KOREA EAST-WEST POWER CO.,LTD.

SUSTAINABILITY
REPORT **2018**

ENERGY FOR HAPPINESS

Happy Life Making with
Warm Energy

ABOUT THIS REPORT

EWP

PURPOSE

Korea East-West Power (EWP) Co., Ltd. strives to grow into an energy company that creates the best values under the vision of "an eco-friendly energy company that enriches the world." EWP considers not only economic values but also social values and environmental values throughout the decision-making processes and publishes the sustainability report each year to disclose its efforts and outcome in terms of corporate sustainability to all its stakeholders in the most transparent way. This report is the twelfth sustainability report published by EWP.

REPORTING GUIDELINE

This report is based on the GRI (Global Reporting Initiative) Standards and ISO 26000 and complies with the Core options of the GRI Standards. This report focuses on key issues derived from materiality assessment from the economic, environmental, and social viewpoints which are three pillars of sustainability management.

REPORTING PERIOD AND SCOPE

The reporting period for this report is from January 1 to December 31, 2017. The quantitative results reflect the three-year performance from 2015 to 2017 to help readers understand the change trend, and some of the qualitative results include the achievements for 2018 for timely reports. Moreover, some of the contents that have not been changed since the last year's report are included in this report to help better understanding. The scope of the report is economic, social and environmental activities and outcomes of the head office of EWP and five business units (Dangjin Coal-fired Power Complex, Ulsan Oil-fired & C. C. Power Complex, Honam Coal-fired Power Plant, Donghae Coal-fired Power Plant, and Ilsan Combined Heat and Power Plant).

REPORT ASSURANCE

Financial information in this report was prepared through an accounting audit by an independent audit corporation. We had it verified by a third party verification body to assure the accuracy, reliability, and fairness of the contents of the report, and the verification results are included in the assurance statement.

ADDITIONAL INFORMATION

This report is published in both Korean and English versions and can be viewed at any time on the website of EWP. Please contact us if you have any comments or questions about the report.

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ENERGY FOR HAPPINESS

CONTENTS

CEO MESSAGE

By supplying clean energy and realizing social values, we will become an eco-friendly energy company that enriches the world.

Chief of EWP **Park Il-jun**

Dear stakeholders,

First of all, I sincerely appreciate your unwavering support and attention for the sustainable management efforts of Korea East-West Power (EWP). EWP is preparing to take a leap forward as an "eco-friendly energy company that enriches the world." This year's twelfth sustainability report contains our willingness to go on this journey toward an eco-friendly energy company with all of our stakeholders by disclosing our economic, environmental and social activities in a transparent and balanced manner.

In recent years, interests in climate change have risen across the world due to unprecedented levels of extreme weather conditions such as heat wave, heavy rain, and drought. In Korea, the energy industry is facing more calls for rapid change than ever since the public is considering worsening fine dust problems as a quality of life issue. Thus, EWP vows to continue to implement the following activities in order to secure sustainable growth engines and to produce clean energy that meets the expectations of the people.

We will actively respond to the energy paradigm shift and the new climate system.

As the energy paradigm is shifting to low-carbon eco-friendly energy, the government has announced a policy to increase the proportion of renewable energy generation to 20% by 2030. In line with this, EWP has established an aggressive goal of increasing its renewable energy generation to 25% by 2030. In particular, we are concentrating our efforts on generating environmentally friendly power by expanding pure renewable energy such as solar power utilizing land and offshore wind power as well as unused land. In addition, we plan to invest KRW 2.785 trillion won by 2026 in efforts to drastically reduce fine dust, including adopting high-efficiency environmental facilities using new technology. We will continue to strive to enhance the environmental performance of our entire power generation process.

We will secure future growth engines by developing new businesses in tandem with the Fourth Industrial Revolution.

In a bid to lead the Fourth Industrial Revolution in the energy industry, EWP established the e-Brain center which incorporates key technologies of the Fourth Industrial Revolution, such as big data and artificial intelligence in January 2018, based on its experience of building Dangjin Power Plant Units 9 and 10 as smart power plants through convergence of the company's accumulated operational capabilities and intelligent assets. With advanced Fourth Industrial Revolution technologies at the e-Brain center, we will continue to seek opportunities to develop new energy businesses through efficient operation of power generation facilities, reduction of greenhouse gas emissions, ESS MSP (management service provider), and response to changing demand.

We will take the lead in realizing social values.

As a public energy enterprise, we will not only faithfully carry out our main duty, which is supplying electric power economically and reliably, but also take the lead in realizing social values such as seeking mutual growth with small and medium-sized partner companies, fulfilling our responsibilities as a member of the local community, and creating quality jobs. To this end, we are actively promoting preferential policies for the socially disadvantaged including disabled people and women as well as social enterprises. We are also running a consultative body on shipbuilding equipment intended to support SMEs in Ulsan, which are experiencing difficulties due to the sluggish shipbuilding industry. In addition, EWP is making various efforts to create quality jobs including establishing the four implementation directions (increasing the number of jobs, heightening the quality of jobs, sharing, and infrastructure innovation), finding ideas through contests, and supporting in-house startups.

We will create a culture of communication.

EWP will actively communicate with internal and external stakeholders and share the goals of the organization for sustainable growth. Internally, we will aggressively promote RESPECT 7, a new corporate culture based on a horizontal organization and mutual respect, so that we can improve how we work and maintain a balance between work and personal life. From outside stakeholders, we will fully accommodate critical opinions and suggestions through active two-way communication rather than one-sided information delivery as well as broaden consensus regarding company operation. We will continue to actively communicate with stakeholders by establishing a variety of open communication channels.

We fully acknowledge that the driving force that propels EWP to grow continuously is the genuine trust and unstinting support of our stakeholders. EWP pledges to live up to the expectations of stakeholders with an open-minded and innovative mindset. We ask for your continued support and encouragement for our endeavors toward sustainable growth. Thank you.

November 11. 2018

Chief of EWP
Park Il-jun

Green House Gas Reduction Roadmap

20%

Reduce **9.78** million tons
compared to the emission **by 2030**

FOCUS REPORT #1

EWP, the green power plant for a **clean environment**

The policies and regulations of the international communities and governments are becoming stricter, and people's concerns are growing as the environmental threat of greenhouse gas and others have become stronger. In contrast to the previous electricity supply and demand plans, which had focused on supply-demand stability and economic efficiency, the "8th Basic Plan for Electricity Supply and Demand" emphasize the "environment" and "safety." Coal-fired power plants are cheap and efficient, but they emit more greenhouse gases than other power plants. EWP also produces a significant amount of greenhouse gases and generates PM during the fuel combustion process due to the nature of the coal-fired power industry.

EWP established the roadmap to lower greenhouse gas by 9.78 million tons, or 20% of the projected emission levels, by 2030 to reduce greenhouse gas and PM. As part of efforts to reduce greenhouse gas emissions, EWP replaced existing fuels with low-carbon renewable fuels such as wood chips and bio-heavy oil and is gradually introducing efficient power generation facilities. It is also continuing its efforts to reduce greenhouse gas emissions by reducing power consumption at power plants and securing CDM* carbon credits for Dangjin small hydropower. Moreover, EWP has developed and commercialized the CO_2 separator technology which filters out the carbon dioxide generated when coal is burned and has been helping about 37 vendors save energy and reduce greenhouse gas emission by participating in the government cooperative project with small and medium enterprises.

As a public energy enterprise responsible for the happiness of the citizens, EWP is committed to continuing to strengthen its carbon management and expanding its renewable energy and low carbon power sources to become a green power plant for a clean environment.

* CDM(Clean Development Mechanism) : A system that allows a country with an emission-reduction or emission-limitation commitment under Article 12 of the Kyoto Protocol to implement an emission-reduction project in developing countries

Renewable Energy Master Plan

25%

Increase the portion of
Renewable Energy
operation to 25% **by 2030**

FOCUS REPORT #2

EWP, the eco-friendly energy company to **enrich the world**

EWP is taking a new leap forward as the innovation leader in the era of energy transformation. The new climate scheme emphasizes the reduction of greenhouse gas emission as the concern on the environment has increased worldwide, and the Korean Government has also enacted the energy conversion policies such as the Renewable Energy 3020 implementation plan.

EWP's coal-fired power management policy has focused on the efficiency of power generation facilities and the competitiveness of fuel supply and demand until now. However, it is now preparing to expand its business as an integrated energy company by actively developing new and renewable energy to be ready for the energy paradigm shift. As such, EWP established a master plan to expand the proportion of new & renewable energy capacity by investing KRW 15 trillion by 2030. First of all, EWP is striving to secure wind power generation by installing 1,800 MW wind power generation facilities by 2030. Moreover, it plans to expand various renewable energy sources such as 1600 MW solar power generation facility and 500 MW fuel cell gradually to become a leading company in the future energy industry.

At the same time, EWP is developing a cutting-edge power plant operation system that combines the fourth-generation industrial technologies with various new & renewable energy businesses. EWP formed the Power Generation Technology Development Center in 2017 and is aiming to transform itself into "smart power plant" by converting the power plant operation system, intellectual property, and database with the ICT, IoT, big data, and AI. EWP plans to commercialize and sell power generation solutions in 17 areas with the target of KRW 200 billion in sales of solutions by 2030.

EWP will actively develop new & renewable energy for sustainable development and converge it with the fourth industrial technologies to become an eco-friendly, integrated energy company.

Mutual Respect and Cooperation based company culture

RESPECT 7

Renovation, Ethic, Social value,
Pride, Equality, Care, Trust

FOCUS REPORT #3

EWP, for the realization of **higher social values**

As a public enterprise, EWP does its best to fulfill its responsibility to support the happiness of the people. In April 2018, EWP declared "RESPECT7 (Renovation, Ethics, Social value, Pride, Equality, Care, Trust)" which states EWP's intention to establish the corporate culture of mutual respect and cooperation to fulfill social values.

EWP is carrying out social contribution activities reflecting the characteristics of the industry to realize energy welfare that does not neglect any communities and groups facing difficulties. We distribute warm energy to neighbors by various activities such as the assistance in fuel cost and heating tent and electrical safety inspection of welfare facilities. Moreover, EWP is carrying out social voluntary service activities such as Blood Donation Relay of Love, volunteer service for senior citizens, the establishment of the living environment for disabled people, and the establishment of the eco-friendly energy facility in the local community. It also plans the social voluntary service programs specific to communities to lead the development and growth of local society. Dangjin e-Dream Park built an eco-friendly aquaculture system using hot discharge water. Ulsan e-Clean City formed a dedicated agency for energy new industry to increase energy efficiency using ESS(Energy Storage System). Gangwon e-Eco City constructed a large-scale floating solar system using the water resources of Soyanggang Dam.

Another important social responsibility EWP is to create high-quality, sustainable jobs. To this end, EWP has formed the Jobs Committee led by the CEOs and the trade union leader to create jobs by introducing the first flexible job quota scheme (sharing jobs by improving long work hours) for public institutions, linking overseas employment through overseas employment support programs, converting contracted employees into regular employees, and supporting venture and startup enterprises. The Job Sharing Model, in particular, is regarded as the best practice of "flexible job quota scheme." In recognition of its efforts to create jobs, EWP was awarded the "Job Committee Award" in the field of job sharing.

EWP will actively develop new & renewable energy for sustainable development and converge it with the fourth industrial technologies to become an eco-friendly, integrated energy company.

EWP operates five domestic facilities: Dangjin Coal-Fired Power Plant, Ulsan Oil-Fired & C.C Power Plant, Honam Coal-Fired Power Plant, Donghae Coal-Fired Power Plant, and Ilsan Combined Heat&Plant, and are also spurring overseas operations and construction projects in Jamaica, USA, Chile, Guam etc.

EWP

01 OVERVIEW

"ENERGY FOR HAPPINESS"

About EWP

1. Company Profile

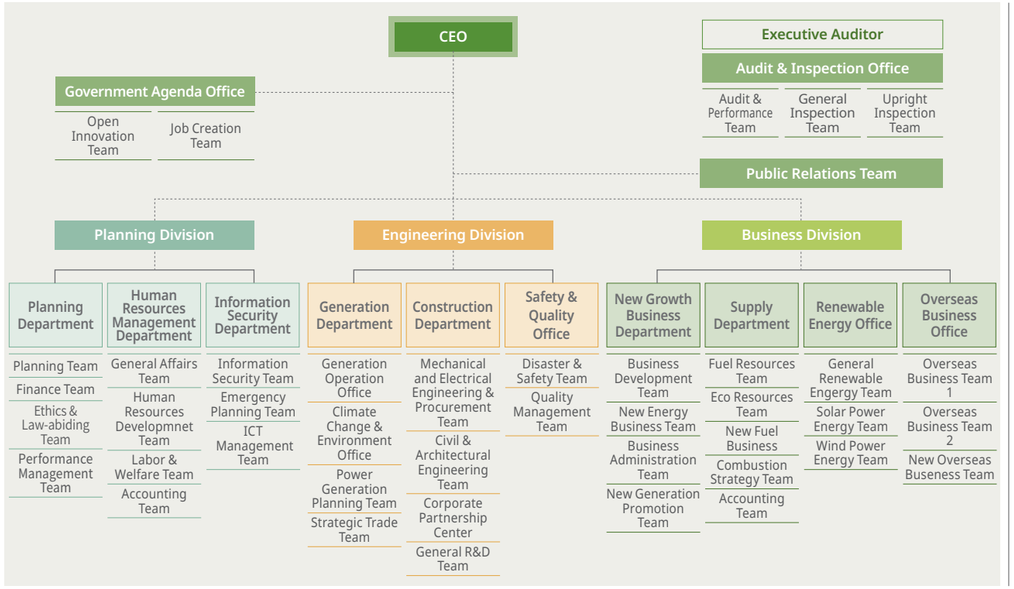
EWP is one of the six power generation subsidiaries spun off from KEPCO in 2001 by the Korean government in accordance with the Act on Promotion of Restructuring Electric Power Industry and has the responsibility to enhance the competitiveness of the Korean power industry through the development of the electric power resources and industry. It has been leading the improvement of the quality of life of the people and the sound growth of the electric power industry by enhancing the service level for electricity users.

Company Name	Korea East-West Power Co., Ltd.		
CEO	Park Il-jun	**Power generation**	51,117GWh
Date of establishment	April 2, 2001	**Power sales**	48,372GWh
Address of head office	395 Jongga-ro, Jung-gu, Ulsan. Korea	**Income from power sales**	KRW 4.46 Trillion
Ground for establishment	Article 1 of the Act on Promotion of Restructuring Electric Power Industry (Article 530-2 of the Commercial Act, 2000.12.23.)	**Capital**	KRW 4.65 Trillion
Managing agency	Ministry of Trade, Industry, and Energy	**Total assets**	KRW 8.86 Trillion
Shareholders	KEPCO 100%	**Operating profits / Net profits**	KRW 432.6 Billion / KRW 217.6 Billion

* Financial Information: As of December 31, 2017 (K-IFRS consolidated)

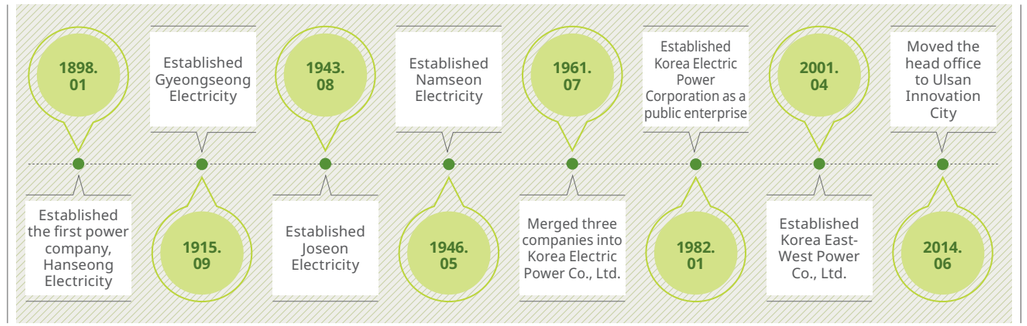
2. Organization

EWP reorganized its existing two-headquarters system into a three-headquarters system consisting of the Planning Division, the Technology Division, and the Business Division. We have actively reflected the will to implement new business development, such as responding to the energy conversion policy, in the organizational restructuring.



3. History

EWP has its root in Hanseong Electricity established in January 1898 as Korea's first power company. On July 1, 1961, KEPCO was established by the merging of Gyeongseong Electricity, Joseon Electricity, and Namseon Electricity for efficient power supply through the vertical integration of power distribution. The Korea power industry was restructured by the Korean government in 2001. EWP was spun off from the power monopoly KEPCO, along with four thermal and one nuclear power generation companies. EWP was established in 2001 with the head office in Samseong-dong, Seoul.



4. Milestone for Sustainability

	Economy	Environment	Society
2007	Won the award at BSC Hall of Fame	CDM business for photovoltaic power registered at UN	Won the Presidential Award at the 32nd National Quality Competition
2008	Won the grand prize at the 2007 Korea Technological Innovation Awards	Acquired eco-friendly business and ISO 14001 certification	Won the grand prize at the Labor-Management Culture Awards
2009	Won the first prize for the longest accident-free operations	CDM business for hydropower registered at UN	Won the grand prize at the 2008 Korea Technology Innovation Management Awards
2010	Won the grand prize at the 8th Digital Innovation Award (3 consecutive years)	Won the grand prize at the 2009 Korea Green Awards	Won the 8th Korea Safety Grand Prize
2011	Won the Longest Run Award (Hosted by EUCG)	Won the Grand Prize at the 2nd Green Technology Awards	Won the Outstanding Business Award hosted by the Ministry of Patriots and Veterans Affairs
2012	The Unit of the Year Award (Hosted by Guam Power Authority)	Won the grand prize of UN Global Compact for eco-friendliness	Won the Minister of Gender Equality & Family Award
2013	The EUCG Best Performer Award	Certified as an outstanding business for the response to climate change	Won the Prime Minister Award for family-friendly policies
2014	Won the 2013 Transparent Management Grand Prize	Won the grand prize at the Korea New Growth Management Awards for green technologies	Won the Minister Award for the cultivation of local technical talents
2015	Won the Korea Economic Leader Grand Prize for win-win cooperation	Won the special award at the Carbon Disclosure Project (2 consecutive years)	Won the Presidential Award for the cultivation of SMEs
2016	Certified as an outstanding organization for quality competitiveness (7 consecutive years)	Ranked the 1st in Climate Change Competitiveness Index for six years, and won the special award at CDP for three consecutive years	Acquired Grade S at Safe Korea Training (4 consecutive years)
2017	Won the Presidential Award for Government 3.0 Outcomes of Public Enterprises	Was the only power company to partici-pate at the Carbon Disclosure Project for five years voluntarily and received the Outstanding Company Award	Received the highest rating in the national infrastructure disaster management assessment (Grade A)

Business Portfolio

1. Domestic Business

EWP operates five power complexes (Dangjin Coal-fired Power Complex, Ulsan Oil-fired & C. C. Power Complex, Honam Coal-fired Power Plant, Donghae Coal-fired Power Plant, and Ilsan Combined Heat and Power Plant) to develop power resources, generate power, and supply stable power. The total installed capacity of EWP's power plants is 11,182 MW and accounts for 9.6 % of the total domestic power generation. The total installed capacity of new & renewable energy such as the small hydro, solar, fuel cell, wind power, and biomass is 68.3MW and accounts for 0.61% of the total installed capacity.

Dangjin Coal-fired Power Complex
· Location: Dangjin-si, Chungcheongnam-do
· Main fuel: Bituminous coal
· Installed capacity:
6,040MW

Ulsan Oil-fired & C. C. Power Complex
· Location: Nam-gu, Ulsan
· Main fuel: Low sulfur-heavy oil, BC oil, and LNG
· Installed capacity:
3,271.9MW

Honam Coal-fired Power Complex
· Location: Yeosu-si, Jeollanam-do
· Main fuel: Bituminous coal
· Installed capacity:
500MW

Donghae Coal-fired Power Complex
· Location: Donghae-si, Gangwon-do
· Main fuel: Anthracite coal
· Installed capacity:
400MW

Ilsan Combined Heat and Power Plant
· Location: Goyang-si, Gyeonggi-do
· Main fuel: LNG
· Installed capacity:
900MW

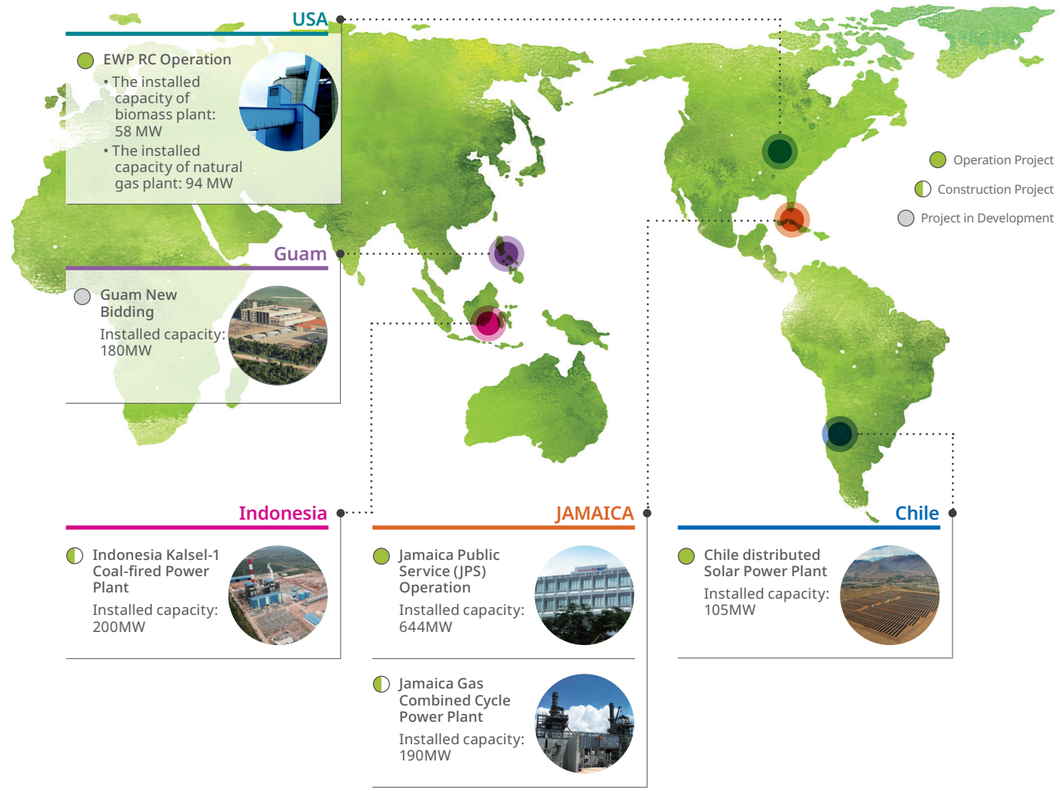
Installed Capacity for Each Fuel

Fuel Type	Power Complex	Installed capacity (MW)	Share (%)
Coal-fired thermal	Dangjin Coal-fired Power Complex	6,040	62.08
	Honam Coal-fired Power Plant	500	
	Donghae Coal-fired Power Plant	400	
Heavy oil	Ulsan Oil-fired Power Complex	1,200	10.73
LNG	Ilsan Combined Heat and Power Plant	900	26.58
	Ulsan Combined Cycle	2,072	
New & Renewable Energy	Small Hydro	8.2	0.61
	Solar Energy	16.3	
	Fuel Cell	10.8	
	Wind Power	3	
	Biomass	30	
Total		11,180	100

* by self-operation

2. Overseas Business

Based on the experience, technology, and competitiveness in the domestic power generation market, EWP is pursuing the power operation projects with the total capacity of about 796 MW in the United States and Jamaica, and the power development projects with the total capacity of about 675 MW in Indonesia, Jamaica, and Chile to ensure sustainable growth. EWP plans to secure new growth engines by developing new overseas markets.



Operation Projects

Project	Capacity	Equity Share
Jamaica Power Service (JPS) Operation	Power generation: 644MW Power transmission and distribution: 100%	EWP: 40%, Marubeni: 40% Jamaican Government: 20%
EWP RC Operation	Biomass: 58 MW, Natural gas: 94 MW	EWP: 100%

Development Projects

Type	Project	Capacity	Equity Share
Construction Project	Indonesia Kalsel-1 Coal-fired Power Plant	200MW	EWP: 35%, Adaro: 65%
	Jamaica Gas Combined Cycle Power Plant	190MW	EWP: 20%, Marubeni: 20%, Jamaican Government: 10%, JPS: 50%
Projects in Development	Guam New Bidding	180MW	EWP, KEPCO
	Chile distributed Solar Power Plant	105MW	EWP, Daelim Energy

3. Green Energy Business

EWP tries to diversify its energy businesses such as new & renewable energy convergence and eco-friendly energy town to ensure stable power supply, environmental conservation, and sustainable development. It has separated the New & Renewable Energy Team into the Solar Power Business Team and Wind Power Business Team to strengthen the organization for the development of new & renewable energy. As a result, EWP we achieved 314 GWh in power generation, which was 105% above the target for renewable energy generation in 2017. EWP will leap forward to become the integrated energy company leading the low carbon green management.

