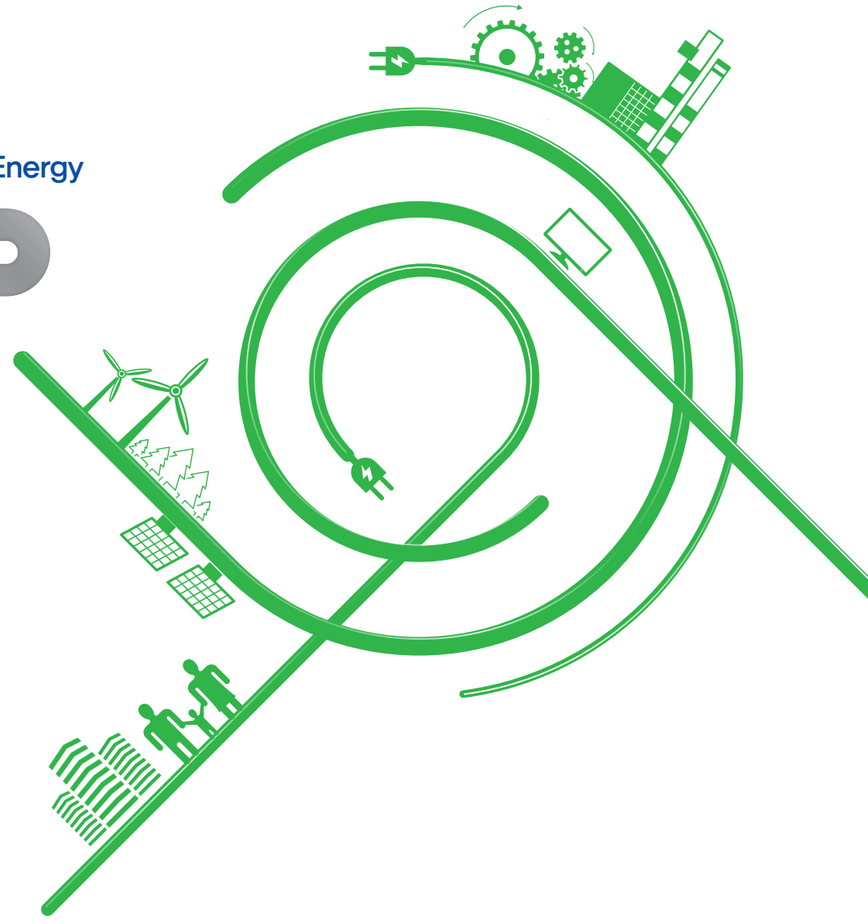
10th Sustainability Report

Happy World with Hearty Energy

EWP



KOREA EAST-WEST POWER CO.,LTD.

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KOREA EAST-WEST POWER CO.,LTD.

MISSION

We Make Energy for Happiness

We make stable, economical and eco-friendly energy that brings happiness to humanity

Purpose orienting

Offered Value

Our Company

HAPPINESS
Contributing to a happier human life

ENERGY
Boosting quality of life and clean living conditions

WE MAKE
Production and supply of the highest quality energy in the most economical and stable way

Vision

2030 Most Valuable Power Company

An energy powerhouse that creates the highest value in all business areas while treasuring its employees as most valuable players (MVPs)

Growth Value

Financial Value

Customer Value

Expansion of the business scale and area as a comprehensive energy provider

Enhancement of financial stability and sustained profitable growth

Energy security, respect for human life, integrity and ethics, and social responsibilities

About this report

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Purpose of Report

This is the 10th sustainability management report published by East-West Power Co., Ltd. (EWP).
The EWP is a public energy company. It takes its CSR into account in all decision-making process. This report is intended to disclose the economic, social, and environmental efforts and outcomes in terms of corporate sustainability during the reporting period to all its stakeholders in the most transparent way.

Reporting Guideline

This report is prepared in accordance with GRI (Global Reporting Initiative) G4 Guidelines - Core with an emphasis placed on the company's progress in fulfilling ISO 26000 requirements and implementing the UN Global Compact principles. This report has followed International Financial Report Standards (IFRS) as the reporting standards of financial information including the definition of terms used in the area. All the information contained in this report has been verified by the Business Institute for Sustainable Development (BISD) of the Korean Chamber of Commerce considering principles of AA1000 Assurance Standard (2008).

Reporting Period and Scope

This report outlines the company's sustainability management activities from January 1, 2015 to December 31, 2015. For qualitative performance, the data from 2013 to 2015 have also been included to enable a time series trend analysis. The reporting scope includes the company's headquarters in Ulsan and its five plant sites across the country. The reporting cycle is one year.

Characteristics of Report

This report has focused on reporting the values that the company has created during the past 10 years in terms of its sustainability management in commemoration of the 10th anniversary of the company's sustainability management report.
This report has also attempted to reflect diverse opinions of the company's stakeholders identified through a stakeholder survey as well as a materiality test. It includes a statement about the relevance of UN Sustainable Development Goals (SDGs), a new global sustainable development agenda for 2030, to the company's roles.

Additional Information

For additional information, please visit the corporate website or contact the department indicated below:
Website: http://www.ewp.co.kr
Department: Climate & Environment Team, Power Generation Division
Contact: Tel) +82-070-5000-1544

Content

CEO Message

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2030 Most Valuable Power Company

We will make stable, economical and eco-friendly energy that brings happiness to humanity.

Dear EWP stakeholders,

I am deeply grateful for your keen attention and support of the sustainability management efforts of East-West Power Co., Ltd. (EWP). In 2006, EWP declared its full support of the ten principles of the UN Global Compact in the areas of labor, human rights, environment and anti-corruption and published its first sustainability management report. This year marks the 10th anniversary of the report, which I am extremely happy about and proud of.

EWP has continued to achieve outstanding management results over the years despite the difficult business environment caused by changes in the government's policies at home and fluctuations in the international energy markets. However, the demand for eco-friendly energy keeps rising throughout the world in the wake of the first-ever universal global climate deal that was adopted in 2015, weakening the stature of the thermal power generation industry. EWP has re-established the corporate vision for its sustainability management. It accelerates innovation in the following three areas with the purpose of actively coping with the ongoing changes in the worlds' social and environmental paradigms and developing into a power generation company that continues to achieve sustainable corporate growth down the road.

First, EWP strives to gain momentum for sustainable corporate growth through the development of new growth engines and supplying stable and economic electricity. We raked 1st in fuel costs for standard coal-fired power generation for six straight years through economical procurement of power generation fuels. In addition, we achieved another accident-free period of 200 days for all of our power generators in 2015. We build and operate a 1,000 MW-class high-efficiency USC power plant in Dangjin for the first time in Korea.

Second, to make sustainable society and govern corporate social responsibility EWP actively handles global environmental initiatives issues such as developing renewable energy, and the Paris Agreement on Climate Change. Remarkably, we are also enhancing our portfolio of new and renewable energy having shifted focus away from fossil fuels. In addition, EWP reduced 1.82 million tons of GHG emissions more than allocated by the government, and achieved the highest score in the power generation industry in the Competitiveness Index in Climate Change for five consecutive years.

Third, EWP strives to create a flexible, creative corporate culture in the safest work environment to be able to thrive in any business environment in the future. We are currently making 'innovations in the way we operate' by incorporating flexible, creative software including systematic arrangements to our well-established 'Smart Office' hardware so that all of our employees can put their creativity to work. Meanwhile, EWP has placed the utmost priority on its employees' safety. In recognition of our extraordinary achievements in this field, we were able to be ranked the highest in the 2016 Safe Korea Anti-disaster Exercise for three consecutive years, a first among public institutions under the Ministry of Trade, Industry and Energy; topped the list of exemplary companies in the government's Disaster & Safety Management Evaluation for two straight years.

I would like to take this opportunity to convey my special thanks to you for your extraordinary support and cooperation during the past 10 years, without which we could not have made the achievements that we have claimed in our annual sustainability reports over the past decade. In a bid to live up to your expectations, EWP will continue to fulfill its social responsibilities based on its high level of ethical awareness and integrity. I personally pledge to continue to listen to your voices through diverse communication channels with humility and open-mindedness. I will be looking forward to your continuous encouragement and support for the company's sustainable growth and promising future.

Thank you.

August 1, 2016

Kim, Yong-jin

President of Korea

East-West Power Co., Ltd.

Highlights of the 10th Anniversary of the Report

Congratulatory message for the 10th anniversary of the EWP sustainability report.

I wish to congratulate EWP, one of the most esteemed public companies in the energy sector, on the 10th anniversary of its sustainability report. EWP joined the UN Global Compact in August 2006 and has implemented the Ten Principles on human rights, labor, environment and anti-corruption and made reports of its progress in these areas ever since, setting a good example for businesses not only at home but abroad as well.

I hope that EWP will continue to integrate the 2030 Sustainable Development Goals adopted by the international community into its mid- to long-term vision and strategies and develop into the country's proud global leader in the energy sector.

2016. 8. 1. Hong-Jae Im, Representative UN Global Compact Network Korea

EWP Award History in Sustainability Management

	Economic	Environmental	Social
2007	Won the award at BSC Hall of Fame Increased in net income for four consecutive years for the first time among local power companies	UN registration approved for the clean photovoltaic development mechanism Won the Minister of Trade, Industry & Energy award at the 28th Energy Conservation Promotion Contest	Gained the national quality master certificate and won the Presidential award at the 32nd National Quality Competition Won first prize at the 2nd Power Companies' SME Support Performance Competition in the category of ethical management
2008	Won the grand prize at the 2007 Korea Technological Innovation Management Awards Won the award for the best power generator of the year 2007 Secured the best lending interest rate among local power companies for four consecutive years	Gained eco-friendly business certification and ISO 14001 accreditation for all its plant sites, a first among local power companies	Won the Presidential award at the 33rd National Quality Competition Won the Presidential award at the New Technology Practical Application Promotion Competition in the category of SME marketing support
2009	Won first prize in the area of breakdown-free perations Won the Minister of Knowledge Economy award at the 2008 Digital Innovation for two consecutive years	Registrain in CDM projects for the first time in the world *Clean Development Mechanism	Won the award at 2008 Korea Corporate Community Involvement Awards Won the Presidential award at the 3rd Beautiful Partnership Awards
2010	Won the award for 8th Digital Innovation Award Won the grand prize at the Korea IT Innovation Awards	Won the 2009 Korea Green Awards Won the grand prize at the 2009 Korea Green Energy Awards	Won the 8th Safety Grand Prize Won the Knowledge Economy Customer Service Award

	경제	환경	사회
2011	Won the 2009 Longest Run Award hosted by EUCG(Electric Utility Cost Group)	Won the Grand Prize at the 2nd Green Technology Awards Won the 2010 Green Company Award	Won the Outstanding Business Award hosted by the Ministry of Patriots and Veterans Affairs Ranked 1st among 14 SMEs assessed by the Ministry of Knowledge Economy
2012	The Unit of the Year Award hosted by Guam Power Authority	Won the Grand Prize of UNGC in the category of eco-friendiness Won the grand prize at the National Green Business Presentations for two years in a row	Won the Minister of Gender Equality&Family Award Won the Minister of Health and Welfare Award
2013	The Best Performer Award 2012 hosted by EUCG(Electric Utility Cost Group)	Certified as an outstanding business in terms to competitiveness in response th climate change	Won the Prime Minister award fo EWP family-friendly policies Won the Korea Labor-Management Cooperation Grand Prize Won the Shared Growth Excellence Award
2014	Won the 2013 Transparent Management Grand Prize Won the management grand prize and the outstanding manager award at the Korea Idea Management Awards	Won the Grand Prize at the Korea New Growth Management Awards in the category of green technologies Won the grand prize in the category of energy	Won the Minister award of excellence in the cultivation of technical talents in 2013 Won the 2013 Privacy Protection Grand Prize
2015	Won the Korea Economic Leader Grand Prize in the area of win-win cooperation Won the Ministry of Strategy and Finance Award	Won the special award at the 2014 Carbon Disclosure Project Ranked 1st in climate competitiveness index in the power generation sector for 4 consecutive years	Won the Presidential Award as an outstanding organization in the cultivation of SMEs Won the Minister of Health and Welfare 'Sharing Happiness Award'

* EWP award achievements based on its sustainability report on the date of publication

About EWP

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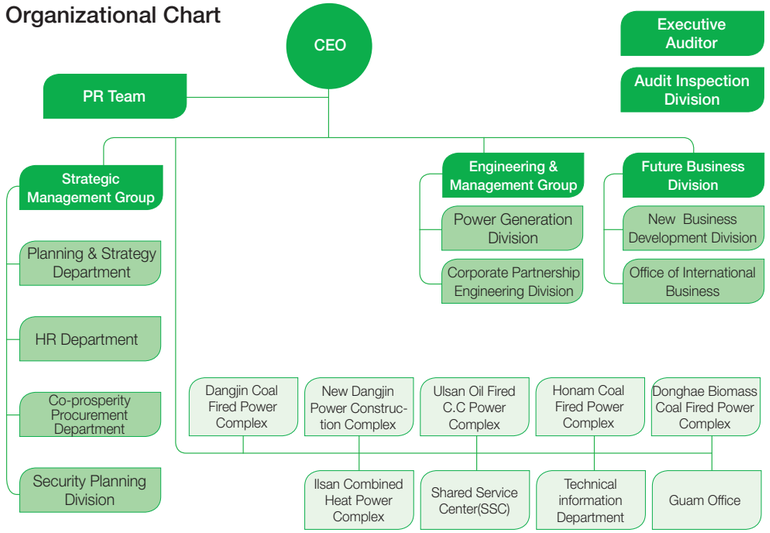
Corporation Overview

EWP is one of the six power companies created as a result of the separation of the power generation sector from KEPCO (Korea Electric Power Corporation) in 2001 in accordance with the Act on the Promotion of Restructuring the Electric Power Industry. EWP is a wholly owned subsidiary of KEPCO with its core business being power generation. EWP operates five power stations across the country such as its flagship power station Dangjin Thermal Power Plant Complex, Honam Thermal Power Plant, Donghae Biomass & Coal Fired Power Complex and Ilsan Coal Fired Power Complex. The company's total power generation capacity stands at 9.139MW or 9.3% of the country's total power generation. EWP sells its electricity to KEPCO through Korea Power Exchange for final consumption by consumers. In 2015, EWP produced a total of 45,840GWh of electricity.

