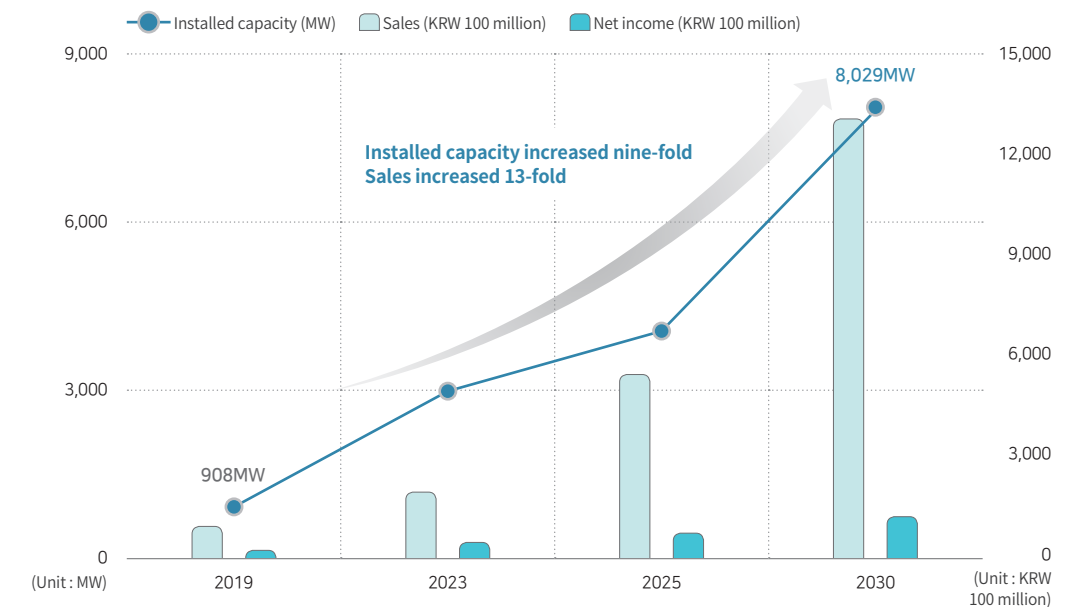
Swedish Cloud Wind Power Plant



U.S. KEC Gas Combined Cycle Power Plant

## Mid- to Long-Term Overseas Business Roadmap

KOWEPO conducts projects with a view to achieving the 2030 Overseas Business Portfolio through a significant reduction of coal-fired power generation and intensive development of new and renewable power generation projects. This reflects the overseas power generation market environment, in which the phase-out of coal is accelerating.



## Diversification of Overseas Business

### Finland Adams Wind Power Project

It is the first business of KOWEPO to enter the advanced new and renewable power generation market, its installed capacity is 73.2MW, and the company secured a 29.5% stake in June 2020. The power-generation complex is located near Oulu City, in the north of Finland, and is stably operating with a high FIT (Feed In Tariff) price guaranteed by the Energy Agency of Finland. The project is expected to generate net income of about KRW 2 billion annually.

### Swedish Cloud Wind Power Project

As a result of expanding business to the Nordic region after Finland, the new Swedish Cloud Wind Power Plant is located in central Sweden, with an expected installed capacity of 241MW. This project is currently under construction and is scheduled to be completed in the second half of 2020. As a long-term power sales contract (29 years) has been signed, stable sales are expected. KOWEPO plans to participate in this project as a strategic investor, performing on-site supervision before completion and managing power plant assets and O&M after the completion of construction. In addition, KOWEPO plans to advance throughout the European region by using its operations in Sweden and Finland as a bridgehead.

### U.S. KEC Gas Combined Cycle Power Project

As the first business of KOWEPO to enter the U.S Gas Combined Cycle Power-generation market, its installed capacity is 632MW. This project is located in Connecticut, USA, and KOWEPO plans to invest 50% of the shares. As this project is located near the shale gas field in the United States, power-generation costs are lower than those of a coal-fired power generation. It is expected to be responsible for the base load in the New England electricity market, and to generate stable revenue by generating annual income of \$300 million. KOWEPO plans to perform O&M duties, asset management, as well as construction management, and to actively explore additional projects in the U.S. market based on the success of this project.

## Strengthening New Business Capabilities



Smart Enterprise Leader Award



Completion Ceremony of Demonstration Plant



Commemoration of the Establishment of the 1st In-house Venture

## Development of New Business Models

### Fostering the 4th Industrial Innovation Technology Ecosystem

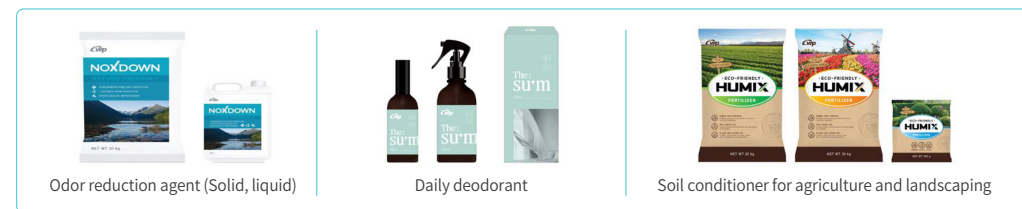
KOWEPO fosters a 4th industrial innovation technology ecosystem to strengthen the company's new business capabilities. The company actively conducts R&D, explores new business opportunities, and shares patents on technology development products, opens customized training courses for the 4th industrial era for small and medium-sized enterprises (SMEs), which are cooperating with KOWEPO, and distributes new technologies through various seminars and exhibitions. In recognition of such efforts, the company was awarded the Smart Enterprise Leader Award by the National Assembly in 2019.

### Securing the Foundation for Commercialization of Hydrogen Production for the first time in Korea

KOWEPO established the first hydrogen production commercialization base in Korea in order to proactively respond to the emerging hydrogen economy. In November 2019, the company held the completion ceremony of the [Hydrogen Production Demonstration Plant Using IGCC Syngas and Marine Microorganisms], which will be advanced further. KOWEPO plans to upgrade the demonstration plant facilities into an 'Export Merchandising Project' through reliability testing for long-term operation, and to create a new business model that introduces hydrogen importation from overseas to Korea through private companies and overseas expansion to lead the hydrogen economy.

### Establishing and Fostering In-house Venture

Since 2018, KOWEPO has enacted the rules for operating in-house ventures to foster and support in-house ventures, and made efforts in various aspects by creating a dedicated organization to support in-house ventures in order to explore new business models. The company established the first in-house venture [Cell Bio Co., Ltd.] in 2019, and launched three eco-friendly products (WP-Knox Down, etc.) based on the R&D results that the company has accumulated. In 2020, the company finally selected the two in-house venture teams through the 2nd competition for internal innovation ideas, and held the [2nd In-house Venture Launching and Agreement ceremony].



## Leadership in the 4th Industrial Revolution

### 4th Industrial Revolution Technology-Based Long-term I-WP 4.0 Technology Innovation Roadmap

KOWEPO established the 4th Industrial Revolution Strategy team, an organization dedicated to the 4th Industrial Revolution. KOWEPO has also established a mid- to long-term 4th Industrial Technology Innovation Roadmap (I-WP 4.0) to build a smart power plant that combines power-generation operation technology and the 4th industrial revolution technology. The I-WP 4.0 strategic plan consists of four major smart operation strategies, AI predictive diagnosis, infrastructure construction, capacity building, 12 key programs, and seven core technologies. The company plans to develop a total of 377 different technologies by 2030. Currently, KOWEPO is focusing on the operation of smart power-generation facilities using mobile, drone, 3D printing, etc., and actively developing various high-value-added new business models in the power-generation industry by developing various artificial intelligence power-generation operation solutions based on accumulated 4th industry technologies.



3D Printing Demonstration Business

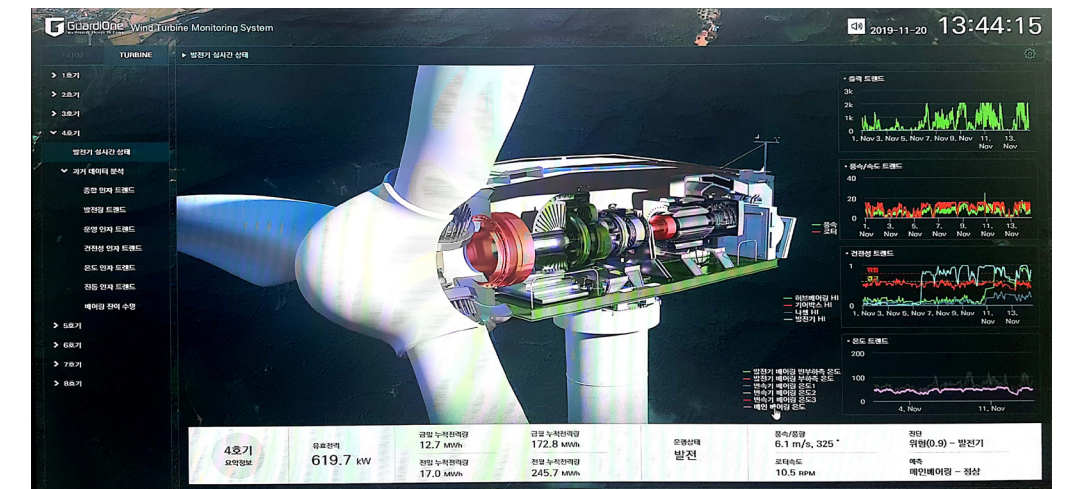
## Application of the 4th Industrial Revolution Technologies

### Demonstration of Power-generation Parts using 3D Printing

KOWEPO manufactures power-generation parts using 3D printing technology, and conducts a demonstration project every year to verify the reliability and performance in the field. The company succeeded in manufacturing eight types in 2018 and 15 types in 2019, and selected the optimal 3D printing material to secure reliability, and manufactured many of the same parts to improve cost efficiency. As such, the company makes various attempts to expand the application of innovative technologies in the field. In addition to the demonstration test, KOWEPO plans to use 3D printing's heterogeneous material multi-layering technology to produce new-concept power-generation parts to replace imported equipment for the first time in Korea.

### Development of AI-based Prognostics Technology

KOWEPO is developing AI prognostics technology that can predict any failure of power-generation facilities and conduct preventive maintenance. KOWEPO is developing a standard platform for power-generation sectors and a variety of diagnostic and predicting programs in cooperation with the power group. The company has developed and operates its own wind power-generator failure prediction system. The company expects that it can apply AI and big data technologies to power plants to contribute to the improvement of facility operation rate and power quality by identifying optimal operating conditions and maintenance points.



AI-based Wind Power Generator Failure Prediction System

### Fostering WP-Innovation Manpower

KOWEPO has established the [WP-Innovation Manpower Roadmap] for smart power plants in accordance with the 4th Industrial Technology Innovation Roadmap (I-WP 4.0) and has actively nurtured professionals of seven core technologies.

#### WP-Innovation Manpower Roadmap



As of 2019, out of all power generation companies, KOWEPO retains the most personnel who have acquired qualifications relating to core Industry 4.0 technologies. The company invited experts from various fields, such as big data, to hold a [Future Technology Innovation Seminar] and to spread Industry 4.0 technology culture to all of its business locations.

ISSUES  
02



# Environment

## The Importance of Environmental Issues

Both in Korea and in the global community, interest in and concern about environmental issues are continuously increasing. In particular, interest in the importance of climate change and active countermeasures is gradually increasing to the extent that it is no exaggeration to say that it is becoming the biggest global topic. The international community has launched a new climate system to reduce greenhouse gas emissions, and global leading companies are expanding the implementation of UN SDGs. In a situation where the environment and ecosystem are under threat due to indiscriminate development, the transition to environmentally friendly business methods is no longer an option, but a necessity.

## KOWEPO's Response

KOWEPO is aware of releasing environmentally hazardous substances while consuming large amounts of resources, due to the nature of being a power-generation industry, and strives to minimize the emissions. KOWEPO has set up a carbon management master plan to implement greenhouse gas reduction activities in all business processes, and the company actively responds to climate change by promoting various win-win greenhouse gas reduction projects in domestic and overseas markets. In addition, KOWEPO pursues sustainable development by seeking ways to reduce emissions of environmental pollutants such as fine dust and to recycle resources.