New & Renewable Energy Business

New & Renewable Energy Implementation Strategy

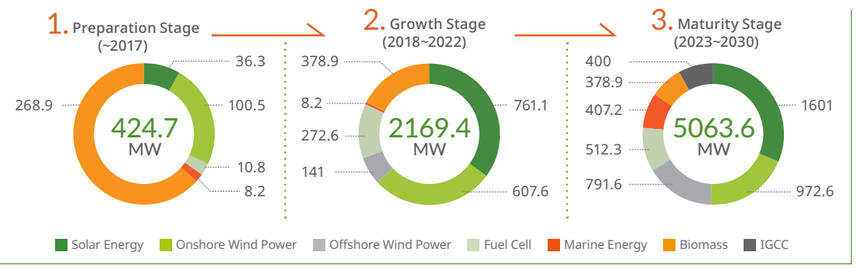
Implementation Goal

Development of new & renewable energy source as the core business to create the future growth engine

Implementation Strategy

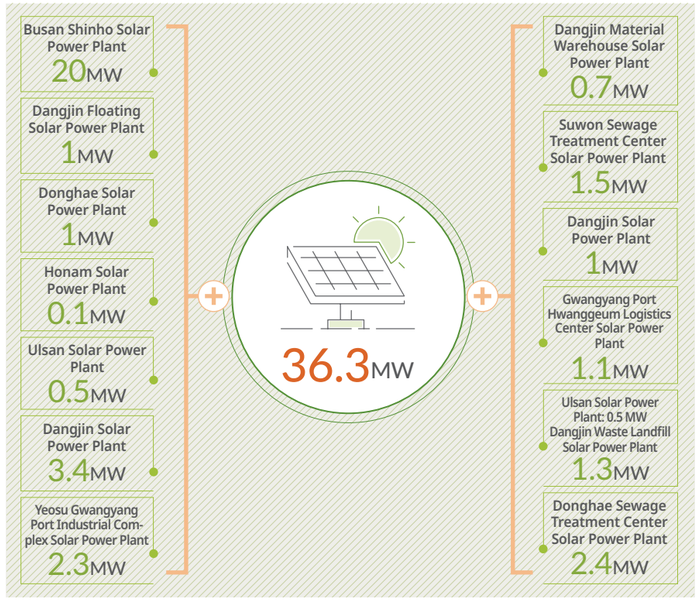
- The configuration of optimal new & renewable energy portfolio and diversification of energy resources
- Selection and focus with consideration to the economic feasibility, applicability, and suitability of scale of business implementation
- Securing and distribution of technology competitiveness of high-efficiency, new & renewable energy conforming to the new & renewable energy convergence policy
- Development of new business models to resolve regional conflicts in the power plant area

Implementation Stages



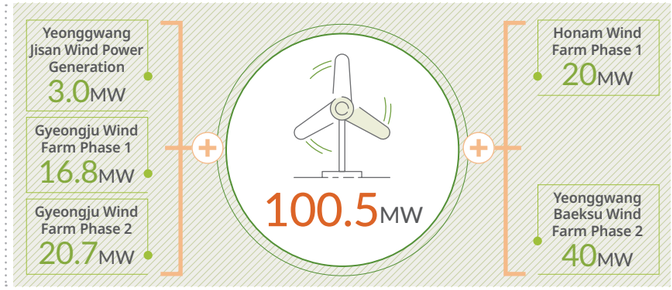
Solar Power Generation

EWP is developing various solar power projects such as eco-friendly solar power generation facilities, which redefined the meaning of the waste landfill site, roof-top solar power generation facilities, and floating solar power generation facilities. Beginning with 1 MW solar power generator at Donghae Thermal Power Plant in September 2006, EWP is currently operating the solar power plants with the total capacity of 36.3 MW including the solar power generator at the Suwon Sewage Treatment Center (1.5 MW)



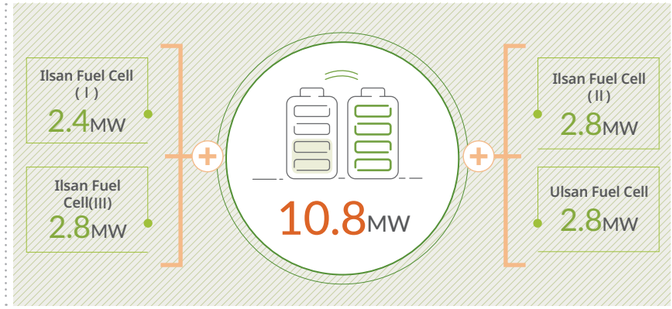
Wind Power Generation

EWP is building the East Coast Wind Belt and West Coast Wind Farm to develop large-capacity onshore and offshore wind power generation in areas with favorable wind resources. It also develops the ESS convergence technology to promote the wind power industry. Beginning with Gyeongju Wind Farm (16.8 MW) in 2012, EWP has completed construction of Gyeongju Wind Farm Phase 2 (20.7 MW) and is currently generating power.



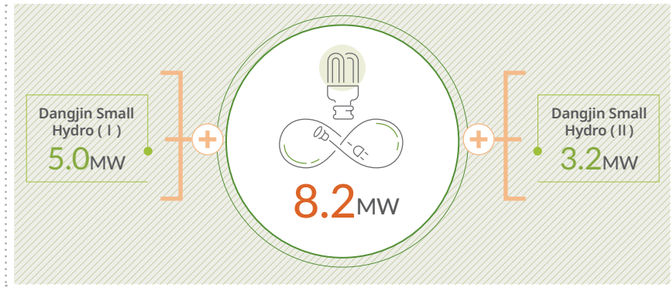
Fuel Cell Power Generation

EWP focuses on O&M technology for fuel cell business using surplus hydrogen to expand and promote the domestic fuel cell business. A fuel cell is a device that directly converts the chemical energy generated when hydrogen (H2) in LNG bonds with oxygen (O2) in the air into the electric energy. EWP is currently operating 13.2MW fuel cell power generators in Phases 1-4 at Ilsan Combined Cycle Power Plant and 2.8MW fuel cell power generator in Ulsan Oil-fired & C. C. Power Complex.



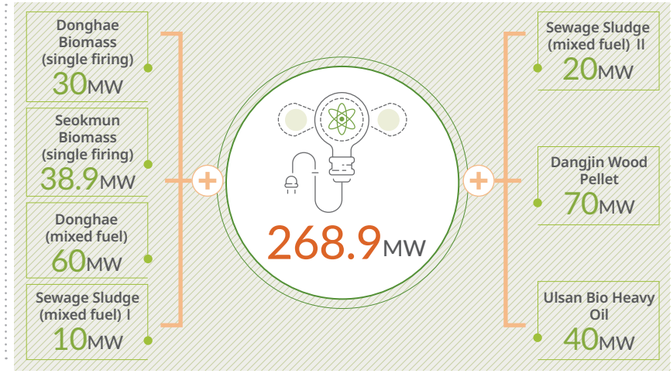
Small Hydropower Generation

EWP is currently operating a total of 8.2MW offshore energy generation facilities by completing construction of Phase 1 with 5MW and Phase 2 with 3.2MW of Dangjin small hydropower generators, which use the discharged water from the Dangjin Coal-fired Power Complex and the head drop, in 2009 and 2014, respectively. It is currently developing the offshore energy business that utilizes tidal power to utilize various marine energy resources.



Biomass Power Generation

EWP has completed the construction of the country's largest 30MW woody biomass power plant in the Donghae Thermal Power Plant site in July 2013 and is currently operating it. It is developing the 10MW biomass power generation project using vow dung in cooperation of the local municipality for the first time in Korea.



Value Creation Process

EWP is building a value creation process in line with its strategic direction to realize sustainable growth by leading the four major mega-trends in the energy industry: decarbonization, digitization, decentralization, and electrification. EWP intends to lead the industrial trend in Korea to realize sustainable value creation.

MISSION

"We make energy for happiness"

VISION

2030
The eco-friendly energy company to enrich the world

EWP Strategic Direction

Strengthening of Competitiveness of Power Generation Business

+

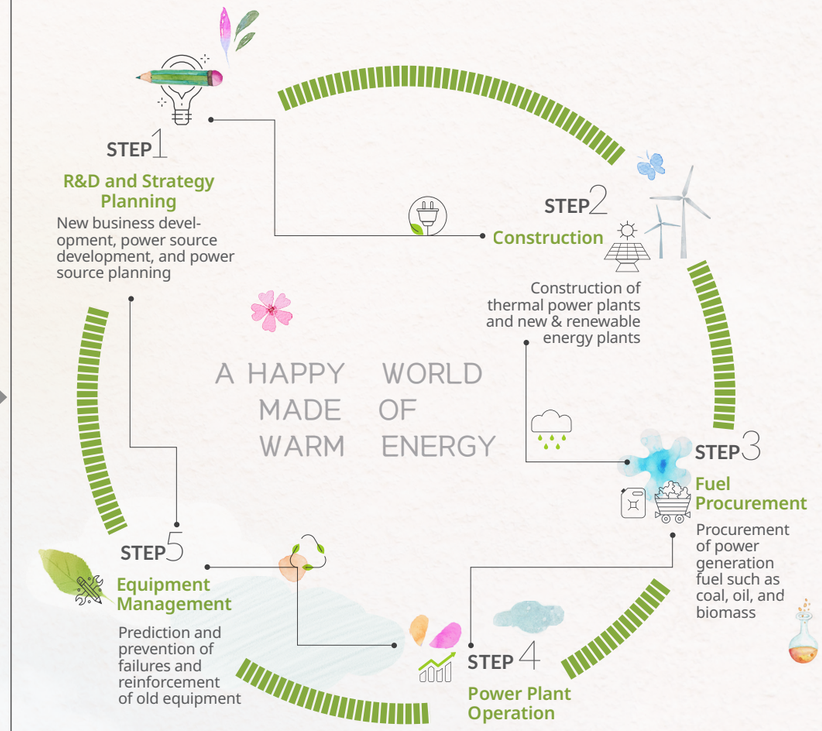
Creating future growing business

+

Strengthening of Core Competency

+

Fulfilling social values



VALUES CREATED

CREATING ECONOMIC VALUE

- ·15.4% increase of operating margin (as of March 2018)
- The installed capacity of new & renewable energy: 424.7MW
- Investment in R&D: KRW 17.7billion
- Equity capacity for overseas projects: 410MW
- Generator failure shutdown rate: 0.039%

CREATING ENVIRONMENTAL VALUE

- Secured surplus emission right: 4.71million tons
- The economic value of secured surplus emission right: KRW 103.6 billion
- Atmospheric pollutant reduction rate: 19.8%

CREATING SOCIAL VALUE

- Job creation: 869
- Sustainable Management Index: Grade AAA
- Introduction of the first flexible employment quota scheme among public enterprises
- Shared growth assessment of public institutions: Outstanding
- Overall rating of safety culture maturity: 4.05 points

Four Megatrends of the Energy Industry

Decarbonization
Increased supply of low-carbon energy source

Digitalization
The Fourth Industrial Revolution based on cutting-edge ICT

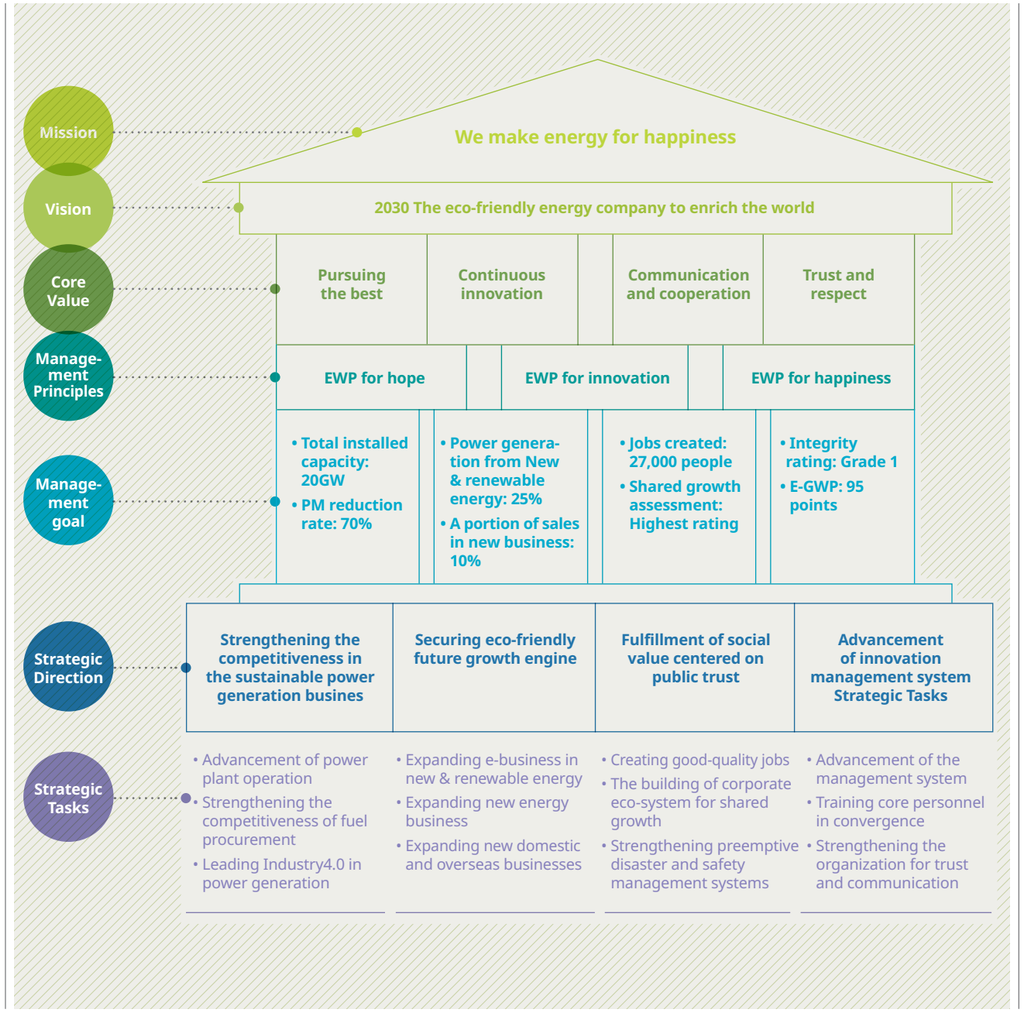
Decentralization
User-oriented power generation technology

Electrification
Production of power from the new & renewable energy source and response to the new climate change scheme

Vision and Strategy

1. Mid- to Long-term Management Strategy

EWP declared the “2030 Vision and Management Strategy” to grow into the eco-friendly energy company that opens up the prosperous world based on the government’s policy direction and awareness of changes in the internal and external environment. Executives, project managers, and labor union officials actively participated in the process of establishing a management strategy to enhance practicality and competitiveness. It resulted in eight management targets and 12 strategic tasks in the core business, future business, social value, and agency operation areas.



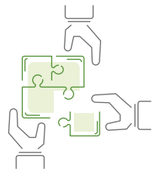
2. Performance Management

EWP has segmented the steps of strategic management and strengthened execution activities for each step to achieve the mid- to long-term management strategies systematically and effectively. In addition, we have set up performance indicators optimized for strategic tasks and established performance-based accountability management systems.

Performance Management System by Position

Position		Strategic Management Step	Action to Implement Strategic Task	Review System
CEO		Management goal	Meetings with each position and briefing in plant complexes to share and internalize the vision, strategy, and management targets	Performance Management Committee
Director		Four strategic directions	Establishment and finalization of business plan linked with the strategic direction for each sector and distribution and management of performance goal for each unit organization	Management performance analysis (quarterly)
		12 strategic tasks		
Depart-mental Head	Department Manager	42 tasks	Establishment of the business plan and reporting it to executives, distribution of organizational perfor-mance goal to each member, and management of the implementation	Management strategy meeting (monthly), Weekly business meeting
	Director	112 key tasks		
Members		Implementation task	Establishment and implementation of each task	Internal review and management

Performance Management System by Performance Index



Strategy direction	Strategic task	KPI (Unit)	Achievement in 2017	Goal in 2023
Strengthening	Advancement of the generation operation	Forced outage rate (%)	0.039	0.027
		Implementation rate of emmission trading (%)	105	100
		Reduction rate of air pollutant (%)	19.8	56
	Strengtheningthe com-petition of fuel supply	Improvement rate of sulfur content (%)	0.53	0.50
		Progress rate of business promotion (%)	-	92
	Leading Industry 4.0 development field	Pre-emptive Technology diagnosis (case)	5	18
		Advancement of the system and development (case)	7	30
Securing the future eco-friendly growth engine	Expansion of renewable ⓔ business	Implementation rate of RPS goals (%)	100	100
		Business agreement for collaborative cooperation (case)	5	7
	Expansion of development of new energy business	Sales of energy demand management business (KRW 100 million)	-	197
		Establishment of the ground for future pot ential industry (quantitative)	-	Implementation of VPP business
	Expansion of new business home and abroad	Cumulative capacity of acquire permission for generation business (MW)	-	4,500
		Equity capacity for overseas projects (MW)	410	1,040
Centered on national trust Implementa-tion of social value	High-quality job creation	Job creation (person)	-	3,050
		In-house venture team (team)	-	6
	Establishment of the corporate ecosystem for collaborative cooperation	Shared growth assessment of public institutions (rate)	Excellent	Excellent
		Satisfaction of local community (point)	84.5	95
	Reinforcement of pre-empitive disaster and safety system	Death per 10,000 people (‰)	0	0
		Government disaster safety management assessment (rank)	Excellent	Excellent
Advansement of innovative management system	Enhancement of management system	Measuring rate of infrastructure vulnerability analysis assessment (%)	86	94.5
		Points from government security assessment point (%)	16.4	7
		Debt ratio (%)	92.8	163.6
		Computerization ratio (%)	0.78	0.91
		EWP Q-Index (point)	763	830
	Fostering core competent personnel	Core job training completion time (H)	-	48
		Competency Diagnosis Index (point)	4.8/5	6.05
	Enhancement of communication system	Righteous assessment of the Anti Corruption & Civil Rights Commission (Rank)	3	1
		Internal assessment satisfaction (%)	83.87	88
		E-GWP (point)	-	88
		WLB index (point)	-	8.5

EWP is pursuing growth that takes both economic, environmental and social values into consideration for sustainable development. We will leap to become the best company that meets future generations beyond the stakeholders by achieving sustainability.

SUSTAINABILITY MANAGEMENT PERFORMANCE

Stakeholder Participation

Stakeholder Participation and Communication

Stakeholder Classification

EWP classifies stakeholders into subjects who affect value creation, internal and external employees who directly participate in value creation, and outside customers who share created values from the power resource development, power plant construction, power plant operation, and strategic sales aspect with consideration to the value flow in the power industry.

Definition of Stakeholder in Each Value Chain

Value Chain	Stakeholder			
	Classification	Definition	Major players	Areas of interest
Power resource development Power plant construction	Value impact	Subject affecting value creation	• Government agencies • Municipalities and residents • Press and power plant	• Securing the competitiveness of the power industry • Local development and environmental protection • Interest in current issues, and competition& cooperation
Power Plant Operation	Value production	Internal employees participating in value creation	• Employees • Labor union	• A new corporate culture based on trust and communication • Enhancement of corporate competitiveness
	Value cooperation	External employees participating in value creation	• Vendors • Local enterprises	• Joint participation and cooperation in power generation business • Diversification of power generation-related businesses and cost reduction
Power sales	Value consumption	Outside customers who share created values	• Shareholders • Citizens	• A stable supply of high-quality, economical electricity • Information disclosure to the public

Stakeholder Engagement and Communication Channel

EWP pursues a flexible and smart organizational culture for effective communication with stakeholders and is continuing communication and collaboration by establishing communication channels that meet the characteristics of key stakeholder. It does its best to share creative values of openness, sharing, communication, and collaboration by managing key performance indicators (KPIs) for each communication channel.

Communication and Delivery Plan for Each Stakeholder

Classification		Communication purpose	Key message	Delivery method	KPI	Monitoring
Internal	• Employees • Labor union	• Enhancing corporate competitiveness • Cooperative labor-management relations	Smart organizational culture innovation	• CEO briefing on management status • Value suggestion system and discussion • Labor-Management Council and workshop	• Vision sharing • Communication index	Vision sharing and communication survey
External	• Vendors • Local enterprises	Consensus on shared growth	Cooperation and shared growth	• SME Collaborative Cooperation Council • Naver Band and SNS	Integrity rating (Outside integrity / Customers' assessment of policy)	Investigation of integrity by the Anti-Corruption & Civil Rights Commission
	• Government agencies • Residents • Municipalities • Press • Power plants	• Cooperation with national policies • Social contribution and local development • Shared growth	Sharing network	• Inspection of government offices and business contact network • Resident Council • PR division at power plants		
	• Shareholders • Citizens	• Stable power supply and demand • Enhanced communication with the public	Transparent information disclosure	• Information portals • Open Management website, etc.	Zero insincere disclosure in Alio (All Public Information In One)	Alio (All Public Information In One) evaluation by the Ministry of Economy and Finance

Interview with Stakeholder

EWP interviewed stakeholders to gather the expectations and concerns of various stakeholders. The interviews were conducted in the form of questions and answers about the elements that the EWP should manage to fulfill its social responsibilities and become a sustainable corperation. EWP will continue to strive to implement successful sustainability management by actively collecting stakeholder opinions through various channels in the future.

" We need to invest for stable power supply and actively strive to advance into overseas markets. "

Korea Energy Economics Institute Research Engineer **Yu Dong-heon**

EWP is a public corporation that operates power generation business, and has operated the power generation business in accordance with the government's power policy and greenhouse gas reduction policy to cope with climate change. Considering the implementation of the national reduction target in 2030, since it is expected that the government's reduction policy will be strengthened, as well as the reduction of emission trading system will increase, a strategy that can cope with climate change response policy is needed. In order to respond to the policy and supply electricity stably, it is necessary to have the analyzing ability for fuel market and maintenance ability for power generation facilities. In the end, EWP's employees are at the forefront of competitiveness, so investing in human resources is important. Furthermore, in order to minimize the impact on the environment and increase cost competitiveness, we will invest in power generation facilities equipped with the latest technologies such as Dangjin Power Plant.

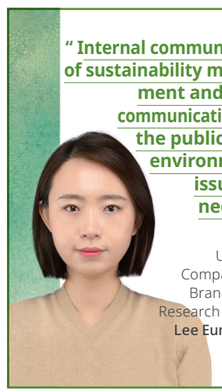
Meanwhile, EWP's power plants are rooted in the community. Therefore, it is necessary to establish and maintain friendly relationships with the local community as well as ever. In this regard, I look forward to contributing to the revitalization of the local economy through mutual cooperation and cooperation with the local community. In addition, efforts are needed to actively advance into overseas markets in order to continuously expand the business area. We are actively developing overseas projects such as the Jamaica Electric Power Corporation Operation Project, US EWP RC Operation Project, and Kalsel-1 Coal Thermal Power Plant Project in Indonesia. However, since Korea EWP is evaluated as having excellent power plant operation capability in overseas market, If we make efforts to expand our reach, we will be able to demonstrate our competitiveness.

EWP has been in business for a large portion of the thermal power generation including coal power generation. However, with the recent public interest in fine dust issues, the government's decentral coal development trend, and the 2030 energy new industry policy, Korea's eco-friendly development requires sustainable growth. As a public corporation, we are committed to working together to operate an eco-friendly power plant that meets the eye of the public. In particular, this year, we achieved a visible achievement in the construction of a LNG combined cycle power plant in Chungbuk province with the efforts of all our members. We have achieved a grade of A in management evaluation, and our employees are rewarding.

In terms of creating social value, Ulsan city is actively promoting recruitment of local talent to solve social problems of Ulsan city where the corporation is located. Ulsan public corporation has the highest employment performance and contributes to solving youth unemployment problem. However, it is also necessary to listen attentively to the employees' voice. The operation of the Honam and Ulsan Power Plants is scheduled to end in 2020, and the domestic and external employment environment is changing, including 52 hours per week. Accordingly, EWP is required to grasp the needs of its employees and to establish a system for stable employment from the mid- to long-term perspective through deep anxieties.

" We need to strive together for the future business competitiveness and strive for job safety"

Chairperson of EWP Labor Union **Pil Seung-heon**



" Internal communication of sustainability management and active communication with the public about environmental issues are necessary "

UN Global Compact Korea Branch Senior Research Engineer **Lee Eun-gyeong**

The evaluation of social values such as job creation and social integration has increased in the public institution management evaluation from this year. As a result, performance management in the social value sector has become a challenge in public institutions. However, it is important to internalize sustainability management issues through improvement of governance from a long-term perspective rather than managing only the achievement of social value creation. In the case of EWP, we believe that if they improve the governance structure by improving the diversity of the board, such as gender balance, they will be able to create more social values in the future. What is most important for sustainable development is the internalization of sustainability management issues through improvement of system and organizational culture.