Organizational Chart



Head Office
395, Jongga-ro, Jung-gu, Ulsan, Korea

Date of Establishment
April 2, 2001

No. of Employees
2,300

Composition of Shareholders
KEPCO 100%

Total Power Output
49,525GWh

Sales Volume
45,840GWh

Capital
KRW 3.9917 trillion

Total Assets
KRW 8.8286 trillion

Sales
KRW 4.0477 trillion

Net Profit
KRW 454.9 billion

Major Business
Development of power resource, power generation, etc.

History

- **1898 01** Hansung Electricity — Korea's first power company
- **1915 09** Kyoungsung Electricity
- **1943 08** Chosun Electricity Business
- **1946 05** Namseon Electricity
- **1961 07** Korea Electricity Corporation — a merger of 3 power companies
- **1982 01** KEPCO — public company
- **2001 04** EWP — restructuring of the power industry
- **2014 06** Head office relocation — to Ulsan Innovation City

Characteristics of Power Industry

G4-12

The Korean power industry was monopolized by KEPCO. On April 2, 2001, the Act on the Promotion of Restructuring the Electric Power Industry went into effect, which was aimed at eliminating inefficiencies associated with the industry's explosive growth. According to the legislation, the power generation sector of KEPCO was transferred to six new power companies including EWP. EWP produces power in conjunction with private power generation companies and district electric power operators and sells power to KEPCO through the Korea Power Exchange. KEPCO sells power to general customers through its nationwide power transmission and distribution networks. In 2015, EWP sold a total of 45,840GWh of electricity to KEPCO.

Supporting Global Initiatives

EWP supports global CSR initiatives including UN Global Compact, ISO 26000 and CDP. As a global corporation, EWP actively engages in socially responsible business management through the minimization of its environmental impact and the maximization of its employees' safety and health based on the principle of transparency.

UN Global Compact

In August 2006, EWP joined UN Global Compact, a voluntary initiative among corporations which urges and encourages companies to fulfill their social responsibilities.
EWP complies with the ten principles in the areas of human rights, labor, environment and anti-corruption as a clear indication of its commitment to meet the global guidelines regarding corporate social responsibilities and to its pursuit of sustainability management.

ISO 26000

EWP intends to achieve sustainable corporate growth as recommended by ISO 26000, international standards governing corporate social responsibilities.
EWP undertakes diverse efforts to help nurture local communities and protect the environment by fulfilling the seven core subjects of ISO 26000 such as organizational governance, human rights, labor practices, the environment and fair operating practices etc.

CDP (Carbon Disclosure Project)

CDP is a global standard used to evaluate environmental information including climate change data. CDP assesses companies' GHG emissions and their efforts to reduce them through the carbon disclosure project.
EWP joined CDP in 2012 and its competitiveness in terms of response to climate change has since been evaluated.
In 2015, EWP acquired 90 points from the CDP.

How we're connected with UN SDGs

Keeping with global trends, EWP is fully committed to participating in finding the solutions for economic, environmental and social issues in order to achieve sustainable growth and development. The company has carried out analysis about how the 17 Sustainable Development Goals announced at the end of 2015 are related to its operations. It plans to derive specific strategies and action plans in the near future.

How we're connected with UN SDGs

SDGs Goals	EWP's Actions	Page	SDGs Goals	EWP's Actions	Page
Goal 2 Zero Hunger	Promotion of new energy business	P.55	**Goal 10** Reduced Inequalities	Respect for diversity	P.65
				Enhancement of social equality	P.70
Goal 5 Gender Equality	Cultivation of female talents and gender equality	P.65	**Goal 11** Sustainable Cities and Communities	Promotion of recycling	P.50
	Promotion and monitoring of gender equality policies and practices	P.65		Development of new and renewable energy business	P.52
				Efforts to reduce air and water pollution	P.48, 49
Goal 7 Affordable and Clean Energy	Overhaul of regulations to promote new and renewable energy convergence complexes	P.52	**Goal 13** Climate Action	To reduce GHG emissions	P.46
	Development of onshore wind farm	P.53		Voluntary participation in CDP	P.47
	Reduction of fuel costs	P.33		Establishment of policies to respond to climate change	P.46
Goal 8 Decent Work and Economic Growth	Efforts to promote work-life balance	P.62	**Goal 14** Life Below Water	Post-environmental impact surveys	P.51
	Enhancement of employee fringe benefits	P.65		Management of the environment surrounding the company's operating sites	P.51
	Profit sharing and compensation systems	P.64			
Goal 9 Industry, Innovation and Infrastructure	Development of technologies for the recycling of cinder	P.54			
	Development of technologies for the recycling of fly ash	P.54			

Business Areas G4-4 G4-9

Overview of Domestic Power Plants

EWP's electric power facilities include coal-fired plants fueled largely by bituminous coal, combined-cycle power plants fueled by LNG, oil power plants, and various plants powered by new and renewable energy. The total facility capacity of EWP stands at 9,139.4MW with coal-fired power generation accounting for 53.6% (4,900MW), LNG power generation constituting 32.5% (2,971.9MW), heavy oil power generation amounting to 13.1% (1,200MW), and power generation fueled by new and renewable energy such as wind power, photovoltaic power and small hydro power occupying a ratio of 0.8% (67.5MW).

Donghae Biomass & Coal Fired Power Complex

Location: Donghae, Gangwon
Domestic/Foreign Coal: 400MW
Biomass: 30MW
Solar energy: 1MW

Ilsan Combined Heat & Power Plant

Location: Goyang, Gyeonggi
LNG: 900MW
Fuel cells: 8MW

DangJin Coal Fired Power Complex

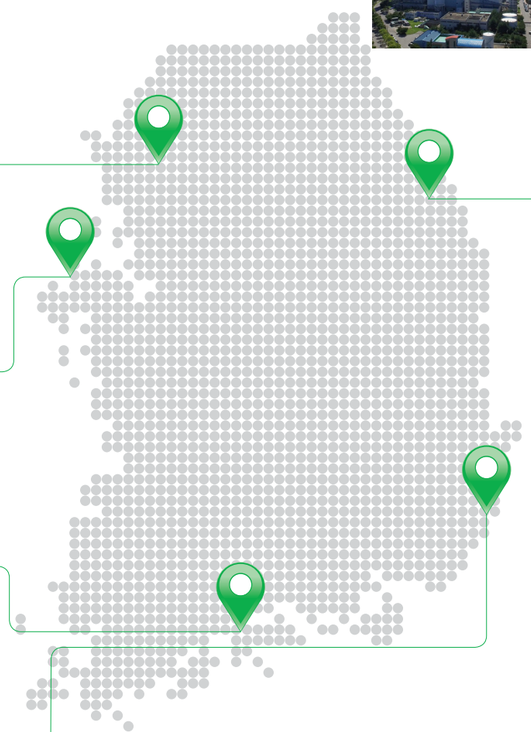
Location: Dangjin, Chungnam
Bituminous Coal: 4,000MW
Solar energy: 4MW
Small hydro power: 8.2MW

Honam Coal Fired Power Complex

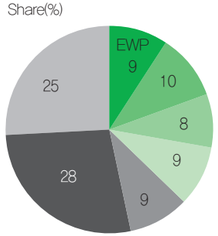
Location: Yeosu, Jeonnam
Bituminous Coal: 500MW
Solar energy: 0.1MW

Ulsan Oil Fired & C.C Power Complex

Location: Nam-gu, Ulsan
Heavy oil: 1,200MW
LNG: 2,071.9MW
Solar energy: 0.5MW
Fuel cells: 2.8MW



Share(%)



Name	Total Facility Capacity(MW)
EWP	9,139.4
KOEN	9,980.9
KOMIPO	8,306.4
KOWEPO	9,321.4
KOSPO	9,161.9
KHNP	27,038.9
Other	25,240.9

The Total Facility Capacity by Fuels

Fuel	Ratio	Plant Name	Capacity(MW)
Bituminous Coal	53.6%	DangJin Coal Fired Power Complex	4,000.0
		Honam Coal Fired Power Complex	500.0
		Donghae Biomass & Coal Fired Power Complex	400.0
LNG	32.5%	Ulsan Oil Fired & C.C Power Complex	2,071.9
		Ilsan Combined Heat & Power Plant	900.0
Heavy Oil	13.1%	Ulsan Oil Fired & C.C Power Complex	1,200.0
New and Renewable Energy	0.8%	Small Hydro Power	8.2
		Photovoltaic	10.5
		Others	48.8
Total			9139.4

Overview of Overseas Power Plants G4-6 G4-9

EWP has successfully carried out a number of overseas power plant projects including the trial operation of Nueva Ventanas Coal-Fueled Power Plant, Chile in 2008 and O&M of CFBC in Cebu, Philippines in 2009. Since 2015, the company has been carrying out self-financing development projects in Indonesia and Vietnam and is currently engaged in overseas power plant operation business in the United States, Jamaica and Guam.

Guam
Cabras #3,4 PMC Project

Client: GPA (Guam Power Authroity)
Facility Capacity: 80MW
Location: Near Apra Harbour in western Guam
Project Type: PMC (Performance Management Contract)

Operation of power plants run by biomass/ natural gas fueled internal combustion engines

Client: EWP Renewable Corp.
Facility Capacity: 152MW
Location: California, New Hampshire, upstate NY, etc.
Project Type: Share acquisition

Vietnam
Vung Ang-3 Coal-fired Power Plant Project

Client: EVN (Electricity Vietnam)
Facility Capacity: 1,200MW
Project Type: BOT
Location: Ha Tinh Province

Indonesia
Kalsel-1 Coal-fired Power Plant Project

Client: PLN (Perusahaan Listrik Negara)
Facility Capacity: 200MW
Project Type: BOOT
Location: Tanjung, South Kalimantan
Project Period: 25 years after completion

Jamaica
Management of Jamaica Public Service Company (JPS)

Project Type: Owning 40% of JPS shares, about 71% of the country's total output (906.68MW), and 100% of its power transmission and distribution networks

Completion	10 in 6 countries
Operation	4 in 2 countries
Processing	1 in 1 countries
Development	6 in 5 countries

New Business G4-13

Development of New Energy in Korea

EWP is involved in the development of new energy in Korea as a way of securing sustainable corporate growth while contributing to an increase of stable energy supply. Through strategic alliances with domestic independent power producers (IPPs), EWP is carrying out Bukpyeong Thermal Power Project and Dangjin Eco Power Project, while taking part in the Seokmun and Chuncheon Group Energy Projects.

Strategic alliances with domestic IPPs

Bukpyeong Thermal Power Project

SPC Composition: Samtan Co., Ltd. / GS E&R / EWP

Facility Capacity: 595MW x 2
Construction Period: Nov. 2012 - Dec. 2016
Location: Bukpyeong Industrial Complex, Donghae, Gangwon Province

Dangjin Eco Power Project

SPC Composition: Korea Development Bank / SK Gas / EWP

Facility Capacity: 580MW x 2
Construction Period: Mar. 2018 - Mar. 2022
Location: Gyoro-ri, Seokmun-myeon, Dangjin-si, Chungnam

Participation in Integrated Energy Supply Project

Seokmun Group Energy Project

SPC Composition: Kookin Ind. Co., Ltd. / Financial Investors / EWP

Capacity: 38MW
Construction Period: Jan. 2015 - Jan. 2017
Location: Seokmun National Industrial Complex, Dangjin-si, Chungnam

Chuncheon Group Energy Project

SPC Composition: Financial Investors / Hanjin Heavy Industries & Construction / EWP

Capacity: 470MW
Construction Period: Mar. 2015 - Apr. 2017
Location: Dongsan-myeon, Chuncheon-si, Gangwon Province

New and Renewable Energy

Ilsan Fuel Cell

Fuel Cell Power Generation Facilities

Ilsan / Ulsan

EWP has completed building fuel cells in its Ilsan and Ulsan Thermal Power Plant Complexes. The company recovers heat generated from the cells and supplies it to nearby residents at low prices while using part of the heat for its combined cycle plants, contributing to the efficient use of energy.