## Target Relating to UN SDGs



## KOWEPO HIGHLIGHTS



**Greenhouse Gases Reduction**  
(As of 2019)

**197 million tons**



**Air-Pollutant Reduction**  
(As of 2019)

**69.6%**



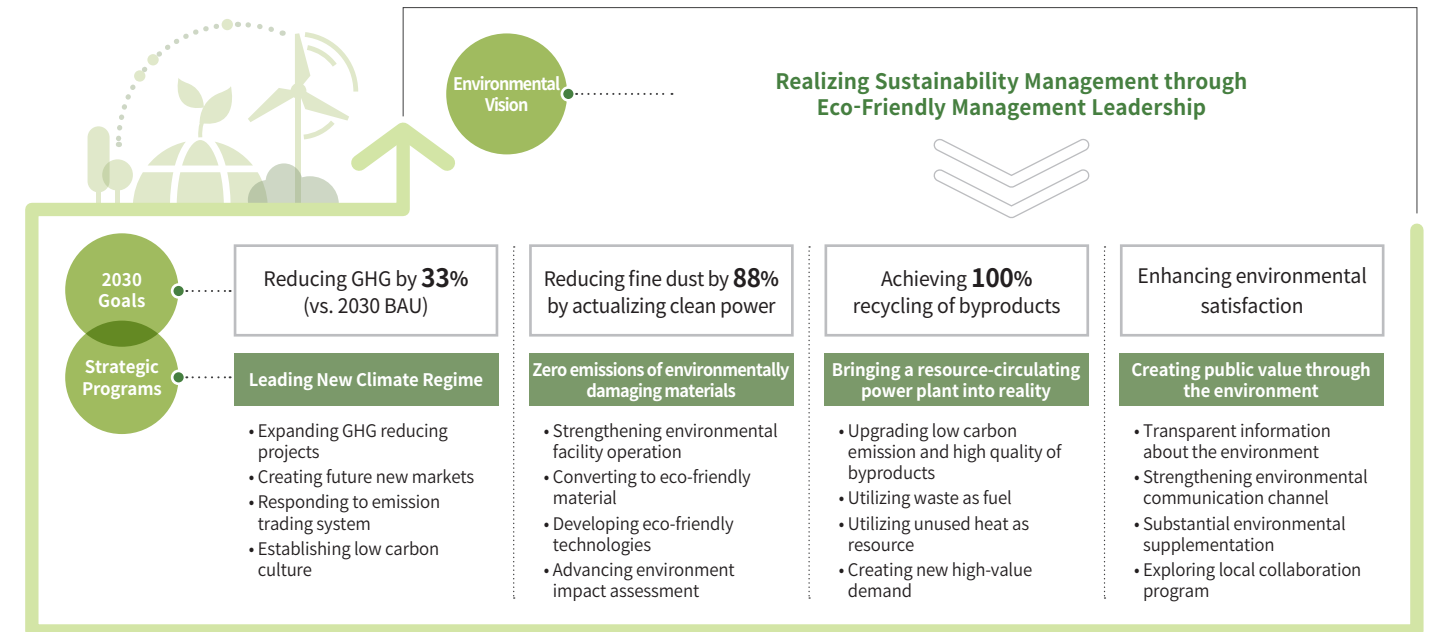
**Waste Recycling**  
(As of 2019)

**79%**

## Environmental Vision and System

### Environmental Vision System

KOWEPO aims to reduce greenhouse gas emissions by 33% compared to BAU (Business As Usual) and fine dust by 88% while increasing the recycling of byproducts by 100%. It also seeks to enhance environmental satisfactory levels by 2030 under the environmental vision of Realization of Sustainability Management through 'Eco-Friendly Management Leadership' linked to KOWEPO's Value System Vision. To actively practice sound environmental management, the company has set four strategic programs and 16 action plans.



## Environmental Policy

All employees of KOWEPO committed themselves to environmental policies as follows and pledge to take the initiative with a firm commitment to achieve the company's environmental vision.

- 1 We will minimize emissions of environmental pollutants including fine dust through continuous improvement of environmental facility performance and introduction of new technologies in order to create a safe and comfortable living environment for the people.
- 2 We will actively strive to increase the value of byproducts, diversify new recycling projects, and use waste as fuel in order to realize a resource-cycling eco-friendly power plant.
- 3 We will actively strive to expand greenhouse gas reduction projects, respond to emissions trading, and establish a low-carbon culture in order to respond to New Climate Regime.
- 4 We will faithfully implement its compliance obligations such as environmental laws, environmental agreements, and voluntary agreements related to the environmental management system.
- 5 We will contribute to realizing social values through open communication such as strengthened communication channels with stakeholders, transparent environmental information disclosure, and various environmental preservation activities.

June 2018

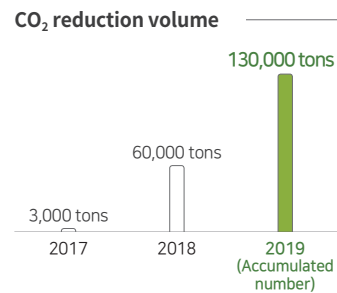
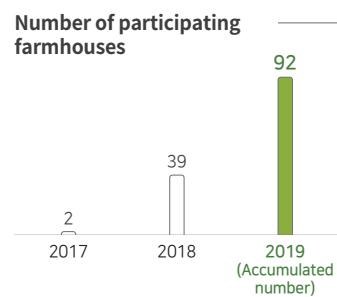


President & CEO of KOWEPO Co., Ltd.  
Kim Byung-sook

## Response to Climate Change



Presentation of Best Cases at United Nations Framework Convention on Climate Change



Creating Carbon Off-set Forest of Peace



Supporting SMEs in converting carbon credits

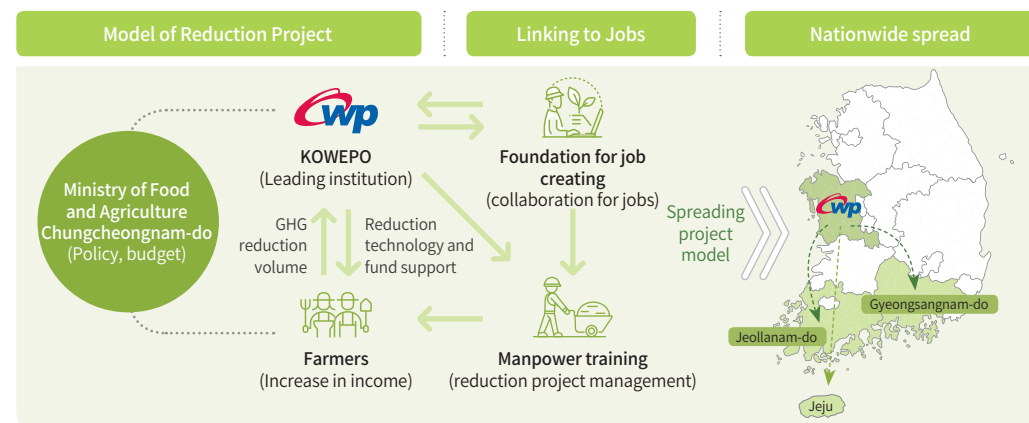
## Performance at UN

KOWEPO represented Korea's power-generation industry at the 25<sup>th</sup> United Nations Framework Convention on Climate Change (UNFCCC) COP25 held in Madrid, Spain, on December 10, 2019 (local time) and introduced "BEST Cases of Greenhouse Gas Reduction," and "World-class Carbon Dioxide Capture and Conversion Technology Development Cases", and received keen attention from experts. KOWEPO will continue to develop and promote new greenhouse gas reduction collaboration models as a leading company that creates social values, as well as one that reduces national greenhouse gas emissions.

## Greenhouse Gas External Reduction Business

### Agricultural Field

KOWEPO contributes to the national reduction of greenhouse gases by reducing the amount of fossil fuels used by farmers by developing the nation's first [farmhouse-company greenhouse gas reduction win-win business model]. As of 2019, as many as 92 farmhouses joined forces by reducing CO<sub>2</sub>eq of 130,000 tons. In recognition of these efforts, the Ministry of Trade, Industry and Energy selected the business as the 'Excellent Case for Energy Transition in 2019.

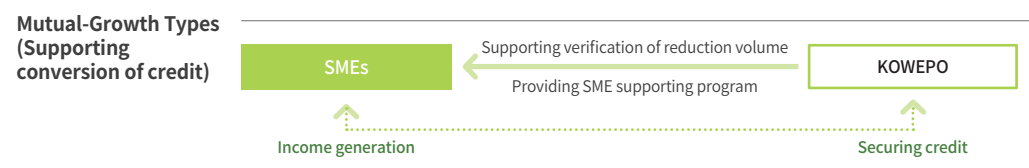


### Forest Field

KOWEPO created the Carbon Off-set Forest of Peace near the Songjiho coastline in Gosung in April 2020. In particular, the company established a virtuous cycle model of new social contribution by donating the credits secured through this project to Gangwon Province, and reinvesting the profits to create a forest.

### SMEs Supporting Field

KOWEPO develops and promotes job-creating greenhouse gas reduction projects and greenhouse gas reduction projects for mutual growth in order to contribute to the creation of new jobs by increasing the income of SMEs.



Agreement Signing Ceremony

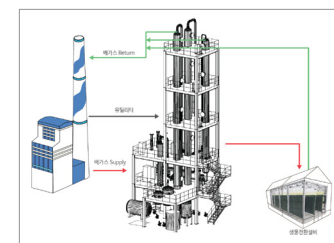
## Field of Buildings

KOWEPO signed the [Agreement for Reducing Greenhouse Gas Emissions in the Building Sector] with the Korea Energy Agency to realize sustainable energy welfare. KOWEPO also supported zero-energy buildings as joint facilities for those vulnerable to climate change such as heat waves and cold waves, and implemented greenhouse gas reduction projects. As a pilot project, the company selected Anheungseong Village in Taean County and provided zero energy buildings to the town hall and installed LED lights in Anheungseong Castle.

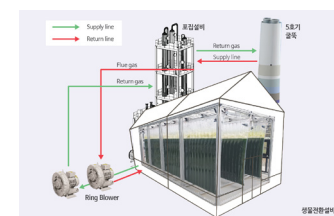
## Securing and Demonstrating CCU Technology

KOWEPO continued to develop new technologies to reduce greenhouse gas emissions, completed the construction of a plant for carbon dioxide capture and conversion complex demonstration in March 2019, and realized world-class CCU technology through successful demonstration of CO<sub>2</sub> capture and conversion technology. Currently, the company has applied for a patent on technology secured during the demonstration process, and is pursuing technology transfer to and from Korea to promote a new business related to CO<sub>2</sub> capture. With the goal of establishing a large-scale commercialization by 2023, the company plans to promote CCS integration demonstrations among various ministries (Ministry of Industry, Trade and Resource, Ministry of Environment, etc.).

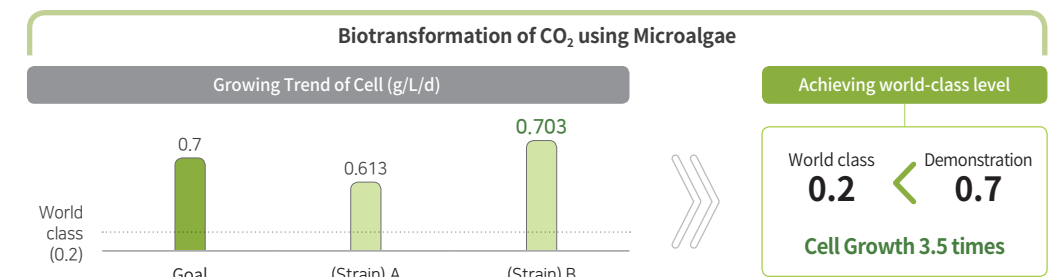
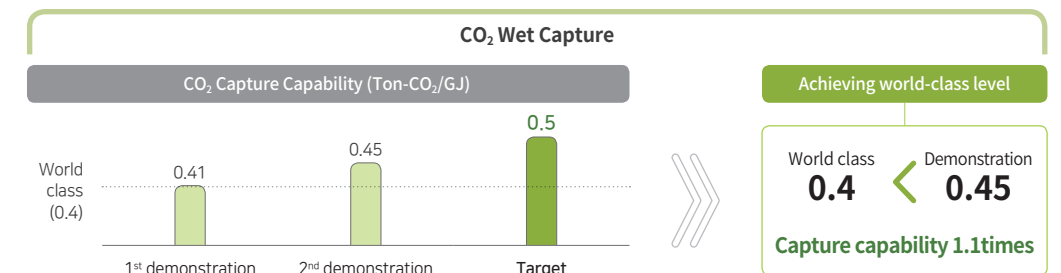
\* CCU(S) : Carbon Capture Utilization & Storage, Capture from CO<sub>2</sub> sources → Convert it to useful substances



Wet Capture Facility Concept Mapping



Biotransformation Demonstration Facility Concept Mapping and Chart



## Building a Low-Carbon Culture

### Implementing KOWEPO's independent low-carbon activities (WP Carbon Mileage)

For the first time in Korea, KOWEPO has developed a voluntary greenhouse gas reduction program at the corporate level to induce all employees to participate in the low-carbon activities. The company conducts [1Person-1 Ton CO<sub>2</sub> Reduction] campaign and publishes climate change briefs in order to lay the groundwork for low-carbon practice activities involving employees. KOWEPO encourages greenhouse gas emission reduction in people's daily lives (reducing electricity, water, and gas consumption by more than 5% compared to the same period last year, purchasing grade 1 energy efficient home appliances, etc.) by developing and implementing a low carbon practice model [WP Carbon Mileage] system and providing accumulated mileage incentives to employees.



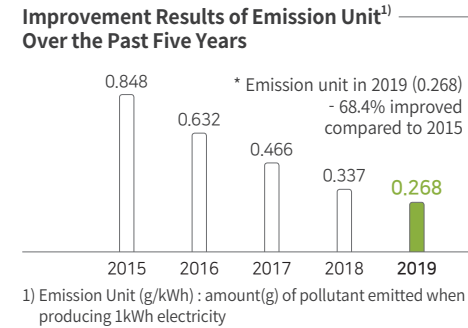
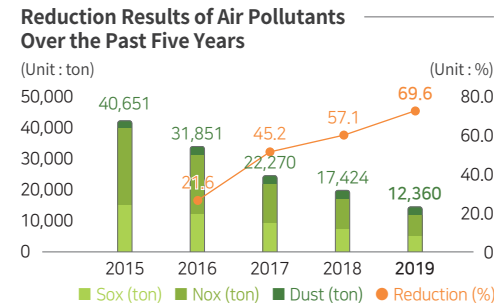
Climate Change Briefs

## Reduction of Environmental Pollutant Emissions

### Atmospheric Environment

#### Implementation of Reduction Measures for Fine Dust by Reflecting Characteristics of each Power Source

KOWEPO has been reducing emissions of air pollutants by 21.6% in 2016 compared to 2015; by 45.2% in 2017; by 57.1% in 2018; and by 69.6% in 2019 — at all power plants by implementing fine dust reduction measures that meet the characteristics of each power sources such as coal-fired power, LNG combined cycle, and heavy oil heating power.