Recently, as the fine dust has become serious problem, there are considerable public concerns about environmental problems. As a power plant operating corporation, EWP must actively respond to environmental issues. At the same time, it must demonstrate our resolve to actively improve environmental issues through active communication with the public. Although it is important to respond to environmental issues and manage performance, if we communicate with the public actively through various channels and show our will to improve, they will be able to alleviate the public's worries about environmental problems. Although it is important to respond to environmental issues and manage performance, if EWP communicate with the public actively through various channels and show our will to improve, they will be able to alleviate the public's worries about environmental problems.

Key Sustainability Issues

Materiality Assessment Process

EWP considers economic, environmental, and social values, which affect the management activities for sustainable growth, in balance. It identified the critical issues according to the framework of materiality assessment presented by GRI to select and report key issues with a high level of importance and interest among stakeholders regarding EWP's activities for sustainability.

Materiality Assessment Process

Step1 Formation of issue pool

EWP conducted the analysis of government policy direction, the analysis of media coverage, the global benchmarking, the diagnosis of ISO26000 implementation level, and the interview with stakeholders. It also organized the potential issue pool from the general, economic, social, and environmental aspect of sustainability using the analysis result.

Analysis of Government Policy Direction	EWP identified the new response issues by reviewing and analyzing the Framework Act on Social Vale (draft), 100 national agendas, and management evaluation criteria.
Analysis of Media Coverage	EWP examined the type and contents of media coverage from January 1, 2017, to December 31, 2017, to analyze and review the internal and external perception of EWP's sustainability issues.
Global Benchmarking	EWP analyzed the key issues and activities of the companies with excellent sustainability practice in the same industry to review the sustainability trend.
Diagnosis of ISO26000 Implementation Level	EWP identified the priority programs by assessing its level of social value fulfillment based on the ISO26000 diagnosis too which is the international standard on social responsibility.
Interview with Stakeholders	EWP conducted the in-depth interview of representatives of each key stakeholder group to gather stakeholders' expectations and interests about the management activities of EWP.

Step 2 Prioritization

EWP surveyed outside stakeholders including the customers, local communities, and government agencies based on the potential issue pool identified through the multidimensional analysis. It examined the impact of the identified issue on decision-making by stakeholders and identified 17 final key issues.

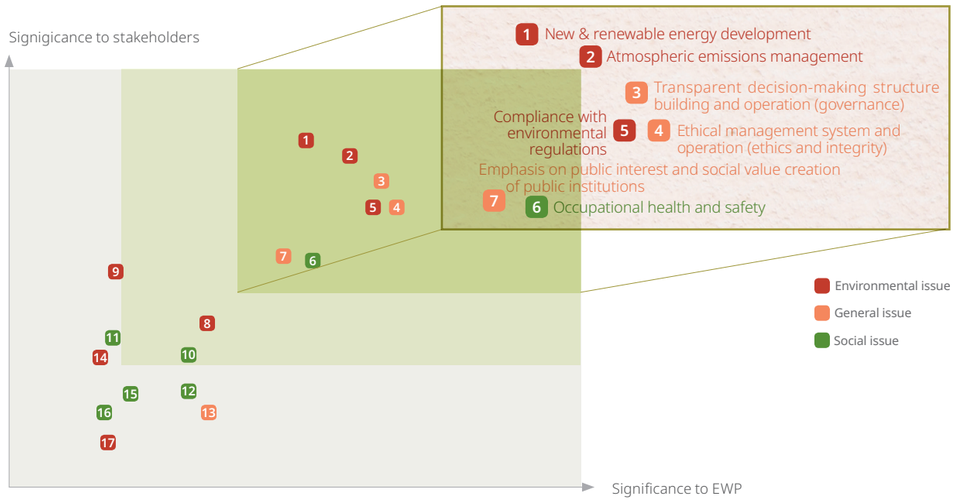
Step 3 Feasibility validation

EWP conducted an internal review to validate the feasibility and effectiveness of the identified 17 key issues and then planned and organized the report with consideration to the scope, boundary, period, and suitability. EWP then finalized the contents of this report in connection with EWP's strategic system.

Selection of Key Issues

Of economic, environmental, and social issues that are affected by the management activities, the issues that were important to the internal stakeholders were plotted on the X-axis, and the issues that were important to the external stakeholders were plotted on the Y-axis. As a result, the top 17 issues out of a total of 41 related issues were identified as critical issues.

Materiality Assessment Matrix



Boundary of Key Issues and Report

Ranking	Key Issues	GRI Topic
1	New & renewable energy development	GRI 302: Energy
2	Atmospheric emissions management	GRI 305: Emissions
3	Transparent decision-making structure building and operation (governance)	-
4	Ethical management system and operation (ethics and integrity)	GRI 205: Anti-corruption
5	Compliance with environmental regulations	GRI 307: Environmental compliance
6	Occupational health and safety	GRI 403: Occupational Health and Safety
7	Emphasis on public interest and social value creation of public institutions	-
8	Expenditure and investment in the environment	-
9	Wastewater and waste effluents	GRI 303: Water and effluents GRI 306: Effluents and waste
10	Compliance with socioeconomic regulations	GRI 419: Socioeconomic compliance
11	Education and training	GRI 404: Training and Education
12	Customers' personal information protection	GRI 418: Customer Privacy
13	Participation by stakeholders (Strengthening of communication with customers, local communities, and citizens)	-
14	Environmental impact of products and services	-
15	Customer health and safety	GRI 416: Customer Health and Safety
16	Issues on human rights (sexual harassment, etc.)	GRI 412: Human rights assessment
17	Vendor environmental assessment	GRI 308: Supplier environmental assessment

Creating Economic Value

1. Stable Power Supply

Stable operation of power generation facilities

With the goal of achieving the best facility reliability, EWP is continuously improving the reliability of its facilities by continually expanding the excellent factors and continuously analyzing and improving the risk factors. As a result of its efforts to operate stable generation facilities centered on equipment, people, and ICT, EWP achieved the lowest forced outage rate of 0.039% since its foundation.

Stable power generation facility operation centered on equipment

Improving Facilities Causing Long-term Breakdown

Eliminating risks by conducting intensive inspections of facilities such as generators and fluidized bed boilers that are vulnerable to long-term breakdowns is crucial for power generation facilities. As such, EWP has carried out a facility inspection with consideration to the aging and remaining life of power generation facilities to cope with large-scale breakdowns due to turbine damage and long restoration period. It divided the power generation facilities into periods as, “At the initial stage,” “Less than 20 years,” and “20 years or longer” and deduced the risk factors at each step and applied upgrades according to the results. As a result, EWP saved the purchasing cost by KRW 10.1 billion, reduced the restoration period by about two years, and achieved the zero long-term breakdowns by turbine damage. EWP will continue to reinforce its facilities to ensure facility stability.

Reinforcement of Power Generation Facilities at Each Step after Construction

Type	(New) The initial stage after construction	Less than 20 years	(Aged) 20 years or longer
Targets	Dangjin #9 and 10 and Ulsan #4CC	Dangjin #1-8	Ulsan Steam #4-6
Problem	Damage of the final blade of 50” turbine	Aged deterioration due to long-term use	Risk of fracture due to micro-cracking
Counter-measures	Replacement with a stable turbine	Securing common spare parts for all power plants	Repair and inspection of fractured areas

Preventive Treatment of Power Generation Facilities

Inspecting the facilities with records of breakdown and the vulnerable facilities at each power plant is crucial to prevent breakdowns which can violate stable power generation and supplies. As part of the “Health Care Project,” EWP inspects the power generation facilities in all power plants before the power peak periods during the summer and winter to avoid unforeseen failures and risks. It organizes the expert groups formed of technical experts and field experts for each facility and has developed the standard facility checklist for the inspection.

Optimal Response to External Risks

Natural disasters can lead to plant shutdown due to the structural damage, rotator vibration, or inflow of foreign substances. EWP strengthened the countermeasures against earthquake by segmenting the disaster situation into five levels, and improved the performance of foreign substance filters and replaced hinges of rotating units (18 cases) to prevent damage from typhoon. It is also maintaining the cooperation with related institutions such as the Korea Power Exchange, and Korea Gas Corporation to cope with the potential interruption of gas supply and established “Joint Crisis Response System of Relevant Agencies to Respond to Unstable Gas Supply” in October 2017. As the result of such efforts, EWP recorded zero cases of ripple shutdown in 31 2017.

Forced Outrage Rate (Unit : %)

2015	2016	2017
0.556	0.062	0.039

※ Portion of time for unexpected shut down of the plant during normal operation (1 year)

Failure per Generator (Unit : Case/Generator)

2015	2016	2017
0.53	0.46	0.29

※ Total number of failures/Total number of generators

Equivalent Forced Outage Rate (Unit : %)

2015	2016	2017
1.98	0.79	0.61

※ Failure time/(Operating+Failure time)x100

Stable power generation facility operation centered on people

Training of Facility Specialists

The education of facility workers is crucial for proper operation of power generation facilities since a generator consists of 50,000 parts, 500 sensors, and hundreds of CCTV. EWP holds the weekly meetings with remote technical support group formed of head office personnel, facility workers, and specialists for the training of facility workers and the emergency meetings at the time of equipment failure. Moreover, it is building the emergency response system for immediate response by sharing all power plant situations in real-time to improve the emergency response capability to equipment failure.

Planned Preventive Maintenance (OH)* Centered on People

EWP has introduced the Safe Construction Period** among the power plant operating companies to build the facility management system based on human respect. EWP built the planned preventive maintenance system centered on people by institutionalizing the OH management standard with the worker safety as the highest priority to conform to the revision of the Planned Preventive Maintenance Guidelines by the Ministry of Trade, Industry and Energy. It also adopted the Safety Construction Period to all power generators subject to OH in 2017 after verifying its effect on prevention of accidents and improvement of OH maintenance quality through the pilot testing in the second half of 2016. The innovation of OH management standard resulted in no breakdown due to maintenance quality before and after OH in 2017. EWP will continue improving the stable power supply and the quality of life of its employees by establishing the culture that puts the priority to people.

* Planned preventive maintenance (Overhaul): Regular inspection and maintenance to maintain the generator performance, prevent the equipment failure, and improve the equipment reliability and performance

** Safe Construction Period: A construction period of 3 to 6 days is added to the standard work period for plan preventive maintenance to enhance safety management activities.

Stable power generation facility operation centered on technology

Power Generation Facility Management Using ICT

EWP attempts to combine various information and communications technologies to power generation facility management which were centered on equipment and people in the past. It created the Data Analysis Team at its Power Generation Technology Development Center for the first time among the power plant operating companies to develop the data-based power generation facility management system for objective and systematic power generation facility operation. The best power experts share the field situation in real-time to transfer know-how through the video conference using wearable cameras. It also conducts the regular emergency simulated training using virtual reality (VR) and augmented reality (AR) and began the development of smart glasses as the industry's first AR platform for the power generation facilities in April 2018. In recognition of such efforts, EWP received the Ministerial Award for the Fourth Industrial Revolution Management Award.

Establishment of e-Brain Center as Control Tower for Power Generation Facilities

EWP opened e-Brain Center as the control tower to remotely manage the power generation facilities in real-time based on the 4th industrial technologies in January 2017. e-Brain Center converges PreVision (early warning system) jointly developed by EWP and Doosan Heavy Industries & construction. It has the role of the control tower to monitor and manage the power generation facilities by detecting abnormal signs early, presenting the optimal operating condition through the analysis of the operation and maintenance, and comprehensive diagnosis of the maintenance power system. EWP expect the e-Brain Center service will improve the operating capability of all power plants and plans to develop new overseas markets aggressively by developing online and offline services linked to the e-Brain Center.

Reduction Rate of Bituminous Coal Price Compared to Market Condition (Unit : %)

2015	2016	2017
2.2	6.2	8.7

Commodity Charter Securing Rate (Unit : %)

2015	2016	2017
22	31	44

Bituminous Coal Inventory Days (Unit : Days)

	2015	2016	2017
Average inventory	23.6	16.6	19.6
Invest-ment deviation	3.7	3.6	3.3

Stable Fuel Procurement

EWP strives to increase the stability of fuel procurement through economic procurement by reducing the cost and stable power supply and demand through risk minimization. Last year, it reduced KRW 8.87 billion compared to existing purchasing technique through the continuous arbitrage trading among the regions for the first time in the industry.

Economic power supply and demand through cost reduction

Reduction of Bituminous Coal Cost

EWP has been expanding the purchase competitive edge strategy by diversifying the arbitrage trading structure, expanding the use of coal from high-quality mines, and enhancing market information to procure the eco-friendly and high-quality coals, which are relatively expensive, economically to be in line with the paradigm shift to eco-friendliness and economic efficiency simultaneously. In 2016, it developed the industry's first arbitrage trading system that takes advantage of price differentials between Europe and Asia and the weak commodity market conditions to save the fuel cost by KRW 8.87 billion and received the Presidential Award for National Productivity in recognition of the achievement. Moreover, it saved the transport cost by KRW 3.3 billion through the strategic bidding of commodity chartering. EWP will continue its efforts for stable fuel procurement with the cost-saving strategy utilizing pioneering purchasing techniques.

Reduction of Anthracite Fuel Cost

Reducing fuel cost in the domestic power plants using anthracite fuel is a crucial factor for stable fuel procurement since EWP expects the deterioration of cost competitiveness of anthracite coal-fired power plants due to the increased quota of expensive domestic anthracite coal. As such, EWP deduced the strategy to strengthen cost competitiveness using imported coal for each stage and improved the cost competitiveness through strategic bidding expanded to all coals from the existing limited bidding centered on imported anthracite coal. Moreover, it expanded the use of low-ash, high-calorie coals for economic efficiency within the equipment stability range. As a result, it restrained the total fuel cost increasing factor by about 45% compared to the previous year.

Stable power supply and demand through risk minimization

Improvement of Fuel Supply Stability

Based on its know-how of purchasing the best-quality bituminous coal, EWP configured the optimal portfolio by country and calorie balance to eliminate the supply and demand risk by increasing the accuracy of inventory operation. Moreover, it develops the LNG Direct Import Value Chain to enhance the stability of supply and demand and the economic efficiency of procurement since the stability of LNG fuel procurement was not assured as all LNG used as the fuel by gas combined cycle power plants is imported through Korea Gas Corporation. For it, it increased the staff for direct import and combustion of LNG from 87 peo0le in 2016 to 93 in 2017 and proclaimed its intention to import LNG directly.

Strengthening Value Chain Stability of Fuel Procurement

EWP strengthened the supply and demand stability by better managing the value chain for the purchasing step, transport step, and combustion step. It expanded the participation range of bidding for imported coal to diversify the concentration of the portfolio and expand the suppliers at the same at the purchasing stage. It increased the stability of long-term transportation by upgrading the low price-based bidding system to a comprehensive bidding system that considers the price, execution capability, and social responsibility to select the shipping company. EWP strengthened the combustion stability in the combustion step by the response specific to the situation of plant shutdown due to fuel. As a result, it achieved zero plant shutdown due to fuel in 2017. EWP will continue to strengthen the supply and demand stability by the company-wide management of fuel procurement.

2. Securing Future Growth Engine

RPS Implementation Rate (Unit : %)

2015	2016	2017
100	100	100

New & Renewable Energy Performance

Installed capacity of new & renewable energy (Unit : MW)

2015	2016	2017
91	91	129

New & renewable power generation (Unit : MWh)

2015	2016	2017
309,658	318,520	388,208

Securing future energy competitiveness

The necessity to secure the future energy competitiveness and technology competitiveness has increased as the government is implementing the energy conversion policy to reduce greenhouse gas and PM, and the paradigm of the energy industry is shifting to the new & renewable energy power generation business. EWP has secured the future energy competitiveness by establishing the large-scale new & renewable energy development plan, implementing the technology convergent new energy business, and implementing the region-specific new energy business.

New and Renewable Energy Business

New & Renewable Energy Implementation Roadmap

EWP raised its target for the portion of the installed capacity of new & renewable energy in 2030 from 20% to 27% to overcome the stagnation of growth centered on thermal power generation and to be in line with the government's energy conversion policy to reduce greenhouse gas and PM. It is planning and implementing the floating solar power business, large-scale wind power business, and fuel cell business to achieve its target for the new & renewable energy business. It has also separated the New & Renewable Energy Team into the Solar Power Business Team and Wind Power Business Team to strengthen the new & renewable energy development organization.

Large-Scale New & Renewable Energy Development Plan

	Construction completed in 2017	Under construction		Under preparation for construction	
	Gyeongju Wind Power 2, Seokmun Bio, etc.	Yeonggwang Wind Power (Yeonggwang 3)	Ilsan Fuel Cell	Daesan Hydrogen Fuel Cell	Lake Daeho Floating Solar Power
Capacity (Portion*)	65.4MW(14.0%)	79.6MW(18.7%)	5MW(1.2%)	50MW(11.8%)	80MW(18.8%)
REC (Portion)	482,000 REC (18.5%)	182,000 REC (6.9%)	70,000 REC (2.7%)	700,000 REC (26.7%)	153,000 REC (5.8%)

* Portion: Based on EWP's new & renewable energy installed capacity of 425MW in 2017 and RPS implementation of 2,617,000 REC

Wind Power Business

EWP improved its competitiveness in wind power business by constructing 810MW East Coast & West Coast Wind Farm complexes which is the largest wind farm complex in Korea. In December 2017, it completed the construction of 20.7MW Gyeongju Wind Farm Phase 2 as part of East Coast Wind Farm project and received the license to built 13 wind farms with the plant to begin construction in 2018. The construction of Yeonggwang Wind Farm is scheduled for completion in December 2018 as part of West Coast Wind Farm project. EWP constructed scenery observatory, outdoor reaction room, natural healing forest, and water park to turn the wind farms into tourist attractions and help to promote local economy in order to increase the public acceptance of the wind power business. It will create various social values and secure future growth engine at the same time by helping the local economy and continuing the business innovation.

Floating Solar Power Business

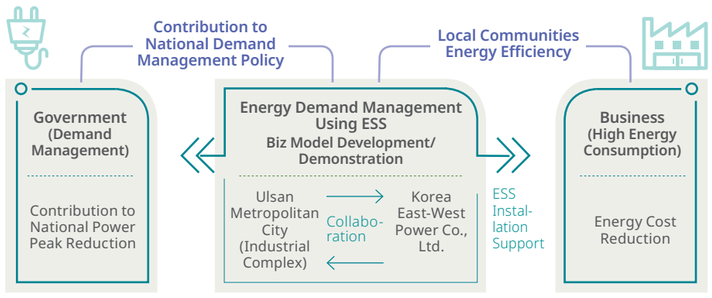
EWP proposed the public institution cooperative business model and implemented the 100MW solar power project at the Lake Daeho to maximize the utility of the solar power business. EWP that has the know-how for construction and operation of power generation facilities obtained the license for an 80MW floating solar power plant on Lake Daeho in Dangjin by leasing the water surface of the Lake Daeho from Korea Rural Community Corporation with the condition of building a 100MW solar power plant and providing 20MW of it as the rent. In addition, it is supporting the eco-friendly fish farm and agricultural businesses to improve the income of local farmers and fishers to improve public acceptance.

Development of New Energy Business

Technology Convergent New Energy Business

The power generation business faces the limited growth as the energy paradigm has shifted from supply management centered to demand management centered and from large power source to distributed power source and as the ICT convergence market has expanded. EWP has considered the utilization of new energy business and expansion of the business domain to secure the future growth engine in the rapidly changing market environment. It achieved the drastic reduction of peak power consumption by developed the consumption pattern analysis program utilizing big data in power and integrating it with energy storage system (ESS) to distribute and equalize power demand by charging during the period when the demand for power is low and discharging during the period when the demand is high. In addition, it distributed ESS to seven enterprises in Ulsan and achieved the energy cost of KRW 18.4 billion based on the seven enterprises that adopted 20MWh ESS in the past 14 years. EWP expects the creation of about 800 new jobs if 500MW ESS is implemented by 2019.

Energy Efficiency Business Model Using ESS



Region-Specific New Energy Business

Developing the new energy business models optimized to regional characteristics can achieve higher income and promote the local economy. EWP has implemented Dangjin e-Dream Park, Ulsan e-Clean City, and Gangwon e-Eco City as the region-specific new energy business. Dangjin e-Dream Park carried out the fish farming project using warm discharged water and edutainment program development project jointly with local municipality and fishing villages. Ulsan e-Clean City established an organization for the regional new energy business for energy efficiency utilizing ESS. Gangwon e-Eco City carried out the project to utilize water resources of Soyanggang Dam by constructing a large-scale floating solar power complex for the Gangwon region which lags in economic development despite its abundant natural resources. It will continue carrying out the new efficient energy businesses by developing business models optimized for each region.

New R&D Programs (Unit : Case)

2015	2016	2017
39	45	41

Investment in R&D (Unit : KRW 100 million)

2015	2016	2017
123.5	109.6	177.5

Purchase of R&D Products (Unit : KRW 100 million)

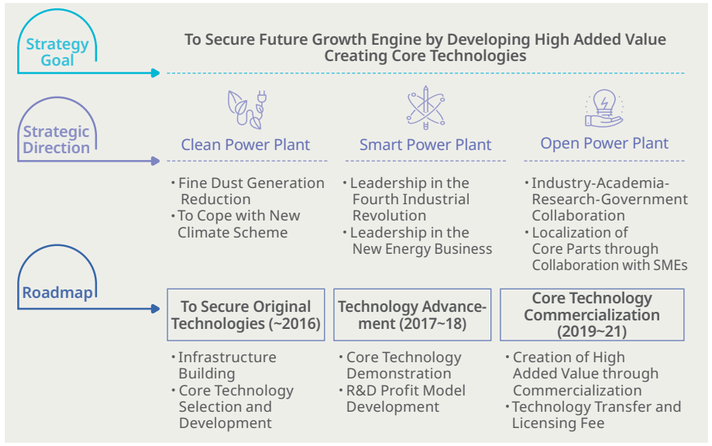
2015	2016	2017
195	265	316

Securing future competitiveness

Mid- to Long-term R&D Strategic Direction

With the R&D goal, "Ensuring future growth engines by developing higher value-added core technologies," EWP established three mid- to long-term R&D strategies to secure the future competitiveness and growth engine. EWP will create sustainable, high value-added values by securing advanced technologies according to its step-by-step roadmap of securing root technologies, advancing technologies, and commercializing core technologies.

Three Mid- to Long-term R&D Strategic Directions



Smart R&D

EWP is creating high added values by converging VR, AI, and IoT platform technologies with the power generation industry to lead the new energy business and the Fourth Industrial Revolution. It has constructed a smart power plant based on super-intelligent ICT platform that overcomes limitations of existing R&D technologies and developed 3D modeling-based smart plant VR contents, AI-based facility prediction system, and convergent IoT diagnosis system. Moreover, it developed the pilot original ESS technology using seawater by developing the world's first seawater cell ESS technology. It also developed the metallic 3D printer and IoT-based monitoring system. EWP will continue leading the development of the 4th industrial power generation technologies by researching and developing various new power generation technologies.

Eco-friendly R&D

EWP is actively implementing policies to expand the investment in mission innovation* R&D to respond to future social changes through the pioneering R&D in areas where demand is high. With the PM and greenhouse gas reduction as the goal for eco-friendly R&D business, it established the plan to reduce PM at Dangjin Thermal Power and developed the PM dispersion impact model to quantify the contribution to PM and deduce the mechanism of secondary PM generation in the atmosphere. Moreover, it developed 10MW wet CO_2 capture technology and CO_2 capture technology using silicon membranes. In recognition of its R&D achievements in the eco-friendly, new industry, and the 4th industry sectors, EWP was awarded the First Public Institution Global R&D Award from the Korean Society of Public Enterprise in June 2017.

* Mission innovation: Doubling of R&D investment in clean energy in the public sector for the next five years according to the Paris Climate Convention in December 2005

JPS Net Profit to Sales Ratio (Unit : %)

2015	2016	2017
3.5	3.1	2.6

Improvement of Loss Rate of Power Transmission and Distribution Network Operated by JPS (Unit : %)

2015	2016	2017
27	26.8	26.4

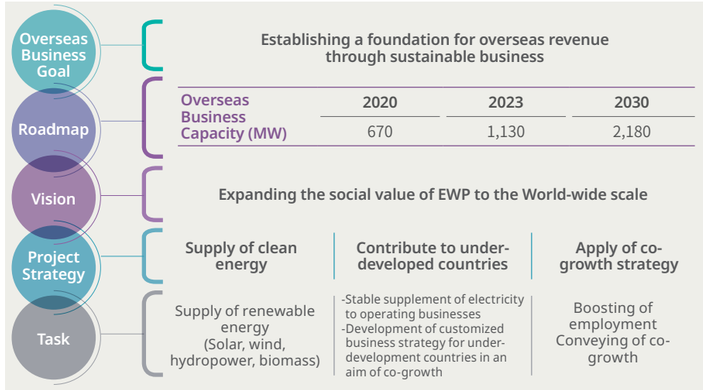
Overseas Business Development

EWP is actively carrying out overseas development and operation projects to build the revenue base from overseas business to achieve stable and sustainable growth. Its target is 2,180MW equity capacity from the overseas business by 2030.