Gyeongju Wind Farm

Construction of Wind Farms

Gyeongju / Yeonggwang

EWP is focused on the development of onshore wind farms in an effort to attain grid parity. In 2012, it completed 1st phase of Gyeongju Wind Farm, Yeonggwang Jisan Wind Farm and Honam and Baeksu Wind Farm, currently in operation. Since then, it has completed construction of more 80MW wind farms at Yeonggwang.

Solar Water Power Plant (Dangjin Thermal Plant)

Photovoltaic Power Stations

Dangjin / Busan

EWP has built various types of photovoltaic power stations such as roof-top facilities installed in parking lots and waste landfill facilities of its power plants, offshore facilities, and large-scale facilities constructed on idle space, effectively contributing to the company's fulfillment of RPS supply obligations.

Dangjin Small Hydro Power Plant

Biomass and Small Hydro Power Generation

Donghae Biomass / Dangjin Small Hydro

EWP completed Donghae Woody Biomass Power Plant, the largest in Korea, in July 2013. It completed construction of a small hydro power plant at the Dangjin Thermal Plant Complex that uses thermal effluents and operates it as a renewable marine energy power plant.

EWP's Value Creation Process

G4-12

① Input

Environment

- LNG **960,000 tons**
- Water **10.267 million tons**
- Oil **660,000 KL**
- Coal **15 million tons**

Economy

- Cost of Good Solds **KRW 3.35 trillion**
- Selling & administrative expenses **KRW 76.6 billion**

Society

- SME R&D financial support **KRW 14.3 billion**
- Employees **2,300 people**

② Generation

Total **9,139.4MW**

Coal	LNG	Heavy oil	Others	Solar	Small hydro
4,900MW	2971.9MW	1,200MW	48.8MW	10.5MW	8.2MW

③ Transmission

CBP electricity market / Korea Power Exchange → KEPCO (transmission, distribution and sales)

④ Distribution

Direct-purchasing consumers, electricity users, etc.

⑤ Impact

Environment

- GHG emissions (Scope 1 & 2) **37.95 million tons tCO_2-eq**
- Effluent **2.085 million tons**
- Waste **1.824 million tons**

Economy

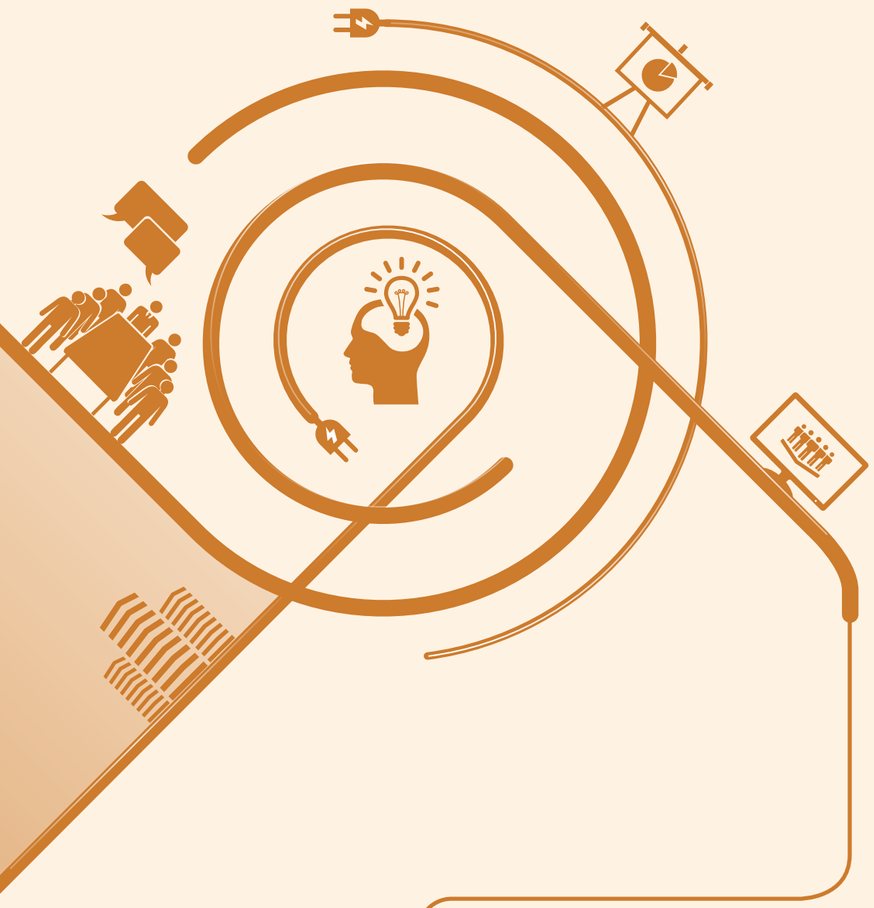
- Sales volume **45,840 GWh**
- Sales amount **4.05 trillion**
- Operating Income **KRW 61.6 billion**

Society

- Purchasing results of joint SME R&D **KRW 19.5 billion**
- Employee satisfaction **4.57 points**
- Local community support **KRW 3.4 billion**
- Donation **KRW 600 million**

We
make energy
for happiness

EWP challenges and exercise a function
to become the best company, based on
Stakeholder's trust. The Company creates the
best energy value for a happy life of people.



Sustainable Approach

EWP Strategy System

EWP has created its mission and vision based on the company's purposes of establishment. It has also established the 2030 vision, a mid- to long-term management target. EWP's strategic directions and detailed performance goals based on its core values are implemented through the CEO's strong commitment and employees' concerted efforts.

Mission	We Make Energy for Happiness			
Vision	2030 Most Valuable Power Company			
Goals	Power generation technology solutions provider Maintenance of forced outage rate below 0.1%	Facility capacity 22,800MW (New renewable energy share 20%) Sales: KRW 10 trillion	Operating profit: KRW 1 trillion Debt ratio: 123%	Corporate integrity level 1 KoBEX SM AAA
Core Values	Creation Creation pursuing sustainable growth	Passion and challenge Utmost passion and challenge	Cooperation and integrity Cooperation and integrity based on co-prosperity and trust	Respect for human beings Respect for human beings based on consideration and safety
Strategic Directions	Enhancement of competitiveness of the power generation business	Creation of future growth business	Enhancement of core competencies	Realization of sustainability management
Strategic Tasks	Facility Enhancement of the efficiency of power generation facilities Operation Sophistication of power generation operational technologies Fuel Enhancement of competitiveness of fuel supply	New & renewable Expansion of new & renewable energy business New business Leadership in the development of new energy business New growth Expansion of new business at home and abroad	New technologies Enhancement of competitiveness of future technologies Talents Cultivation of global core talents System Sophistication of management system	Security & safety Upgrade of security & safety management Win-win cooperation Creation of win-win cooperative corporate ecosystem Corporate culture Realization of actively responsible management

*KoBEX SM: A survey on sustainability management (Korea Business Ethics Index Sustainability Management)

EWP Sustainability Context

The energy industry is faced with a number of challenges such as changes in the local government's policies including the restructuring of the power generation industry and the full-fledged domestic implementation of emissions trading scheme coupled with the increasing volatility of the international energy market and rising international demand for eco-friendly energy, indicating a rapid paradigm shift in the industry. To cope with this paradigm shift, EWP has restructured its organization and modified its vision, goals and strategic directions. The company now deals with changes in the industry and seeks to achieve sustainable growth and development most effectively.

Sustainability Management Vision & Value System

EWP has defined 'We Make Energy for Happiness' as its mission and '2030 Most Valuable Power Company' as its vision. In keeping up with changes in its management environments such as the launch of a new climate regime on the world stage, the country's 7th Basic Electricity Supply Plan and 2030 New Energy Industry Expansion Strategy in Korea, EWP has set its new goals: become a power generation technology solutions provider, attain a facility capacity of 22,800MW, realize operating profits of KRW 1 trillion, and achieve organizational integrity level 1. It has established four strategic directions and 12 strategic tasks aligned with the new goals. EWP has implemented them faithfully to fulfill its establishment purposes such as stable power supply, economical power supply, and eco-friendly power supply.

Achievement Rate of Goals per Strategic Direction

EWP has established companywide management goals for each of its visions. To meet its management goals, the company has set short- to long-term goals in each of its three values such as 'growth values,' 'financial values' and 'customer values.' It has also established key performance indicators and goals for each value following an environmental analysis through scenario management.

Companywide Management Goals		2030 Goals	2014 Performance	2015 Goals	2015 Performance	2015 Achievement Ratio
Growth Values	Facility capacity	22,800MW	10,928MW	11,979MW	11,087MW	High 93%
	Sales	KRW 10 trillion	KRW 4.6 trillion	KRW 4.1 trillion	KRW 4.1 trillion	Achieved 100%
Financial Values	Operating profits	KRW 1 trillion	KRW 285.8 billion	KRW 1,247 billion	KRW 619.9 billion	Achieved 497%
	Debt ratio	123%	136.1%	143.6%	121.8%	Achieved 118%
Customer Values	Integrity level	Level 1	5th (Level 2)	Level 1	1st (Level 2)	Achieved 100%
	KoBEX SM AAA	AAA	AAA	AAA	AAA	Achieved 100%

New CEO's Management Policies

EWP has reflected the new CEO's management philosophies and the employees' feedback on the company's current management status in its new CEO's four major management policies including main business innovation management, corporate future creation management, performance-oriented management, and trust & happiness management.

Establishment Process of New CEO Management Policies

CEO Management Policies

Transition from a good company to a great company
"We need to continue to make innovations in order to move beyond being 'a good company' and into becoming 'a great company'."
Inaugural speech (Jan. 26, 2016)

Let us maintain, heighten and broaden.
"Let us remain competitive in our main business, heighten the competitiveness of our power plants, and broaden our business areas and markets."
CEO briefing on the management status of the company (June 3, 2016)

Establishment of performance-centered corporate culture and systems
"We can grow into a great company only when we are equipped with corporate culture and systems that encourage and reward employees working hard to create positive results."
Congratulatory remarks at the 15th anniversary (Apr. 1, 2016)

Top-down

CEO Management Policies

Main business innovation management
Sophistication of power plant operation technologies and competencies

Corporate future creation management
Leading future growth through the development of new technologies and new business

Performance-oriented management
Invigoration of a performance-centered culture based on voluntary innovations

Trust & happiness management
Building a trusted public company that makes employees and citizens happy

Bottom-up

Collection of employees' feedback on corporate management status

Free discussions between CEO and employees of different ranks Feb. 2016
Free discussions to solve pending management issues and seek future development directions
Four discussion meetings for division heads, team leaders and deputy general managers of the head office, and general managers of operating sites

A town meeting about future development solutions Mar. 2016
A discussion among all employees about topics dealt with in free discussions

Governance

EWP operates a specialist-centered BOD to invigorate BOD activities while enhancing its executive competency. It has reinforced the BOD's management oversight and counseling roles. EWP has expanded non-executive directors' management counseling and assistance functions in consideration of the company's social responsibilities and corporate sustainability.

Composition of the Board of Directors

G4-34 G4-39

The board of Directors consists of 4 executive directors and 5 non-executive directors. To guarantee the independence of the BOD, the senior non-executive director presides over the board meetings as a chairperson. For efficient operations, the BOD operates a secretariat, specialized subcommittees designed to secure expertise and expediency in decision-making, audit committee that makes reports on corporate audit results, and executive recommendation committee designed to guarantee transparency in the selection of CEO, non-executive directors and executive auditor.

	Director	Specialty
Executives Director	Kim Yong-jin	President & CEO
	Kim Oh-young	Executive auditor
	Park Hee-sung	Head of Strategy & Management Group
	Kook Jung-yang	Head of Engineering & Safety Group
Non-executive Directors	Kim Ik-man	Former legal expert and executive in energy related organizations
	Jeong Dong-rak	Former energy company CEO and expert in power generation business
	Kim Kyoung-min	Professor and energy policy expert
	Baek Seung-jeong	Energy expert
	Lee Jong-hyun	Former local entrepreneur and expert in local issues

BOD Composition

Setting the BOD's Operational Goal

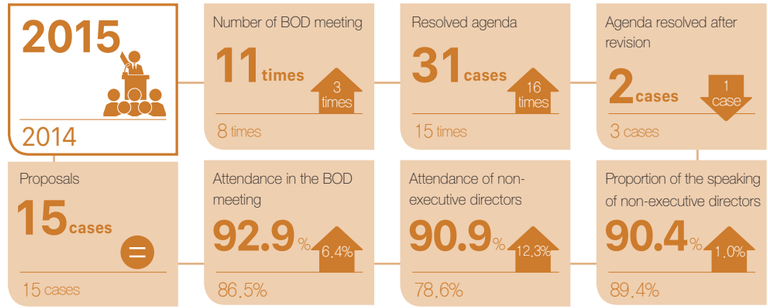
EWP has established boosting profitability in corporate management through the BOD's timely management counseling as its operational goal through an analysis of management environments. The company then set its three promotional goals as follows along with its implementation tasks.