#### Coal-Fired Thermal Power

In the coal-fired thermal power-generation sector, KOWEPO has significantly improved emission concentrations to less than 30% of legal standards that were strengthened in 2019 by maximizing the operation of, and intensively reinforcing, its environmental facilities, such as desulfurization, denitrification, and dust collection facilities, to standards exceeding the design efficiency. KOWEPO has also introduced cyclone desulfurization technology for the first time in Korea.

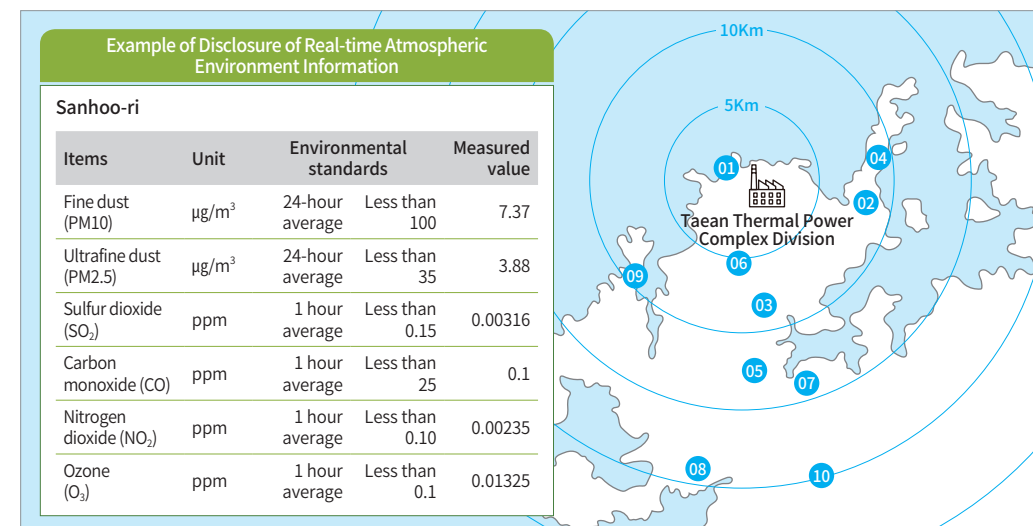
#### Combined Cycle/Heavy Oil Heating Power

KOWEPO takes customized measures for combined cycle/heavy oil heating power plants considering the location in the metropolitan and urban areas and their frequently maneuvering characteristics. Gunsan Combined Cycle Power Division preemptively introduced the latest high-efficiency denitrification facility to reduce about 77% of nitrogen oxides (20.5 → 4.7ppm), while Pyeongtaek Thermal Power Complex Division converted heavy fuel oil into LNG to reduce about 84% of fine dust (143 tons to 22.2 tons).

#### Disclosure of Atmospheric Environment Information

KOWEPO operates 10 atmospheric environment concentration measurement networks in the surrounding area to analyze the effects of fine dust on the areas surrounding the power plant, and the results of the measurement are disclosed in real time through the environmental display panel operated by the local government and on KOWEPO's website.

#### Locations of 10 Atmospheric Environment Concentration Measurement Networks



## Water-Quality Environment

#### Introduction of New Technology for Water and Wastewater Processing

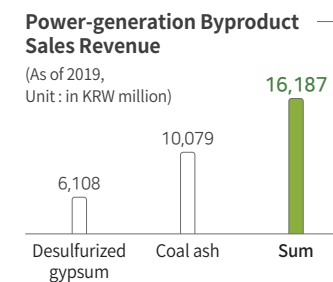
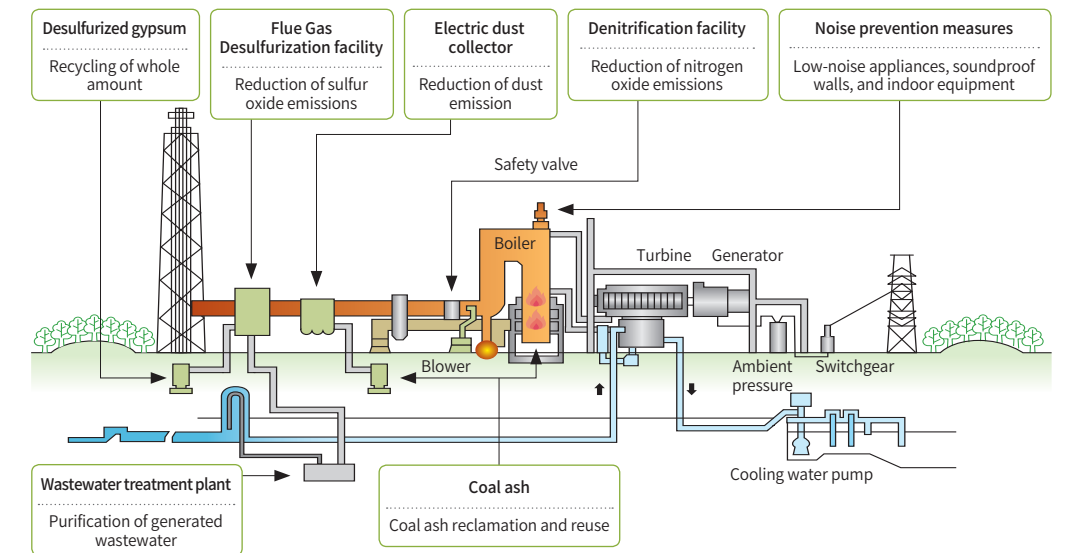
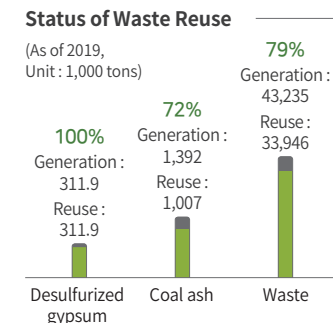
KOWEPO implements the improvement of the 'pure water production-waste water treatment-water recycling system' that applied new technologies in order to protect water resources and operate a safe power plant. The aging pure water production and wastewater treatment facilities plan to introduce a membrane filtration<sup>1)</sup> process that minimizes the use of chemicals, and the desulfurization wastewater treatment facility replaces a complicated 'physical-chemical-biological treatment method' with evaporation concentration facility which uses less chemicals. KOWEPO plans to install additional wastewater reclamation and reusing facility to use whole wastewater for power generation. If the performance of pure water production and wastewater treatment facilities is improved and the establishment of new wastewater reclamation and reusing facility is completed in 2022, the use of chemicals is expected to be reduced by 400 tons per year, and the power-generation water will be saved by 500,000 tons per year.



## Resource Circulation

#### Resource Recycling Power Plant

KOWEPO is actively recycling power-generation byproducts, such as coal ash and desulfurization gypsum, generated during the electricity generation process, and is achieving resource-cycling power plant operations by removing pollutants to use as effective resources.



#### Expansion of the Power-generation Byproduct Recycling Market

KOWEPO is carrying out various research projects based on industry-academia-research cooperation in order to increase the recycling of byproducts of power plants. Through this, KOWEPO is developing various technologies and exploring new businesses. In particular, KOWEPO has developed the artificial basalt manufacturing technology using landfill ashes, and the company looks forward to expanding its use as building materials and stepping stones. In addition, KOWEPO pursues high-quality desulfurized gypsum and sulfuric acid and actively implements the national resource recycling policy by adding new recycling business for refined ash produced with KS products while creating added values such as generating sales revenue from byproducts.

Collaboration Organization	Details of Development
Sambo Engineering	Development of mineral fiber manufacturing technology using brown gas
Institute for Advanced Engineering	Development of Geopolymer production technology using coal gasifier applied slag
Korea Institute of Geoscience and Mineral Resources	Development of artificial basalt (building materials, stepping stones, etc.) manufacturing technology
Gunsan University	Development of filling materials for road excavation and recovery pond ash utilization technology
Korea National University of Transportation	Development and commercialization of construction materials using coal gasification application slag

ISSUES  
03



# Safety

### The Importance of Environmental Issues

A serious and unexpected disaster that happened in December 2018 damaged the company's image, inducing mixed scolding from all sectors of society and giving the lesson that "Safety is the core value of a company that cannot be compromised with anything." The government also repeatedly emphasizes that the public institution should shift the management paradigm from profits to life and safety. Therefore, creating a [Safe and happy workplace for everyone] has become a top management goal that must be achieved for sustainable growth of KOWEPO.

### KOWEPO's Response

The management of KOWEPO considers on-site safety management as the top priority and strives to communicate with on-site workers as well as to inspect high-risk areas. In addition, for the fundamental prevention of safety accidents, the company reorganizes the organization to transfer the safety department at the head office to the direct control of the president, creating a safety organization dedicated to each plant. KOWEPO makes diverse efforts such as making a team of two workers mandatory, prohibiting worker with experience under six months from working alone, and investing KRW 20 billion to expand safety facilities in the workplace. The company will not cease its efforts until the day the company realizes the safest power plant in Korea.

### Target Relating to UN SDGs



### KOWEPO HIGHLIGHTS



**Deaths**  
(As of 2019)

**0** persons



**Industrial Accident Rate**  
(As of 2019)

**0.05%**



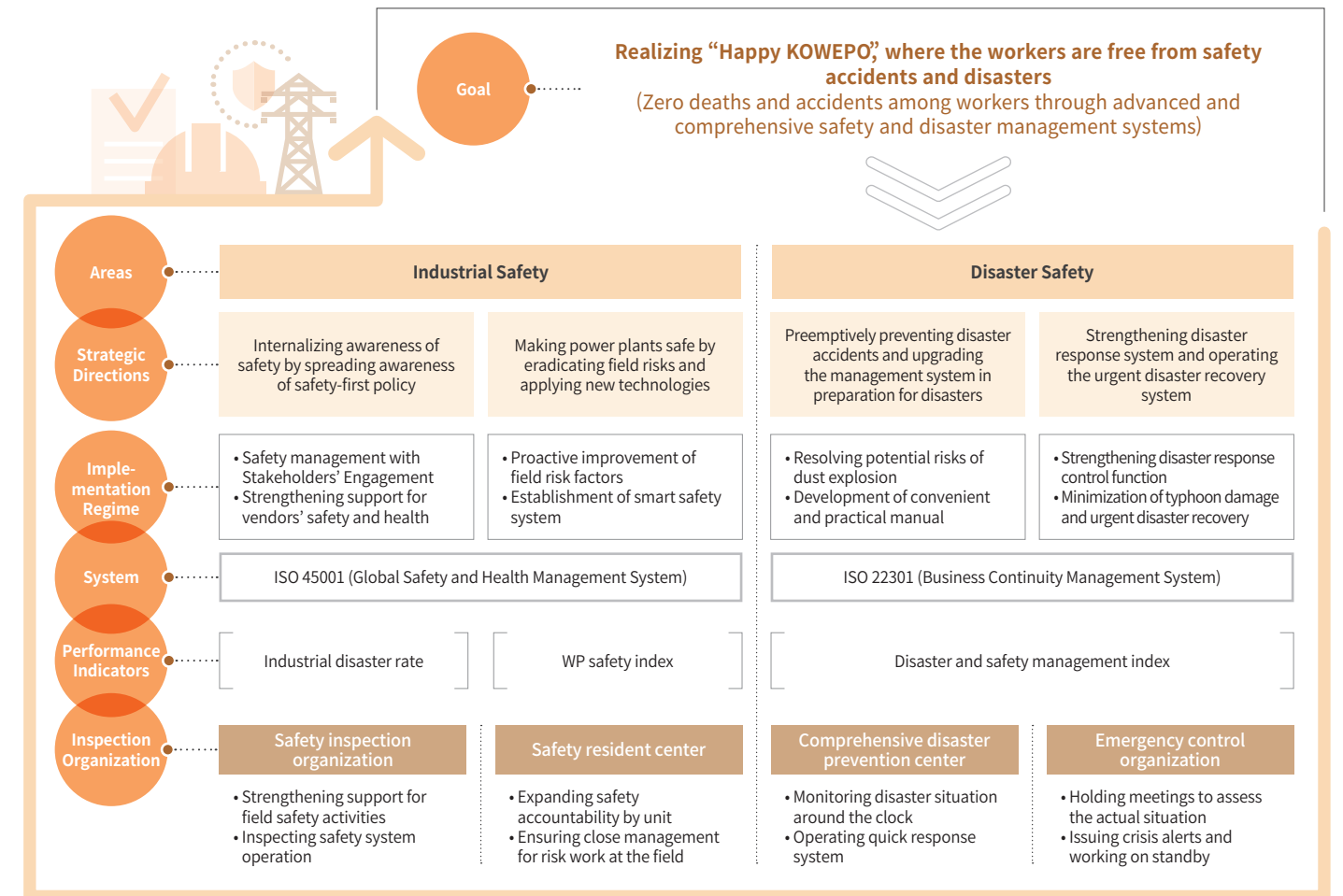
**National Infrastructure System  
Disaster Management Evaluation**  
(Ministry of Public Administration  
and Security in 2019)

**A**

## Safety Management

### Safety Management Implementation System

Based on the core values of prioritizing the life and safety of workers, KOWEPO has established a safety and disaster management implementation system, and strived to actualize "Happy KOWEPO," where the workers are free from safety accidents and disasters.

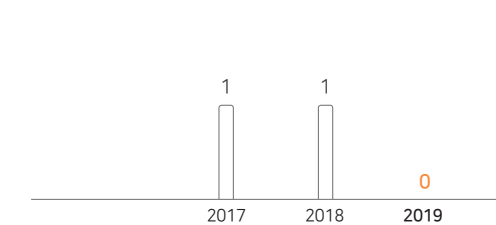


### Safety Management Performance

By practicing human-centered enterprise-wide safety-first management, KOWEPO achieved the 'Zero death in 2019' and 'Industrial accident rate reduction of 69%' in 2019 compared to 2018. In addition, KOWEPO has achieved zero accidents and zero disaster by strengthening support for small resident vendors and daily workers who are vulnerable to safety accidents. The company plans to break the framework of existing safety management, and internalize a more advanced safety system and culture into the DNA of KOWEPO through efforts of benchmarking advanced countries and advanced companies in order to maximize the creation of social value of safety.