Overseas Business Strategy

EWP has established 2030 mid- to long-term roadmap to secure the future growth engine by building the revenue base from overseas business and has the target of securing 2,180MW in equity capacity from the overseas business by 2030. The key tasks for achieving the target are to secure future growth engines, establish a stable earnings base, and fulfill social values.

Overseas Business Roadmap



Overseas Development Business

Development of new overseas business is the critical challenge to realize continued growth by overcoming the limitation of the domestic market and securing the future growth engine. EWP achieved 100% process progress rate to the pre-construction target by overcoming the problems such as prolonged wet season, the difficulty of securing the ground for power transmission line, and lack of a stable path for transport of heavy objects that are the main causes of delayed construction for Kalsel Power Plant in Indonesia. As a result, it received ASEAN (Association of Southeast Asian Nations) Marketing Summit "Korea Champion" Award in 2017. Moreover, it built the foundation for the expansion of overseas business by successfully launching Jamaica's first gas combined cycle plant through stable funding. After the completion of construction in June 2019, EWP expects the annual average income of about KRW 227.9 billion and dividend to EWP of KRW 87.9 billion for 20 years.

Overseas Operation Business

EWP signed an agreement with Jamaica Public Service (JPS) for technical support in power generation and power transmission and distribution with the goal to lead the changes for new climate scheme, reduce the cost of power generation, and improve the power grid reliability to build the stable revenue basis. JPS is Jamaica's only power utility operator and owns and operates 62% of total power generation facilities and 100% of power transmission and distribution network. EWP implements the performance monitoring system utilizing its internally developed power plant operation and maintenance management system and provides the company-wide consulting such as the power system diagnosis under the provisions of the agreement. EWP expects the stable revenue creation of about KRW 12.5 billion for five years through the agreement.

3. Management with Safety First

Safety Awareness and Safety Activity Participation

Overall rating (Unit : Point)

2015	2016	2017
3.97	4.03	4.05

Safety activity participation (Unit : Point)

2015	2016	2017
3.51	4.21	4.33

2017
Received Outstanding Institution from Disaster Safety Management Assessment

Safety and Health Activities

Communication of Safety Management

EWP is building the multifaceted communication system of executives, outside safety experts, employees, and vendors to spread the voluntary and autonomous safety culture in the field. The executives and high-level managers stay in the field for about 20 days after the groundbreaking, during which the high-risk works are concentrated, to supervise the work and participate in vendor workshop and toolbox meeting as part of active communication. EWP also extended the on-site safety audit period by outside experts three days a week to 5 days a week. The activities such as supervision and advice on safety standard and unsafe activities resulted in the identification and improvement of a total of 2,386 risk points. As the results of its active communication for safety management, EWP achieved 4.05 points in safety culture comprehensive grade and 4.33 points in safety activity participation grade.

Preventive Safety Management

EWP operates the preventive safety management system to create a safe workplace without an accident. EWP introduced Job Safety Analysis (JSA)*, which is more advantageous in identifying the detailed risks at each step, to upgrade the existing risk assessment system 4M**, which is vulnerable to detailed risks because its assessment scope is too broad. Moreover, it improved the process safety management (PSM) level by evaluating and supplementing the accident scenarios, revising the safe operation procedure, and adding the hazardous and risky materials to ensure the safety of its employees and residents by assuring the process safety.

* JSA (Job Safety Analysis): Act of segmenting a work into key steps and assessing the risk at each step
** 4M (Man, Machine, Media, Management): Risk assessment in human, mechanical, material/ environmental, and managerial aspects

Employee Safety and Health Activities

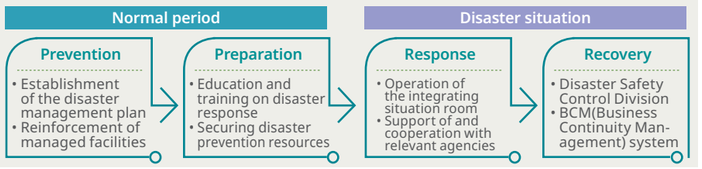
EWP supports various programs to improve the safety and health of its employees. It assigns the dedicated health personnel in each site to carry out the healthcare programs specific to each disease and conducts the CPR education to be ready in the possible emergency during a job. It also holds "Oops Accident Case Presentation Contest" to share the unforeseen accidents in the field and prevent occurrences of similar accidents. Moreover, EWP holds the Safety and Health Council (formed of the head of the site, vendors, safety managers, and health managers) meetings for each site to listen to difficulties and improve the risk factors. In addition, it is carrying out "Creating 3-Zero Workplace" to support the basic health examination, mental healthcare, and exercise programs to create the workplace without smoking, obesity, and stress.

Disaster Response

Disaster Safety Management

EWP is building the disaster safety management activity system with the goal of "Operating safe power plants trusted by the public." It establishes the disaster management plan, reinforces the managed facilities, conducts the education and training for disaster response, and keeps disaster prevention resources to prevent and prepare for disasters. EWP was awarded the Ministerial Award for Excellence in 2017 Disaster Safety Management Evaluation for its efforts to respond to disasters.

Disaster Management Activity System



Disaster Rate of Outsourced Works (Unit : %)

2015	2016	2017
1.04	0.19	0.16

The highest rating in the privacy protection level diagnosis

two years
in a row

The highest rating in infrastructure security measure inspection and evaluation

two years
in a row

The full score in information security policy for security evaluation

two years
in a row

privacy leakage accidents

Zero

Preemptive Preparation to Disaster

In order to preemptively prepare for the power plant's own accident, the company built an integrated anti-disaster center and disaster facilities such as special fire fighting equipment were installed in the field to enable on-site response in the Golden Time. To be detected early. In addition, we built a joint hot-line for accidents around the power plant, strengthened the coordination system by conducting pre-role sharing and regular joint training. On the other hand, for the first time as a generation company, it assisted SMEs to build a disaster recovery management system (BCM) to help SMEs to improve their disaster capabilities, and the accident rate of construction contracts declined 0.03% to 0.16%.

Safety Management

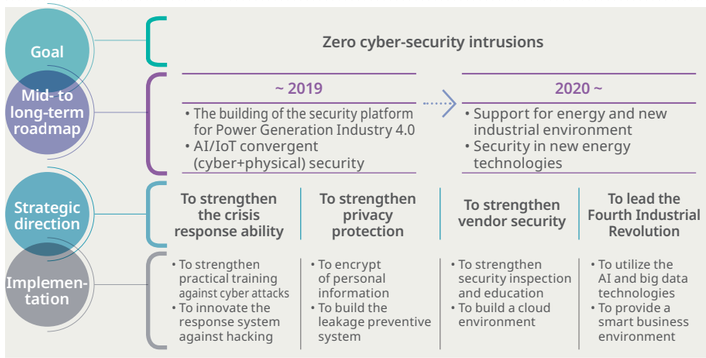
Safety Management

The safety of employees is the highest value that EWP must fulfill. EWP held "Declaration for Priority to Safety in Management and Practice" in July 2018 to create a safe workplace through innovation in safety. It stipulates "ABC (Always Be Careful) 3-Stop, 3-Go Safe Practice Campaign" to establish the safety culture by creating a safe workplace where all employees can work with peace of mind. 3-Stop is the action guidelines for the supervisors, workers, and operators. It prohibits supervisors from ordering work before checking the site and eliminating risks, prohibits workers from working before eliminating the risk factors and the supervisor's work order, and prohibits operators from operating the equipment before checking the site and returning the tag. 3-Go is the practice guideline for workers. It includes the safety education and TBM before and after work, the inspection of risk factors before fieldwork, and the report after terminating work if there is a risk.

Information Security

EWP is implementing the security management system with the goal of "zero cyber-security intrusion". It has established and is executing four strategic directions: to strengthen the ability to respond to crises, personal information protection, security of vendors, and to lead the Fourth Industrial Revolution. In addition, EWP reinforced the infrastructure to secure the highest level of security capability by adding the information security staff by four, assigning the accident response experts, and increasing the budget by 27%. Moreover, EWP is monitoring cyber threats 24/7 using the AI and big data technology, regularly conducting specialized education to protect valuable personal information, implementing the PC virtualization system, and integrating all records before processing of personal information. In recognition of these efforts, EWP received the full score in information security policy for two years by the National Intelligent Service's security assessment and the highest rating for the second consecutive year in the privacy protection level diagnosis by the Ministry of Public Administration and Security. It has also achieved zero personal information leakage.

Information Security Management System



Creating Environmental Value

1. Response to Climate Change
2. Minimization of Environmental Impact

1. Response to Climate Change

Greenhouse Gas Reduction

Mid- to Long-term Strategy to Reduce Greenhouse Gas

As the new climate scheme focusing on greenhouse gas reduction is in effect, the government has proposed a 37% reduction in greenhouse gas emissions compared to the 2030 emission estimate (BAU). It includes a reduction of 57.8 million tons, or 17.3%, in power generation. EWP proposed the reduction target of 9.78 million tons, which is equivalent to 20% of the 2030 emission target, to participate in the greenhouse gas and has established the mid- to long-term reduction strategy to reduce about 83% of the total greenhouse gas emissions by replacing fuel with low carbon source and expanding new & renewable energy.

2030 Mid- to Long-term Greenhouse Gas Reduction Strategy

Strategy Goal	20% Reduction of BAU in 2030				
Strategic Tasks	1. Equipment Improvement	2. Conversion to Low Carbon Power Source	3. Expansion of New & Renew -able Energy	4. Carbon Capture	5. To Secure Emission Rights
Implemen-tation Task	Dangjin Retrofit and Station Power Reduction	Replacement of Old Power Plants with High-Efficiency Power Plants	To Secure 20% of the Total Installed Capacity in 2030	CCS and CCU Technology Development and Commer-cialization	GHG Reduction Project, Emission Right Purchase, and Strengthening Response Capability
Reduction in 2030	720,000 tons	3.35 million tons	4.78 million tons	80,000 tons	850,000 tons

Greenhouse Greenhouse Gas Reduction Activities

Carbon-Free Power Generation Ecosystem

EWP has developed the carbon-free power generation ecosystem model by expanding low-carbon sources, introducing highly efficient facilities, and securing emission rights. It has maximized the reduction of greenhouse gas by burning organic fuel and biofuel oil, which are eco-friendly fuels, in Dangjin, Donghae, and Ulsan power plants, which were burning coal and heavy oil that generated a large amount of greenhouse gas emission. In addition, EWP increased the emission rights by the additional allocation of early greenhouse gas reduction and converting the overseas reduction into the domestic emission right. It secured the surplus emission rights of 4.71 million tons by exceeding the three-year allocation target for the first emission right trading scheme.

Shared Reduction through Collaborative Cooperation

EWP and its in-house specialized advisory group support the energy efficiency improvement efforts of the vendors to contribute to the promotion of greenhouse gas reduction through collaboration with vendors and local small companies. It assisted the replacement of the process air compressor at an automobile part manufacturer in Ulsan to reduce 100 tons of greenhouse gas annually. As a result of reduction campaign conducted by small and medium sized manufacturers in Ulsan, Busan and Jincheon Chungbuk, cumulative greenhouse gas reduction performance has reached 249 tons. It has also participated voluntarily in the UK's Carbon Disclosure Project (CDP) for six consecutive years to disclose information related to its response to climate change and carbon management to strengthen communication with various stakeholders. It is part of EWP's efforts to enhance transparency in carbon management.

Concentration of Carbon Emission (Emission Compared to Power Generation

(Unit : tCO_2/MWh of power transmitted)

2015	2016	2017
0.784	0.784	0.776

Greenhouse Gas Emission

(Unit : 10,000 tCO_2-eq)

2015	2016	2017
3,795	3,973	3,858

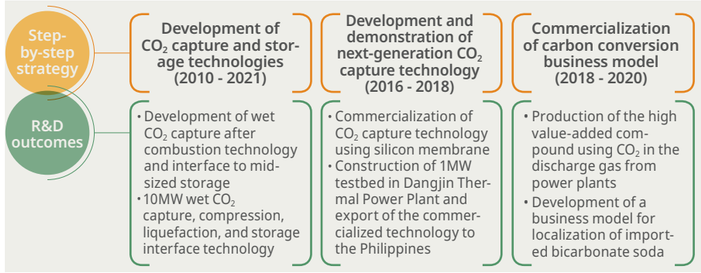
2017
Received the "Special Carbon Management Award" by CDP

four years
in a row

Development of Carbon Conversion Technology

Not resting on the reduction of greenhouse gas, EWP has developed the CO_2 membrane technology to build the new business model by converting carbon into energy. The CO_2 membrane is used to filter CO_2 generated by burning of coal using the size difference with other molecules. After completing the technology demonstration, it builds the world's largest 1MW testbed in Dangjin Thermal Power Plant in October 2017. EWP commercialized the CO_2 membrane technology and exported to the Philippines to realize the income of KRW 40.5 billion.

Commercial Greenhouse Gas Technology Strategy



Response to Climate Change

Climate Change Response Plan

Preventing damages from climate change has been emphasizing globally. In response, EWP has set up a mid- to long-term plan to protect facilities, ensure the safety of citizens, and prevent service interruptions from climate change. The plan contains the assessment and diagnosis of vulnerability to climate change, assessment and diagnosis of climate change risks, trainings for enhancing organizational competence against climate change, and development of climate change risk assessment software. It allows us to estimate possible climate change risks for the next two decades and will be renewed every five years along with detailed execution plans.

Process of Establishing Climate Change Response Measures

Step	Means	Details
Analysis and prediction of climate change status	Climate change scenario	• Characteristic analysis of each plant (geography, climate, etc.) • Analysis of climate change trend and prediction of future climate change
Assessment of vulnerability to current climate	Vulnerability assessment tool	• Collection of vulnerability analysis data, assessment, and result identification • Selection of facilities and fields for adaptation measures
Assessment of future climate change and risks	Risk assessment tool	• Setup of the exposure level to climate • Deduction and assessment of climate change risk items
Detailed execution planning	Adaptation option DB at home and abroad	• Case study on adaptation measures at home and abroad and cost analysis • Prioritization and setup of detailed execution plans

Inspection of Climate Change Adaptation Measures at Each Plant

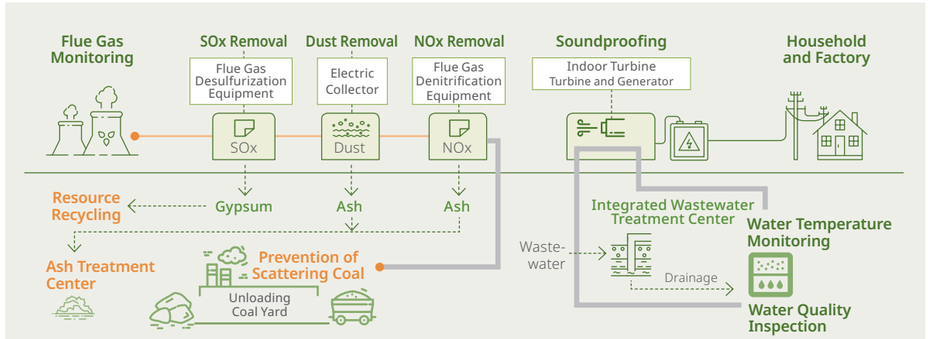
EWP checks the practice of climate change response activities and improves execution plans every year by setting up criteria needed for self-inspection. It is carried out in four steps of establishment of inspection plan, intermediate inspection, internal assessment, and feedback of assessment results. We inspect the operation status of coal handling facilities, fire monitoring facilities, and working environment against the intense heat, old water intake facilities and reuse of process water against the drought, and anti-freeze facilities against heavy snow. EWP will continue to actively respond to possible risks and social and economic impacts from climate change through strict inspections and feedbacks.

2. Minimization of Environmental Impact

Environment Management System

EWP installs and operates the high-efficiency environmental facilities to minimize environmental pollutants generated during electricity production. It has established the environmental management system with the internal environmental standards that are stricter than the related regulation to manage the environmental impact in all areas of power plant operation. The system is used for atmospheric environment management, water quality management, waste management, chemical management, and noise and soil management.

Environmental Pollutant Processing Diagram



Environment Management Performance

Air Pollutant Emission Goal

Achieves 70%
reduction by 2030

Atmospheric Environmental Management

EWP has the target of reducing 70% of the atmospheric pollutant by 2030. To this end, we have installed efficient air pollution reduction facilities such as the desulfurization facilities, denitrification facilities, and dust collecting facilities and are implementing the atmospheric environmental management with the internal standards which are higher than the legal air pollution emission limits.

Atmospheric Environmental Facility Installation

Power Plant	Desulfurization facility		Denitrification facility		Dust collection facility	
	No. of installations (EA)	Installation type	No. of installations (EA)	Installation type	No. of installations (EA)	Installation type
Dangjin Coal-fired Power Complex	10	Wet limestone Gypsum method	10	SCR	10	Electrostatic precipitator
Ulsan Coal-fired Power Complex	3	Wet limestone Gypsum method	5 3	SCR SNCR	3	Electrostatic precipitator
Honam Coal-fired Power Plant	2	Hydroxide Magnesium method	2	SCR SNCR	2	Electrostatic precipitator
Donghae Coal-fired Power Plant	2	Desulfurization in the furnace	-	-	2	Electrostatic precipitator

Atmospheric Pollutant Discharge

SOx (Unit: ton)

2015	2016	2017
12,514	12,741	12,082

NOx (Unit: ton)

2015	2016	2017
22,447	21,965	15,988

Dust (Unit: ton)

2015	2016	2017
649	612	480

Air pollutant effluent quality standard per plants and emission record of year 2017

Power Plant	SOx		NOx		Dust	
	Discharge allowance (ppm)	Discharge concentration (ppm)	Discharge allowance (ppm)	Discharge concentration (ppm)	Discharge allowance (mg/Sm^3)	Discharge concentration (mg/Sm^3)
Dangjin (#1~8)	100	21	140	37	25	5
Dangjin (#9~10)	80	19	70	33	20	1
Ulsan Steam	150	38	150	118	20	3
Ulsan C.C. 1	35	-	80	63	15	-
Ulsan C.C. 2	35	-	50	35	15	-
Honam	100	63	140	107	25	4
Donghae	150	83	140	61	25	2
Donghae Bio	30	1	70	21	20	2
Ilsan	35	-	80	36	15	-

Water Quality Environmental Management

EWP uses water to produce pure water for power generation, washing water, and drinking water. Since the wastewater contains water pollutants, EWP sends the wastewater to the treatment center through the water collection facility to remove the impurities physically, chemically, and biologically to recycle it as the process water or discharge. EWP manages its water quality with its strict water quality management standards which are stricter than legal standards.

Wastewater Treatment Facilities

(Unit : ㎥/hr)

Power plant	Installation type	Treatment capacity
Dangjin Coal-fired Power Complex	General wastewater treatment	293
	Desulfurization wastewater treatment	136
	Total nitrogen removal facility	40
Ulsan Coal-fired Power Complex	General wastewater treatment	190
	Total nitrogen removal facility	8.4
Honam Coal-fired Power Plant	General wastewater treatment	120
	Desulfurization wastewater treatment	150
	Total nitrogen removal facility	16
Donghae Coal-fired Power Plant	General wastewater treatment	30
Ilsan Combined Heat and Power Plant	General wastewater treatment	60

Water Pollutant Discharge Allowance Standard at Each Power Plant

(Unit : ㎎/ℓ)

Power Plant	Region (Classification)	COD		SS		Total nitrogen		Total phosphorous	
		Regulation	Discharge	Regulation	Discharge	Regulation	Discharge	Regulation	Discharge
Dangjin	B (Class 1)	90	9	80	8	60	22	8	0.209
Ulsan	B (Class 1)	90	4	80	2	60	5	8	-
Honam	Exception (Class 1)	40	5	30	4	60	9	8	0.002
Donghae	Exception (Class 3)	130	3	120	1	60	2	8	0.005
Ilsan	B (Class 1)	40	3	10	2	60	8	0.5	-

Waste Management

EWP strives to treat about 30 types of wastes generated by power plants and reduce the discharge and recycles some of them such as properly and reduce the discharge of fly ash, waste oil, and desulfurized gypsum. It tries to increase the recycling rate by continuously identify ways to recycle waste resources and contracts the specialized companies to handle the materials that cannot be recycled.

Waste Generation and Recycling

Type	2015	2016	2017
Discharge (1,000 tons)	1,824	1,965	2,055
Unit level (ton/GWh)	38	40	42
Recycled (1,000 tons)	1,635	1,706	1,560
Recycling rate (%)	90	87	76

Recycling of Desulfurized Gypsum and Fly Ash

Type		2015	2016	2017
Gypsum	Recycled (10,000 tons)	48.0	50.7	41.1
	Recycling rate (%)	97.0	99.6	96.3
	Usage	Gypsum board, the raw material for cement, etc.		
Fly ash	Recycled (10,000 tons)	161.6	169.9	153.1
	Recycling rate (%)	89.7	90.3	75.8
	Usage	Concrete mixing agent, the raw material for concrete, fill material, etc.		

Chemical Management

EWP safely and systematically manages the harmful chemicals used for the production of pure water for power generation and treatment of wastewater according to the regulation. It is managing chemical substances thoroughly through the safety diagnosis of chemical substances and dangerous substances in power plants, prevention of atmospheric diffusion at the time of leakage accident, and the establishment of an emergency response process. It also operates the chemical substance management system which is the integrated management system to prevent and respond to accidents. It will create a living environment safe for everyone by minimizing the risk of accidents through thorough chemical substance management.

Use of Harmful Chemical Substance in 2017

(Unit : ton)

Substance	Dangjin	Ulsan	Honam	Donghae	Donghae	Total
Anhydrous ammonia	7,384	325	1,592	-	-	9,301
Hydrochloric acid	1,784	378	63	-	40	2,265
Sodium hydroxide	1,958	627	1,323	14	62	3,984
Ammonia	-	-	-	-	203	203
Hydrazine	-	-	-	-	-	0
Methanol	-	-	-	-	-	0
Chlorine dioxide	-	-	-	-	-	0
Triethylamine	-	-	-	-	-	0

※ EWP does not use hydrazine, methanol, chlorine dioxide, and triethylamine currently.

Noise and Soil Management

EWP operates the noise monitoring system to manage the noise in real-time by reducing generated by the turbines and transformers in power plants. A text message is sent to the person in charge at the same time at the same time as the noise alarm, and the person in charge contacts the central control room at the power plant immediately to notify the situation. The central control room then takes measures to reduce noise by reducing the noise of steam discharge and opening the safety vent based on the notification. EWP also conduct the soil pollution and leakage inspection to prevent soil pollution that can occur near a power plant. EWP's annual soil pollution test helps to maintain a pleasant environment by inspecting oil contamination of soil caused by storage and handling of power generation fuel.

Ecosystem Protection

Management of Environments around Power Plants

EWP actively participates in events held by the government such as the Environment Day, Water Day, and Sea Day to minimize the change of the ecosystem such as the sea, river, and mountain near power plants. It also carries out the voluntary cleaning programs such as "1-Company and 1-Shore, 1-Company and 1-River, 1-Company and 1-Street, and 1-Company and 1-Wetland" to preserve environments in local communities.

Cleaning Movement, One River per One Enterprise

Clean Sea and Beaches Movement

Protecting the environment of nearby tour sites

Clean Environment Movement

Indoor Coal Yard

EWP places coal yards indoors to block the impact of flying dust on residents near power plants. It completed the construction of the industry's largest 3.4MW roof-top solar power in indoor coal yard of the Dangjin Coal-fired Power Complex on June 03, 2017 to minimize the impact of PM and flying dust from coal-fired thermal power plants. EWP plans to invest about KRW 800.0 billion by 2020 to move all carbon yards indoors in the Dangjin Coal-fired Power Complex to reduce SOx and NOx discharge. It will resolve the environmental burden of residents near power plants by placing the carbon yards indoors.