Management environments	In need of the establishment of a BOD system that works most efficiently in a market economy	In need of improved management efficiency through the normalization of the public company's operations and the reduction of its debts	In need of enhanced management oversight and counseling roles
Operational goals	Boosting profitability in corporate management through the BOD's timely management counseling		
Promotional goals	Boosting management efficiency through timely decision-making	Invigorating BOD's management propositions	Invigorating non-executive directors' management participation
Implementation tasks	Enhancement of prior deliberation of BOD agenda	Enhancement of management proposition follow-up	Invigoration of specialized subcommittees
Performance indices	Over 95% in the prior deliberation rate	Achievement of the company's goal in the national normalization of public company operation campaign	Over 90% attendance in subcommittee meetings

BOD Operations and Performance Records

G4-45 G4-47

EWP held a total of 11 BOD meetings in 2015. To invigorate BOD operations, the company ran discussion-centered BOD meetings offering directors brainstorming opportunities and encouraging non-executive directors to actively participate in the process. The BOD deals with and resolves not only management issues including the sales of its shares in the Philippines Wind Farm Project and the Dangjin Eco Power Project but also CSR issues such as equity investment in photovoltaic power station projects in Miryang and Gwangju Eco-friendly Energy Town.



Present condition of non-executive director's participation

Non-executive directors' management counseling	28 times
Non-executive directors' management proposition	34 cases
Reflected management propositions	19 cases

Enhancement of Non-executive Director's Participation in Management

To reinforce its non-executive directors' contributions, EWP has systemized their active participation in corporation management through the public hiring of non-executive directors and on/offline provision of management information around the clock. EWP reflects their expertise-based management proposals in corporation management. It strives to further systemize their management counseling roles on a regular basis.

Non-executive Directors' Management Counseling	Counseling Results
Enhance competitiveness through active monitoring and participation in new & renewable energy business at home and abroad	Participation in the Gyeongju wind farm and photovoltaic power station project
Reconsider problems involved in the purchase of the fuel oil stock of Yeongnam Thermal Power Plant and the economic feasibility of the action	Deliberation of the modification of the agenda item (the 2nd and 3rd BOD meetings)
Enhancement of information security	Establishment of Cyber Disaster & Safety Center (Nov.)
Establishment of the management crisis monitoring system and boosting efforts to overcome financial difficulties faced by energy companies	Continuous promotion of debt reduction and public company management normalization efforts
Work-level reviews of the matters relating to the promotion of the Asan Bay Tidal Wave Project	Continuous engagement in business feasibility study of new and renewable energy projects

Enhancement of On-site Management

The BOD members of EWP visited Ilsan Combined Heat & Power Plant, New Dangjin Thermal Power Construction Complex, and Honam Coal Fired Power Plant and emphasized their commitment to site-centered management and integrity in business management. At the Ilsan plant, they discussed pending issues relating to the declining demand and solutions to the situation. They carefully looked into the construction progress of New Dangjin Power Construction Complex 9 & 10. At the Honam plant, they reviewed the progress of the New Honam Project and complimented the hard work of those involved in the project. Their insight into the company's operating sites and construction projects greatly contributes to efficient decision-making.

Visit to New Dangjin construction complex 9 & 10

Ethical Management G4-56

EWP contributes the national development by conducting business efficiently based on ethical and legal corporate management activity. With the pride, the company will become a reliable global power generation company by carring out our ethical responsibility.

Ethical Vision and Promotion System

To help realize its ethical vision, EWP set 'the establishment of an ethical corporate culture through the stabilization of a pleasant ethical culture' among employees as its target for 2015. As the three promotional goals, the company chose 'prevention of corruption, promotion of participatory ethical activities, and establishment of ethical culture'.

*Prestige Maintenance Level: The highest level among the five ethical management levels set by the FKI (Federation of Korean Industries) manual, a level deserving responsible, ethical business management

Ethical Management Promotion System

Company vision	2030 Most Valuable Power Company		
Ethical vision	Realization of an ethical company that grows and earns respect on the basis of integrity and ethics		
Mid- to long-term strategies	A leading company in ethical management	Establishment of a pleasant ethical culture	Enhancement of ethical competence
Norms	Charter of ethics (basic norms)	Codes of conduct (criteria for actions)	Guidelines of conduct (implementation rules)
2015 goal	The establishment of an ethical corporate culture through the stabilization of a pleasant ethical culture		
Promotion tasks	Prevention of corruption Removal of causes of corruption Preemptive reflection of the Improper Solicitation and Graft Act	Promotion of participatory ethical activities Expansion of participatory programs Internalization of ethical awareness Enhancement of the system effectiveness Invigoration of employee-initiated activities	Establishment of ethical culture Internalization of ethical awareness Enhancement of the system effectiveness
Performance indices	Level 1 in anti-corruption policy evaluation	Level 1 in integrity	Ethical level: *prestige maintenance level

Enhancement of Ethical Norms

EWP modified its ethical norms in 2015 to establish criteria for employees' job performance and behavior in association with the enactment of the Improper Solicitation and Graft Act and occurrence of violation of ethical codes by public companies in the country. EWP enhanced its codes of conduct, guidelines on disciplinary actions, and rules on crime reporting. It established bidding rules to prevent irregularities in the bidding process. Moreover, EWP expanded the application of its ethical norms to include its suppliers and dispatched and transferred employees in an effort to further prevent ethical risks.

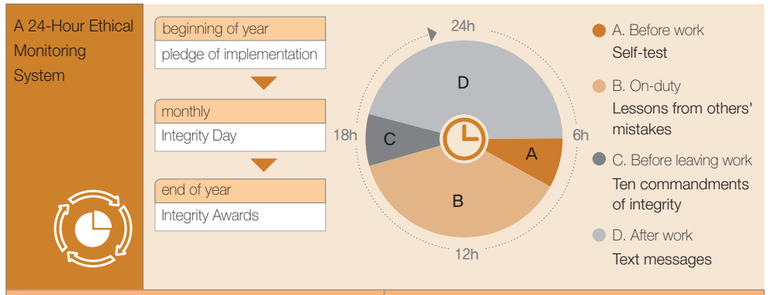
Enhancement of Ethical Management Implementation Organizations

EWP strengthened its ethical management implementation organizations to establish and promote efficient ethical management strategies. In 2015, the company instituted the attendance of its executive auditors in the meetings of the Integrity & Ethics Committee. It upgraded the exclusive organization Ethics & Compliance Team to Ethics & Compliance Team with five deputy general managers instead of three. Also, the company increased the number of integrity audit collaboration agencies from two to five that offered company assistance in the development of jobs for those eligible for a wage-peak system, knowhow on integrity, and exemplary cases of ethical management, among others.

Implementation and Results of Ethical Management

Prevention of Corruption

EWP continues to enhance its prevention of corruption through the implementation of ethical standards throughout the entire range of its operations. The company operates a 24-hour ethical monitoring system and relevant communication programs with the purpose of achieving a zero-irregularity business operations and promoting an integrity culture to prevent any type of corruption.



Round-the-clock communication	Overseas business trips
Opening 'Integrity Communication Post Office': 59 integrity proposals and 444 integrity letters	'Integrity Implementation Pledge' to be signed by all going on overseas business trips

Ethics Court


Game-based ethics education

Promotion of Participatory Ethical Activities

EWP expands opportunities for employees to get involved with integrity activities through the operation of employee-initiated cultural programs. On Ethics Day of June 2015, EWP held a free discussion forum. The company produced a drama on the subject of ethics and screened it companywide, raising employees' awareness of the issue in the most effective way. In October 2015, EWP held 'a mock trial contest' with employees' active participation. EWP filmed it and posted it online.

Establishment of a Pleasant Ethical Culture

EWP has raised employees' awareness of corporate ethics and significantly consolidated the company's ethical culture through systematic ethics educational programs. In 2015, the company increased the employees' mandatory ethical education hours. It has succeeded in having all its employees internalize ethical awareness through continuous ethical education. Furthermore, EWP has introduced a game-based ethics educational program reflecting the employees' feedback about its ethical management monitoring process. For the first time among local public companies, EWP has also introduced a game-based psychological test designed to measure the actual ethical level of the entire organization, identifying matters to be improved in terms of ethical corporate culture while verifying the reliability and practicality of EMDEX*.

*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.)

Ethical Management Monitoring & Feedback

EWP carries out an ethical management monitoring process for the evaluation of its implementation level and feedback through continuous monitoring. In recognition of its employees-initiated ethical activities and anti-corruption efforts including institutional improvements, EWP received a higher score in the evaluation from the Anti-Corruption and Civil Rights Commission in terms of anti-corruption corporate policies. Regarding internal integrity whose score went down slightly, EWP has carried out analysis and implemented education on ethical activities accordingly.

Ranked **1st** in integrity evaluation

Achievement of **level 1** the evaluation of anti-corruption policies by the Anti-Corruption and Civil Rights Commission for four consecutive years

Improvement of Internal Audit Competencies

In keeping with the need of systemizing the audit system with the assistance of external experts, EWP has reinforced the role of its audit advisory group. It has reinforced auditors' independence in organization, personnel management and budget allocation by ensuring the independence of the group in organization and prohibiting unfair treatment of individuals in personnel management, among others. To further improve its internal audit competencies, EWP has hired outstanding auditors, mandated the completion of specialized education, improved individual on-the-job performance, and enhanced professional competence with the assistance of outside experts.

Operation Efforts of Internal Checks and Balances System

In a bid to manage its internal checks and balances system effectively, EWP undertakes preemptive audits, management of bribery risks, and management of new business risks. According to the scrutiny results and improvement recommendations of its internal system of checks and balances, EWP carries out preemptive audits and operates inspection systems to prevent irregular behavior from taking place.

Major Accomplishments in Prevention of Irregular Behavior

Prevention of irregular behavior

NO CASES
of irregular behavior for two consecutive years

Unannounced public office audits

Actions on 23 violators of public service rules

9 TIMES (2014) ▶ 17 TIMES (2015)

Increased reporting largely due to improved access to reporting channels

Disciplinary actions Warnings to 3 individuals

39 CASES (2014) ▶ 59 CASES (2015)

Major Result of Audit Activities

In 2015, EWP undertook a variety of audit. The company reduced its annual budget by 23% and made a 14% improvement in corrective measures over the previous year. The Board of Audit and Inspection of Korea evaluated EWP to rank one level higher than in 2014 in its 2015 EWP audit.

Major audit records	Daily audits	Special reviews	Continuous monitoring	Performance audits	Financial audits	Designated audits	Labor audits	Comprehensive audits
	874 cases	11,340 cases	2,938 cases	3 cases	1 cases	17 cases	4 cases	3 cases
Major accomplishments	**KRW 47.2 billion** in reduced budget spending		**143 cases** of improvement recommendations		**150 cases** of personnel measures		**One-level upgrade** in the evaluation of the Board of Audit and Inspection of Korea	

Interview

Need to enhance the effectiveness of its ethical management system

Choi Yun-seok,
Deputy General Manager,
Ethics and Compliance Team

I think that the ethical awareness of EWP employees is extremely high. This fact is verified by their response to the company's initiatives for various integrity and ethics promotion activities. For instance, EWP received a total of 54 entries for its 'Ethics Trial' scenario contest in 2015. Meanwhile, the company introduced a game-based ethics education program in partnership with Department of Counseling Psychology of Handong Global University in 2015. It is a form of psychological test designed to measure individuals' integrity and ethics. It determines whether an individual tends to respond falsely to surveys when it comes to questions about his/her degree of integrity. Interestingly, the test results have demonstrated no discrepancy between survey results and test results. EWP plans to further enhance the effectiveness of its integrity and ethics related systems through various participatory ethics education of its employees.

Risk Management

G4-14

EWP makes all-out efforts to prevent its stakeholders from becoming involved in any financial and non-financial risks as part of a commitment to fulfill its social responsibilities. To manage stakeholders' major risks effectively, it has established a risk management system and run an Integrated Crisis Response Center.

Establishment of Integrated Risk Management System

In a bid to deal preemptively with changes in its business management environments, EWP has established an integrated risk management system that addresses both its financial and operational risks. It has determined its KRIs (Key Risk Indicators) through an analysis of risk factors. It manages the core risk factors of its risk management system, per indicator, to effectively prepare for its operational and financial risks.