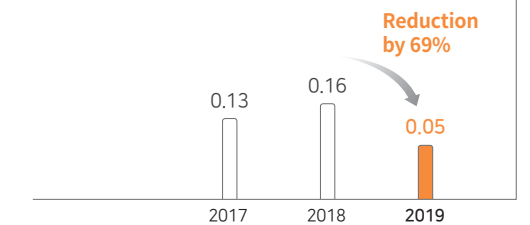
#### Achieving Zero Deaths in 2019

(Unit: person)



#### Industrial Accident Rate in 2019

(Unit: %)








## Industrial Safety

### Internalization of Safety Awareness by Spreading Safety-first Policy

#### Safety Management with Stakeholders' Engagement

KOWEPO has established a [WP All Together] safety management system that reflects various perspectives of stakeholders and actively implemented them in order to identify and improve field risks from various perspectives by providing stakeholders opportunities to engage in safety management.

Stakeholders	Activities	Detailed Implementation
 Labor Union	Labor-Management Joint Declaration Labor-Management Joint Safety Inspection	<ul style="list-style-type: none"> <li>Declaration of win-win labor-management relations, such as the operation of a committee for the realization of respect for labor union (July 2019)</li> <li>Listening to employees' opinions and conducting joint field inspections through operation of the Labor-Management Safety Council (Every month)</li> </ul>
 Employees	Safety Communication Meeting Guaranteeing employees' participation rights	<ul style="list-style-type: none"> <li>Collection of opinions from the field through meetings with workers in the respective positions of vendors (Manager of business division, head of safety department and employees, etc.)</li> <li>Contest and award workers for safety innovation ideas (167 cases including ideas on field improvement) and spreading the best ideas</li> </ul>
 Citizen/ External experts	Active listening to public opinion Enhancing expert collaboration	<ul style="list-style-type: none"> <li>Public contest for safety R&amp;D project (selected and developed three outstanding projects out of 144 cases)</li> <li>Taking accident prevention measures such as Taean accident prevention measures through advisory organizations by sector (industry, disaster, chemical safety, etc.)</li> </ul>

#### Reinforcement of Safety Management Work System

KOWEPO has established a safety-first based work system by strengthening the safety organization at the head office and work sites. The company has reorganized the offices (Engineering Division → Engineering Safety Division), and newly established the Prevention and Safety Division which takes responsibility for all safety related work. In addition, the company increased the field safety team manpower from 16 to 28 persons and divided the risk management team into four teams from one which is under direct control to realize field centered safety management.

#### Reinforcement of Safety and Health Support System for Vendors

The safety and health support system for vendors was strengthened to create a safe working environment for employees of vendors. For workers vulnerable to safety risk in power plants, KOWEPO developed [Hidden Risk Saver], an online safety education content on PC and mobile phones, to promote education and confidence of safety for the first time among public corporations. Moreover, KOWEPO operated a safety shelter, an exclusive rest lounge, and other convenience facilities such as shower and sleeping rooms for the health of workers. In addition, the company operated the [Talk Talk] psychological counseling program in collaboration with the specialized organization to contribute to reducing employees' stress. Furthermore, the joint risk assessment for vendors was systematized to reduce the accident rate to the lowest level among power-generation companies and produced 0.05% of accident rate through the promotion of risk awareness and safety measures before starting work.



Hidden Risk Saver

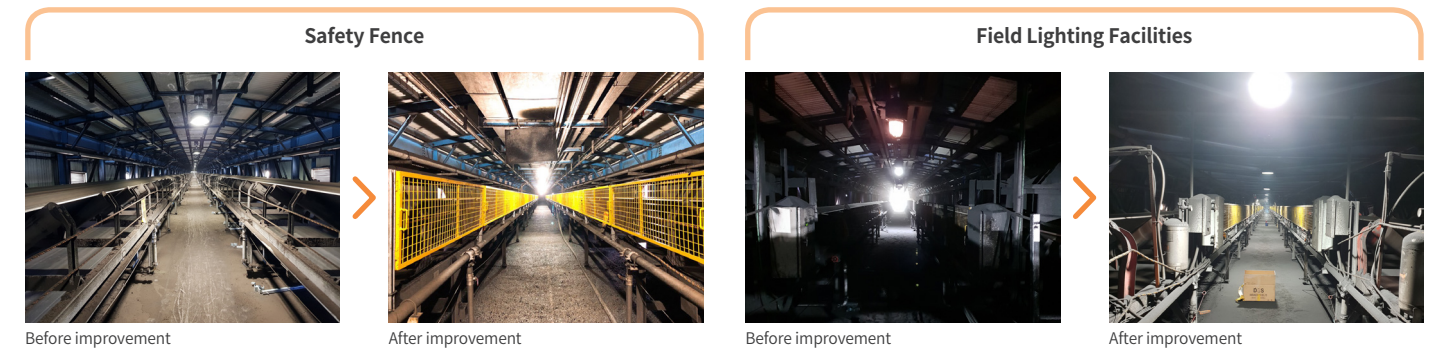


Talk Talk

### Realization of a Safe Power Plant by Eradicating Field Risks and Applying New Technologies

#### Improvement of Field Risk Factors

KOWEPO is fully implementing improvement programs identified through external and internal inspections in order to eradicate field risk factors. In 2019, the company identified areas of vulnerability concerning its facilities and systems through an analysis of the current status of conveyor facilities, and comprehensively addressed these vulnerabilities. In terms of facilities, the company improved conveyor cleaning and safety facilities (fences, lighting, etc.) to minimize field risks. With respect to systems, KOWEPO hired more field workers and mandated that workers must work together in teams of two, so that they can monitor and support each other in inspection and maintenance work.



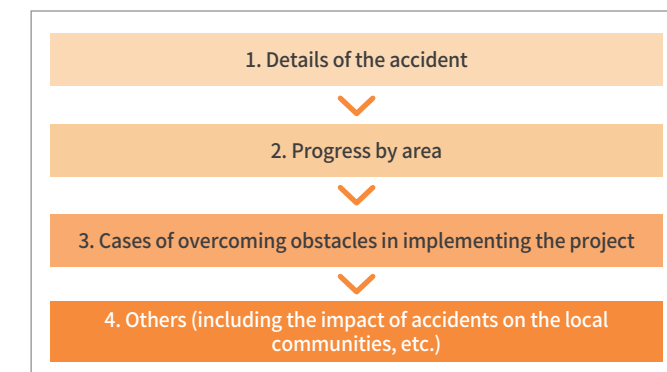
Thermal imaging and endoscopic diagnostic apps

#### Establishment of a Smart Safety Management System

KOWEPO has established a smart safety management system to effectively protect field workers' lives and safety by utilizing the 4<sup>th</sup> industry technologies. In 2018, the company developed a smart mobile inspection device equipped with a thermal imaging and endoscopic diagnostic application through the establishment of a wireless communication network (LTE), and used it to inspect high-temperature and narrow-area parts in power plants. Unmanned drones are used to inspect the high locations such as chimneys and wind power generators while an underwater inspection robot is used to inspect the seawater intake. KOWEPO plans to develop a portable monitoring package (SMP) that can preemptively detect danger in closed spaces and CCTV blind spots in power plants, and an AI CCTV video analysis system that can analyze workers' abnormal behavior patterns and detect safety risks immediately.

#### Publishing Taean Safety Accident White Paper

KOWEPO has published the [Taean Safety Accident White Paper] that clearly showed the safety measures that all employees had implemented for each area since December 2018 when the unexpected serious disaster occurred, in order to actively reflect the government's safety-first policy and make power plants free from risks. The Taean Safety Accident White Paper consists of details of the accident, progress by area, cases of overcoming obstacles in implementing the project, etc. (including the impact of accidents on local communities, etc.), and it records all relevant activities in detail and transparently discloses all activities to maintain objectivity.

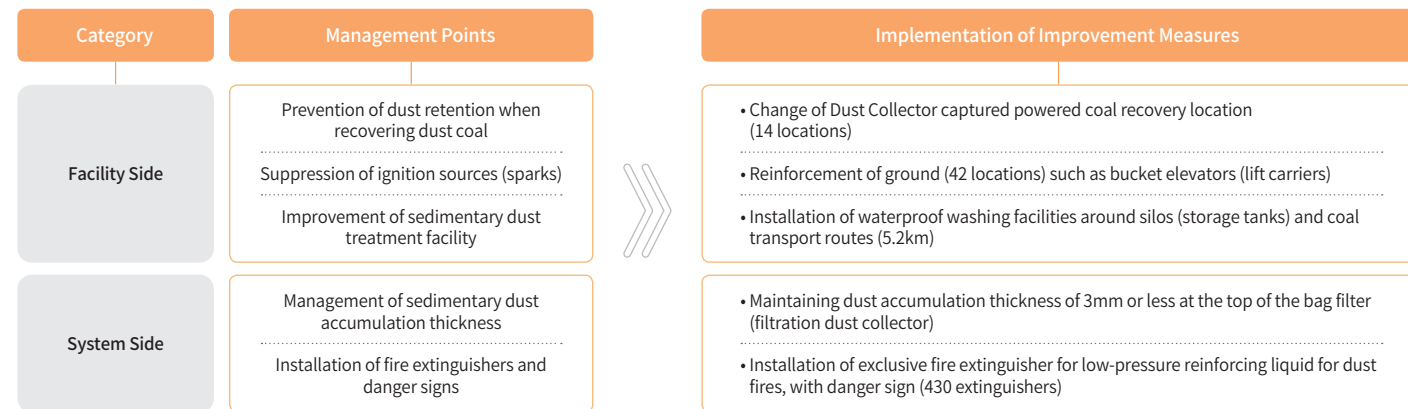


## Disaster Safety

### Preemptive Prevention of Disasters and Advancement of Management System In preparation for Actual Disaster Accident

#### Identification and Elimination of Potential Risk of Dust Explosion in Power Plants

KOWEPO has reduced the accident risks by identifying and resolving fundamental causes of potential risks that cause dust explosions in coal and wood pellet-fired power plants and has improved facilities and systems to secure human safety. By identifying operational status and accident cases of other companies, and analyzing risk factors, KOWEPO identified major management points with high risk of accidents, developed and implemented 486 improvement measures related to such risks, and established a system to fundamentally prevent dust explosion accidents.



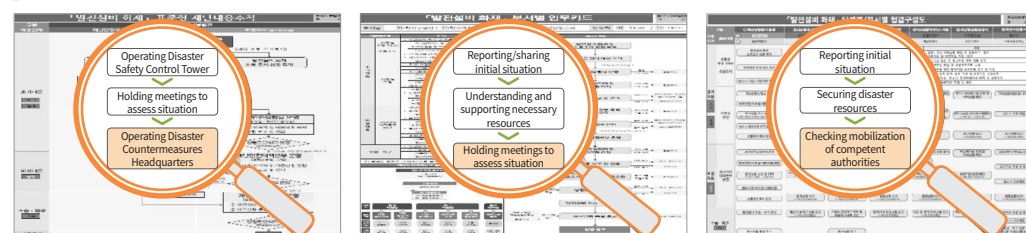
#### Improvement of Fire Vulnerable Facility

KOWEPO recognizes the need for fire risk analysis and countermeasures for hazardous areas of high-risk coal-fired power plants in order to proactively prevent fire accidents. In this regard, the company selected 31 areas in Taean Thermal Power Plant with high probability of fire as hazardous areas, and conducted quantitative risk assessment to calculate evaluation scores by measuring the level of fire prevention and response capabilities. The areas are classified into N (Normal, satisfying minimum legal standard), E (Excellent, relatively good), and T (Top, very good) according to the evaluation score. Customized improvement and management measures were established and implemented to eliminate fire risk factors. By doing so, the company has achieved 'Zero' fire accidents.

### Development of Manual, Disaster Response Rules Summed up in One-page

KOWEPO developed the [One-page Disaster Response Rules], which summarizes 500 pages or more of manuals that can be easily understood and followed by field workers in power plants in order to secure the actual response capability for disaster accidents. As a result, the field workers in power plants can easily understand and implement the rules, making it possible to intuitively understand and practice disaster response. In addition, it has been distributed among the Ministry of Land, Infrastructure and Transport, Ulsan Metropolitan City, and public corporations including other power-generation companies as an exemplary case.

#### Concise and Schematized One-Page Disaster Response Rules



### Strengthening Disaster Safety Job Training and Response Training

KOWEPO has strengthened disaster safety education and training in order to thoroughly prepare for safety accidents. Disaster safety managers and persons in charge have fully completed the statutory training courses, and have operated internal job training programs, such as overseas training at the companies with advanced disaster safety and workshops to enhance the safety awareness and competency of employees. Recognizing the active efforts of KOWEPO to protect workers' safety, the Ministry of the Interior and Security gave the highest grade (A) in Disaster Response Safe Korea Exercise' to the company for two-consecutive year from 2018 to 2019. The company achieved the highest grade (A) in the National Infrastructure System Disaster Management Evaluation in 2019.