Indoor Coal Yard Implementation Roadmap

STEP 1	STEP 2	STEP 3	STEP 4
2015	2016	2017	2020
· Construction of indoor coal yard for Dangjin Coal Yard 3 (August 2015)	· Basic study to place existing coal yards 1 and 2 indoors · Formation of indoor coal yard TF	· Preliminary feasibility study	· Begin construction of 1st stage in-house coal storage shed

Grassland Construction Project

Using coal as fuel generates ash in the amount of 10%. EWP has carried out the "Grassland Construction Project" to mitigate the PM issue and to collaborate with nearby dairy farmers. For the project, EWP restores the ash treatment ground and provides it to Dangjin Dairy Cooperative and livestock farmers who cultivate the crops on the land With the license by Dangjin City. The project sowed rye on 20,000 m^2 land to prevent flying dust and promote the local economy. The Grassland Construction Project is expected to bring KRW 200 million in profits to local farmers, and EWP will save KRW 47 million which is the cost of greening the ash treatment ground.

Environmental Risk Management

Development of Environmental Risk Management System

For stronger response to changes in environmental regulations and more systematic environmental risk control, EWP has developed the environmental risk management system aimed at realizing zero regulation violations and advancing the company-wide environmental management system. This system has a process to accurately understand the level of environmental risks at each plant and conduct self-diagnosis on the impacts of environmental regulations, allowing us to help to manage the environment preemptively and systematically. Based on this system, EWP will achieve zero regulation violations by regularly conducting environmental risk diagnosis with outside experts.

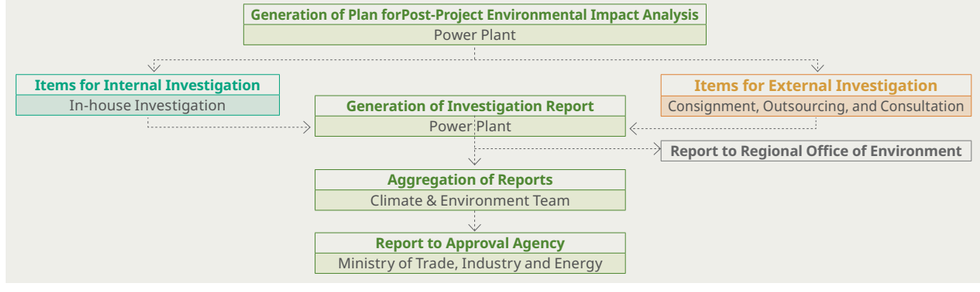
Environmental Risk Management System

Goal	Zero regulation violations and advancement of a company-wide environmental management system		
Effect	· Sharing and utilization of similar cases · Real-time risk monitoring	· Prevention of legal violations with awareness in advance · Preemptive response based on impact analysis	· Prevention of missed work · Systemization of accumulated know-how
Imple-mentation Details	**Checking of current risk level** · Risk at each plant · Risk improvement status · Current company-wide risk diagram	**Impact analysis of environmental regulation** · Legal monitoring in eacharea · Awareness of upcoming legal enactment and amendment · Impact analysis of enactment and amendment	**Self-diagnosis of legal compliance** · Identifying legal compliance regulation · Generationof the specialized checklist · Self-diagnosis

Post-Project Environmental Management

We systematically manage environmental impacts at each plant throughout the life of power plant by performing both pre-project and post-project (for five years after the construction) environmental impact assessments. To assure the expertise and objectivity of assessments, we investigate and analyze the impacts on water quality, atmosphere, noise, and soil around power plants with professional agencies. Results are reported to the Ministry of Trade, Industry and Energy, Ministry of Environment, and Ministry of Maritime Affairs and Fisheries.

Post-Project Environmental Management Procedure



Post - Project Environment Impact Assessment

Power Plant	Investigation Period	Inspected items
Dangjin Thermal #1 - 8	July 1994 - December 2017	Diffusion of warm discharge water, air quality, noise, soil, marine water quality, marine ecosystem, crops, land plants, and environment-friendly resource circulation
Dangjin Thermal #9 - 10	October 2009 - June 2021	
Donghae Biomass Power Plant	December 2011 - July 2018	
Ulsan C.C. #4	June 2012 - July 2019	

Creating Social Value

1. Creation of Pleasant Workplaces
2. Building of a Sound Industrial Ecosystem
3. Creation of Good Jobs
4. Sharing with Local Community

1. Creation of Pleasant Workplaces

Open Recruitment

EWP has adopted Employment Without Prejudice that evaluates potential recruits impartially after a fair competition to secure human resources that lead future changes and realize human-centered sustainable management.

Open Recruitment

EWP selects candidates fairly through the job capability and competency evaluation based on the national competency standard (NCS). EWP has adopted the recruitment system that assures the equality of opportunity, the fairness of the process, and fulfillment of social value by finding all blind spots of fairness that can exist during the recruitment process. It was the first public enterprise to provide the uniform for an interview to avoid any change of prejudice even to the last step of interviews. Moreover, it has been improving the recruitment process by conducting the satisfaction and fairness survey of applicants at each recruitment step and actively reflecting their opinions to create the applicant-center recruitment culture. In recognition of the results of its efforts for fair recruitment, EWP received the Minister of Employment and Labor Award at the Competition of Outstanding Agencies for Blind Employment in 2017.

Expansion of Socially Balanced Employment

EWP has adopted a hiring target system to expand socially balanced employment by hiring a diverse range of human talents including women, high school graduates, local talents, people with disabilities, and people of national merit. In 2017, EWP exceeded its socially balanced employment target, ensuring diversity of human resources while implementing the government-recommended policies. Moreover, EWP has made efforts to local talents such as increasing extra credit for written test, creating an extra credit for an internship of the local college graduate, adopting a recruitment quota system, and the visiting workshop for recruitment. As a result of these efforts, EWP achieved the highest local employment rate of 20.6% among public institutions that have moved to Ulsan won the Minister of Land, Infrastructure, and Transport Award.

Hiring Target System for Socially Balanced Recruitment (Unit : %)

Type	Female	High school graduate	Local talent	Moved region	The disabled	People with national merit	Youth
Government recommendation	9.3	20	35	18	3.2	9	3
Goal	15	20	35	18	3.2	9	3
Actual	29.3	22.2	55.6	20.6	3.6	9.4	4.2

2017 Recruitment without prejudice · Competition of Outstanding Agencies for Blind Employment

Minister of Employment and Labor Award

2017 cases of claim for information disclosure related to hiring

ZERO

0 (Zero)

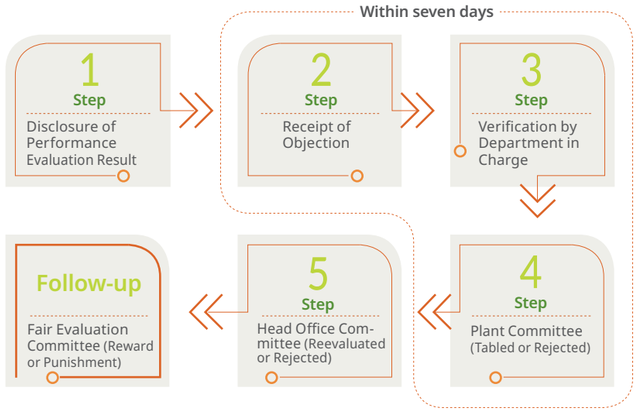
Fair Performance Evaluation and Rational Compensation

The rational compensation system based on fair and objective performance evaluation is a critical factor of motivation for employees to concentrate on their work. EWP expanded the portion of job skill, ability, and performance in wage to 52.4% to establish the performance-centered fair compensation system.

Fair performance evaluation

There can be unintended prejudice since humans, not computers, conduct the performance evaluation. EWP conducts the evaluator education, evaluator tendency analysis, evaluator pool management, and mutual cross evaluation to assure the professionalism and objectivity of evaluation and secure trust of employees. It also appoints the consultants, scholars, and performance management experts for consulting and advisory throughout the performance evaluation process and conducts the workshop, briefing, town meeting, and survey participated by employees. It discloses all evaluation results and operates the objection scheme to prevent possible disadvantage to its employees in advance.

Objection to Performance Evaluation



Rational compensation

EWP established the compensation system based on job skill, ability, and performance to ensure rational compensation without compromising performance based on a fair performance system. It reduced the basic salary based on tenure years by 20% and increased the portion of basic salary type based on job performance ability by 50%. It also adjusted the existing promotion scheme from automatic promotion according to tenure years regardless of ability to enable promotion based on job execution ability. Moreover, it operates the job skill evaluation to improve the effectiveness of compensation. The job skill evaluation consists of the performance evaluation that judges the contribution through job execution and excellence of job process and the ability evaluation that judges the knowledge, experience, creativity, and planning ability needed for job performance.

Satisfaction with HR System (Unit : Point)

2015	2016	2017
4.32	4.38	4.46

The portion of basic salary type based on job performance ability (Unit : %)

2015	2016	2017
36.3	39.8	52.4

2017 Human Resource Development by Korea HRD Association

Grand Management Award

Education Budget per Employee (Unit : KRW 1,000)

	2015	2016	2017
Inside	1,261	1,104	1,335
Outside	1,278	1,593	2,137
Total	2,539	2,697	3,472

Employee Education (Unit : persons)

2015	2016	2017
29,735	38,586	48,224

Taget for Female Managers (Unit : %)

	2015	2016	2017
Goal	4.2	4.6	5.1
Actual	4.3	4.9	5.6

Rate of Female Employees and Qualified Promotion Candidates (Unit : %, persons)

	2015	2016	2017
Rate of Female Employees	10.7	11.2	11.7
Rate of Female Promotion Candidates	26	30	69

Human resource development

EWP carries out the systematic human resources development strategy to train the market-leading-talents. As of 2017, the training period per employee is 220 hours, the satisfaction is 90.6%, and the overall employee competence index score is 4.8. In recognition of providing the training, EWP received the Management Grand Award in Human Resource Development by Korea HRD Association in 2017.

Establishment of human resource development strategy

Under the HRD mission of "fostering the Energy World Pioneer as the innovation leader to make Great Company", EWP has established the systematic and innovative education and training plan after selecting "To develop innovative capabilities for the future," "To strengthen human resources capacity," and "To strengthen organizational communication and harmony" as the three strategies.

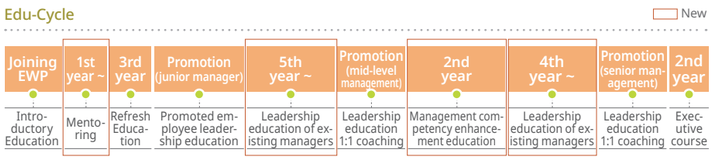
EWP's Human Resource Development Strategy

HRD Mission	Training of Innovation Leader and Energy World Pioneer to Create Great Company		
EWP's Ideal Talent	Creative Convergent Human Talent to Lead the Global Energy Market		
Three HRD Strategies	1. Cultivation of Future-Oriented Innovative Capability	2. Strengthening of Human Resource Competency	3. Strengthening of Organization Communication and Unity
Training Program	26 course including future convergence technology program	970 courses including internal and external job education and leadership education	430 courses including team activation education, healing education, and reading management
Performance Index	Education time per person, education satisfaction (survey), and competency improvement index of each person (CB-HRD)		

Education and Training

EWP analyzed the needs for competency and education needed by its employees and established 2017 HRD Education and Training Plan with "To develop innovative capabilities for the future, to strengthen human resources capacity, and to strengthen organizational communication and harmony" as three axes. It carried out the programs such as invited expert lecture on the 4th Industrial Revolution, dispatching employees to Silicon Valley, GE GCS CEO leadership training, and education on new & renewable energy to developed Edu-Cycle. Moreover, it has adopted the mandatory job training program to improve the work specialization of rotational positions and carries out new employee mentoring, shift working, and healing education + reading management to encourage harmony.

Edu-Cycle



Female Manager Fostering Program

EWP has adopted the female manager target scheme to increase female representation by establishing the environment that encourages the female talents to demonstrate their ability. EWP carries out various programs such as the female leader candidate pool, protection of maternity, and establishment of family-friendly culture to prevent discrimination against women in recruitment, promotion, appointment, and work and life balance. It also operates the 3R (Re-Start, Retention, and Representation) system to increase utilization of female human resources. As a result of its efforts to cultivate female managers, it promoted five female managers and exceeded its target for three years in a row.

Labor-management cooperation index

4.08 points

Labor-management joint voluntary social services

43 cases

Labor-management communication index

4.09 points

Satisfaction of labor education

6.7 points

Win-Win Labor-Management Culture

Labor-management relations strategy

An enterprise will lose its golden time for continued growth if there is a conflict between the labor and management. To encourage the role of trade unions as a management EWP selected five labor-management relations programs of "To establish a labor-management culture based on fair accountability, To build the strategic partnership for the future, To strengthen labor and management trust based on dignity and maturity, To advance the labor-management relation management system, and the Pride in EWP" by analyzing the internal and external environments to encourage the role of the labor as the management partner. It will do its best to advance the labor-management relations with the goal of creating the value of mutual growth by building the labor-management relations based on trust and responsibility.

Labor union operation

EWP operates the Labor-Management Council as the formal consultative body to achieve the common goals of labor and management. It also operates the Future Committee and Jobs Committee as the multilayer labor-management cooperative system to promote participation and cooperation by discussing the issues of EAP. Moreover, EWP has continued its active communication for labor-management communication between its head office and the power plants through the workshop for labor-management leaders (July 2017), a labor-management introductory meeting and a declaration for mutual prosperity and growth (April, 17) the joint labor-management workshop (July 2017), and labor-management joint value-up group working committee (December 2017).

Issue Council Status

	Role	Outcome
Future Committee (April 2016 ~)	Labor-management joint innovation council to overcome management crisis	· Improvement of specialized technical organization and human resource operation · Restructuring of organization and personnel to secure future growth engine
Job Committee (May 2017)	Job policy to implement human-center growth economy	· Creation of jobs by restructuring shift work · Conversion of temporary jobs into regular jobs, etc.

Labor-management communication

The communication system to reflect the opinions of employees is necessary to continue the labor-management relations based on cooperation and participation and fulfill the various interests. EWP operates the composite communication channel that includes all employees including the representatives and minority unions to establish the communication system that reflects its organizational characteristics. It will establish the win-win labor-management relations by building mutual trust through transparent and active communication between labor and management.

Labor-Management Communication System

Type	Communication channel	Communication target
CEO communication	[Online] CEO letter, column, and management message [Off-line] CEO's briefing on company management status, discussion of management issues	Labor union and all employees
Decision-making mechanism	The collective agreement, Labor-Management Council, and Committee for Deliberation of Conversion to Regular Position (new)	Representative labor
Labor-management communication mechanism	The labor-management workshop, joint briefing, Open Labor-Management Committee, Future Committee, Job Committee (new), and Labor-Management Expert Council (new)	Representative and minority labor unions
Open communication mechanism	Meeting with management, meeting with vendors (new), and meeting of labor-management relation managers	Minority labor union and vulnerable groups (vendors, etc.)

2. Creation of Sound Industrial Ecosystem

Shared Growth Implementation System

Shared growth implementation system

EWP carries out the shared growth programs centered on five strategic tasks of "To establish the foundation for Shared Growth Industry 4.0," "To cultivate ventures and small-but-strong enterprises," "To strengthen the support for growth of vendors," "To establish the performance sharing system," and "To enter the overseas markets jointly and expand export."

Shared Growth Strategic System

Strategic Direction	Strengthening of business competitiveness through cooperation	Securing future growth opportunity through cooperation	Strengthening capability of vendors	Sustainable management through collaboration	
2017 Strategic tasks	Building industry 4.0 for shared growth	Cultivating ventures, startups, and small-but-strong enterprises	Strengthening of the support for the growth of vendors	Establishment of performance sharing scheme	Joint entry into overseas markets and expansion of export
Implementation Task	· Construction of the smart factory · Expansion of convergence R&D for the Fourth Industrial Revolution · Commercialization of new technologies · Training of core human resources	· EWP-Startup Support · Support of ventures and startups · Cultivation of small-but-strong enterprises · Creation of new jobs	· Support of regional industries in crisis · Customized resolution of difficulties faced by regional SMEs · Strengthening of competitiveness of maintenance vendors	· Development of outcome sharing model · Expansion of pilot installation · Sharing of future outcome · Support for converting tasks into business	· Support for the identification of potential exporting companies · Cultivation of exporting companies at each growth phase
Monitoring system and internal inspection	Establishment of management policy → Selection of strategic direction → Identification of strategic tasks → Execution of tasks → Performance Analysis Reflection of opinions for improvement in policies				

Shared Growth Committee

EWP has formed and is operating the company-wide organization for shared growth through the cooperation of CEO, headquarters, power plants, vendors, and relevant agencies centered on the Shared Growth Center and Shared Growth Committee to identify and execute the strategic shared growth support projects by establishing the effective governance for shared growth. The Shared Growth Center is staffed with nine persons, one more than the previous year, while the Shared Growth Committee is organized of 113 persons. The budget for shared growth projects in 2017 was KRW 34.8 billion, an increase of about KRW 7.3 billion from 2016.

Role of Shared Growth Support Organization

Shared Growth Committee
- Company-wide shared growth management
- Policy decision and advice
- Conference
- Listening to difficulties

Shared Growth Center
- Implementation and support of shared growth
- Planning and establishment of strategies
- Feedback of support project

Support Organization (HQ)
- Joint R&D
- Joint purchase and bidding
- Maintenance qualification
- Sales channel support

Support Organization (Power Plant)
- Identification of tasks
- Support of testbed
- Joint purchase of products from SMEs
- Purchase workshop and exhibition

Relevant Agency
- Policy sharing and collaboration for SME support projects
- Support for domestic and overseas sales channels
- Identification of R&D projects

Shared Growth Support Organization

Korea East-West Power Co., Ltd.

Head Office
- [R&D Management Team] Public-private joint R&D
- [Engineering Team] New technology, new product, and new process
- [New Growth Business Office] Support of sales channels for new & renewable energy and new business
- [Planning and Strategy Department] Strategy, budgeting, and institutional improvement
- [Procurement Department] Purchase, bidding, contracting, and fuel procurement
- [Power Generation Department] Ordinary maintenance and maintenance qualification
- [Overseas Business Office] Support for overseas sales channels

Strategic discussion monitoring

Feedback for policy sharing

CEO

Korea Commission for Corporate Partnership (Policy decision and advice)

Corporate Partnership Center (Organization dedicated for shared growth)

Five power plants
- Purchase workshop
- Joint purchase of products from SMEs
- Identification of R&D projects
- Support for testbed

Conference to listen to difficulties

Feedback of cooperation and support

Vendors and relevant agencies

Small and medium-sized enterprises
- [Korea Council of Medium Industry] Formed in 2008, 86 companies
- [Win-Win Council of Shipbuilding Material Manufacturers] Formed in 2016, 35 companies
- [2nd- and 3rd-tier Vendor Council] Formed in 2011, 48 companies
- [Work-level council in each area]
  - Productivity innovation partnership
  - Ventures and maintenance company council
  - Market development group and technology interchange group

Relevant agency
- Ulsan Metropolitan City
- Ulsan TechnoPark
- Ministry of SMEs and Startups
- Corporate Partnership Foundation
- UNIST and University of Ulsan
- KORTA, etc.

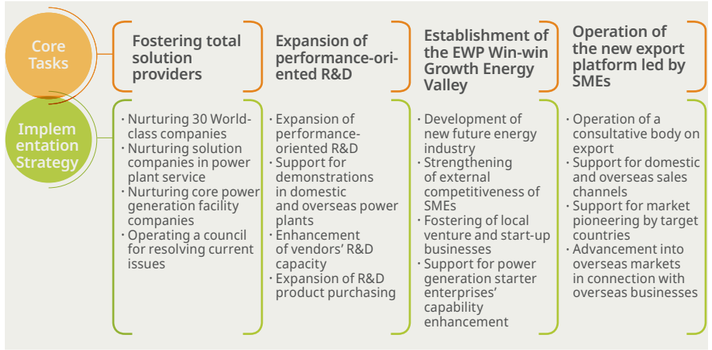
Creation of Sound Industrial Ecosystem

Win-win Growth 4.0 Model

Establishment of Win-Win 4.0 Model

EWP named its newly developed Win-win Growth 4.0 model as "Value Enhancement with EWP," which includes the meaning, "EWP makes you happy." The Win-win Growth 4.0 model consists of four core tasks of "Fostering total solution providers, Expansion of performance-oriented R&D, Establishment of the EWP Win-win Growth Energy Valley, and Operation of the new export platform led by SMEs" and 16 implementation strategies. The model for the advancement of shared growth to lead the growth of global small-but-strong enterprises is the platform for SMEs to grow in the global markets.

Core Tasks and Implementation Strategies of Win-Win 4.0 Model



Mid- to Long-term Roadmap for Win-Win Growth 4.0

Pursuing the Win-win Growth 4.0 model, EWP is implementing a roadmap for the globalization and independence of its business partners, after the process of building the foundation and enhancing their capacity by 2030. EWP plans to carry out 250 R&D projects; discover 80 R&D companies; and accomplish KRW 1 trillion in exports of partner SMEs by 2030, to ultimately create 100 total solution provider companies EWP will continue its support for SMEs to secure global competitiveness for entry into global markets by expanding the global shared growth offices, identifying customized projects to enter overseas markets, and executing the joint overseas market entry projects.

Roadmap for Win-Win Growth 4.0

Core Tasks	STEP 1 2016-2020	STEP 2 2021-2025	STEP 3 2026-2030
Fostering total solution providers	10 affiliate	50 affiliate	100 affiliate
Expansion of performance-oriented R&D	180 cases	200 cases	250 cases
Establishment of the EWP Win-win Growth Energy Valley	40 affiliate	60 affiliate	80 affiliate
Operation of the new export platform led by SMEs	KRW 250.0 billion	KRW 500.0 billion	KRW 1 trillion

Effect of Smart Factory Distribution

Third-tier vendors	KRW 930 million
Second-tier vendors	KRW 400 million
First-tier vendors	KRW 530 million

Training of Core Human Resources for the Fourth Industrial SMEs (Unit : persons)

2015	2016	2017
383	392	491

Job Creation (Unit : persons)

Type	Jobs
EWP-Startup enterprise	7
Ventures	75
Global small-but-strong enterprises	26

Establishment of Fair Social Foundation for SMEs

Securing the competitiveness of SMEs

Distribution of Smart Factory

EWP is providing support to its first-tier, second-tier, and third-tier vendors customized to their size and characteristics to expand smart factory for SMEs. It is carrying out "Industrial Innovation Campaign 3.0" for its third-tier vendors to help them increase productivity, reduce delivery period, and improve quality to support production innovation. It also operates the productivity improvement program to improve the process, reduce the processing time, and increase the efficiency of material management through customized growth support for the second-tier vendors. It built the collaborative manufacturing innovation ecosystem for the first-tier vendors by expanding the smart factory for maximized operating efficiency.

Resolution of Difficulties Faced by Local SMEs

SMEs in provincial regions are facing many difficulties as the provincial industries are in crisis. EWP supports its small vendors to strengthen competitiveness and promote growth to spread the collaborative cooperation culture and strengthen the competitiveness of local SMEs. EWP has investigated the difficulties faced by local SDEs and is carrying out the support projects such as support of R&D in the new energy industry, expansion of R&D cooperative fund, operation of credit fund for cash flow, promotion of SME business, support for electricity saving, and support for the win-win energy credit for nine consecutive years. It helped the local SMEs realize the revenue increase of KRW 10.3 billion and KRW 27.0 billion by supporting the local ship part vendors, which are in regional economic crisis, to enter the power market and strengthening the growth foundation for maintenance vendors near the power plants, respectively.

Enhancement of competency of SMEs

Training of Core Talents for the Fourth Industry

As the fourth industrial age has arrived, training core talents with the fourth industrial technology have become the critical factor of corporate competitiveness. EWP is operating the core human resource training program for the fourth industry to support the continued growth of SMEs. It is conducting the education of new power generation technology and visiting of O/H disassembly sites to improve the understanding of smart power plant systems and conducts the training of maintenance staff and operates the know-how research group to strengthen the capability to participate in smart power generation area. It also has opened and is operating the courses to strengthen CEO spirit and to study the corporate innovation for the Fourth Industrial Revolution to strengthen the entrepreneurial spirit for the Fourth Industrial Revolution.

Cultivation of Ventures, Business Startups, and Small-but-Strong Enterprises

EWP helps cultivation of innovative venture enterprises and small-but-strong enterprises with four implementation programs of improvement of job creation system, support of startups, operation of Win-Win Supporters, and cultivation of small-but-strong enterprises to create good-quality jobs in the private sector. As part of the improvement of the scheme for job-creating enterprises, EWP has abolished the performance limitations of the qualification examination of startups at the early stage to secure a growth foundation by expanding the possibility of public procurement and is actively supporting the startups by running the EWP-startup support program. Moreover, it cooperates with the Corporate Partnership Foundation and KOTRA to operate the Win-Win Supporters to help SMEs enter global markets and execute the small-but-strong enterprise cultivations projects to help them secure the global technologies and strengthen the global capability. EWP created a total of 108 new jobs as the results of such efforts.