Integrated Risk Management System

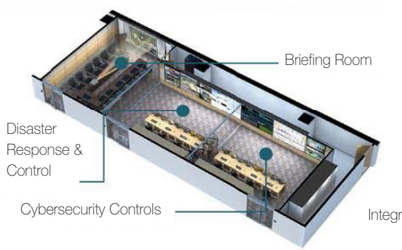
Risks	Financial risks				Operational risks	
	Market risks			Liquidity risks	Power generation operational risks	Fuel supply risks
Key risk indicators (KRIs)	FX VaR	*GCI NEWC	Government bondinterest rates	Cash on hand	Forced outage rate	Fuel inventory (days)
Monitoring system	External: Bloomberg, Infomax Internal: F/X daily report, fuel account settlement system, management information system			Financial management system	Power generation performance management system Management information system	Supply and stock management system Management information system
Monitoring organizations & meetings	Financial Risk Management Committee Management Strategy Meeting Purchase Record Review Meeting				Management Strategy Meeting	Financial Risk Management Committee

*GCI NEWC:
Global Coal Index Newcastle

Operation of Integrated Risk Response Center

For the first time among local power generators, EWP operates a Cyber & Disaster Safety Center security in its cyber and facility operations. The center is divided into the Integrated Disaster Prevention Section and Cyber Security Section to efficiently cope with disaster prevention, facility security, hacking attempts and cyber intrusions. EWP has established a round-the-clock response system to deal with multiple types of disasters.

Center Layout



System Diagram

Integrated Disaster Prevention Room (disaster safety, facility security)	Information on power plant operations, power plant CCTV, multi-party wireless telecommunication system about meteorological information, and disaster management system	Cyber-security Room (hacking, cyber intrusion)	SIEM (Security Information and Event Management), SOC work management ESM (Enterprise Security Management), TMS (Threat Management System) 3D control system of cyber-attacks

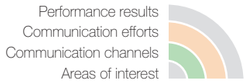
Stakeholder Engagement & Materiality Test

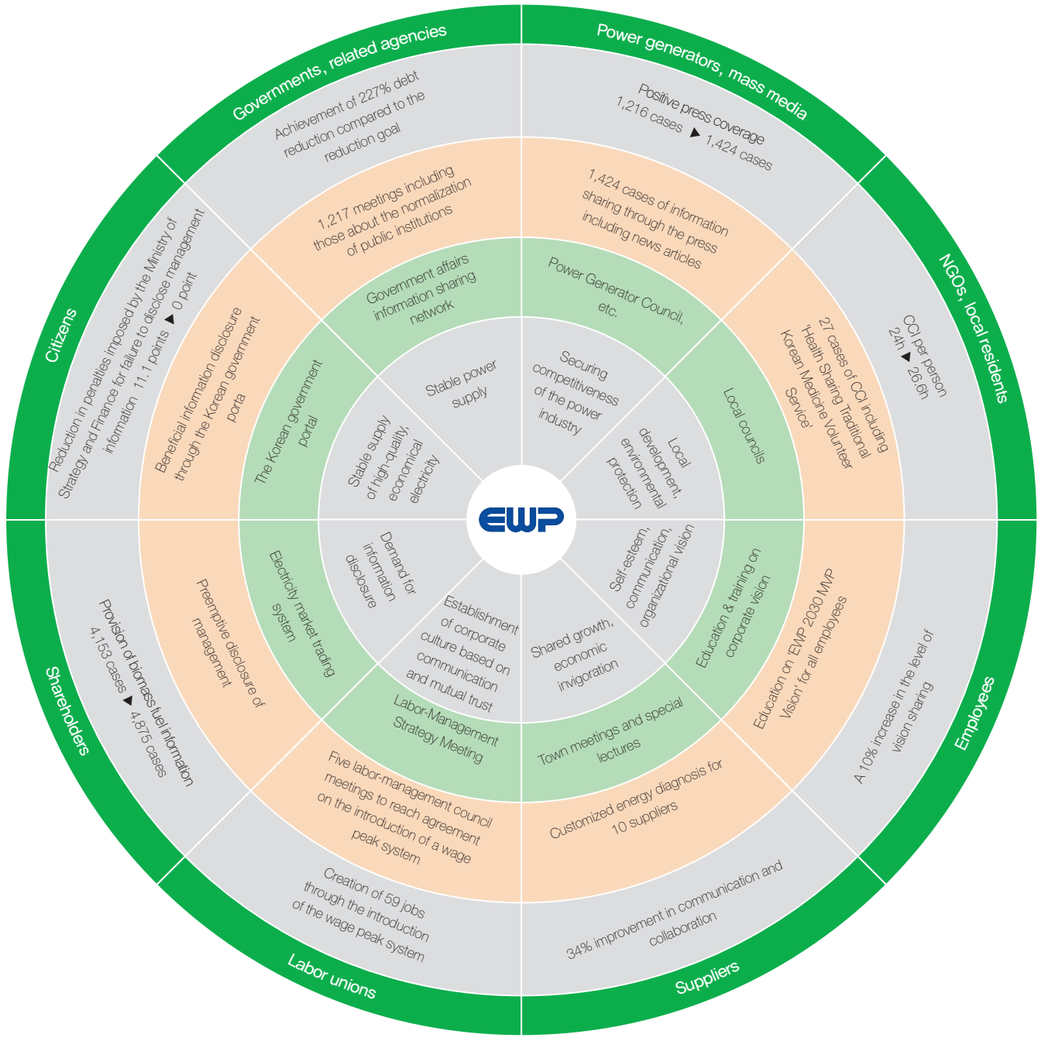
It is critical for EWP to communicate with its stakeholders and identify their expectations with the purpose of making people's lives happier through its sustainable growth. The company operates a number of communication channels to identify major stakeholders' interests and expectations.

Stakeholder Classification

G4-24 G4-25 G4-26 G4-27

In association with its value creation process, EWP divides its stakeholders into three groups such as value impact, value production and value consumption and carries out communication activities customized to the groups, respectively. The value impact group affects value creation. The value production group refers to employees who create values. The value consumption group constitute external customers who directly share the created values.





Materiality Test

G4-18 G4-19

To identify sustainability management issues that internal and external stakeholders find most important, EWP carried out a materiality assessment with THE CSR, a professional sustainability management agency. The company selected 31 issues including its major issues widely covered by the mass media in 2015 according to the international standards of corporate social responsibilities. To determine their priority, EWP conducted a questionnaire survey among 272 internal and external stakeholders of the company. The company's Sustainability Management Task Force Team selected 18 issues in accordance with GRI G4 Guidelines. It sought external experts' opinions at the validation stage of the reporting contents.

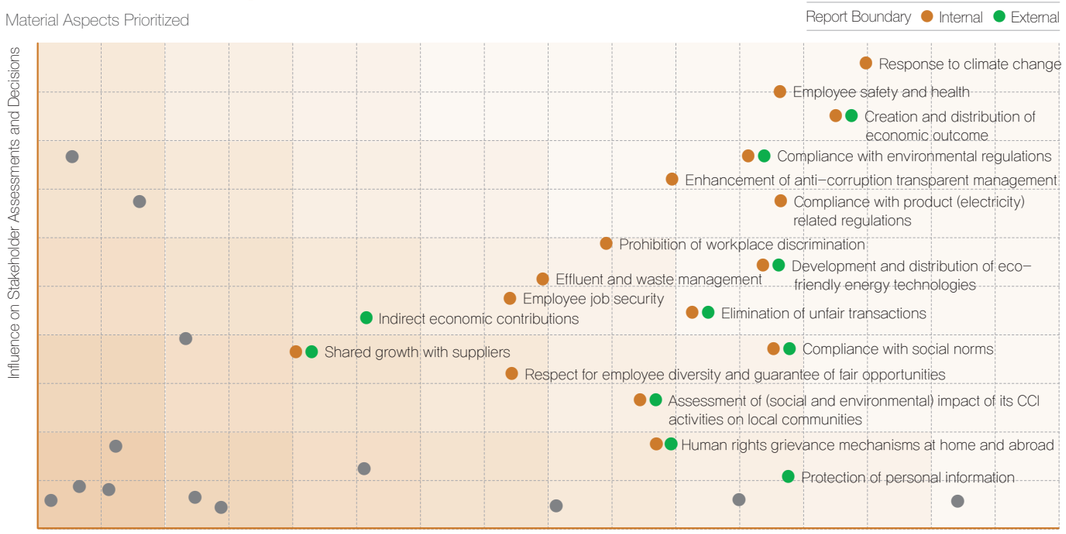
Materiality Test Process

1. Identification
2. Prioritization
3. Validation
4. Review

Results of Materiality Test

G4-19 G4-20 G4-21

Material Aspects Prioritized



Reporting for Result of Materiality Test

Economic Performance DMA	② Creation and distribution of economic outcome ⑯ Indirect economic contributions	Employees DMA	③ Employee safety and health ⑩ Prohibition of workplace discrimination ⑬ Employee job security ⑰ Respect for employee diversity and guarantee of fair opportunities	Win-win Growth DMA	⑪ Elimination of unfair transactions ⑱ Shared growth with suppliers
Environmental Performance DMA	① Response to climate change ④ Compliance with environmental regulations ⑦ Development and distribution of eco-friendly energy technologies ⑫ Effluent and waste management	Social Contribution & Economic Activation DMA	⑮ Assessment of (social and environmental) impact of its CCI activities on communities	APPENDIX	⑤ Compliance with product (electricity) related regulations ⑥ Enhancement of anti-corruption transparent management ⑧ Compliance with social norms ⑨ Protection of personal information ⑭ Human rights grievance mechanisms at home and abroad

Interviews with Stakeholders

Increase the proportion of its renewable energy

Ahn, Byung-ok Director, Institute for Climate Change Action

Through stable power supply, EWP has improved people's quality of life and contributed to the nation's economic development in a significant way. However, it is also true that the company is faced with a number of challenges that are hard to overcome with past paradigms. In January 2016, the World Economic Forum in Davos pointed to climate change as the most serious threat to the world economy. It has been some time that new investments in new and renewable energy surpassed those in coal and nuclear energy combined. Moreover, the Paris Agreement on Climate Change was concluded in December 2015, with the launch of new climate change measures beginning to emerge around the world. Pressure will continue to mount in the international community for virtual elimination of fossil fuel consumption. Given the situation, it is time for EWP to cut down on its consumption of coal and increase the proportion of its renewable energy power generation from a long-term perspective.

Thanks for the supports on SMEs

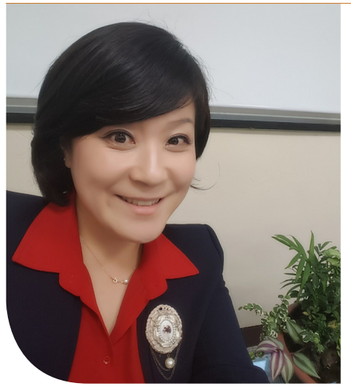
Hwang, Keai-yoon CEO, Kwangsung CO., LTD

My company was facing a hard time due to a protracted recession in the shipbuilding industry when I happened to find out about the test bed system through EWP's Shared Growth Center. As my company had never supplied goods to a power company before, partnership with EWP was hard to expect. However, we were able to complete an SCR NOx analyzer test bed opportunity successfully over six months at Honam Thermal Power Plant Complex through the test bed system, and thus we were allowed to supply analyzers to Honam and Ulsan Thermal Power Plant Complexes. We have acquired New Technology Certification and Performance Certificate from the Small and Medium Business Administration, so that we are now able to execute sole source contracts with the five power companies in Korea. As a participant in the SME export support project, we receive financial support from EWP in terms of tariffs and export documentation fees, which we greatly appreciate.

Win-Win Partnership

Cho, Jeong-kyu General Manager, KEPCO KPS

KEPCO KPS is in charge of EWP's regular maintenance and periodic preventive maintenance work. Coal-fired power generation is becoming a subject of challenges worldwide while fine dust has become an emerging issue domestically. Thus I think that the most compelling sustainability issues facing EWP are its carbon emissions and dust generation. In Europe, including Germany, it has been some time since GHG emission and fine dust generation emerged as key issues. Outdated or less efficient power stations are being phased out. I think EWP could benchmark the experiences of European power companies. In partnership with EWP, our company focuses on the prevention of industrial disasters and the provision of high-quality maintenance service for stable power supply. KEPCO KPS hopes that the partnership between our two companies will continue to result in EWP's sustainable growth and our shared growth down the road.



Execute Truthful Social Contribution

Bae, Jeong-hee Director, Senior Welfare Center, Jung-gu, Ulsan Metropolitan City

I think that EWP gives a great deal of thought to the interrelationship between social welfare projects and its line of business and makes wholehearted efforts for the implementation of the welfare programs it has chosen. For instance, the Forest Experience Program designed for seniors in local communities was proposed by EWP. It capably matches with EWP's vision, "We will make stable, economical and eco-friendly energy that brings happiness to humanity." EWP employees regularly visit our facility and reach out to us. Most impressively, its CEO and staff come to our facility to prepare and serve rice cake soup for the residents of this facility every Lunar New Year. As a welfare facility, we would like to make a humble request that information be provided to relevant welfare facilities including ours as soon as your quarterly or annual welfare programs are set so that our diverse welfare programs can be implemented much more effectively.

It is crucial to supply energy in a stable, economical way.