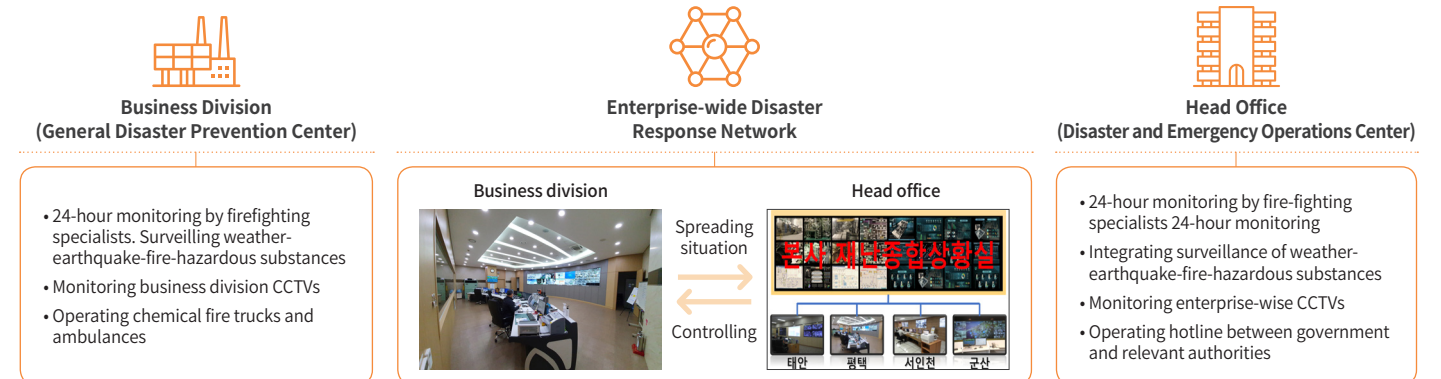
Safe Korea Exercise 1

Safe Korea Exercise 2

### Strengthening Disaster Response System and Operating the Emergency Recovery System

#### Strengthening Disaster Response Control Function

KOWEPO has advanced the function of the Disaster and Emergency Operations Center by utilizing 4<sup>th</sup> industrial technologies in order to secure the continuity of power supply by strengthening the disaster response system. Introduction of deep learning technology has improved risk prediction through automatic alarm of risk situations rather than simple monitoring. To collect the information, the company conducts customized analysis using big data to effectively derive risk factors for each power plant to quickly detect risks and deliver immediate response.



#### Emergency Recovery System

KOWEPO has established a cooperative system with the competent authorities and operated an emergency recovery system to ensure stable operation of facilities in preparation for weak power supply and demand. KOWEPO utilizes compatible spare parts that each power company possesses by establishing a spare parts management system through a cooperative system with the competent authorities, and identifies frequent failure parts through joint procurement with power companies. In addition, the company operates the power supply and demand situation room in the winter and summer in order to actively respond to power supply and demand, and develops emergency recovery manuals by each failure type, while conducting regular training in the first and second half in accordance with the manuals.

ISSUES  
04



# Social Responsibility

## The Importance of Social Responsibility Issues

As a member of society, the social demand for businesses is increasing at home and abroad. The United Nations has set sustainable development goals, presenting the direction of social responsibility that businesses should fulfill. The Korean government has also designated the actualization of social values of public institutions as a key policy, urging public institutions to join the effort to achieve these common goals. As a company that leads the energy industry, KOWEPO is obliged to actively fulfill its social responsibilities and strive to not only create high-quality jobs, which is a key issue, but also to expand mutual growth and enable sustainable development of local communities.

## KOWEPO's Responses

KOWEPO strives to create decent jobs by establishing a job-oriented management system based on government policies, stakeholders' needs, and CEO's management philosophy. In addition, KOWEPO creates a healthy power-generation industry ecosystem by faithfully implementing the mutual growth strategy system and enhances global competitiveness through localization of power-generation devices. In addition to the mutual growth of vendors, KOWEPO also actively contributes to the development of the local communities by promoting the local economy and conducting welfare infrastructure improvement activities.

## Target Relating to UN SDGs



## KOWEPO HIGHLIGHTS



Job Creation  
(As of 2019)

661 jobs



Mutual Growth Performance  
Evaluation  
(Ministry of SMEs and Startups in 2019)

Good



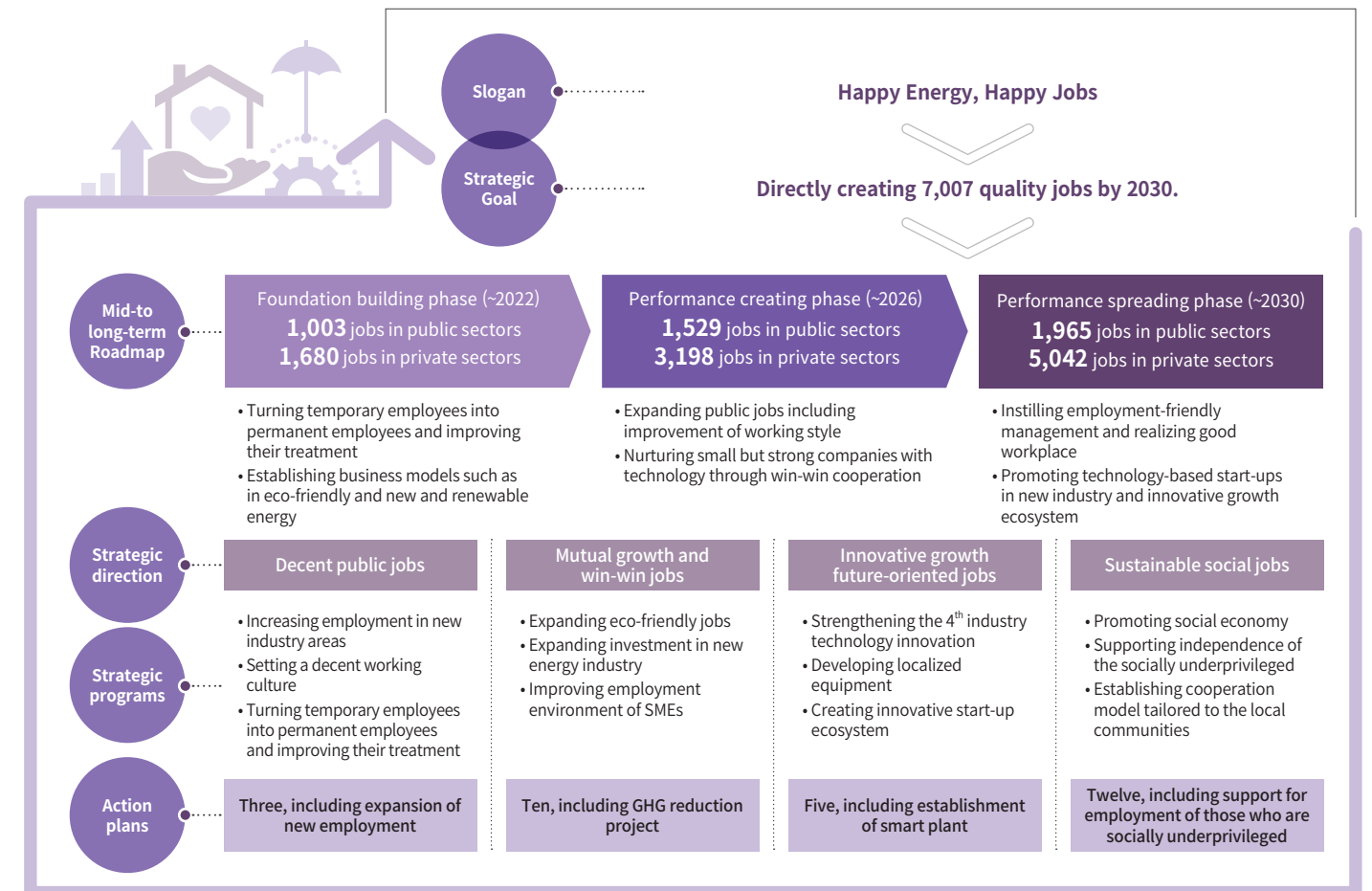
Satisfaction-Level of Local  
Communities  
(As of 2019)

86 points

## Job Creation

## Establishment of a Job-oriented Management System

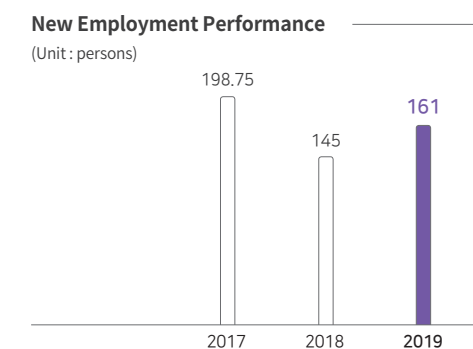
Under the slogan of [Happy Energy, Happy Jobs], KOWEPO has established a job-oriented management system composed of four strategic directions, 12 strategic programs, and 30 action plans to directly create 7,007 quality jobs by 2030.



## Job Creation in Public Sectors

### Expansion of New Employment

KOWEPO actively implements new recruitment in the public sector to contribute to the creation of jobs to achieve the government's social values.



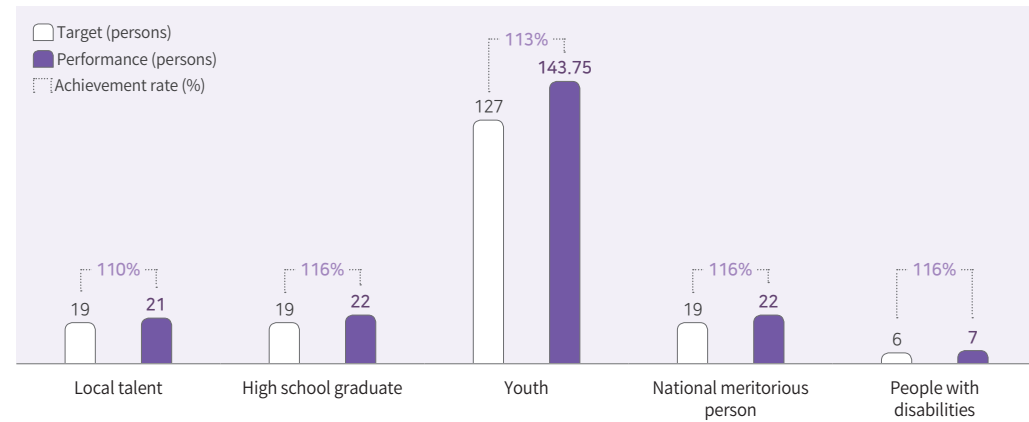
2019 Joining Ceremony for New Employees

### Turning Temporary Employees into Permanent Employees

KOWEPO turned temporary employees who do regular and continuous work into permanent employees, and secured procedural legitimacy through the operation of the consultative body of labor, management and experts. In 2019, to complete the conversion of all eligible temporary workers into permanent employees, we either made direct hires at KOWEPO or transferred them to our subsidiaries, in accordance with government guidelines.

### Socially Equitable Recruitment

KOWEPO has expanded the recruitment of socially disadvantaged persons, such as local talents and high school graduates, and actively implemented the obligation to hire youth by establishing challenging goals and plans to achieve socially equitable recruitment. The company has overachieved the government's policy implementation targets regarding socially equitable recruitment through the efforts toward expanding the scope of additional points for securing local talent and hiring local residents in power plants, conducting separate recruitment for high school graduates to expand employment opportunities for high school graduates, and increasing the number of employment on occasional demands (safety personnel, employees in Gimpo combined cycle, etc.) for youth employment.



### Job Creation in Private Sectors

#### Mutual Growth Win-Win Jobs

KOWEPO has created mutual growth win-win jobs by expanding the eco-friendly and new and renewable energy business and creating a safe working environment. The company has created 55 eco-friendly jobs by leading a low-carbon and eco-friendly management and technology development, and 49 new and renewable energy jobs by establishing and executing business models for each stakeholder related to new energy businesses. In addition, KOWEPO has created 136 jobs, including safety-first jobs, in order to improve the employment environment of vendors, leading to the creation of total of 240 mutual growth, win-win jobs.

#### Innovative Growth Future-oriented Jobs

KOWEPO is creating future-oriented jobs for innovative growth through localization of core technologies and supporting start-ups. KOWEPO has created 32 innovative jobs in big data, artificial intelligence, and 3D printing areas by establishing a [Safety First] smart plant in the 4<sup>th</sup> industry areas. KOWEPO also created eight jobs by implementing a regulation sandbox and fostering small but strong technology companies to localize power-generation equipment. In addition, the company has supported the commercialization of innovative ideas and in-house venture technology start-ups, and supported overseas entrance of private start-ups and venture companies to create 49 jobs in new business sectors, resulting in creation of a total of 89 future-oriented jobs for innovative growth as of 2019.

#### Sustainable Social Jobs

KOWEPO is creating sustainable social jobs to realize people-centered community values. KOWEPO has nurtured social economic companies such as social ventures, created 24 regionally specialized jobs, and created 117 sustainable social jobs by removing blind spots in employment through supporting people who are socially underprivileged.