Exporting Company Support

Initial export companies (Unit : KRW 100 million, persons)

	2015	2016	2017
Export	78.4	107.7	143.6
Employment	415	432	494

Silk road companies (Unit : KRW 100 million, persons)

	2015	2016	2017
Export	381.8	522	633.8
Employment	1,180	1,226	1,347

Power silk road companies (Unit : KRW 100 million, persons)

	2015	2016	2017
Export	522.7	606.2	835.9
Employment	769	789	889

※ Analysis targets: 70 EWP vendors
(25 initial exporting companies, 30 silk road companies, and 15 power silk road companies)

Cultivation of Exporting Companies

EWP categorizes the exporting companies into initial exporting companies, silk road companies, and power silk road company according to the growth stage to provide the support for each growth stage. Since initial exporting companies require the base to enter global markets, EWP provides the reference with domestic power plants needed for vendor registration and overseas authentication in the target country and supports funding for investment in production facility needed to secure large export orders. Silk road companies have entered the overseas markets but face difficulties because of low presence in global markets. As such, EWP provides the supports them to participate in exhibits and R&D projects linked to export. For the power silk road companies, EWP provides support for the education of export professionals, investigation of the overseas power industry trend, market export support projects.

Communication Channels with Vendors

Communication channel			Description	Count
Online	SNS	Council Band	· Real-time opinion exchange using the SME Council discussion room	Year-round
	Web-site	EWP ewp.co.kr	· Announcement for participation in the support projects · Introduction of purchasing and bidding information · Development and operation of the value proposal system	Year-round
		SME Council ewpsmba.or.kr	· Participation in overseas sales channel support projects · Introduction of SMEs and products · Posting of ideas related to difficulties and suggestions	Year-round
Offline	Site visit by management		· Managing By Wandering Around (MBWA) by SMEs · Listening to difficulties in the field · Sharing of support system and support of sales channel	Monthly
	Shared Growth Committee		· Policy establishment and system improvements · Identification of joint R&D projects · Establishment of measures to resolve difficulties of SMEs	Quarterly
	Briefing and workshop		· Guide of EWP's support programs · Presentation of outcomes and sharing of excellent cases · Policy suggestion and the joint proposal	Eight times
	Business agreement		· Support of business startup · Support job creation · Support of business startup and venture by young people	Ten times

3. Creation of Good Jobs

Job Creation

Job creation implementation system

Investment in people and creating good-quality jobs is a critical factor for enhancing national competitiveness. At this time of decreasing jobs and polarizing society as a result of the growth without employment and continued economic slump, the most important social role and value are to create good jobs. EWP has established and is carrying out the job creation strategy and mid- and long-term roadmap to create good-quality, sustainable jobs with the goal of "creating jobs for people to have good dinner with family and to respect each other for mutual prosperity."

Mid-Term Roadmap for Job Creation

Road Map	Initial stage (~ 2018)	Growth stage (2019 ~ 2020)	Take-off stage (2021 ~ 2022)
	Sharing jobs	Creating jobs	Adding jobs
Conversion of temporary jobs	• Generation of the conversion plan and formation of the implementation organization • Finalization of conversion targets and completion of the conversion	• Improvement of discrimination and treatment of converted employees • Advancement of the HR system and the establishment of principles	• Zero temporary jobs • Establishment of measures for neglected groups and outsourcing to the private sector
Creation of jobs in the public sector	• Improvement of the prolonged working of shift jobs (72 persons) • Systematic management of quota	• Continued development of jobs suitable for flexible working • Development of eco-friendly LNG business	• Creation of brand new future jobs (an innovation of main business and utilization of the fourth industrial technologies)
Creation of jobs in the private sector	• Strengthening of eco-friendly and future technical capability • Building of the ground to fulfill social values	• Creation of eco-friendly jobs in the private sector • Creation of 10 social, economic enterprise models	• Expansion of jobs by applying the fourth industrial technologies • Creation of 50 social, economic enterprise models

Job-creating organization

EWP formed the Job Committee co-chaired by the CEO and labor union leader with the goal of increasing quality jobs, reducing working hours, and improving quality of employment in line with the joint labor-management declaration of May 22, 2017, to create jobs jointly with the labor union.

Joint Labor-Management Declaration to Create Quality Jobs (May 22, 2017)

- Labor-Management Joint Job Committee to increase quality jobs, reduce working hours, and improve the quality of employment
- Creation of new jobs by leading the fourth industry and energy conversion
- Development of public enterprise-led job creation model through labor-management cooperation for job sharing
- Prohibition of discrimination by converting full-time and continual temporary jobs into regular jobs and switching of indirect employment into direct employment
- Innovation of schemes jointly with labor union for building the human-center and labor-respecting society

Job creation activities and outcomes

Expansion of jobs in the public sector

Flexible Quota System

EWP is expanding good jobs in the public sector through the rational and flexible management of the quota system EWP has introduced a flexible quota system to voluntarily hire the maximum human resources within the total labor cost budget through the step-by-step management of the difference between the quota and the current employment. As a result of its continued effort to reduce the difference by securing the maximum acceptable human resources, it hired 65 additional people.

Improvement of Prolonged Working

Overtime work (Unit : hr/month)

2015	2016	2017
11	7	6

Overtime pay (Unit : KRW 100 million)

2015	2016	2017
26.5	16.9	16.5

Annual bonus (Unit : KRW 100 million)

2015	2016	2017
11.9	12.1	0

Job Creation

Conversion of temporary jobs (Unit : persons)

Fixed-term workers	5
Outsourcing workers	7
Contract workers	177

Job creation in the public sector (Unit : persons, hours)

New employment	196
Difference between quota and current level	65
Working hours	1,870

Creation of jobs in the private sector (Unit : persons, companies)

Direct creation	72
Indirect effect	11,192
Business startup support	35

Conversion to Regular Position by 2021

A total of 6,754 persons (Conversion rate of 97.1%)

Improvement of Prolonged Work Practice

Long working hours break down the biorhythms of workers, leading to lower productivity and deteriorated the quality of life. It results in a vicious circle in which an enterprise experiences excess cost due to lower labor productivity. EWP has considered measures to improve the prolonged working environment and created the Job Sharing Group to link it with job creation. EWP received the consensus of its employees through briefing sessions and opinion gathering to improve the awareness on prolonged working practices and secured the fund for the Job Sharing Groups without increasing the total labor cost through employee's voluntary efforts such as the return of annual bonus, leading to the improvement of prolonged working practice of shift workers and creation of 72 new jobs.

Job Sharing Group Status

Type	Before introduction	Expansion of 0.5 group	Creation of 1 group
Shift system	3 shifting of 4 groups	3 shifting of 4 groups + 0.5 groups	3 shifting of 4 groups +1 group
Work hours	42 hours/week + substitute working	40 hours/week + substitute working	40 hours/week
Required persons	-	44 persons	116 persons
Overtime work	24 hours/person/month	7 hours/month	0 hours
Vacation days	12.5	13.8	24

Creation of jobs in the private sector

Job Creation through Innovation in Main Business

Creating jobs by constructing and operating large-capacity coal-fired thermal power plants has reached its limit, and EWP must build the system of creating jobs through organizational innovation to ensure continued growth. As such, EWP has created sustainable jobs by constructing eco-friendly power resources and developing the new & renewable energy business and new energy business to develop future power generation technologies linked to its main business. Construction of eco-friendly power generation resource resulted in the inflow of residents and the creation of 1,400 construction jobs. It led to promote local economy and employment of 21,000 people and KRW 4.4 trillion in additional production. Moreover, the new & renewable energy business and the new energy business led to the creation of jobs for 120 residents and 20 residents, respectively.

Strengthening of Competitiveness of Vendors

EWP has supported the technology development for strengthening the competitiveness of small vendors and contractors by collecting the requirements such as training of technical personnel, shared growth programs, technical competitiveness and network, and improvement of the working environment. The effort has led to the sales increase of KRW 33.1 billion, cost saving of KRW 1.86 billion, and creation of jobs for 30 people. In addition, EWP supported the development of overseas sales channels to help 70 companies increase the export by KRW 161.3 billion and create 238 new jobs. EWP will continue creating good, sustainable jobs through shared growth with its vendors.

Conversion of temporary jobs into regular jobs

EWP carried out the "Zero temporary jobs" program by reflecting the management's commitment, the status of agencies, and the guidelines for the conversion to regular jobs to create a workplace free of discrimination. It set up the implementation system jointly with stakeholders and five power generation companies and formed the Regular Job Conversion Deliberation Committee organized of 10 members including the HR and labor relations experts, lawyers, and outside experts. As a result, 189 positions in security and outsourcing were converted to regular positions. Moreover, EWP is leading the efforts for the rational redesign of wage level, improvement of discriminating factors of welfare and working environment, and elimination of discrimination in promotion and capability development by diagnosing discriminatory factors and improving the treatment of neglected groups in workplaces to eliminate discrimination in wage and welfare of those converted to regular positions.

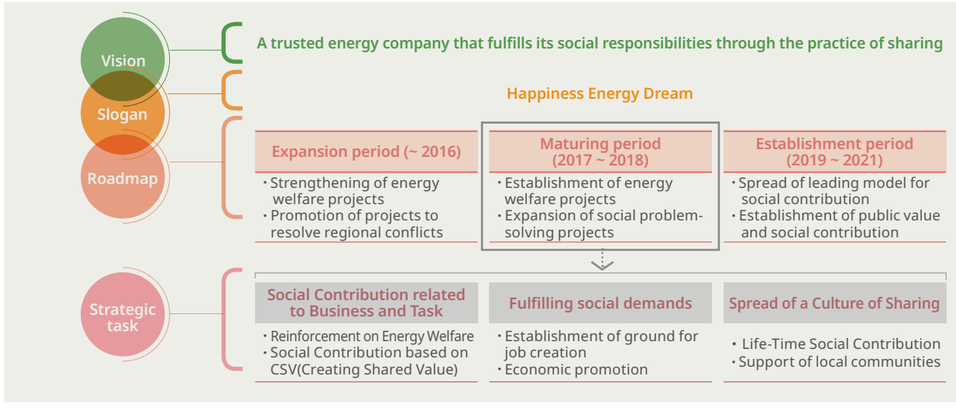
4. Sharing with Local Community

Social Contribution Implementation System

Implementation strategy

Under the vision of becoming "a trusted energy company that fulfills its social responsibilities through the practice of sharing," EWP is carrying out various social contribution programs based on three strategic tasks of "Social contribution linked to the main business, Fulfillment of social responsibility, and Spread of a culture of sharing." Moreover, it organized "EWP Social Volunteer Group" to strengthen its social contribution practice under the slogan of "Hands of Love and Light of Hope" to convey its hope to its neighbors and communities.

Social Contribution Implementation Strategy



Symbol Mark for voluntary social service Group

Execution Organization and Management System

EWP operates a social contribution volunteer group consisting of 6 branch offices, 110 volunteer teams, and more than 2,300 employees for systematic and strategic social contribution activities. The group carries out customized voluntary social services reflecting the needs of each region where the power plant is located. It encourages its employees to volunteer for social contribution activities through object evaluation and rewards for their contribution activities. As a result of these efforts, the rate of employees participating in social contribution activities in 2017 increased by 4% from the previous year to 98%.

Social Contribution Execution Organization and Management System

	Execution organization	Management system
Operation Infrastructure	• Company-wide organization - Voluntary social service Group (2,300 persons in 110 teams) • Regional organizations - (Ulsan) Hanbit Group and one other - (Dangjin) Eoulim Voluntary Service Group - (Honam) Pulverizer • Collaboration with public institutions and NGOs	• Evaluation - Internal evaluation index (service period and participation level) - Voluntary service period reflected in the evaluation of promotion candidates • Rewards - Rewarding excellent departments and individuals - Social contribution mileage

Monitoring and feedback	Plan	Do	Check	Action
	Establishment of the plan to reflect needs	Activities of the voluntary social service Group	Satisfaction survey	Workshop and private council

Sharing with Local Community

Funding for Social Voluntary Activities

Donation to Love of Neighbors (Unit : KRW million)

2015	2016	2017
263	257	255

Matching grant (Unit : KRW million)

2015	2016	2017
318	313	317

Purchase of Onnuri Gift Certificates (Unit : KRW KRW 100 million)

2015	2016	2017
7.9	6.1	8.5

Sharing with Local Community

EWP's employees voluntarily donate a portion of their wage to a social contribution fund each month to raise fund for social contribution activities, and EWP operates the matching grant system that donates the same amount of money raised by its employees to the social contribution fund. In 2017, EWP donated about 130 million won for the happiness of its neighbors.

Win-win Development with Local Communities

Promoting regional energy welfare

EWP has considered the most effective measures to fulfill its responsibility as a public institution and share the growth with local communities and is carrying out various social voluntary activities by increasing energy welfare that reflects the characteristics of its main business. It collaborates with local municipalities and relevant enterprises for energy welfare that does not neglect any people. It distributes solar power generators to the neglected groups and social welfare facilities to improve the living environment of residents and provides support for fuel cost and heating tent to the needy groups that are not entitled to the energy voucher support by the government. In addition, it contributes to energy saving and living standard improvement by helping the inspection of electric equipment and replacement of old LED in the welfare facilities.

Development of regionally specific new energy business

EWP creates social values by leading local development and growth through the development of customized new & renewable energy and new energy business that contribute to the local communities. It helps residents increase income by developing new business models to create local jobs and local economy such as smart farms utilizing technology resources in the agricultural and fisheries sectors, eco-friendly fish farming through collaboration with municipalities and residents using warm discharge water, green village to share profits with residents through participation, Free Economic Zone, and development of new & renewable energy using the water resources of Soyanggang Dam.

Promotion of traditional markets

The head office and five power plant complexes of EWP fulfill their roles as the responsible members of local communities by supporting the revitalization of traditional markets through the sisterhood ties with local traditional markets. EWP designated the "Day of visiting traditional markets" every month to encourage the use of domestic agricultural products and promote traditional markets and purchased Onnuri Gift Certificates worth KRW 850 million in 2017 to encourage its employees to purchase goods in traditional Markets. It set up the Recovery Support Center on the accident site to help those who suffered from the fire in the Yeosu East Fishery Market in 2017 and donated KRW 100 million to support residents to return to their daily lives.

Spread of a Culture of Sharing

Social contribution customized to lifecycle

EWP is carrying out the social voluntary programs customized to lifecycle provide social services optimized to the beneficiaries. It divides the life into three stages of childhood period, adolescence period, and old age period. It carried out the traffic accident prevention programs such as the improvement of crosswalk and distribution of transparent umbrella and supported the treatment of leukemia and pediatric cancer for the childhood period. For the adolescence period, EWP carried out the programs such as the sponsorship for the education of students from low-income families and free-semester linked programs to provide educational opportunities for young people's dreams and goals. For the old age period, it carried out the programs such as the support to prevent abuse of the elderly and the campaign to overcome Alzheimer's disease by sponsoring the treatment centers to overcome the social problems related to the aging society.

Support of Vulnerable Groups near Power Plants

Area	Sponsorship	Activities	Participating persons	Fund
Helping households headed by adolescents	34 persons	936 times	2,154 persons	KRW 37 million
Helping senior citizens without support	90 persons	1,245 times	2,883 persons	KRW 95 million
Helping caregivers	27 persons	-	-	KRW 24 million
Total	151 persons	2,181 times	5,037 persons	KRW 156 million

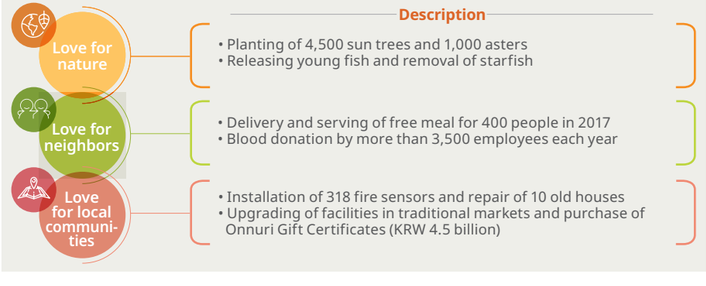
Support of Welfare Facilities near Power Plants

Area	Activities	Participating persons	Fund
General welfare facilities	84 times	920 persons	KRW 91 million
Children's facilities	135 times	1,218 persons	KRW 52 million
Facilities for senior citizens	74 times	504 persons	KRW 15 million
Facilities for the disabled	49 times	356 persons	KRW 23 million
Total	342 times	2,998 persons	KRW 181 million

Voluntary Social Service

EWP's social contribution programs are based on the voluntary participation of its employees. It carries out programs such as "Forest and River Beautification to Offset Carbon Campaign" and "Local River and Sea Revitalization Campaign" to practice its love for nature and "Silver Birthday Party" and "Blood Donation Relay of Love" to practice its love for neighbors each year and "Safety Inspection and House Repair in Regions Vulnerable to Fire" and "Revitalization of Traditional Markets" to practice its love for local communities. EWP is also creating the voluntary donation culture by operating the online donation channel for the employees who want to help local communities but have the difficulty of directly participating in voluntary social services.

Employee Participation in Social Contribution Programs



SUSTAINABILITY MANAGEMENT SYSTEM

EWP is establishing sustainability management system to realize mature and systematic sustainable management. We will leap into sustainable growth through a structural system and become a leading energy corporation in Korea.

Corporate Governance

1. Composition of the Board of Directors

Composition of the Board of Directors

The Board of Directors (BOD) of EWP is the highest decision-making body for management support and supervision related to key management strategies and policies. The BOD consists of 4 inside directors and 5 outside directors. To guarantee the independence of the BOD, the senior non-executive director (outside) presides over the BOD meetings as a chairperson.

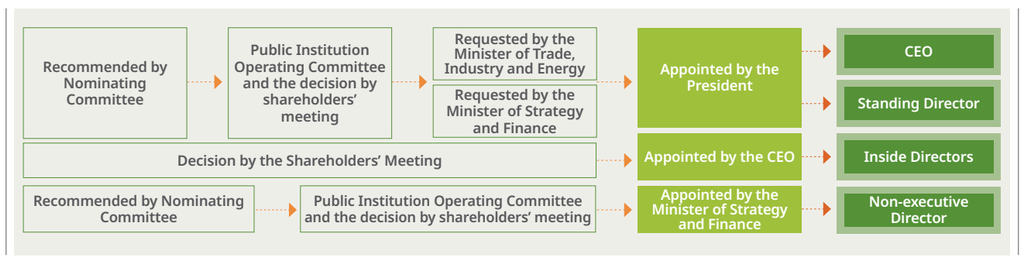
The Board of Directors (As of September 2018)

Name	Gender	Affiliation and position		Career	Term in office
Park Il-jun	Male	Standing Director	CEO	• (Former) Director General for Industrial Policy, Ministry of Trade, Industry and Energy • (Former) Deputy Director General for Energy Resource Policy, Ministry of Trade, Industry and Energy	2018.02.13 ~ 2021.02.12
Seong Shik-gyeong	Male		Executive Auditor	• (Former) Executive Auditor, Korea Asset Investment Trust • (Former) Policy Researcher, National Assembly	2018.06.25 ~ 2020.06.24
Kwon Oh-cheol	Male		Head of Engineering Group	• (Former) Head of Construction Technology Division, Engineering & Safety Group, EWP • (Former) Machine Team Manager, Construction Division, EWP	2018.05.31 ~ 2020.05.30
Pyo Yeong-jun	Male		Head of Strategy & Management Group	• (Former) Head of Overseas Business Division, EWP • (Former) Head of Miami Office of EWP USA	2018.05.31 ~ 2020.05.30
Lee Jae-guk	Male	Non-executive Director		• (Former) Non-executive Director of KOTRA • (Former) Head of Overseas Business at Booyoung Housing	2016.09.27 ~ 2018.09.26
Lee Sang-gi	Male			• (Current) Professor at Industry-University Cooperation Foundation of Kyonggi University • (Former) Director of KEPCO at Seoul Office Foundation of Kyonggi University • (Former) Director of KEPCO at Seoul Office	2016.09.27 ~ 2018.09.26
Mun Ho	Male			• (Former) Full-time Vice-chairman of Korea Smart Grid Association • (Former) Vice-president of KEPCO Association • (Former) Vice-president of KEPCO	2017.01.11 ~ 2019.01.10
Park Kyeong-ho	Male			• (Current) Director of Institute for Climate Change Action • (Current) Ombudsman for Gangdong-gu Residents	2018.03.22 ~ 2020.03.21
Lee Gyeong-weon	Male			• (Current) Head of Ulsan branch, Chubb Life Insurance • (Current) Advisor of Ulsan Provincial Assembly, The National Unification Advisory Council	2018.03.22 ~ 2020.03.21

Director appointment process

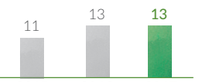
EWP appoints Directors in accordance with Article 25 (Appointment or Removal of Executive Officers of Public Corporations)of the Act on the Management of Public Institutions, internal executive recommendation committee, and deliberation of general shareholders' meeting. The CEO is appointed with the final approval of the President of the Republic of Korea. Inside and outside directors except CEO are appointed by the CEO and the Minister of Strategy and Finance, respectively.

Procedure for director appointment



BOD Operation

Meetings (Unit : Count)



Agenda (Unit : Cases)

Attendance rate (Unit : %)

Participation of Nonexecutive Directors on Management (Unit : times, cases)

	2015	2016	2017
Management advice	28	57	47
Management suggestions	34	48	42
Reflected management suggestions	19	25	22

Stakeholder Communication Status (Unit : times)

	2015	2016	2017
MBWA by CEO	37	31	27
Forum	1	3	2

2. Operation of the BOD

Holding BOD meetings

Through a BOD meeting, the Directors decide major issues such as management goals, operational plans, mid- and long-term financial management plans, social issues, and environmental issue. The regular BOD meetings are held once a month to strengthen its check and balance of management and internalization of policy decisions. The BOD meeting is also held when the Chairperson of the BOD or the demand by over one-third of the registered directors. In 2017, the BOD members recorded xx% attendance rate.

BOD Operation (Unit : Cases)

	2015	2016	2017
Decisions	2	1	1
Reports	15	6	11

Strengthening expertise and role of non-executive directors

We are strengthening the expertise and role of non-standing directors to ensure professionalism and transparency in corporate governance. In selecting the non-standing directors, we evaluate the ethical consciousness of morality and integrity, neutral and independent decision-making ability, and present the results of EWP's participation, and other activities are performed on a quarterly basis.

Communication with Stakeholders

EWP's CEO and executives are doing their best for communicating with stakeholders via a variety of online and offline communication channels to collect various opinions. EWP continues informal and immediate communication by utilizing the strength of online communication and face-to-face communication using the offline channel. It will actively listen to difficulties and opinions of its employees using various channels to reflect it in its organizational operation.

Stakeholder Communication Channel

Type	Communication channel	Purpose
Online channel	CEO letter and management message	Sharing of management issues and motivation for employees
	SNS	Collection of opinions through informal communications
	Communication through messenger	Collaboration through quick information sharing and communications
Offline channel	MBWA by CEO	Appreciation of employees' efforts and encouragement for safety
	Forum	Discussion with relevant employees on specific issues (new technology and business, IPO, etc.)

Ethical Management

1. Ethical Management System

Implementation System

EWP has made ethics the top management value for transparent, ethical, and rational management and strives to grow into the energy company that creates the best values by seeking the common interests of all stakeholders including customers, employees, vendors, shareholders, and local communities. It is establishing the foundation for practicing ethical management with the goal of "Grade 1 in integrity evaluation and Grade 1 in anti-corruption measures evaluation" under the ethics vision of "To become an ethical corporation, growing and earning respect out of integrity ethics."

Implementation System for Ethical Management

Ethics vision — To become an ethical corporation, growing and earning respect out of clean ethics

Ethics goal — Grade 1 in integrity evaluation and Grade 1 in anti-corruption measures evaluation

Implementation strategy

Building infrastructure for global integrity ethics	Strengthening participatory ethical practice	Social diffusion of ethical integrity culture

Tasks

Strengthening anti-corruption management system	Ethical actions to show by example	Diffusion of social values
• Self-diagnosis of ethical management (EMDEX) • Establishment of midto long-term roadmap for ethical management • Introduction of ISO37001 to vendors	• Integrity mileage and reward of departments that excel in ethics • Fun ethics education and family-participating education • Identification of ethical nudge contents	• Building anti-corruption network in public-private partnership • Identification of programs linking ethical management and social contribution • Support for ethics education linked to local communities

Implementation organization

EWP operates the ethics organizations centered on the Ethics Committee, Ethical Management Practice Office, and Code of Conduct Officer and operates the Audit & Inspection Office to establish the institutional measures to prevent corruption and carry out auditing. Moreover, it appointed 17 Code of Conduct Officers, 27 Compliance Officers, and 172 Ethical Practice Leaders to practice and spread ethical management through active implementation

Ethical Management Implementation Organizations

Ethics Committee
- Key policy making for implementation of ethical management
- Decision on matters related to ethical management rules and implementation

Ethical Management Practice Office
- Supervision of company-wide ethical management practice work
- Generation of practice plan, education, PR, etc.