Jung, Se-woo CEO, THE CSR

Korea is heavily dependent on imported energy, where the fluctuations in oil price have a significant impact on the national economy, which in turn makes stable energy supply extremely important in the country. EWP is an important public company that is responsible for the stable supply of electricity to not only the general public but also key industries. Therefore, it could impact the wellbeing of the entire country whenever it suffers disruption in its stable electric power supply due to forced outage. As such, I believe that the company's most important social responsibility is to secure stable, economically-friendly, and economical power supply to help the nation improve the quality of life for all its citizens. I also believe that EWP must continue to expand its capacity to produce eco-friendly energy to respond effectively to the Paris Agreement on Climate Change and the paradigm shift of energy about fine dust pollution, among others.

Employees' Opinions in a Nutshell

Economy I think that excessive budget cuts may lead to occupational accidents or forced outages and adequate budgets should therefore be requested and used in proper ways.

Environment I find it crucial to build power plants taking into account their economic and environmental impact within the framework of rapidly changing environmental regulations. I am sure that if it finds a solution to this challenging situation, EWP will have a bright future.

Local Communities I suppose that it would be quite useful for EWP to enhance its cooperation with local communities and related agencies and discover business and tasks that will allow all the parties involved to achieve win-win situations.

Employees I believe that EWP can fulfill its social responsibilities by encouraging its employees to reinforce their loyalty to the company through systematic support and educational programs.

External Stakeholder's Opinions in a Nutshell

Governments & Related Organizations Invest in the development of new energy sources and the foundation for eco-friendly lifestyles in the midst of global warming.

Local Communities Strengthen cooperative relations with local communities and related agencies. I suppose it would be useful to discover business and tasks that will allow all the parties involved to achieve win-win situations.

Power Companies Heighten its level of morality and ethics as a public company so that EWP can maintain fairness in its dealings with the suppliers. Also, make its new labor-management culture take root.

General Public I don't think that the general public knows much about EWP. Therefore, I hope that EWP will boost its corporate marketing activities.

We walk with you

As a leader in the energy industry, EWP will strive to create a sharing, sustainable future with a devotion to the basics while exhibiting exceptional passion and a thirst for new challenges.

Economic Performance

DMA Disclosures on Management Approach

Dangjin Coal Fired Power Complex (Dangjin, Korea)

Economic Performance

Issue 2
Creation and distribution of economic outcome

Issue 16
Indirect economic contributions

Sustainability Context

Following the conclusion of the Paris Agreement on Climate Change in 2015, demands have been rising worldwide for the elimination of coal-fired power generation and the expansion of eco-friendly renewable energy. EWP has to enhance its business competitiveness through the diversification of its business areas and the development of new technologies.

Our Strategy & Commitment

EWP is expanding its business areas through the creation of new and renewable energy complexes and the diversification of biomass fuel while supplying electricity in a stable way through its domestic and overseas projects. To that end, EWP reinforces its future growth engines. Moreover, EWP maintains a sound financial structure and boosts fundamental competitiveness according to its mid- to long-term roadmap in order to become a globally competitive public company through sustainable corporate growth.

Our Progress & Next Step

EWP has secured a high level of stability in electricity supply by reinforcing the inspection and maintenance service of its power generation facilities and making efforts to reduce fuel costs, among others. To boost its profits, EWP carries out new business including the creation of domestic wind farms and the construction of biomass power plants. It has strengthened its debt reduction and risk management systems to secure financial soundness.

Key Performance Indicator

200days
Achievement of 2nd trouble free

13.2billion
JPS operation Business : achievement of net profit

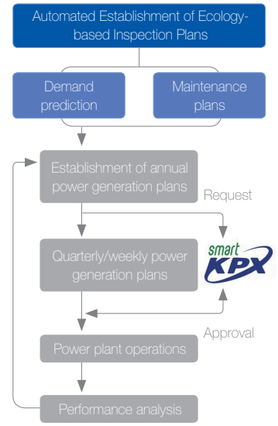
6.2billion
EWP RC: achievement of net profit

27cases
No. of localization

Stable Power Supply

Stable electricity supply is the company's establishment purpose and the citizens' mandate. Korea experienced the seriousness of unstable electricity supply through rolling blackouts it had to implement in the past. EWP has established power generation operation processes for stable electricity supply. Furthermore, the company establishes annual power generation plans based on predictions of supply and demand for electricity. When external changes occur, it establishes additional weekly, monthly and quarterly plans.

Power plant operation process systems



Inspection and Maintenance of Power Generation Facilities

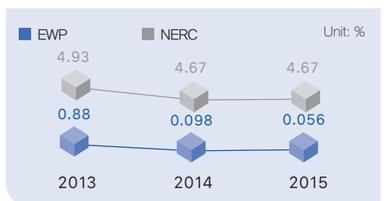
The importance of inspection and maintenance service for its power generation facilities is on the rise as the facility factor accounted for 66% of breakdowns in 2014. It has thus enacted four promotion directions to minimize the occurrence of the breakdown of power generators through the establishment of a sustainable breakdown-free operation system. As a result, EWP has achieved its second period of amassing 200 days free of forced outage and 563 days of zero forced outage in all the generators at Dangjin Coal Fired Power Complex simultaneously.

The Establishment of Sustainable Breakdown-free Operation System

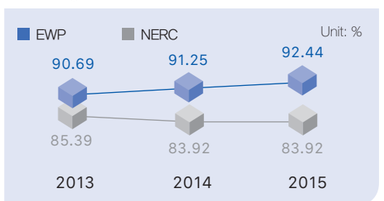
Goal	Minimization of the occurrence of power generator breakdowns through the establishment of a sustainable breakdown-free operation system			
Promotion directions	Virtuous cycle maintenance of prevention, diagnosis, and solution	Reinforcement of vulnerable facilities reflecting the operational characteristics of each facility	Disclosure of operational information to the public and introduction of new technologies	Promotion of technological prowess improvement programs customized to job characteristics
Key measures	3 step (prevention, facility diagnosis, and solution for problem) actions for preventive inspections and structural improvement of maintenance service	Reinforcement of vulnerable facilities per life cycle (initial post-completion period, stabilization period, and wear-out period)	Establishment of double inspection system of power generation facilities Improvement of technological prowess and implementation of cost reductions	Promotion of technological competency improvement programs customized to job characteristics (shift work, regular work, professional manpower)
Promotion results	Achievement of the second period of amassing 200 days free of forced outage Surplus achievement in breakdown prevention competitiveness index (goal/performance: 1.320/1.492)	Over 300MW of electricity supply from Ulsan Oil Fired & C.C Power Complex Operation of a minimum of three out of four power generators at Yeosu National Industrial Complex Achievement of amassing 637 days free of forced outage at Honam Thermal Power Plant	(EWP) Double check for abnormality symptoms in facilities (Manufacturer) Expanded disclosure taking into account operational conditions Shortening maintenance periods Reducing KRW 4.1 billion in costs	Reducing overtime work by six hours per person a month Improvement of technological prowess by 5% compared to the previous year Technical diagnosis for business and for households

EWP has continued making efforts to carry out inspections and maintenance services for its power plants with the purpose of supplying electricity in a stable way. As a result, it has achieved 0.556% and 92.44% in forced outage rate and operating rate, respectively, figures higher than those disclosed by the *NERC (North American Electric Reliability Corporation).

Forced Outage Rate



Operating Rate



*NERC: North American Electric Reliability Corporation

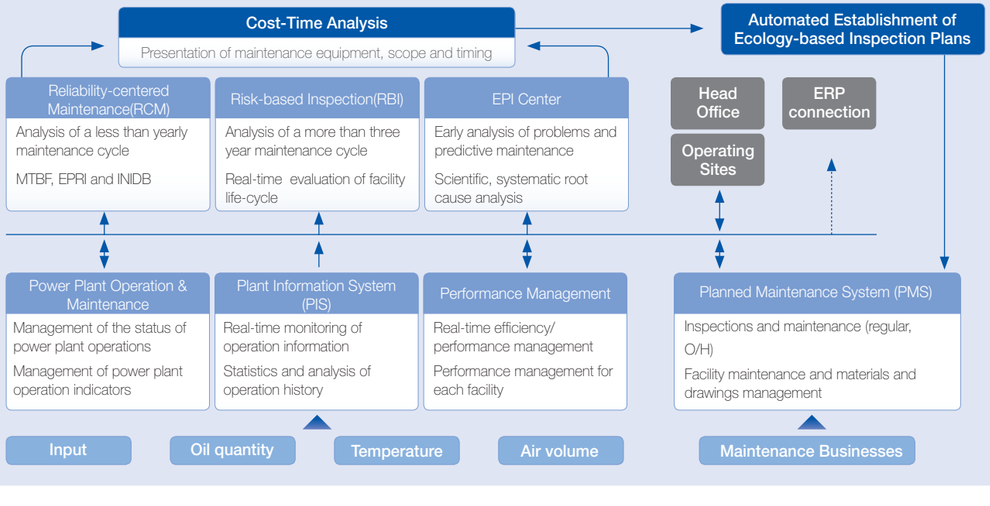
Economic Performance

Integrated Management of Power Generation Operation & Maintenance

EWP systematically manages the proactive maintenance and breakdown prevention of its power generation facilities through *POMMS. It carries out preemptive maintenance through a prediction & warning system in order to prevent forced outage and realize stable electricity supply.

*POMMS : Plant Operation and Maintenance Management System

POMMS (Plant Operation and Maintenance Management System) Block Diagram



Power Generation Facility Management System

Plant Information System (PIS)	Monitoring of the operational status of power generation facilities including the analysis of major equipment operation trends, continuous monitoring of issues in question, and increased convenience of access to inspection items of power generation facilities
Reliability Centered Maintenance (RCM)	Establishment of a database for all types of preventive inspections for each facility, maintenance items and frequency; establishment of plans for preventive inspections and maintenance services based on reliability analysis results; and computerized monitoring of implementation results and facility status online
Predictive Warning System	Early detection of abnormality in power generation facilities, implementation of prediction-based maintenance through cause analysis measures, and scientific and systematic analysis of breakdown causes
Risk Based Inspection (RBI)	Analysis of facility breakdown rates and loss amounts due to breakdown; inspection of the capacity of facilities in operation and prediction of their remaining life span; and computerized management of maintenance plans based on the prediction results

Stable Electricity Supply during Peak Hour

G4-EC7

Minimization of Transmission Restriction at Dangjin Coal Fired Power Complex

Following the determination of the construction of 345kV transmission lines in the Dangjin area, the output cutback operation of Dangjin power generators No. 3 - 8 has become inevitable. EWP has established plans to minimize its output cutback amounts and developed a simulation program designed to achieve optimal output distribution in the Dangjin Coal Fired Power Complex. As a result, EWP has achieved a 321GWh increase in power generation corresponding to KRW 1.6 billion in increased revenue.

*Output cutback: Operating power generation facilities at a lower output level automatically or manually as needed

Upgrade of the Management Guidelines for Usage of Complex Equipment

Following the completion of new large-capacity and high-efficiency power generation facilities, the usage of complex equipment has dropped, worsening the productivity. EWP upgraded the management guidelines for its usage of complex equipment. In 2015, EWP reduced the period of forced outage and increased the operation rate, which resulted in KRW 4 billion and KRW 12.2 billion in revenue and cost reduction, respectively.

Economical Power Supply through Fuel Cost Reductions

SDG 7

Fuel Purchase Process

It is necessary to cut back on fuel costs that account for 70-80% of the total power generation costs to enable a more economical power supply. To reduce fuel costs, it is crucial to secure economical procurement of power generation fuels. EWP establishes its fuel procurement plans based on a demand forecast for electricity and its power generation plans. EWP has developed a comprehensive valuation tool through in-house research. It operates a purchase process based on the tool.

STEP 1 Prediction of Power Demand	STEP 2 Power Generation Plan	STEP 3 Supply Plan	STEP 4 Purchase Plan	STEP 5 Purchase Contract	STEP 6 Maritime Transport
Korea Power Exchange	Power Generation Division	Fuel Resource Team			
Prediction of power demand based on GNP, industrial growth, and recent trends	Building a power source portfolio based on demand for electricity Establishment of power generation plans per power plant and year	Establishment of a supply plan of a power supply source portfolio	Establishment of a purchase plan including purchase methods, quantities and shipping time considering market situations for each type of fuel(3-6 months in advance)	International competitive bids -In-kind bids -Long-term bids -Negotiations with long-term contractors	Shipping after finalizing a shipping schedule with a relevant shipping company according to the purchase contract

Preemptive Purchasing Strategies Customized to Procurement Markets

To maintain its economic superiority in the bituminous coal purchase process, EWP identifies cost-reduction factors in each procurement process and takes actions on the findings. As a result, EWP saved KRW 120 million in the purchase process and KRW 1.4 billion in demurrage in the unloading and storage processes in 2015 when compared to 2014.