**Number of mutual growth win-win jobs**  
(Unit : jobs)

**240**

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**Number of Innovative Growth Future-oriented Jobs**  
(Unit : jobs)

**89**

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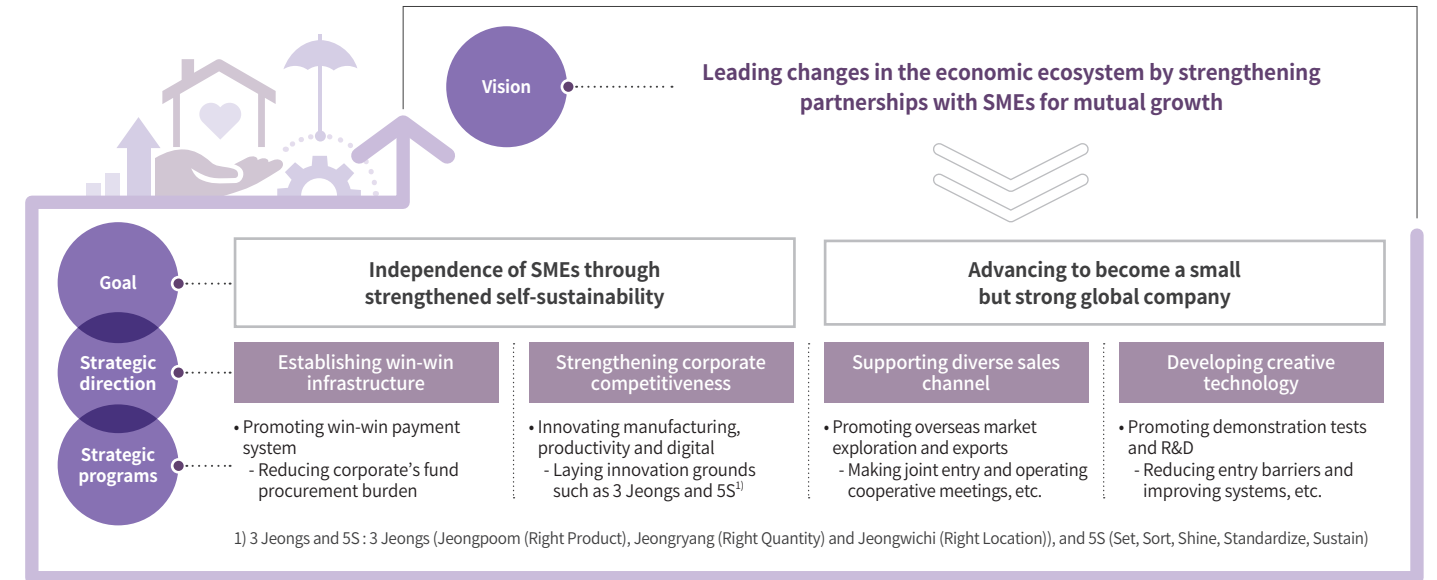
**Number of Sustainable Social Jobs**  
(Unit : jobs)

**117**

## Expanding Mutual Growth

### Strategy System for Mutual Growth

KOWEPO has established a mutual growth strategy system to strengthen SMEs' independence and to support global market entry, thereby promoting the level of mutual growth and leading changes in the economic ecosystem.



### Supporting SMEs

#### Support for Advancement into Overseas Markets

With the goal of fostering small but strong global companies, KOWEPO implements customized overseas market entry support projects. KOWEPO supported the start-ups to obtain business AEO certification and subscribe to overseas trade insurance so that they can build safety nets, and provided a bridgehead for overseas advancement, such as the creation of the test-bed of a local power plant using KOWEPO brand power and a technology exchange meeting to create infrastructure for a specialized company. In addition, KOWEPO operates export councils for information exchange and joint marketing and supports the establishment of corporations to effectively target the local market. The company also provides specialized services such as R&D, education, and consulting services.

#### Support for Strengthening Corporate Competitiveness

KOWEPO carries out the [Small and Medium-sized Business Innovation Growth Project] in order to strengthen competitiveness of small and medium-sized companies. KOWEPO comprehensively supports the innovation activities of SMEs. It does this by dividing into an industrial innovation movement that supports specialized consulting sectors such as management/manufacturing of the 2<sup>nd</sup> and 3<sup>rd</sup> tier companies and productivity improvement facilities, innovation partnership project that provides support for specialized consulting and facilities by sector of primary companies, and construction of smart factory that improves productivity by applying information and communication technology combined with digital automation solutions in the production process.

#### Support for Small-scale Solar Power Providers

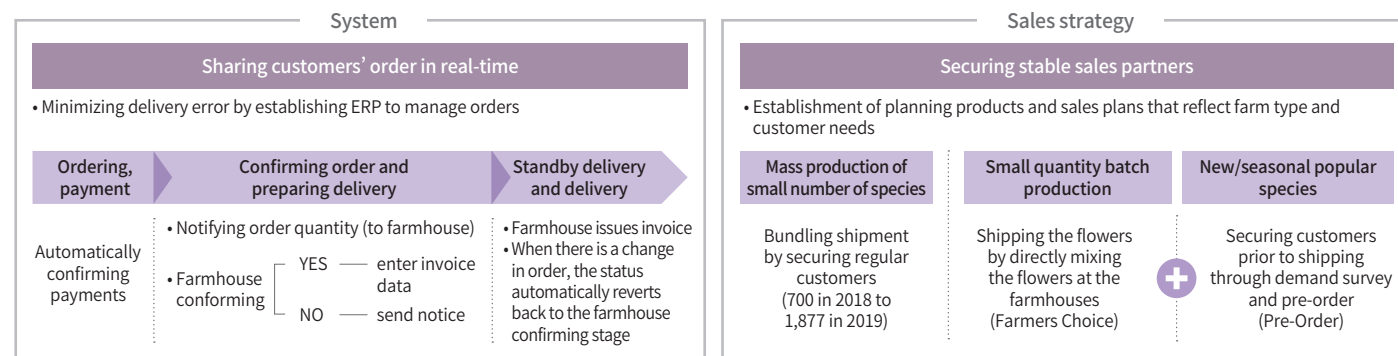
For the first time in Korea, KOWEPO created an integrated solution fund [Haenanum Fund] for small-scale solar power providers in which a number of leading Korean companies and law firms participate to provide integrated solutions for finance, insurance, EPC, etc., to help resolve the uncertainties faced by small-scale businesses. Furthermore, Haemodum Photovoltaic SPC was established to support small-scale businesses through the acquisition of assets and investment in equity, and KOWEPO's direct asset acquisition.

## Social Economic Enterprise Support

### Strengthening Management Independence Support

#### [Step-up : Flower Farm] Building an Online Platform and Enhancing

The company established an online B2C direct trading platform [Farm to Table] in May 2018 in order to support local flower farmhouses. This was to overcome the economic crisis resulting from decrease in flower consumption. KOWEPO established product plans and sales plans that reflect farm types and customer needs to enhance the competitiveness of flower farmhouses, thus contributing to securing a stable dealership.



#### [Scale-up : Car wash shop employing people with disabilities] Enhancing Independence through Business

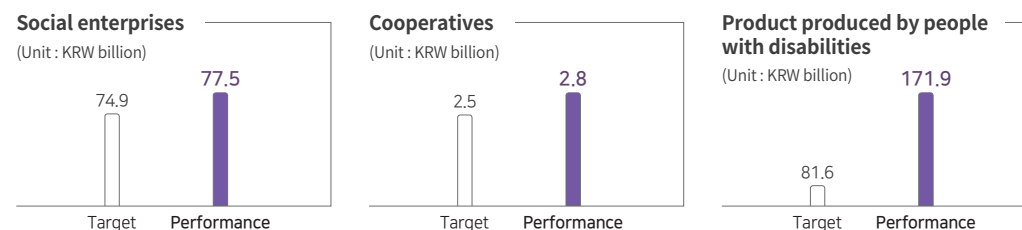
##### Diversification and Management System Improvement

KOWEPO opened the first eco-friendly car wash shop in September 2018 in collaboration with competent authorities, employing people with developmental disabilities and self-support workers in order to create jobs for socially underprivileged people. In 2019, the company formed an independent management support group with 12 employees, including senior employees in the company, to contribute to securing sustainability by supporting management improvement such as business management and advice at work sites, and suggesting new businesses by analyzing demand and commercial power around the car wash shops.

Category	Operation of Pilot Project (in 2018)	Securing Sustainability through Management Improvement Support (in 2019)
Expanding the field of business	<ul style="list-style-type: none"> <li>Opened the first eco-friendly car wash shop</li> <li>Employed people with developmental disabilities and self-support workers</li> </ul>	<ul style="list-style-type: none"> <li>(Business Expansion) Opened the second car wash shop and operated a cafe in the car wash shop</li> <li>(New business) Established café 'Moi Lai' (home-made fish cakes + beverages)</li> </ul>
Dedicated operation organization	<ul style="list-style-type: none"> <li>Launched business through cooperation with related organizations and operated and managed businesses led by welfare institutions</li> </ul>	<ul style="list-style-type: none"> <li>Established [Heemangnuri Social Cooperative] in cooperation with local governments, welfare organizations and related organizations such as the Parents' Association of people with disabilities and consigned the operation</li> </ul>
Fostering professional human resources	<ul style="list-style-type: none"> <li>Conducted trainings with self-support centers prior to the allocation to the field</li> </ul>	<ul style="list-style-type: none"> <li>Provided customized curriculum support for people with disabilities in the car wash and barista sector</li> <li>Formed professional manpower pool through pre-selection of trainees and implementation of job training</li> </ul>

### Details of Procurement of Products from Social Economic Enterprises

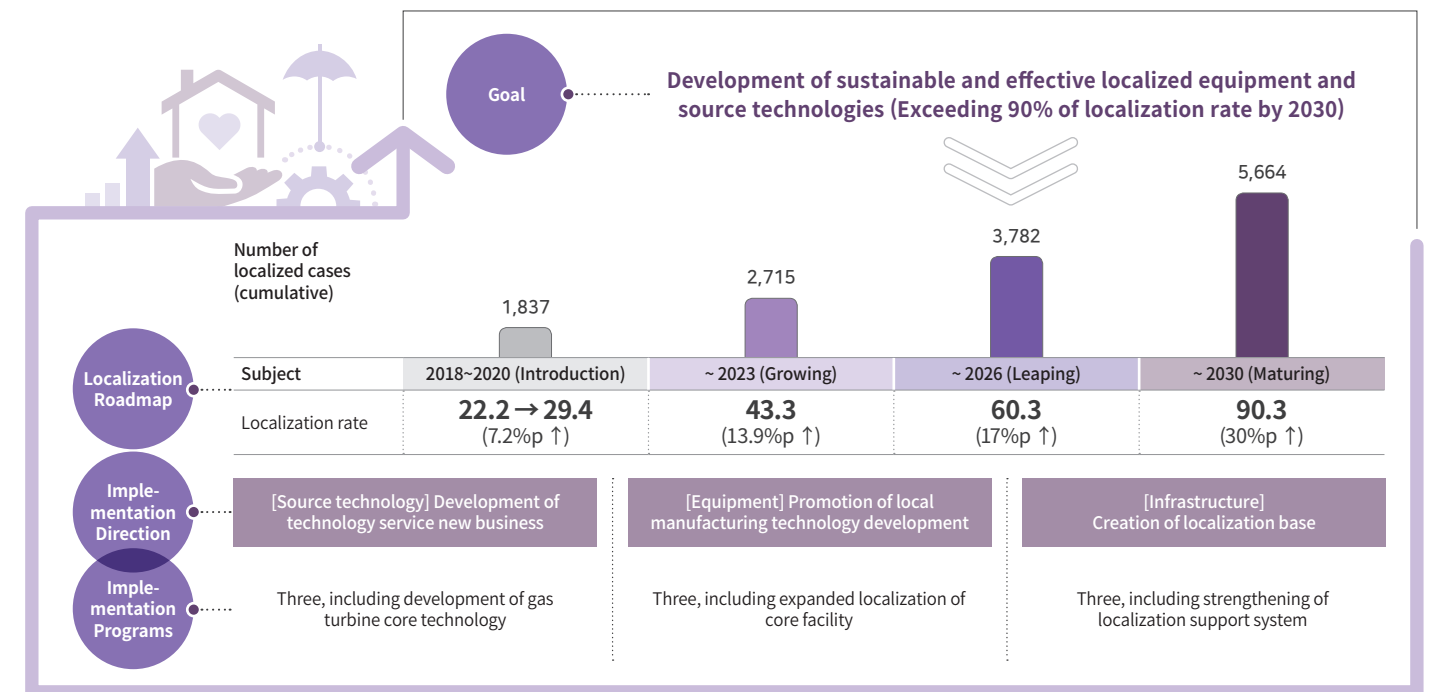
Achieving 100% rate of preferential purchase recommended by the government (As of 2019)



## Localization of Power-generation Equipment

### Mid-to long-term Localization Development Roadmap and Implementation Strategy

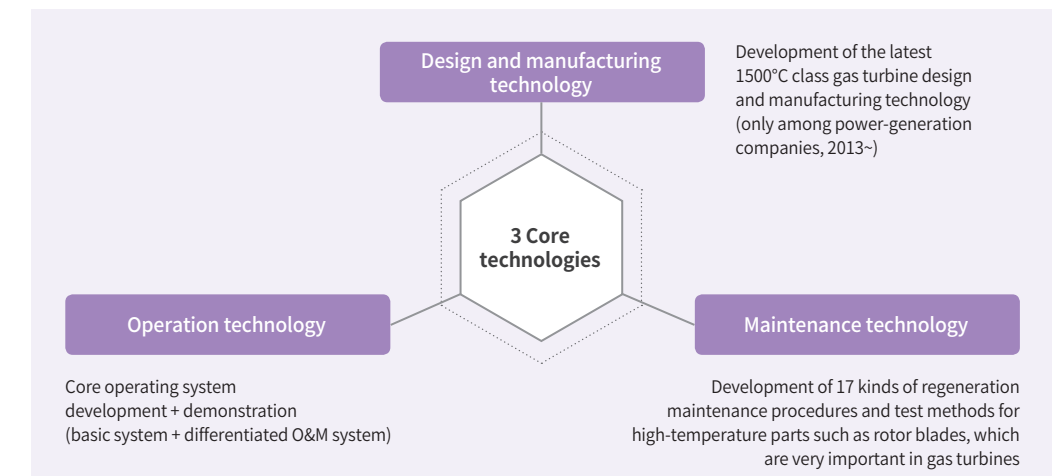
KOWEPO has established a localization roadmap and implementation strategy to lead the creation of an innovative and win-win cooperation ecosystem based on a cooperative development strategy that combines excellent manufacturing technology of SMEs with KOWEPO's power-generation operation technology and infrastructure. This is to solve the problem of dependence on overseas equipment of the power-generation industry and lead localized technology development.