Code of Conduct Officer
- Education and counseling on Code of Conduct
- Inspection of compliance of Code of Conduct - responsible team and head of ethics office in power plants

Audit & Inspection Office
- Establishment of institutional measures to prevent corruption
- Education and monitoring to prevent corruption and improper conduct
- Receipt and processing of reported irrationality

2. Internalization of Ethics Culture

Strengthening awareness of ethics through ethics education

EWP is strengthening the ethical practice programs and education to firmly establish the commitment to ethical management by internalizing ethics culture. It continuously conducts ethics education customized for each duty and position to internalize the awareness for integrity through the online and offline ethics education, preventive education to prevent sexual violence, etc., and internal departmental education on anti-corruption. It also conducts the face-to-face education for new employee group, customer contact points group, and executive groups through the ethics education customized for each duty and position and the customized education for the departments that are vulnerable to exposure to corruption to prevent corruption in advance.

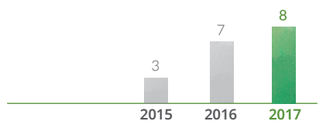
Spread of ethical culture

EWP developed "game-type ethics education" to increase ethics officer's understanding of ethical management through voluntary participation in education rather than teaching by rote to expand the social ethical culture. The game-type ethics education combines a board game and quiz and has contributed to improving the educational effect as the subject learn the ethical culture naturally by playing games. It developed four game-type ethics education courses and educated about 740 people in 19 educations and posted them on EWP's website for any visitor to access it. It is also carrying out the "Mom and Dad are the ethics guard" program in which the employees become the instructors to educate the Improper Solicitation and Graft Act to their children and spouses to create the environment for the stable establishment and social practice of the law.

Game-type Ethics Education Process

- **Game 1 "I am the ethical practice leader!" :** Introduction of EWP's ethical management system and ethical practice program (for new employees)
- **Game 2 "Battle to keep integrity!" :** Understanding the law and attraction of interest before the law goes into effect (for all employees)
- **Game 3 "Board game for integrity strategy!" :** EWP's guidelines on ethics (Code of Conduct, etc.) and how to judge the violation of the law (for all employees)
- **Game 4 "Strange jury!" :** Education on cases of the court decisions and interpretation of the law (for all employees)

Internal Reports (Unit : cases)



Internal control system

EWP has an active audit and internal reporting system to help employees to raise their ethical awareness in daily routine and operates an internal control system. It operates the Audit & Inspection Office as a separate organization to ensure the independence of auditors and conducts the auditor job training and mentor-mentee system with the excellent auditors to improve the professionalism. It runs the Audit Committee and auditor candidate pool internally and the honorary auditor, Audit Advisory Committee, and outsourced organization externally to secure audit specialists. It also operates the Voice of People (name disclosed) and Red Whistle (anonymous) for internal reporting. As a result, EWP received the ISO 37001 certification for the anti-corruption management system in August 2017.

3. Internal and External Evaluation and Monitoring

Internal and external evaluation

EWP received the ISO 37001 certification for the anti-corruption management system for all power plants in August 2017. It has carried out all steps from the preparation of manuals and procedures to internal audits, and certification audited internally and received the ISO 37001 certification for the anti-corruption management system. The ISO 37001 certification recognizes that EWP operates the anti-corruption management system that encompasses all areas of anti-corruption target setting, monitoring, and improvement measures. It received Grade 2 in the integrity/anticorruption assessment by the Anti-Corruption & Civil Rights Commission and Grade 3 with 8.28 points in overall integrity. EWP will create integrated organizational culture to become an ethical corporation.

Monitoring

EWP manages the implementation level of the practice program in six areas of scheme and system, governance, fair trade, human rights and labor practices, local communities, and environment with EMDEX*. EMDEX in 2017 was 91.8 points which were 1.5 points lower than the previous year. EWP performed the cause analysis and identified three core causes: inadequate practices such as anticipated waste and abuse of authority, insufficient punishment for whom commit corruption, and remaining military-like culture. It then executed the implementation tasks such as the system improvement to resolve the corruption, the awareness innovation through the strengthening of integrity education, and launch of corruption watchdog and zero-tolerant punishment.

* EMDEX (Ethic Management InDEX) : The ethical diagnosis indices developed by EWP on the basis of global standards such as ISO 26000 and GRI sustainability reporting guidelines

Internal and External Assessment of Ethical Management

Overall Integrity Level by the Anti-Corruption & Civil Rights Commission (Unit: Points, (Grade))

2015	2016	2017
8.8(2)	8.35(3)	8.28(3)

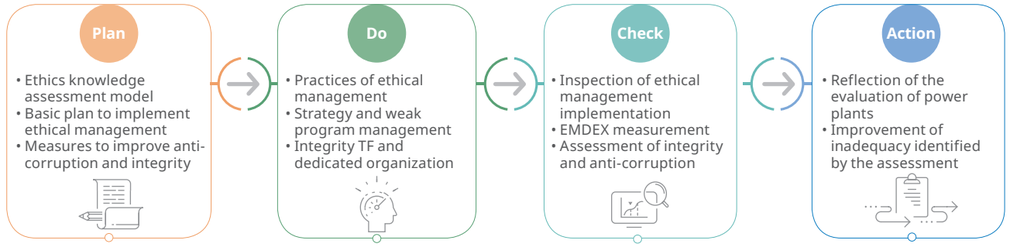
Assessment of Anti-corruption Measures by the Anti-Corruption & Civil Rights Commission (Unit: Grade)

2015	2016	2017
1	2	2

EMDEX (Unit: Points)

2015	2016	2017
93.6	93.3	91.8

Ethical Management Monitoring and Feedback Process



4. Human Rights Management

Principles of human rights management

EWP continuously identifies and improves the human rights violation factors to protect human rights of all stakeholders include employees and proclaimed the Charter of Human Rights Management in May 2016 to spread the human-centered culture by declaring its commitment to human rights management. It operates the Employee Human Rights Protection Committee and Sexual Harassment Review Committee as the supporting organizations for human rights management and has appointed an in-house lawyer to conduct counseling on human rights infringement. Moreover, it continuously monitors human rights infringement using the human rights checklist. It will create a clean and ethical culture in which all employees are valued based on respect for human rights and ethics.

EWP Chart for Human Rights Management Charter

We strive to create stable and economic eco-friendly energy that makes people's lives happier under the mission "We make energy for happiness."

We declare the following "EWP Charter for Human Rights Management" to make the human respect the highest priority in management activities to achieve this mission and to create the corporate culture of respecting human rights.

We respect international standards and norms including the UN Universal Declaration of Human Rights and make people the top priority in all management activities.
We guarantee the freedom of association and collective bargaining of employees.
We do not allow child labor in any form or for any reason.
We strive for shared growth with vendors and support them to practice human right management.
We strive to protect environment and prevent environmental disasters.
We do not discriminate stakeholders including employees for the reason of gender, religion, disability, age, social status, or area of origin.
We prohibit forced labor of any kind and aim to create a free working environment for employees.
We ensure that workers work in a safe and sanitary environment and strive to protect workers' health.
We strive to prevent infringement of people's human rights in the course of management activities and prevent any harm to public health and safety.

We strive to protect the human rights of all stakeholders including employees and pledge to do our best for the establishment and spread of human rights management.

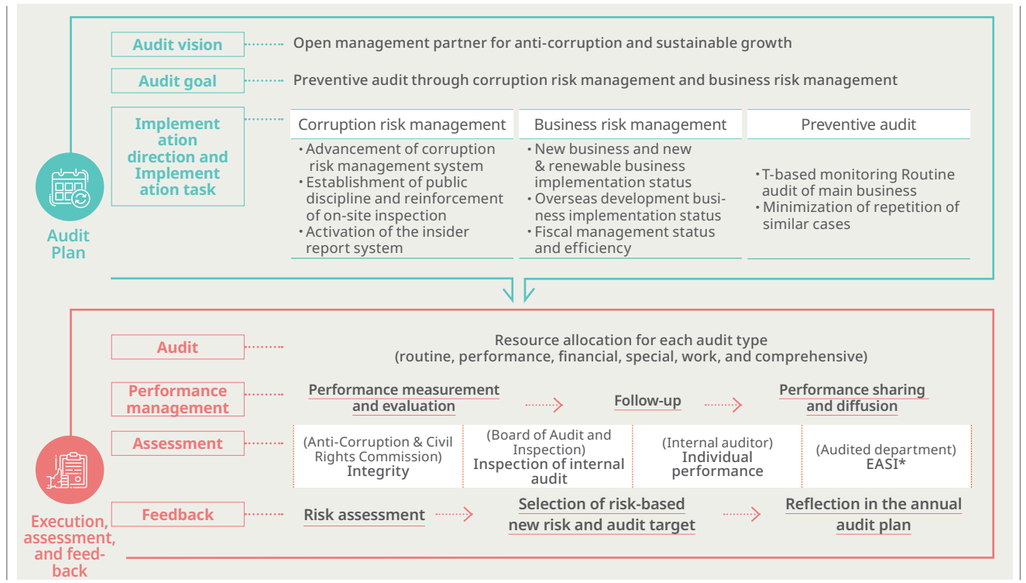
Employees of Korea East-West Power Co., Ltd.

Risk Management

1. Company-Wide Risk Management System

EWP is building the systematic risk management system in line with the three implementation directions of corruption risk management, business risk management, and preventive risk management by building the management risk prevention system with the vision of "Open management partner for anti-corruption and sustainable growth." It operates the internal control system formed of the auditor with expertise and independence to strengthen the implementation of the risk management system and carries out the audit programs such as monitoring, routine audit, and special audit and the internal report programs such as the Voice of People and Red Whistle. EWP will continue the sustainable growth through the systematic risk management using the advanced internal control system.

Risk Management System



※ EASI (EWP Audit Satisfaction Index): Development of the first audit satisfaction index among public institutions (response rate of 45.9% and overall index of 87.6 points in 2017)

2. Risk Management Activities and Outcome

EWP has carried out programs to strengthen corruption risk management, field-specific audit, and enhancement internal report system as part of the risk-based internal control system. It also executed the activities such as the investment risk management of new projects, minimization of power plant operation risk, and advance resolution of conflicts to create the sound corporate ecosystem. It also carried out the preventive audit with the IT-based real-time monitoring system and routine audit to minimize the management risk. EWP was able to decrease the financial measures such as budget reduction by KRW 2.6 billion to KRW 10 billion as a result of systematic risk management activities and increase the number of disciplined employees by 49 persons to 195 persons through the improved accessibility to the reporting channels.

APPENDIX

SUMMARY OF SUSTAINABLE OUTCOMES

Financial Performance

Summary of Separate Financial Statements

Type	Unit	2015	2016	2017
Current assets	KRW 100 million	9,380	9,374	10,615
Fixed assets	KRW 100 million	78,906	80,306	77,940
Total Assets	**KRW 100 million**	**88,286**	**89,680**	**88,555**
Current liabilities	KRW 100 million	10,211	17,473	14,114
Fixed liabilities	KRW 100 million	38,158	27,417	27,928
Total Liabilities	**KRW 100 million**	**48,369**	**44,889**	**42,042**
Paid-in capital	KRW 100 million	21,381	22,186	22,186
Retained earnings	KRW 100 million	19,539	23,634	24,969
Other capital components	KRW 100 million	△1,003	△1,029	△642
Total Stockholders' Equity	**KRW 100 million**	**39,917**	**44,790**	**46,513**

Summary of Separate Profit and Loss Statements

Type	Unit	2015	2016	2017
Sales	KRW 100 million	40,477	42,109	46,443
Cost of sales	KRW 100 million	33,548	34,474	40,922
Gross profit on sales	KRW 100 million	6,928	7,635	5,521
Selling and administrative expenses	KRW 100 million	766	828	1,195
Operating Profit	KRW 100 million	6,162	6,807	4,326
Other income	KRW 100 million	297	254	218
Other expenses	KRW 100 million	32	62	148
Financial return	KRW 100 million	1,370	705	2,153
Financial cost	KRW 100 million	1,530	1,337	3,263
Net income (loss) before income tax expense	KRW 100 million	6,096	6,212	3,267
Corporate tax	KRW 100 million	1,546	1,536	1,091
Net Profit	KRW 100 million	4,549	4,676	2,176

SUMMARY OF SUSTAINABLE OUTCOMES

Economic Performance

Item	Unit	Type		2015	2016	2017
Installed Capacity	MW			9,139.4	11,169.9	11,182.6
Power generation	GWh	Fossil fuel	Coal	39,252	38,785	41,189
			LNG	6,873	7,296	7,527
			Oil	3,114	5,730	2,086
			Subtotal	49,239	51,810	50,802
		New & Renewable Energy	Total	286	293	315
		Company	Total	49,525	52,104	51,117
Sales volume	GWh			45,840	46,620	48,372
Unit price	Won/kWh			85.09	85.88	91.92
Failure Rate	%			0.556	0.062	0.039
Unplanned Loss Rate				0.743	0.163	0.069
Operating rate				91.44	85.60	90.36
Utilization rate				60.38	57.08	52.22
Thermal efficiency				39.5	39.02	39.36
Station power rate				5.46	5.74	5.69
Employees	KRW 100 million			2,054	1,942	2,304
Shareholders				679	944	614
Creditor				296	684	982
Government				1,643	1,901	1,864
Local Communities				40	39	39
Reinvestment				3,957	3,765	1,596

SUMMARY OF SUSTAINABLE OUTCOMES

Environmental Performance

Item	Unit	Type	2015	2016	2017
Greenhouse gas	1,000 tons CO2-eq	Greenhouse gas emission (Scope 1+2)	37,951	39,742	38,575
		Greenhouse gas emission (Scope 3)	8,742	9,487	11,029
Energy consumption	TJ	Energy consumption	457,227	481,624	463,403
	GJ/MWh	Energy base unit	9.29	9.30	9.12
Fuel consumption	10,000 tons	Coal	1,500	1,452	1,659
	1,000 KL	Oil	660	1,186	363
	1,000 tons	LNG	960	1,038	1,080
Atmospheric pollutant emission	ton	SOx	12,514	12,741	12,082
		NOx	22,447	21,965	15,988
		Dust	649	612	480
Atmospheric pollutant base unit emission	ton/GWh	SOx	0.2604	0.2602	0.2379
		NOx	0.4671	0.4487	0.3148
		Dust	0.0135	0.0125	0.0095
Water Pollutant Emission	ton	COD	27	21	14
		SS	12	10	7
		T-N	47	33	20
		T-P	0.4	0.3	0.053
Wastewater base unit emission	Kg/GWh	COD	0.55	0.41	0.28
		SS	0.24	0.19	0.14
		T-N	0.95	0.64	0.40
		T-P	0.01	0.01	0.001
Water Usage	1,000 tons		10,267	12,763	12,226
Wastewater generation			3,416	4,006	4,090
Waste Generation			1,824	1,965	2,054
Waste Recycling			1,635	1,706	1,559
Desulfurized gypsum generation			495	509	472
Recycled desulfurized gypsum			480	507	411
Coal ash generation			1,801	1,881	2,021
Recycled coal ash			1,616	1,699	1,531

SUMMARY OF SUSTAINABLE OUTCOMES

Social Performance Index

Item	Unit	Type		2015	2016	2017
Employees	persons	Conversion of temporary jobs	Total	2,300	2,330	2,407
			Male	2,064	2,069	2,125
			Female	236	261	282
Minority Status	%	Rate of the disabled		3.4	3.4	3.6
	%	Rate of Female Employees		10.7	11.2	11.7
	persons	Female manager		28	32	37
	%	Female manager rate		4.3	4.9	5.6
Employment stability	Year	Average service years		15.7	15.7	16.1
	%	Turnover rate		0.78	0.69	0.58
Socially balanced hiring	points	Newly hired		16	151	99
		Human resources from the non-capital region		10	77	55
		People with national merit		0	10	9
		High school graduates		5	27	22
		The disabled		0	4	8
		Female		0	33	29
Family-friendly Management	persons	Persons in parental leave	Total	41	54	62
			Male	5	1	8
			Female	36	53	54
	%	Rate of returning from parental leave		100	100	98.4
	persons	Female workers in flexible working		15	20	22
	persons	Persons using flexible working		699	812	983
	days	Number of vacation days		14.1	14.8	17.4
	persons	Users in long-term vacation		554	603	606
Human resource development	hours	Average education time per person		188	211	220
	KRW 1,000	Education Expense per Person		2,540	2,697	3,472
	KRW 100 million	Education Budget		58.4	63	82.5
	persons	Educated Personnel		29,735	38,586	48,378
	points	Female employee competency index		4.57	4.71	4.76
Social contribution	KRW 100 million	Donation		6	9	12
	hours	Voluntary service hours		58,482	60,035	63,284
	hours	Average voluntary service time per person		26.6	26.7	28.76
Integrity assessment	points	Result of investigation by the Anti-Corruption & Civil Rights Commission		8.80	8.35	8.28
Anti-corruption Policy Assessment	Rating	Result of investigation by the Anti-Corruption & Civil Rights Commission		1	2	2
Stakeholder participation	%	Labor union enrollment rate		98.5	97.39	96.6
Employee Safety	%	Death per 10,000 persons		0	9.28	0
	Cases	Safety accidents		10	3	3
	points	Maturity of safety culture		3.97 (Level 3)	4.03 (Level 4)	4.05 (Level 4)
	points	Participation in safety culture		3.51	4.21	4.33
Shared Growth	KRW 100 million	Legal ground for projects to support regions near power plants		34	30	27
Regional support projects	Household	Energy welfare for neglected groups		103	1,613	622
	KRW 100 million	Purchase of Onnuri Gift Certificates		7.5	7.6	8.8
	KRW 100 million	Purchase of products from social economic enterprises	Social enterprise	46.9	61.6	98.3
			Cooperative	0.89	1.35	8.27

UN GLOBAL COMPACT ADVANCED LEVEL

Subject	Principles		Page	GRI Disclosure
Governance	1	Top management and BOD level discussion from the strategic aspect of global compact implementation	4,5	GRI 102-14
	2	Decision-making process and governance system for sustainability	64	GRI 102-18 GRI 102-21
	3	Engagement of all important stakeholders	26	GRI 102-43
UN goal and issues	4	Activities to support broad UN goal and issues	76,77	GRI 102-12
Human rights	5	Commitment, strategy, and policy on human rights	66-68	GRI 103-1
	6	Effective management system to integrate principles on human rights		GRI 103-2
	7	Effective monitoring and evaluation mechanism of principles on human rights		GRI 103-3
	8	Application of standardized performance indices (including GRI) related to human rights		GRI 412-2
Labor relations	9	Commitment, strategy, and policy on labor relations	49-58	GRI 103-1
	10	Effective management system to integrate principles on labor relations	49-52	GRI 103-2
	11	Effective monitoring and evaluation mechanism of principles on labor relations		GRI 103-3
	12	Application of standardized performance indices (including GRI) related to labor relations	74	GRI 401-1~3
Environment	13	Commitment, strategy, and policy on environmental management	41	GRI 403-2~4
	14	Effective management system to integrate principles on environment	41	GRI 103-1
	15	Effective monitoring and evaluation mechanism of principles on environmental management	43-47	GRI 103-2
	16	Application of standardized performance indices related to environmental management	73	GRI 301-2 GRI 302-1 GRI 303-3 GRI 305-1~7 GRI 306-1, 24
Anti-corruption	17	Commitment, strategy, and policy on anti-corruption	66-68	GRI 103-1
	18	Effective management system to integrate principles on anti-corruption		GRI 103-2
	19	Effective monitoring and evaluation mechanism of principles on anti-corruption		GRI 205-1
	20	Application of standardized performance indices related to anti-corruption		GRI 205-2
Strategy, governance and engagement	21	Implementation of a global compact principle in the value chain	-	-
Verification and transparency	22	Company profile and operation environment	14-23	GRI 102-1~11
	23	High-level transparency and disclosure	2, 80-84	GRI 102-50~56

SUPPORT OF UN SUSTAINABLE DEVELOPMENT GOAL (SDG)

Sustainable Development Goals (SDGs) are the goals established by UN and international communities to mitigate polarization of global society and other risk factors of sustainability. They consist of 17 goals and 169 targets. EWP wholeheartedly supports SDGs and are participating in fulfilling nine SDGs. In addition, EWP is focused on SDG 7, SDG 8, SDG 13 this year.

SDGs		EWP's Response	Report Page
Goal 2	**End hunger, achieve food security and improved nutrition and promote sustainable agriculture**	• New energy business • Eco-friendly fish farming using warm discharge water from power plants • Grassland construction project using the ash treatment plant	35, 46, 60
Goal 5	**Achieve gender equality and empower all women and girls**	• HR system without gender discrimination • Prevention of career break and training of female employees • The female talent development system • Female leader training	49-51
Goal 7	**Ensure access to affordable, reliable, sustainable and modern energy for all**	• Development of new & renewable energy • ESS business linked with new & renewable energy • Construction of large-scale floating solar power complexes • Large-scale wind power and fuel cell projects	34-35
Goal 8	**Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all**	• Promotion of flexible working systems • The innovation of organizational culture for work-family balance • Improvement of the welfare system • Promotion of using vacation • Fair compensation and rewarding for performance	50-52
Goal 9	**Build a resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation**	• Development of new & renewable energy • Development of technologies to recycle waste resources such as coal ash and heavy oil ash	35, 43-45
Goal 10	**Reduce inequality within and among countries**	• Expansion of open employment and socially balanced employment • Proclamation of Human Rights Management Charter	49, 66-68
Goal 11	Make cities and human settlements inclusive, safe, resilient and sustainable	• Recycling of resources such as fuel ash and waste • Reduction of greenhouse gas and fine dust • Management and reduction of atmospheric/water environmental pollutants and chemicals	41-45
Goal 13	Take urgent action to combat climate change and its impacts	• Emission reduction surpassing the emissions trading system target • Establishment of climate change response measures • Reduction of greenhouse gas emission through replacement with low carbon source and expansion of new & renewable energy • Voluntary participation in the global Carbon Disclosure Project (CDP)	41-43
Goal 14	**Conserve and sustainably use the oceans, seas and marine resources for sustainable development**	• Operation of the comprehensive wastewater treatment plant • Pre- and post-project environmental impact assessment • Investigation and analysis of the environmental impact on project areas	43-47

GOAL 7

EWP supports SDG 7 to "Ensure access to affordable, reliable, sustainable and modern energy for all." It strives to provide sustainable energy by operating eco-friendly power generation business using new & renewable energy and biofuel. In addition to the total installed capacity of new & renewable energy is 424.7MW currently, EWP is expanding the large-scale new & renewable energy projects including 80MW floating solar power generation project and 810MW wind farm project. It also saved the energy cost by a total of KRW 18.4 billion through the higher energy efficiency using ESS. Moreover, it has developed the region-specific new energy business models such as Dangjin e-Dream Park, Ulsan e-Clean City, and Gangwon e-Eco City to promote the local economy.

GOAL 13

EWP has established the countermeasures to climate change to fulfill the SDG 13 to " Take urgent action to combat climate change and its impacts." In addition, it is building the no-carbon power generation ecosystem model by expanding low carbon sources, securing emission rights, and introducing highly efficient facilities. It secured the surplus emission right for 4.71 million tons by exceeding the three-year allocation target in the first emissions trading system, leading to the economic benefits of KRW 103.6 billion. It is also participating in the CDP voluntarily and discloses the information related to response to climate change and carbon management to increase the transparency of the organization. Furthermore, EWP is carrying out energy efficiency improvement programs to help its vendors reduce greenhouse gas emission.

GOAL 8

EWP actively support SDG 9 to "Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all" and has established various programs for participation. The number of employees taking advantage of flexible work schemes such as time selection system, flexible schedule system, and remote working system increased by 21.5%, and EWP was the first public company to introduce smart office. It is also enforcing the mandatory early light-off and PC-off program and operating the designated space for nighttime and holiday duty. Moreover, the job-sharing shift working system has reduced the forced overtime work and created quality jobs. In recognition of its achievements, EWP was the only public company to receive the Prime Minister's Award for excellent business-life balance and selected as the best case by the Ministry of Employment and Labor.

DIAGNOSTIC REPORT OF LEVEL OF IMPLEMENTATION OF ISO 26000

Assessment Standard

As part of the service provided to the Korean Agency for Technology and Standards, Korea Standard Association ("We") developed an assessment checklist for the evaluation of performance on social responsibility for Korea East-West Power Co., Ltd. (EWP). This assessment report provides the results of performance assessment of EWP's sustainability process and each of seven core subjects.

Assessment Scope

We assessed EWP's processes and performance related to social responsibility. More specifically, we assessed EWP's long-term strategy and execution, stakeholder engagement, social responsibility activities, etc.