	Purchasing	Unloading	Storage
Operation Status and Problems	Price risks when index rises from artificial stimulus	Decreased unloading efficiency due to aging wharf facilities at Dangjin Wharfs 1 & 2 Increased difficulty facing pilot boats at Wharf 3	Low efficiency in coal storage due to the maintenance of distance between different types of coal
Improvements	Micro-analysis of index over 5 years - Prevention of price risks in the first quarter through postponing the introduction of the index link system	Increased usage of the new wharf (Wharf 3) and improved stevedoring efficiency - 3 Achievement of a 94% usage rate for Wharf 3 reducing demurrage at unloading wharves	Integrated storage of different types of coal through prior grouping of coal that can be stored together and subsequent improvement in the overall space usage - Contribution to reducing demurrage through securing storage space and improving storage efficiency

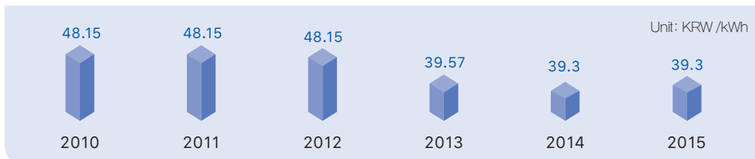
Sophistication of Market Situation Analysis System for Bituminous Coal

Raw material prices keep falling largely due to the global economic recession. Major economies have changed their policies. EWP set up an analysis system enabling it to deal with global changes in a timely manner. As a result, the company has been able to make reasonable decisions on the purchase of bituminous coal through systematic management of internal and external factors, constant monitoring of price fluctuations of each type of coal, and micro-monitoring of future prices. The purchase frequency jumped from 32 to 40 times between 2014 and 2015. The advance purchase timing has also been shortened from 94 to 77 days between the same period. As a result, EWP ranked first in fuel costs for standard thermal power generation for six straight years, underscoring its most economical fuel procurement practices.

Ranked 1st in fuel costs for standard coal-fired power generation for six straight years ******

1st

The Fuel Price of Bituminous Coal



Enhancement of Future Growth Engines

Environmental demands for the power generation industry to respond to climate change are on the rise. Competition with private power generation companies is being accelerated. For EWP to successfully carry out its mid- to long-term strategies and grow into a sustainable company, the company must enhance its R&D competency and new business designed to secure stable profitability and equip itself with competitiveness in various future-oriented technologies.

Development of New Business

Domestic Business Development Process

1 Discovery of new business	**Commencement of development** Establishment of development criteria and methods Document review, on-site investigation	**Selection of candidate venues** Surveys on the willingness of local governments & residents Selection of a venue with techno-economic competitiveness
2 Establishment of construction plans	**Design implementation** Review of the optimal facility composition and format Introduction of eco-friendly high-efficiency facilities	**Plan verification** Technological reviews by professional service providers Establishment of business plans
3 Reflection of basic electric power supply plans	**Construction intention** Securing agreement on construction from local governments and residents External advertising of strong project execution capabilities	**Promotion of collaboration** Promotion of private/public/civil society collaboration programs Securing high points in the business license evaluation

Development of New Power Sources

In order to develop power sources in the domestic electric power market, the introduction of the new power sources should be reflected in the government's biennial Basic Electric Power Supply Plan. To submit a letter of intent to build a power plant that meets the requirements of the government about the operation of the local power industry and electricity market, EWP has secured land for new power plants including the replacement of New Honam Project and developed new and renewable energy as part of its all-out efforts to develop diverse types of new power sources.

Business Development based on Differentiation Strategies G4-EC7

EWP promotes the development of new business based on its differentiation strategies including the maximum consideration of local characteristics by regional development hubs. EWP acquired the power generation business license for its Yeonggwang Wind Farm in November 2015 whereby the company is building a '140MW class Wind Farm,' the largest in Korea. the company has signed an MoU with Hoengseong-gun for the construction of a new biomass power complex.

Development of a New Energy Industry G4-EC7

EWP is striving to develop a new energy industry through the combination of new & renewable energy sources and the creation of counties independent in energy, among others. The company's combined agriculture project using hot wastewater from its Dangjin Coal Fired Power Complex, which recycles waste heat to produce energy, has been selected by the Ministry of Agriculture and Forestry. EWP also carries out Dangjin Future Energy Town Creation Project taking advantage of the infrastructure of its Dangjin Coal Fired Power Complex. It has also executed an MoU with Goheung-gun about the construction of a biomass Power Complex in an effort to help the country become totally independent of fossil fuels for the first time in Korea.

Dangjin Thermal Power Plant Waste Heat Recycling Project

Securing Future Technological Competitiveness

EWP secures high value-added creation type core technologies and seeks to find profit creation type future growth engines through systematic and constant technological development. It has set its R&D vision, and established four major promotion strategies.

R&D Strategy System

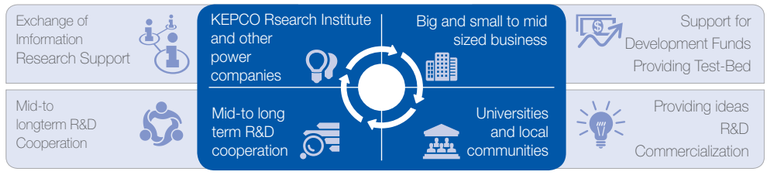
Vision	2030 Most Valuable Power Company			
R&D Vision	Securing Global Top 10 Power Generation Technologies			
Implementation Strategy	Future-oriented investment decisions	Execution of large-scale steady tasks	Differentiated selection and concentration	Convergence with cutting-edge technologies
Business Area	Thermal Power	Dispersed electric source/power ICT	New & renewable and GHG emission reduction	
	Retrofit technologies Fuel & combustion technologies Cutting-edge power generation operation technologies	Dispersion type power generation technologies Energy storage technologies Electric power ICT technologies	New & renewable energy technologies GHG emission reduction technologies Resource recycling technologies	
Goal	Power generation efficiency: coal 45%, combined 61%	Development of USC CO_2 original technologies, remote control, IoT, 3D printing	New & Renewable Energy 3GW CO_2 reduction, 30-year BAU 20%	

R&D Infrastructure and Cooperation Network

EWP boosts the efficiency of its R&D activities through outstanding infrastructure and a cooperation network. It exchanges information and research assistance with KEPCO Research Institute and other local power companies. It offers development funds and test-bed platforms to both big and small businesses in the country. The company provides ideas to colleges and local governments and promotes commercialization of R&D results. It has built mid- to long-term R&D cooperative relations with external R&D institutions.

*Test-Bed: a platform, including environments, systems and facilities, designed to test the performance and effectiveness of new technologies, products and services

Infrastructure and Cooperation Network



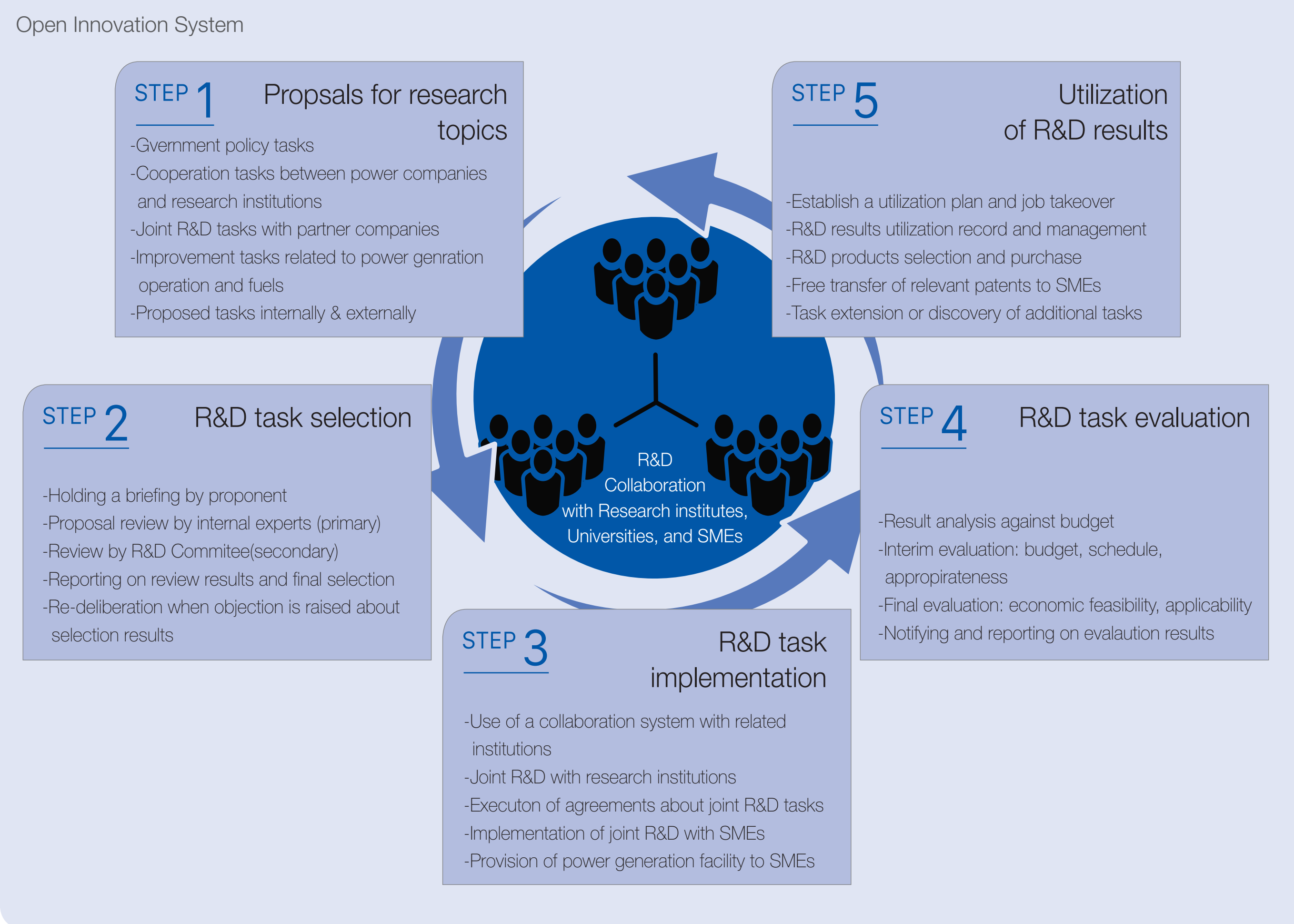
R&D Tasks and Promotion Results

	2013	2014	2015	2016
Major tasks	Engineering technology development for a 30MW class LC biomass power plant Securing design technologies required for a Donghae 30MW class LC biomass fluidized bed boiler	Development of a 5MW class biogas turbine combined heat & power generation system Completion of the development of the commercial product of a combined heat & power plant	Localization of the technology for 501F gas turbine blades and vanes Local development of WH type gas turbine blades, stages 1 & 2 and 2nd stage vane pumps	Development of high value-added chemicals manufacturing technologies through the integration of CO_2 capture and bicarbonate of soda production Currently developing commercial technoloy (5MW) that can manufacture high value-added chemicals at the same time CO_2 is eliminated
Performance record	3MW West Coast Adaptation-type Wind Power System Generation Securing technologies for wind turbine manufacturing, installation and maintenance	Localization of the technology for 501D5 gas turbine #1-3 blades Securing manufacturing technologies for gas turbine compressors and steam turbine HP, IP, LP rotary wings	Development of low temperature type SCR denitrification facilities for vertical type HRSG at combined power & heat power plants Operation of low temperature type SCR denitrification facilities and registration of 6 relevant patents	

Economic Performance

Operation of Open Innovation System

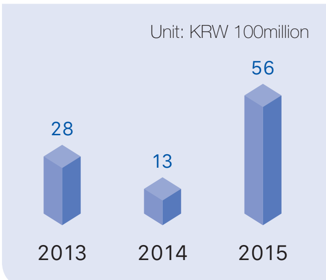
To achieve its vision - Securing Global Top 10 Power Generation Technologies, EWP runs an Open Innovation System designed to propose R&D tasks and promote joint R&D efforts. The system involves R&D collaboration with research institutes, universities and SMEs.



Implementation of Strategic R&D

To preempt superiority in technological competitiveness, EWP has devised a collective intellect based technology roadmap and implements strategic R&D. It has devised a strategic roadmap that includes manpower and investment plans together with the specification of technologies to be secured. It is a long-term plan spanning from 2015 to 2030. Most notably, the company launched its Technology Planning Team in 2015 to supplement its strategic R&D momentum, increasing the number of specialized staff from three to six and investing KRW 5.6 billion in strategic R&D efforts. It also increased the frequency of meetings of the R&D Committee along with the ratio of deliberation and resolution cases in 2015, dealing with four government R&D projects and seven R&D collaboration project.

Strategy R&D Investment



Two-Track Operation of Exclusive R&D Departments

EWP carries out R&D activities efficiently through strategic R&D centered on government projects and exclusive management and operation of shared growth R&D with SMEs. Strategic R&D department is in charge of the strategic promotion of mid- to long-term government tasks. Shared Growth R&D Department is responsible for the maximization of Big and Small Business Matching Research of technologies. The company maximizes its R&D synergistic effects through the realization of two-track R&D operations.