### Localization Implementation Status

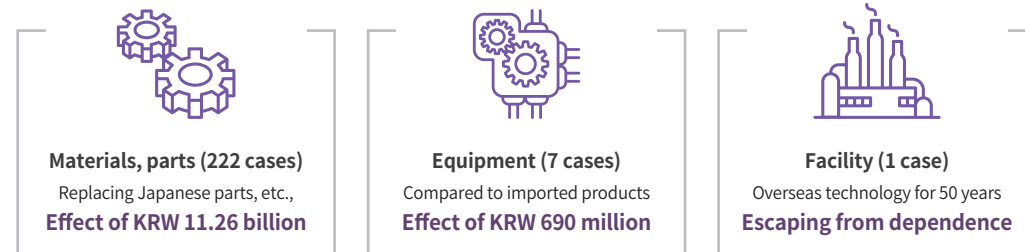
#### Promoting Development of Three Core Technologies for Gas Turbine Manufacturing

KOWEPO is developing [Three core technologies for gas turbines (design and manufacturing, operation, maintenance)] in order to break away from the technological dependence of gas turbines that depend on 100% overseas technologies, and to realize a solid position as a country that possesses a large-capacity gas turbine manufacturing technology for power generation.



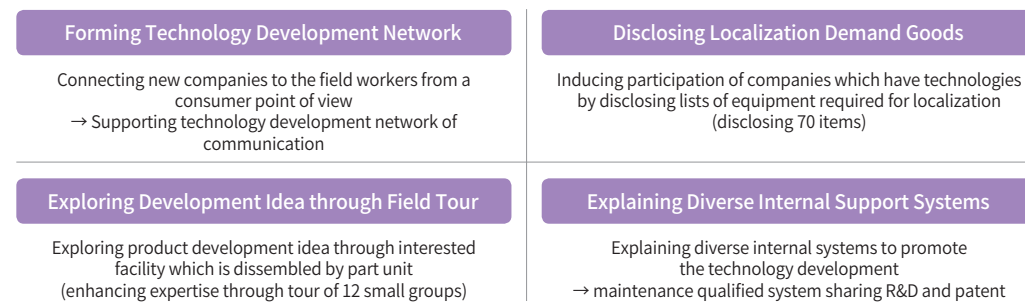
### Localization by Power-generation Equipment Sectors

KOWEPO decisively invested (KRW 16.26 billion) to localize the [materials, parts, equipment, and facility] sectors that are essential for the power-generation industry, and applied 220 localized items at the field and replaced Japanese materials. In 2019 alone, the company generated performance of KRW 11.95 billion of localization, and the company continues to challenge itself to localize power-generation equipment by attempting to develop core equipments for coal storage, which was 100% dependent on overseas providers for decades.



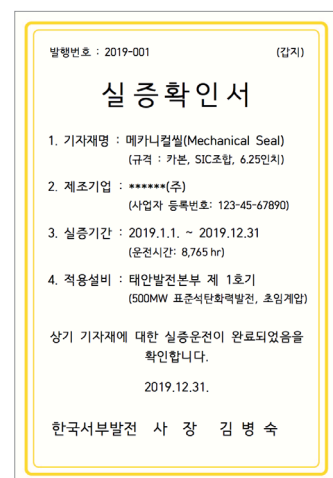
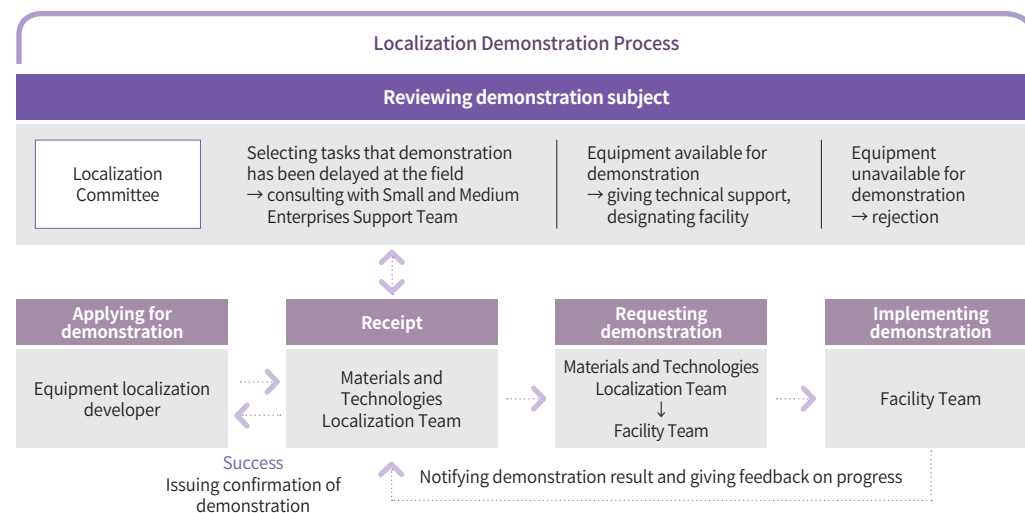
### Creation of Technology Development Infrastructure for SMEs

KOWEPO has boldly lifted the high barrier to entry in the power-generation industry, which had previously been inflexible. Instead, KOWEPO provided a stepping stone for technology development opportunities for SMEs in order to realize a win-win development in technology. KOWEPO has established a localization support system to boost the development of technology in the domestic manufacturing industry, and supported new companies to develop technology development networks to enter the power-generation industry and explore technology development ideas. In addition, the company adds the value of win-win through fine-tuned and bold support measures, such as providing Test-Beds targeting actual power-generation facilities to existing companies.



Field Tour

### KOWEPO Localization Test-Bed



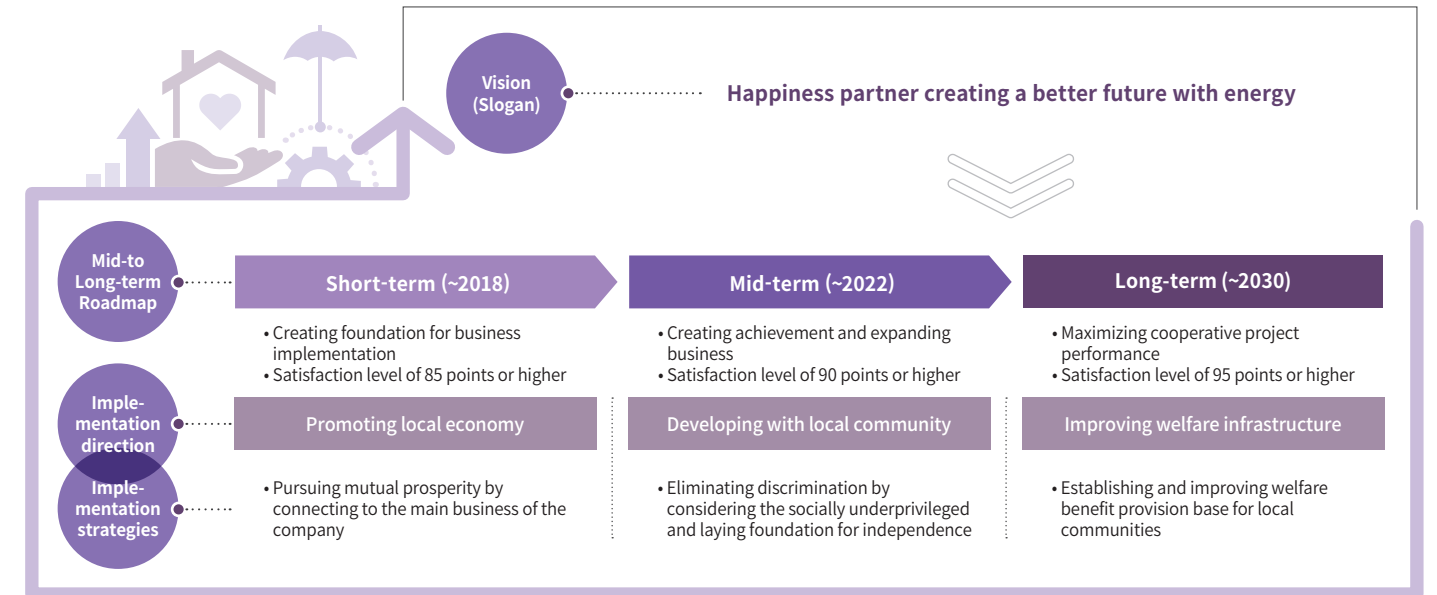
Confirmation of Demonstration

## Win-win Cooperation with Local Communities

### Social Contribution System

#### Social Contribution Vision and Strategy

KOWEPO is systematically implementing social contribution activities by establishing a social contribution vision and strategy in a way that is consistent with management strategies and social contribution issues.



### KOWEPO's Volunteer Group

KOWEPO's Volunteer Group was founded in August 2004 to help each other, share their love, and create a brighter and healthier society. KOWEPO's Volunteer Group cares for every corner of society's marginalized areas through conducting various volunteer activities, and it will continue to faithfully fulfill its role as a corporate citizen through performing practical volunteer activities.



KOWEPO's Volunteer Group Emblem



Serving Rice Cake Soup to celebrate New Year in 2020



Volunteering to make Kimchi for the winter on behalf of those in need



Social Innovation Change Maker Award Ceremony

### Social Innovation Change Maker

KOWEPO holds the [Korea Social Innovation Change Maker] award ceremony in order to build a foundation for sustainable social innovation. It does this by actively playing the role of a company that fulfills its social responsibilities by introducing systems that reward and support people performing exemplary work for the country and society, and those who identify models of social value creation. The Social Innovation Change Maker award is given to those who have contributed to the public interest and community development through social innovation activities in the economic, cultural, environmental, welfare, and educational sectors. The awardee is given a bonus (KRW 10 million) and an overseas training opportunity. KOWEPO strives to enrich people's lives and to make them happy by identifying changemakers who work silently but surely to make our society better.

## Promotion of Local Economy

### Establishment of Smart Farm Using Power Plant Hot Waste Water

KOWEPO plans to contribute to increasing the income of local farmers by carrying out a smart farm business utilizing hot waste water. KOWEPO's smart farm business is the Korean-style smart farm demonstration complex utilizing hot waste water, which was created for the first time among Korea's power-generation companies. It has established a hot waste water utilization system and localized the core cultivation technology. As of 2019, the company produced 162 tons of smart farm demonstration crops (tomatoes) (achieving the 2019 demonstration objectives), and generated sales of KRW 190 million, and creating five new jobs.

### Greenhouse Gas Reduction Project for Generation of Farmhouse Income

KOWEPO contributes to promoting the local economy by developing a greenhouse gas reduction project generating farmhouse income. The project started in Chungcheongnam-do has been expanded to farmhouses across the country, such as Gyeongsangnam-do and Jeju-do. As of 2019, 92 farmhouses are participating in the project generating income of KRW 2.43 billion per year. The company plans to spread the GHG reduction project model in agricultural sectors nationwide to contribute to increasing the income of more farmhouses.

### WP Social Flowers

KOWEPO has carried out the WP Social Flower project to support the establishment of a sales channel for flower farms. Since the start of the project, the company has built an online B2C direct trading platform, Farm to Table, and set up a product plan and a sales plan that reflect farm type and customer needs, and supported the establishment of an order management ERP system to share customer orders in real time. This has contributed to an increase of KRW 360 million in flower farms' income over the past two years. The company has also created a variety of social value by conducting horticultural therapy classes using flowers cultivated for the purpose of creating jobs for career interrupted women and supporting emotional therapy for the elderly.

## Win-win Development with Local Communities

### Offering Social Jobs to Senior Citizens

KOWEPO implements customized job projects for senior citizens to contribute to improving the quality of life for the elderly. Starting with a pilot project for senior citizens living alone in 2016, the company developed a [Job Creation Project for Cohabitation with Senior Persons] such as creating jobs for a guardian of the sea environment and a cultural heritage management center, and offered a total of 550 jobs to the elderly in the local communities. Customized job creation projects for the senior citizens have the effect of generating income and emotional stability for the elderly. Therefore, the company plans to continuously identify project and implement them.



- **Awarded grand Prize** in [Korea's Employment Friendly Best Management Awards] in the subject of providing jobs for vulnerable class in 2019
- **Awarded the Award of the Minister** of Health and Welfare Award for Excellent Enterprise Supporting Social Work of the Elderly during [2019 Week of Creating Jobs for the Elderly]

### Major Achievement in 2019

92 | 24.3

Number of participating farmhouses (cumulative)

Income of farmhouses (KRW 100 million/year)



WP Social Flower Field Management Activities



Held an Opening Ceremony for Job Creation Project for Cohabitation with Senior Persons



Supporting Start-up Lab for at-risk Youth



Nanum Café Opening Ceremony



Business Agreement Signing Ceremony



Launching Ceremony of the 6th Mentor Group



Career Searching Event

### Supporting Independence Capability for at-risk Youth in Blind Spots in Welfare

KOWEPO has implemented a Pathmaker project to prepare a channel for an entrepreneurship experiment and technical training for the social and economic independence of at-risk youth, and a Dream-Up project for customized support, such as support for daily life, special support, and support for growth of at-risk youth. The company will continue to provide support for safe and healthy growth of such youngsters.

### Building a Business Model that Supports Independence of People with Disabilities

KOWEPO has built a business model that supports the economic independence of people with disabilities to ensure incomes for the underprivileged. KOWEPO opened an eco-friendly car wash shop that was selected as a suitable project for people with disabilities after gathering opinions from the local residents. Soon later, KOWEPO established the [Heemangnuri Social Cooperative], which consists of parents of people with disabilities, etc., and opened a second shop. In addition, the company opened the [Nanum Café], the only standard workplace for people with disabilities in Taean County, and installed and operated roasting production facilities to secure stable profits.