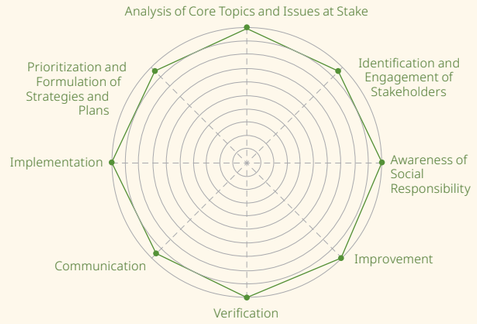
Assessment Method

We performed the following activities to collect the necessary data and information based on the assessment criteria of the ISO 26000.

- Review of EWP's mid- to long-term strategy and management performance report
- Interviews with EWP's personnel in charge of each corporate social responsibility subject and review of performance documents
- Identification of sustainability issues that can affect EWP's stakeholders

ISO 26000 Performance Assessment Results by Process

In response to growing social demands for corporate social responsibility and to share its activities and performance in sustainable management, EWP conducted a performance assessment based on ISO 26000, which is the international standard for social responsibility, in the process of publishing its sustainability report. It is encouraging that EWP regularly inspects its CSR process and that EWP's ability to fulfill CSR is steadily improving. More specifically, we regard very highly the fact that EWP establishes and operates the management strategy with the priority on public interest and social values and that the Ethical Management Committee led by the CEO discusses CSR policy.



Awareness of Social Responsibility	Examination of the current level of organizational awareness based on the management's commitment
Identification and Engagement of Stakeholders	Examination of stakeholders' interests and demands and formulation of strategies to promote their participation
Analysis of Core Topics and Issues at Stake	Generation of a list of core topics through examination of issues and analysis of internal competencies
Prioritization and Formulation of Strategies and Plans	Establishment of priorities of issues to be improved, goal, and execution plan based on the organizational competency
Implementation	Execution of the strategies, vision, goal, and implementation plans and regular monitoring of social responsibility performance
Communication	Communication with stakeholders through performance reports
Verification	Activities and reporting for enhancing the reliability of the performance
Improvement	Periodical evaluation of performance for continued improvements

ISO 26000 Performance Assessment Results by Seven Core Subjects

Organizational Governance | The Board of Directors, which is the highest decision-making body, evaluates EWP's efforts for CSR. The Subcommittees organized of some Directors review and deliberated the quarterly budget expenditure report to encourage EWP to fulfill its CSR. Moreover, we regard it highly that EWP encourages its employees to fulfill CSR by reflecting voluntary social activities in departmental KPI is making important decisions on CSR. We expect that EWP will be able to continue to enhance its CSR activities by the fact that it four strategies of "Strengthening competitiveness of sustainable power generation business, Securing the eco-friendly future growth engine, Fulfilling social value centered on public trust, and Strategic programs to advance the innovative management system."

Human Rights | We confirmed that EWP had established its due diligence standards for human rights impact based on the survey of the integrity of public institutions by the Anti-Corruption & Civil Rights Commission. We regard it highly that EWP utilizes the internal Audit Council and Integrity Ombudsman to assure the expertise and independence of human rights investigators. We also note EWP's programs promoting human rights awareness such as the "One Strike" policy, whistle-blowing system, designation of the Honorary Code of Conduct Officer, and conducting periodic human rights training. We advise EWP to carry out human rights impact assessments with all of its vendors and personnel and to continue expanding activities that promote human rights awareness.

Labor Practices | EWP's labor practices throughout all areas were considered to be excellent. EWP is operating various programs to create the organizational culture in which all employees are happy. They include hiring for regular positions first, compliance with legal work hours, compliance with legal vacation scheme, flexible working system, early Friday leave, shortened work hours for pregnant employees, guarantee for labor union enrollment and activities, and medical examination of all employees. We advise EWP to strengthen its activities for safety and health management such as the walk-around inspection of work sites to prevent occupational and safety accidents. We expect that EWP will expand its good labor practice to its vendors.

Environment | We confirmed that EWP has the environmental management organization at each power plant to minimize environmental pollutants generated during electricity generating process. EWP also strives to minimize environmental pollution company-wide by installing the high-efficiency environmental systems and operating the environmental management system. We regard it highly that EWP is actively responding to the related issues by continuously measuring and managing the factors such as greenhouse gas and fine dust that have become the key environmental issue. We expect EWP will continue to develop into the low-carbon and eco-friendly power plants by the fact that it is expanding its investment in the environment and new & renewable energy facilities to meet the government regulation and outside demands for the environment.

Fair Operating Practices | EWP is carrying out voluntary anti-corruption programs by operating the ethical management system with the vision of "Achieving the Integrity rating of Grade 1" and evaluates the ethical integrity activities of individuals and departments and reflects it to the organizational performance to internalize the ethical management system. Moreover, EWP launched the Shared Growth Committee and Shared Growth Center to expand the shared growth culture. We regard it highly that EWP monitors fairness and transparency by operating the voluntary compliance of fair trade program and integrity call to prevent unfair practices that can occur during the bidding and contracting stages. We advise EWP to continue to strengthen CSR management so that all stakeholders in the supply chain will practice fairly.

Consumer Issues | EWP uses its website, the public institution information disclosure system (ALIO), management assessment report, and information disclosure system to provide the objective information to its customers. Moreover, it assures that it does not enter into unfair contracts according to related laws and procedures such as enforcing legal review before concluding contracts. However, due to the nature of the business, it has received a low score in the failure to build the system to protect health and safety of the individual consumer, the complaint and conflict resolution channel, and the consumer data protection and privacy system. We recommend the establishment of the related regulation and scheme including the customer domain in the future.

Community Involvement and Development | We regard it highly that EWP carries out the SCR programs based on its five local power plants and continues to expand the investment and purchase within local communities. Also, it is actively hiring residents for supplementation of cleaning and renewable maintenance personnel. It is also contributing to the promotion of local economy through the local human resource training projects including the local school specialization project and scholarship support, the environmental projects such as mountain and river cleaning programs, and the resident welfare projects such as the support of resident events and Happy Energy voucher program. We advise EWP to continue its activities to contribute to the local economy through the regionally specific social service programs.

Organizational Governance	Practices that comply with the principles of social responsibility principles and incorporate those principles to existing systems, policies, and practices
Human Rights	Practices that protect and have respect for human rights within the organization and the area where its influence reaches
Labor Practices	Labor policies and practices that have effects on employees' labor conditions, within EWP and its vendors
Environment	A comprehensive approach to minimizing the environmental impact of the decision and practices of the organization
Fair Operating Practices	Practices that are interested in maintaining ethical transactions among EWP, its partners, and suppliers
Consumer Issues	Activities for protecting consumer rights such as consumer education, the disclosure of fair and transparent marketing information and promotion of sustainable consumption
Community Involvement and Development	Recognizing and having respect for communities' rights and maximizing the support and opportunities towards ensuring those rights

Conclusion

According to the ISO 26000 Performance Assessment, EWP was found to be at SR performance level IV, Scoring 354 out of 360 for the process, 570 out of 640 for performance and a total of 924 points. The score means that EWP's employees have a high awareness level of social responsibilities, and the company has established the organizational system, policy, and practice. The score level indicates the need to promote the social responsibility within the influence zone of EWP as the sustainability leading organization in the value chain and to maintain it through the strengthened partnership with local communities. There are more improvement opportunities in the process than the performance for EWP to move a step forward from the current level. In the process aspect, EWP needs to select the key sustainability issues and manage them strategically. In the performance aspect, we advise EWP to strengthen the customer area which scored relatively low.

November 2018

Lee, Sang-jin CEO Korea Standard Association

이 상진

Korea Standard Association (KSA) is a special public corporation founded in 1962 under Article 32 of the Industrial Standardization Act, and it is a knowledge service providing an organization that promotes and provides industrial standardization, quality management, sustainable management, and KS & ISO certifications to industries. KSA contributes to the sustainable development of our society as the official advisory organization in Korea for ISO 26000, GRI designated educational institution, AA1000 qualification agency, Korean Sustainability Index (KSI)-operating organization, UN CDM operating organization, and the organization for certifying Greenhouse Gas Target Management System.

THIRD PARTY ASSURANCE STATEMENT

To stakeholders of Korea East-West Power Generation Co., Ltd.

The CSR ("the verifier" hereinafter) has been requested by Korea East-West Power to verify its sustainability report for 2018 ("the report). The verifier provides the management team and stakeholders of Korea East-West with the outcome of its review of all the processes for publishing the report and its contents.

Verification Standards

The verifier reviewed the sustainability report focusing on its compliance with the reporting principles under AA1000AS (2008) Verification Standards and GRI Standards which are international standards widely used for verification.

- Whether the AA1000AS(2008) principles concerning the inclusion of stakeholders, materiality, and responsiveness have been applied
- Whether the GRI Standards principles concerning report contents and quality assurance have been satisfied
- Whether the GRI Standards Core Options have been satisfied

Verification Level

Moderate Assurance Level verification is performed focusing on the application of the AA1000AS(2008) principles while data sampling and site interviews were performed at a limited level. The below-listed key activities were performed during the verification:

- Inspection of the viability of materiality assessment processes
- Inspection of the report based on the standards for key topics selected
- Inspection of the stakeholders' participation
- Inspection of the agreement with the business assessment report

Limits of Verification

Although the verifier secured the reliability level of the report through interviews and document review in a limited extent, this does not mean 100% accuracy.

Independence of Verification

Being an independent third-party verification service provider, the verifier presents this verification opinion while his ethics and independent status are duly secured.

Verification Opinion

The verifier submits the following verification opinion after undergoing a series of processes in order to certify the compliance with the AA1000AS(2008) verification standards and reporting guidelines internationally accepted.

Satisfaction of the inclusive agreement approach of GRI Standards

The verifier reviewed whether the report satisfies the international guidelines on publishing sustainability reports and the inclusive agreement approach of GRI Standards. The verifier confirmed that the report satisfies the general requirements for disclosing business details and reporting requirements for 14 key topics. The verification indicators of key topics checked through the verification procedure are as follows:

Economy	• Economic performance_201-1 • Anti-corruption_205-1, 2	• Indirect economic effect_203-1, 2
Environment	• Raw materials_301-2 • Service water_303-3 • Wastewater and solid wastes_306-1, 2, 4	• Energy_302-2 • Exhaust or emission_305-1~5
Society	• Employment_01-1~3 • Training and education_404-1, 2 • Assessment of human rights_412-2	• Occupational safety and health_403-2, 3 • Diversity and equal opportunities_405-1 • Local community_413-1

Application of AA1000AS(2008) principles

The verifier has confirmed that the report follows the three major AA1000AS(2008) verification principles.

Inclusivity Principle	**Has Korea East-West promoted activities participated by its stakeholders?**	The verifier has checked the Korea East-West Power processes for selecting stakeholders. The verifier has not found any important stakeholder groups that have been excluded intentionally from the stakeholders' participation processes performed by individual departments.
Materiality Principle	**Does Korea East-West Power report key issues to its stakeholders?**	The verifier has checked the Korea East-West Power procedure for extracting key report issues. The verifier has not discovered any problems in its application of the procedure based on the verifier's review of the materiality assessment procedure.
Responsiveness Principle	**Does Korea East-West Power duly respond to the demands and expectations of its stakeholders?**	The verifier has surveyed key items that affect the performance of the stakeholders. The verifier has confirmed that key sustainability issues are duly described in the report.

Recommendation for Managerial Improvement

The verifier affirmatively evaluates the policies and efforts by which Korea East-West intends to create social values as an environmentally-friendly energy business in compliance with the launch of the new climate system and the government policy for switching of energy sources. The discharge of greenhouse gases from thermal power generation and reduction of fine dust are sustainability issues at the government or state level, which require strict performance management and transparent communication with the public. In particular, it is recommended Korea East-West Power should unify its indicators for social value performance in its mid- and long-term management strategies to realize its social values and a management system considering the social impact should be deployed to increase the affirmative influences.

Adequacy of Verification Agency

The CSR that has been requested by Korea East-West to verify its sustainability report is a global sustainability service provider that possesses AA1000AS(2008) verification license officially accredited by Accountability Ltd., UK. It has acquired the Gold Community Membership of the Global Reporting Initiative (GRI). Multinational CSR experts who possess CSR research records in USA, UK, and Germany as well as Korea serve as the CSR Expert Committee members.

December 2018

Se-wu Jeong, CEO, The CSR

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GRI CONTENT INDEX

Universal Standards

GRI 102: General Disclosure

Topic		Disclosure	ISO26000	Page	Assurance
Organizational profile	102-1	Name of the organization	6.3.10/ 6.4.1-6.4.2/ 6.4.3/6.4.4/ 6.4.5/6.8.5/ 7.8	14	V
	102-2	Activities, brands, products, and services		16, 17	V
	102-3	Location of headquarters		14	V
	102-4	Location of operations		16, 17	V
	102-5	Ownership and legal form		14, 15	V
	102-6	Markets served		14, 16, 17	V
	102-7	Scale of the organization		14	V
	102-8	Information on employees and other workers		74	V
	102-9	Supply chain		20, 21	V
	102-10	Significant changes to the organization and its supply chain		None	V
	102-11	Precautionary Principle or approach		69	V
	102-12	External initiatives		76, 77, 80, 81	V
	102-13	Membership of associations		85	V
Strategy	102-14	Statement from senior decision-maker	4.7/6.2/7.4.2	4, 5	V
Ethics and integrity	102-16	Values, principles, standards, and norms of behavior	4.4/6.6.3	66	V
Governance	102-18	Governance structure	6.2/7.4.3/7.7.5	64	V
	102-21	Consulting stakeholders on economic, environmental, and social topics		26	V
	102-22	Composition of the highest governance body and its committees		64	V
	102-23	Chair of the highest governance body		64	V
	102-24	Nominating and selecting the highest governance body		64	V
	102-31	Review of economic, environmental, and social topics		28, 29	V
Stakeholder engagement	102-40	List of stakeholder groups	5.3	26	V
	102-41	Collective Agreement		85	V
	102-42	Identifying and selecting stakeholders		26	V
	102-43	Approach to stakeholder engagement		26	V
	102-44	Key topics and concerns raised		26, 27, 28, 29	V
Reporting practice	102-45	Entities included in the consolidated financial statements	5.2/7.3.2/ 7.3.3/7.3.4	71	V
	102-46	Defining report content and topic Boundaries		29	V
	102-47	List of material topics		29	V
	102-48	Restatements of information		None	V
	102-49	Changes in reporting		None	V
	102-50	Reporting period	7.5.3/7.6.2	About this report	V
	102-51	Date of most recent report			
	102-52	Reporting cycle			
	102-53	Contact point for questions regarding the report			
	102-54	Claims of reporting in accordance with the GRI Standards			
	102-55	GRI content index		82, 83, 84	V
	102-56	External assurance		80, 81	V

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Topic-specific Standards

GRI 200: Economy

Topic		Disclosure	ISO26000	Page	Assurance
Economic Performance					
GRI 103 :Management Approach 2017	103-1	Explanation of the material topic and its Boundary		36, 37, 38, 39	V
	103-2	The management approach and its components			
	103-3	Evaluation of the management approach			
Economic Performance	201-1	Direct economic value generated and distributed	6.8.1-6.8.2/6.8.3/ 6.8.7/6.8.9	71, 72	V
Indirect Economic Impact					
GRI 103 :Management Approach 2017	103-1	Explanation of the material topic and its Boundary		36, 37, 38, 39	V
	103-2	The management approach and its components			
	103-3	Evaluation of the management approach			
Indirect Economic Impact	203-1	Infrastructure investments and services supported	6.3.9/6.8.1-6.8.2/ 6.8.7/6.8.9	34	V
	203-2	Significant indirect economic impacts	6.3.9/6.6.6/6.6.7/ 6.7.8/6.8.1-6.8.2/ 6.8.5/6.8.7/6.8.9	53, 54, 55, 56	V
Anti-corruption					
GRI 103 :Management Approach 2017	103-1	Explanation of the material topic and its Boundary		66, 68	V
	103-2	The management approach and its components			
	103-3	Evaluation of the management approach			
Anti-corruption	205-1	Operations assessed for risks related to corruption	6.6.1-6.6.2/6.6.3	66, 67, 68	V
	205-2	Communication and training about anti-corruption policies and procedures	6.6.1-6.6.2/6.6.3	66, 67	V

GRI 300: Environment

Topic		Disclosure	ISO26000	Page	Assurance
Materials					
GRI 103 :Management Approach 2017	103-1	Explanation of the material topic and its Boundary		41, 42, 43	V
	103-2	The management approach and its components			
	103-3	Evaluation of the management approach			
Materials	301-2	Materials used by weight or volume	6.5.4	45, 73	V
Energy					
Energy	302-1	Energy consumption within the organization	6.5.4	73	V
Water					
GRI 103 :Management Approach 2017	103-1	Explanation of the material topic and its Boundary		41, 42, 43	V
	103-2	The management approach and its components			
Water	103-3	Evaluation of the management approach			
	303-3	Water recycled and reused	6.5.4	44, 73	V
Emissions					
GRI 103 :Management Approach 2017	103-1	Explanation of the material topic and its Boundary		41	
	103-2	The management approach and its components			
	103-3	Evaluation of the management approach			
Emissions	305-1	Direct (Scope 1) GHG emissions	6.5.5	41, 73	V
	305-2	305-2 Energy indirect (Scope 2) GHG emissions	6.5.5	41, 73	V
	305-3	Other indirect (Scope 3) GHG emissions	6.5.5	73	V
	305-4	GHG emissions intensity	6.5.5	41	V
	305-5	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	6.5.3	43, 73	V
Effluents and Waste					
GRI 103 :Management Approach 2017	103-1	Explanation of the material topic and its Boundary		44, 45	V
	103-2	The management approach and its components			
	103-3	Evaluation of the management approach			
Effluents and Waste	306-1	Water discharge by quality and destination	6.5.3/6.5.4	44	V
	306-2	Waste by type and disposal method	6.5.3	44, 45	V
	306-4	Transport of hazardous waste	6.5.3	44, 45	V

GRI CONTENT INDEX

Topic-specific Standards

GRI 400: Society

Topic		Disclosure	ISO26000	Page	Assurance
Employment					
GRI 103 :Management Approach 2017	103-1	Explanation of the material topic and its Boundary		49, 50, 51, 52	V
	103-2	The management approach and its components			
	103-3	Evaluation of the management approach			
Employment	401-1	New employee hires and employee turnover	6.4.3	74	V
	401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	6.4.4/6.8.7	50, 51	V
	401-3	Parental Leave	6.4.4	74	V
Occupational Safety and Health					
GRI 103 :Management Approach 2017	103-1	Explanation of the material topic and its Boundary		38, 39	V
	103-2	The management approach and its components			
	103-3	Evaluation of the management approach			
Occupational Safety and Health	403-2	Type of injury and rates of occupational diseases, lost days, and absenteeism, and the total number of work-related fatalities, by region and by gender	6.4.6/6.8.8	38, 74	V
	403-3	Occupational health services	6.4.6/6.8.8	38	V
Training and education					
GRI 103 :Management Approach 2017	103-1	Explanation of the material topic and its Boundary		51	V
	103-2	The management approach and its components			
	103-3	Evaluation of the management approach			
Training and education	404-1	Average hours of training per year per employee	6.4.7	51, 74	V
	404-2	Programs for upgrading employee skills and transition assistance programs	6.4.7/6.8.5	51	V
Diversity and Equal Opportunity					
GRI 103 :Management Approach 2017	103-1	Explanation of the material topic and its Boundary		49, 50	V
	103-2	The management approach and its components			
	103-3	Evaluation of the management approach			
Diversity and Equal Opportunity	405-1	The diversity of governance bodies and employees	6.2.3/6.3.7 /6.3.10/6.4.3	49, 50, 74	V
Human Rights Assessment					
GRI 103 :Management Approach 2017	103-1	Explanation of the material topic and its Boundary		51	V
	103-2	The management approach and its components			
	103-3	Evaluation of the management approach			
Human Rights Assessment	412-2	Employee training on human rights policies or procedures	6.3.5	51	V
Local Communities					
GRI 103 :Management Approach 2017	103-1	Explanation of the material topic and its Boundary		59, 60, 61	V
	103-2	The management approach and its components			
	103-3	Evaluation of the management approach			
Local Communities	413-1	Operations with local community engagement, impact assessments, and development programs	6.3.9/ 6.5.1-6.5.2/ 6.5.3/6.8	59, 60, 61	V

MEMBERSHIP OF ASSOCIATIONS

Organization	Purpose	Time of Membership
Korea Association of Small Business Studies	Quick response to government policy and interchange of academic information with the organization that is part of the government policy for shared growth	2011.07
Korea Electric Association	Enactment and amendment of electrical industry's technology standard and development of new code for enhancement of power generator reliability	2002.09
Korea Energy Foundation	Energy welfare programs such as assistance of low-income families and scholarship programs	2002.05
World Energy Congress	Building of human and technology network with international energy organizations and member countries	2007.01
Korea Institute of Enterprise Architecture	Gathering of information on the advancement of EA level	2013.03
Korea International Trade Association	Interchange of information related to international trade	2001.05
Korea Electric Association (KEPIC)	Determination of KEPIC development direction and securing fund	2002.05
Korean Standards Association	Introduction of advanced quality management technique and spread of quality management mind	2003.01
Korea Suggestion System Association	Information on the promotion of in-house suggestions and small-group activities	2007.05
The Electric Utility Cost Group (EUCG)	Acquisition of international power information and benchmarking	2006.01
Business Institute for Sustainable Development	Exchange of information on sustainability	2008.11
Korea Carbon Capture and Storage Association	Exchange of information on carbon capture and storage	2010.09
Korea Smart Grid Association	Exchange of information on smart grid and examination of the industry trend	2012.07
UN Global Compact (UNGC)	Exchange of information on sustainability and participation in domestic and international exchange events	2006.06
Korea Green Business Association	Support of large and small greenhouse gas mentor projects	2012.03
The Korean Society of Mechanical Engineers	Examination of domestic and overseas trends in machinery and exchange of information	2002.08
The Korean Institute of Electrical Engineers	Examination of domestic and overseas trends in electricity and exchange of information	2002.06
Power Generation Studies Institute	Advancement of power generation industry and identification of joint research subjects	2010.07
Korea Project Management Association	Improvement of project execution capability	2008.03
Korea Engineering and Consulting Association	Design and technical support through certification of engineering performance and entry into new businesses	2012.07
Korea New & Renewable Energy	Exchange of information on new & renewable energy	2003.01
Korea New & Renewable Energy	Gathering of information on entry into and development of overseas business	2004.03
Association of the Electric Supply Industry of East Asia and the West Pacific (AESIEAP)	Gathering of information on entry into and development of overseas business	2011.02
Korea Electric Engineers Association	Promotion of R&D of power technologies and education/training of professionals in power	2008.03
Maritime Rescue & Salvage Association	Private-public cooperation to prevent and respond to maritime disasters and accidents	2013.05

AWARDS

Agency	Description	Date
Ministry of Government Administration and Home Affairs	2016 Outstanding Public Enterprise for Implementation of Government 3.0 (Highest Rating)	2017.03
Korea Society of Public Enterprise	Global R&D (GRD) Grand Award for Public Enterprises	2017.06
Ministry of Trade, Industry and Energy	2017 Minister's Award in Management Award for the Fourth Industrial Revolution	2017.08
Ministry of Trade, Industry and Energy	Presidential Award in The 41st National Productivity Competition	2017.10
Ministry of SMEs and Startups Korea Commission for Corporate Partnership	Presidential Award for Outstanding Company in Performance Sharing	2017.11
Ulsan City Social Workers Association	Social Workers Award of the Year in The 5th Ulsan Social Workers Competition	2017.11
Ministry of Trade, Industry and Energy	Presidential Award in 2017 New Technology Commercialization Competition	2017.11
KMR	2018 Grand Award for Safety Management in Global Standard Management Awards (GSMA)	2017.11
CDP Korea	2017 Special Award for CDP Carbon Management	2017.10
Ministry of Employment and Labor	Outstanding Award for Competition in Excellence in Work and Life Balance	2017.12
Ministry of Personnel Management	Prime Minister's Award for 2017 HR Innovation Outstanding Practice Competition	2017.12
Minister of Strategy and Finance, Jobs Committee	Deputy Chairman's Award for Public Enterprise in Job Contest by Jobs Committee	2017.12
KORCHAM	KORCHAM Chairman's Award in the 24th Corporate Innovation Awards	2017.11
Ministry of Gender Equality and Family	Prime Minister's Award for Work and Life Balance	2017.12
Ministry of Trade, Industry and Energy	Minister's Award in 2017 Disaster Safety Management Assessment	2017.12
Ministry of Trade, Industry and Energy	Presidential Award for Quality Control Group in the 32nd National Quality Competition	2018.11
Ministry of Trade, Industry and Energy	Minister's Commendation for Quality Management in the 43rd National Quality Competition	2018.11
Ministry of Trade, Industry and Energy and Ministry of SMEs and Startups	Prime Minister's Award in the 6th Korea's Beloved Companies	2018.11

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