## Improvement of Welfare Infrastructure

### Rural Community Regeneration Project

In order to improve the community environment and create social value by resolving community issues such as clearing neglected marine debris (i.e. discarded nets), dealing with reduced numbers of fish, and a decrease in number of tourists, KOWEPO signed a business agreement with local residents, Chungnam Social Economic Support Center, and the Industrial Cooperation Agency of Hanyang Women's University for Mandae village in Taean County. The company will actively participate in restoring the village's traditional culture and lead the development of sustainable farming and fishing village through the restoration of the communities.

### KOWEPO Weezy School

[KOWEPO Weezy School] is a representative education sharing talent donation program of KOWEPO conceived to resolve the educational gap in the Taean region and to provide quality educational opportunities to local youth with the goal of fostering future talent. Excellent college students across the country are providing learning guidance and career counseling to local youth as mentors, and the mentors are provided with opportunities to grow into talented persons with warm personality and effective leadership through the mentoring. Under the slogan of [Learning Yesterday Sharing Today], a total of 102 mentors have shared their dreams and hopes with total of 1,039 mentees over the past three years from 2017.

### Beyond Dream Career Consulting Mentoring

[Beyond Dream Career Consulting Mentoring] is a mentoring program providing diverse consultations related to career advice. Led by quality masters of KOWEPO, the mentors share their field experiences and professional knowledge, and provide opportunities to visit their field of work for students at specialized high schools and Meister high school as well as other socially vulnerable youths. A total of 110 mentors have provided mentorship to 370 mentees over the past five years from 2015, contributing greatly to career searching of local youth.

# APPENDIX

63p Sustainability Management Data

## Sustainability Management Data

### Economic Data

#### Summary Consolidated Financial Statement

Subject		Unit	2017	2018	2019
Assets	Current Assets	KRW million	1,066,099	1,246,379	1,004,076
	Non-current Assets	KRW million	8,562,572	8,625,303	9,478,412
	Total Assets	KRW million	9,628,671	9,871,682	10,482,488
Capital and Liabilities	Total Capital	KRW million	3,882,393	3,899,792	3,838,122
	Current Liabilities	KRW million	1,297,361	1,239,362	1,299,188
	Non-current Liabilities	KRW million	4,448,917	4,732,528	5,345,178
	Total Liabilities	KRW million	5,746,278	5,971,890	6,644,366

#### Summary Consolidated Income Statement

Subject		Unit	2017	2018	2019
Sales		KRW million	4,222,449	4,869,158	4,468,579
Cost of sales		KRW million	3,748,802	4,632,109	4,297,985
Selling, General and administrative expenses		KRW million	112,163	96,489	95,894
Operating income		KRW million	361,484	140,560	74,701
Other income		KRW million	4,732	4,725	5,062
Other expenses		KRW million	6,123	6,580	8,044
Other profits (losses)		KRW million	(9,351)	17,914	(3,514)
Financial income		KRW million	172,248	91,572	96,549
Cost of financing		KRW million	311,071	215,155	249,743
Loss related to associates and joint ventures		KRW million	(63,001)	(36,910)	(29,811)
Net profit before tax (loss)		KRW million	148,918	(3,874)	(114,799)
Corporate tax (revenue)		KRW million	46,089	30,947	(68,182)
Net profit (loss)		KRW million	102,829	(34,821)	(46,617)
Other comprehensive income		KRW million	25,771	81,217	(14,851)
Total comprehensive income		KRW million	128,600	46,396	(61,468)
Number of companies included in the consolidation		Companies	20	21	23

#### Shareholder Status

Subject	Unit	2017	2018	2019
KEPCO	%	100	100	100

#### Government subsidy

Subject	Unit	2017	2018	2019
Subsidy	KRW 100 million	0	0	0



## Sustainability Management Data

### Economic Value Distribution

Subject	Unit	2017	2018	2019	Remark	
Economic value creation	KRW 100 million	44,640	50,214	45,982	Sum of sales and other income	
Economic value distribution	Vendors	KRW 100 million	38,093	45,585	42,052	Amount of all products and services purchased by KOWEPO for its business
	Employees	KRW 100 million	2,169	2,206	2,597	Wage, retirement benefit, and welfare expense
	Shareholders and investors	KRW 100 million	1,514	1,392	1,480	Interest to the creator and shareholders dividends
	Government	KRW 100 million	696	564	-374	Tax and duties and corporate tax based on the financial statements
	Reinvestment	KRW 100 million	2,107	401	147	Source for future reinvestment and retaining of profits
	Local community	KRW 100 million	61	66	80	Contribution to local communities
	Total	KRW 100 million	44,640	50,214	45,982	

### Power Plant Operation

Subject	Unit	2017	2018	2019
Installed capacity	MW	11,780	11,322	11,338
Volume of power generation	GWh	47,936	51,903	46,481
Volume of power transmission	GWh	44,564	48,007	43,464
Forced outage factor	%	0.074	0.121	0.018
Amount of loss by forced outage	%	0.066	0.118	0.030

### Average Operating Rate of Each Power Plant

Subject	Unit	2017	2018	2019
Taeon Thermal Power	%	90.11	83.02	78.70
Pyeongtaek Thermal Power	%	91.42	93.49	93.58
Pyeongtaek Combined Cycle	%	90.45	86.52	98.09
Seoincheon Combined Cycle	%	96.60	96.12	97.70
Gunsan Combined Cycle	%	91.89	97.39	86.58
Others	%	-	-	-
Total	%	91.45	87.76	85.82

## Environmental Data

### Investment in Environmental Facilities

Subject	Unit	2017	2018	2019
Total investment in environment	KRW 100 million	1,438	2,596	916
Operation expense in environmental sectors	KRW 100 million	813	883	1,762
Development expense in environmental sectors	KRW 100 million	18	31	11
Total	KRW 100 million	2,269	3,510	2,869

### Greenhouse Gas Emission

Subject	Unit	2017	2018	2019
SCOPE 1 (direct emission)	10,000tCO <sub>2</sub> eq	3,679	3,782	3,452
SCOPE 2 (indirect emission)	10,000tCO <sub>2</sub> eq	18	14	16
Total	10,000tCO <sub>2</sub> eq	3,697	3,796	3,467
Basic unit	tCO <sub>2</sub> eq/MWh	0.812	0.770	0.784

### Emission Rate Trading Scheme

Subject	Unit	2017	2018	2019
Allocated	10,000tCO <sub>2</sub> eq	3,795	3,677	3,469
Emission	10,000tCO <sub>2</sub> eq	3,696	3,796	3,467

### Greenhouse Gas Emission by Each Energy Source

Subject	Unit	2017	2018	2019
Solid (coal, etc.)	10,000tCO <sub>2</sub> eq	3,324	3,298	3,035
Liquid (heavy oil, etc.)	10,000tCO <sub>2</sub> eq	78	88	40
Vapor (natural gas)	10,000tCO <sub>2</sub> eq	265	384	368
Others (limestone, purchased power, etc.)	10,000tCO <sub>2</sub> eq	30	26	24
Total	10,000tCO <sub>2</sub> eq	3,697	3,796	3,467

## Sustainability Management Data

### Energy Usage

Subject	Unit	2017	2018	2019
Fuel	TJ	432,463	457,543	412,000
Electricity (including others)	TJ	3,794	2,844	3,196
Total	TJ	436,257	460,387	415,196
Basic unit	TJ/GWh	9.44	7.77	7.78

### Energy Usage by Each Energy Source

Subject	Unit	2017	2018	2019
Solid (coal, etc.)	TJ	369,999	369,783	122,895
Liquid (heavy oil, etc.)	TJ	10,838	12,095	5,670
Vapor (natural gas)	TJ	51,626	75,645	253,447
Others	TJ	3,796	2,858	33,186
Total	TJ	436,259	460,382	415,198

### Fuel Use

Subject	Unit	2017	2018	2019	
Power-generation Fuel	Bituminous coal	1,000 tons	15,567	15,715	14,030
	Heavy oil	1,000KL	243	278	123
	LNG	1,000 tons	962	1,395	1,336
	Bio heavy oil	1,000KL	-	4.7	-
	Organic soild fuel	1,000 tons	81.7	67.7	66.9
	Wood pallets	1,000 tons	108.5	82.5	86.1
Power plant water	1,000 tons	9,410	9,093	8,719	
Limestone	1,000 tons	258	277	185	
Chemicals	1,000 tons	18.5	18	20	

### Atmospheric Pollutant Emission

Subject	Unit	2017	2018	2019	
Atmospheric pollutant emission level	NOx	1,000 tons	12.5	9.8	7.0
	SOx	1,000 tons	9.1	7.0	5.0
	Dust	1,000 tons	0.7	0.6	0.3
Basic unit emission level (pollutant emission per 1kWh electricity)	g/kWh	0.466	0.337	0.267	

### Water Pollutant Emission

Subject	Unit	2017	2018	2019	
Water pollutant emission level	COD	ton	19.7	25.5	25.8
	SS	ton	7.5	8.9	10.8
	T-N	ton	15.1	23.9	28.2
	T-P	ton	0.395	0.237	0.269

### Amount of Power-generation Byproducts\* Produced and Waste Recycling

Subject	Unit	2017	2018	2019
Generation	1,000 tons	2,093	2,250	1,707
Recycling	1,000 tons	2,149	1,581	1,322
Recycling rate	%	103	70	77

\* Power-generation Byproduct : refined ash, pond ash, desulfurized plaster, sulfuric acid

## Sustainability Management Data

### Social data

#### Employees

Subject		Unit	2017	2018	2019
Total number of employees		Persons	2,354	2,438	2,505
Employment type	Permanent employee	Persons	2,067	2,143	2,202
		Persons	287	295	303
	Female ratio	%	12.2	12.1	12.1
Female	Female manager (Deputy general manager and above)	Persons	30	35	45
	Female manager ratio	%	9.6	10.9	11.3

#### Employee Hiring Status

Subject		Unit	2017	2018	2019
Office workers	New graduates	Persons	24	12	4
	Experienced	Persons	1	0	0
Technical	New graduates	Persons	155	109	143
	Experienced	Persons	0	0	0
Othes	New graduates	Persons	18.75	19.75	14.25
	Experienced	Persons	0	0	0

#### Social Equilibrium Hiring

Subject	Unit	2017	2018	2019
Female	Persons	32.5	16.25	20.5
People with disabilities	Persons	4.75	9.75	7
Talents from regions outside of capital	Persons	89	63.75	87.25
Talent from relocated region	Persons	22	15	24
High school graduates	Persons	24.75	20.75	22

#### Members of Labor Union

Subject	Unit	2017	2018	2019
Applicable employees	Persons	1,658	1,707	1,782
Members of labor union	Persons	1,615	1,596	1,734
Labor union enrollment rate	%	97.4	93.5	97.3

#### Employment Stability

Subject	Unit	2017	2018	2019
Average years of service	Month	180	175	175
Employee turnover rate	%	0.8	1.9	1.7

#### Childbirth and Parental Leave

Subject		Unit	2017	2018	2019
Maternity leave (Female employees)	Users	Persons	15	20	20
	Spouse maternity leave	Persons	72	74	68
Parental leave	Males	Persons	7	11	25
	Females	Persons	50	53	56
	Return after parental leave	%	98.24	100	100

#### Support for Overseas Marketing by Small Vendors

Subject	Unit	2017	2018	2019
Counselling outcome	KRW million	210	252	124
Contract outcome	KRW million	45	48	8
Supported companies	Companies	95	102	89

## Sustainability Management Data

### Employees' Education

Subject	Unit	2017	2018	2019
Education hours per 1 person	Hours	118.47	110.75	118.84
Education cost per 1 person	KRW 1,000	2,750	2,722	2,596
Education budget	KRW 100 million	58.4	61.4	61.6
Educated personnel	Persons	21,730	20,255	22,863

### Socially Responsible Purchasing

Subject	Unit	2017	2018	2019
Products from small companies	KRW 100 million	2,749.1	3,470.4	2,977.1
R&D products	KRW 100 million	257.9	291.2	309.8
Products from female-owned business	KRW 100 million	309.2	354.2	350.4
Products from people with disabilities-owned business	KRW 100 million	63.3	70.8	86.6

### Contract Transparency

Subject	Unit	2017	2018	2019
Total number of contracts	Case	1,233	1,186	1,187
Negotiated contracts	Case (%)	343(28)	344(29)	488(41)
Competitive bidding	Case (%)	890(72)	842(71)	699(58)

### Electronic Bidding

Subject	Unit	2017	2018	2019
Total number of biddings	Case	1,233	1,186	1,187
Total number of electronic biddings	Case	1,230	1,168	1,185
Rate of electronic biddings	%	99.7	98.5	99.8

### Donation and Social Volunteer

Subject	Unit	2017	2018	2019
Donation	KRW 100 million	61	66	80
Funds participated by employees	KRW 100 million	1.4	1.29	1.13
Employees in voluntary services	Persons	2,046	1,932	1,982
Service time	Hours	35,710	33,377	36,006
Average voluntary service hours per person	Hours	17.45	17.28	18.17

### Investment in Local Communities

Subject	Unit	2017	2018	2019
Support of communities around power plants	KRW 100 million	32.0	30.0	35.9
Energy welfare of neglected groups	KRW 100 million	1.9	6.5	9.3
Purchase of Onnuri gift certificates	KRW 100 million	7.4	6.6	8.3

### Industrial Accident Rate (Announced by Ministry of Employment and Labor)

Subject	Unit	2017	2018	2019
National occupational accident rate	%	0.48	0.54	0.58
Industrial accident rate of public corporations	%	0.40	0.53	0.59
KOWEPO	Industrial accident rate	%	0.13	0.16
	Occupational accident rate	%	0.02	0.02

### Employee Safety

Subject	Unit	2017	2018	2019
Deaths per 10,000 persons	%	0	0	0
Number of safety accidents	case	0	0	1



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