Joint R&D Promotion with SMEs

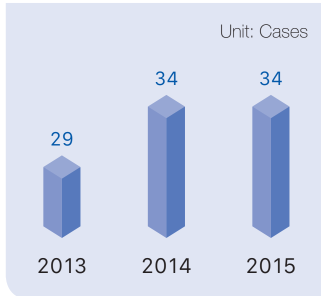
To build a sound supply network of power generation equipment and materials, EWP promotes joint R&D with its small- to mid-sized suppliers. The company has set two directions - the increase of the localization ratio for key components and commercialization-centered joint R&D. As a result, the company has won 'the SMBA Technology Cooperation Partner Discovery Award' for eight consecutive years for the first time among public companies.

Task Discovery Award by SMBA

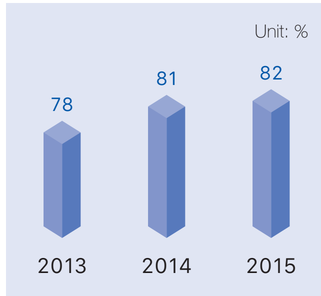
Efforts to Enhance Localization of Power Generation Equipment & Materials

EWP actively promotes the localization R&D of power generation equipment & materials to reduce risks involved in securing foreign maintenance parts and components and establish an empirical virtuous circle system of domestic R&D products. The company localizes core components and parts that have been entirely imported from overseas through joint R&D with its small- to medium-sized suppliers. It supports reliability validation through the implementation of test-bed for SMEs' self-developed goods.

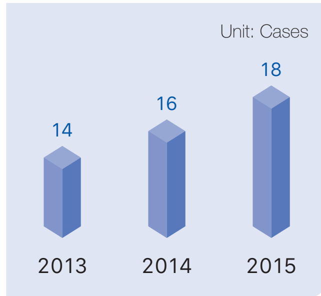
Joint R&D with SME



Localization ratio



Implementation of test-bed



Classification	STEP 1 (2009) Establishment of localization research strategies	STEP 2 (2012) Localization research strategy rolling	STEP 3 (2014) Localization research strategy rolling
Period	2006.1~2008.12	2009.1~2011.12	2012. 1~2013.12
Analysis objects	5 operating sites including Dangjin Thermal Power Plant Complex		
No. of foreign purchase items (KRW 100 million)	1,492 cases (999.5)	923 cases (513)	628 cases (366)
No. of localization items	249 cases	116 cases	73 cases

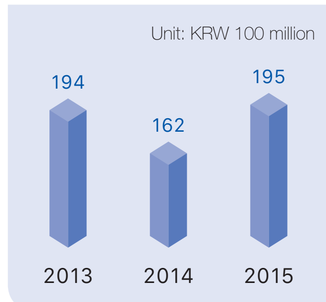
Promotion of Joint R&D

EWP promotes commercialization-centered joint R&D. It provides domestic and international marketing opportunities through direct purchase of newly developed products. It discovers and cultivates globally competitive small- to medium-sized businesses and R&D intensive startup companies. Moreover, EWP expands the implementation of its profit-sharing scheme based on joint R&D.

Joint R&D Promotion Results

Sales increase for 48 companies that participated in the marketing support project	Discovery of 2 robust SMEs	Distribution of KRW 105 million
KRW 563.9 billion in 2015 (▲KRW 59.4 billion)	Discovery of 10 companies that participate in new R&D efforts	in profit-sharing through the expansion of the profit-sharing scheme

Sales of Direct Purchases

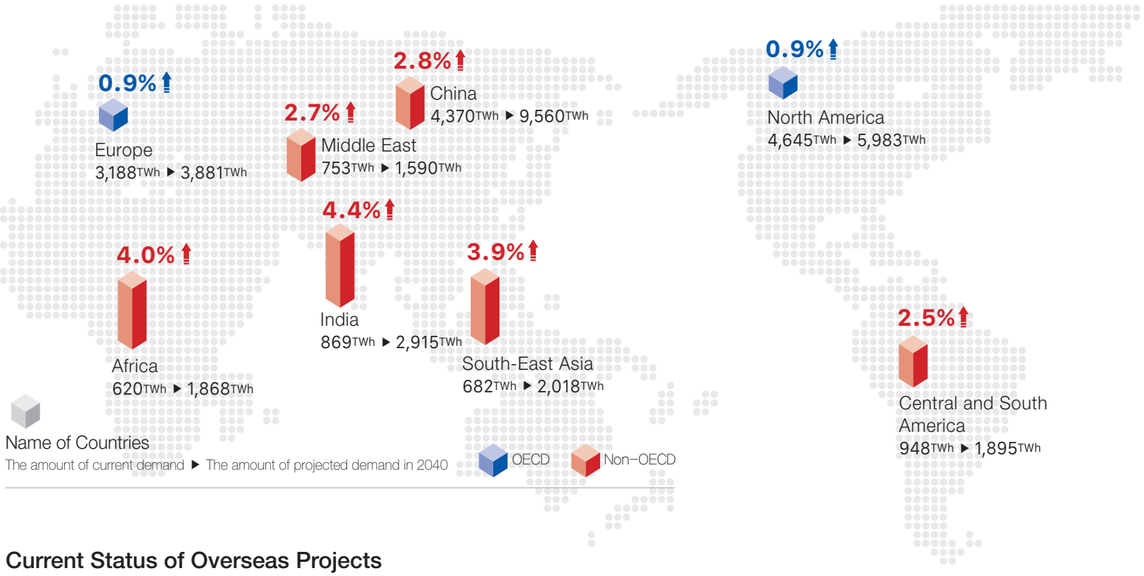


Overseas Business

Outlook of the World Demand for Electric Power

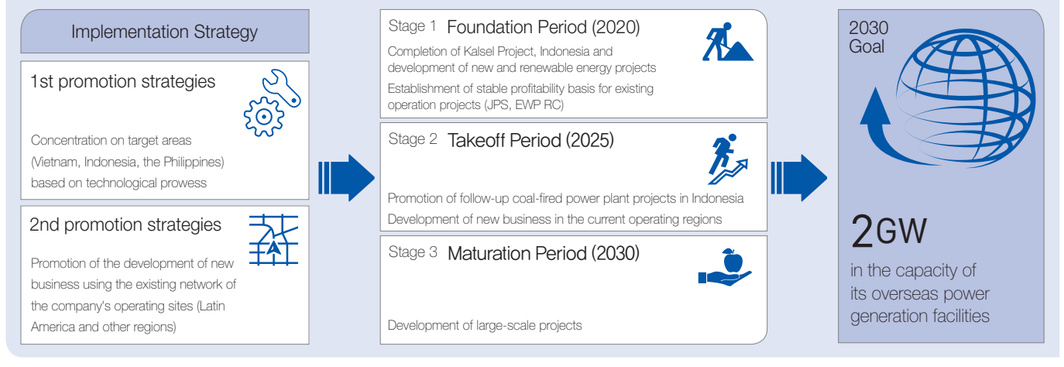
According to the IEA's forecast of the global demand for electric power, the demand of non-OECD countries for electric power is estimated to account for more than 80% of the total increase due to the economic growth and demographic increases in developing countries. As the Paris Agreement on Climate Change has gone into effect, it is predicted that investments in new and renewable energy power generation business will expand significantly. In keeping with the worldwide trends in response to climate change, EWP has made the best use of its technological prowess and local networks around the world to secure leadership in various developing countries' electricity markets.

Outlook of Increases in World Demand for Electric Power 2012-2014



Current Status of Overseas Projects

EWP has set up a mid- to long-term roadmap to preempt the electricity market of the developing world including Vietnam, Indonesia and the Philippines and expand its presence in areas where it is currently operating. It is striving to achieve its goal of 2GW in its overseas power generation facility capacity.



Overseas Project Development Process

EWP makes decisions on its overseas project development according to a thorough process including a feasibility review by the Overseas Business Selection Committee to secure objectivity in the review, the project risk review by Risk Management Committee, and the review of the companywide investment priority by the Investment Review Committee. For the successful promotion of overseas projects, it has set five major feasibility review principles (PRIME) in the areas of profit (P), risk (R), strategic compatibility (I), mutual growth (M) and employee satisfaction (E). It has established a 'Risk Management System' that presents a standard rate of return through quantitative risk evaluation.

Risk Management System

P	R	I	M	E
Profit	Risk	Strategic Compatibility	Shared Growth	Employee Satisfaction
8 Cases	100 Cases	5 Cases	2 Cases	4 Cases
Standard rate of return, securing electric power sales contracts, contract parties' credit rating, etc.	Government system, nation's credit rating, past default experiences, degree of currency convertibility, etc.	Capital structure limits, strategic investors' roles, degree of collaboration efforts, etc.	EPC implementation, supply ratio of domestic equipment and materials	Terror/crime/security, diseases, housing/ medicine/education/ transport facilities, and implementation of one's jobs

Overseas Project Development Process

Current Status of Overseas Projects

The Kalsel Indonesia Project

EWP is carrying out the Kalsel Indonesia Project that it won in 2012 through an open bid. In 2015, the company met the requirements of the credit group, EPC and local partners through the minimization of additional financial burdens and deposits promoted with the purpose of concluding the negotiation about the procurement of financial resources, and cost reductions based on the renegotiation of the industrial water fees. Moreover, the company saved KRW 19 billion in financial costs through additional reductions in interest rates following the company's systematic introduction of competition among financial institutions.

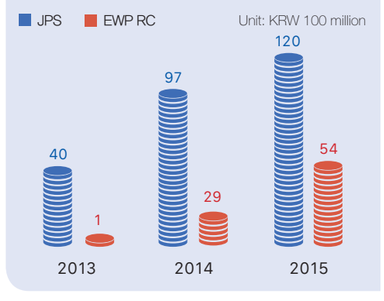
Saved in financial costs through additional reductions in interest rates

19 billion(KRW)

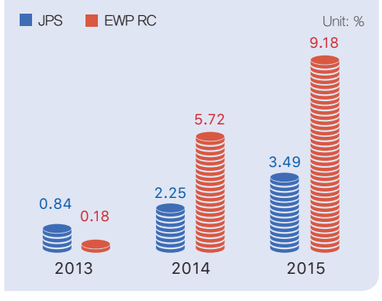
Jamaica JPS Operation Project and the US EWP RC

EWP has promoted improvements in mid- to long-term profitability of its core overseas projects such as Jamaica JPS and the US EWP RC. At JPS, the company accomplished fundamental improvements in profitability through more fundamental approaches like improvements in the electricity bill regulations. At EWP RC, EWP enhanced the competitiveness of the company through increases in the operation of the CPH power plant and the profitability of the biomass power complex. Through such efforts, the company has achieved a surplus for three consecutive years at both Jamaica's JPS operation project and the American EWP RC project.

Net Profit



Net Income to Sales



Financial Soundness

EWP has devised a mid- to long-term financial plan after analyzing internal and external circumstances to achieve a sustainable and sound financial structure while making reasonable budget operations. In 2015, EWP endeavored to secure financial soundness in accordance with its mid- to long-term roadmap.

Establishment of Mid- to Long-term Financial Plan

EWP set a mid- to long-term financial plan designed to systematically implement its 2030 Mid- to Long-term Management Strategies. It has set its performance goal and secured its financial soundness by selecting implementation tasks aligned with its mid- to long-term roadmap.

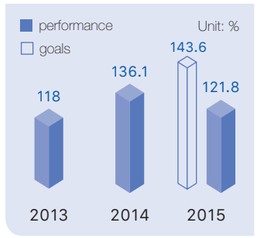
Mid- to long-term roadmap	2015 -Boosting financial soundness -Systemization of financial risk management -Efficient asset management	~2018 -Systemizing response to future challenges -Boosting financial structural soundness -Upgrade of asset management	~2030 - Growth-oriented financial plans setting - Upgrading companywide risk management system - Improvements in productivity
Performance goal	A competitive public company that maintains a sound financial structure and achieves sustainable growth		
2015 implementation tasks	**Boosting financial soundness** Establishment of sustainable, sound financial plans Improvements in cash flow through increased profitability Restructuring the business portfolio through the establishment of an optimal power source mix	**Systemization of financial risk management** Strategic funds procurement through market situation analysis Preemptive financial risk management through the implementation of debt reduction Strategic fuel purchases and securing cost competitiveness Devising ways to improve profitability	**Efficient asset management** Preemptive response to carbon emission reduction technologies Market expansion through collaboration with the private sector Profit management through the stabilization of the independent accounting of business units Boosting usage rate
Monitoring	Strategic asset management system Debt Management Committee Investment Review Committee	Integrated risk management process Financial Risk Management Committee 'Monthly financial plan review meetings	ERP (Enterprise Resources Planning) Analysis of budgets, final accounts, and general management status Budget Deliberation Committee

Efforts to Secure Financial Soundness and their Outcomes

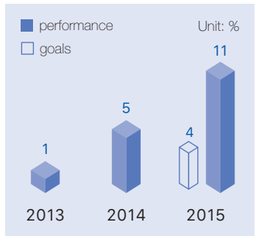
EWP carried out an analysis of the patterns of its past performances in stability and profitability in a bid to secure financial soundness. It turned out that the company needed to make improvements in its profitability while showing fairly good performance in stability. As a result, the company set improvements in its financial soundness as one of its implementation tasks in 2015. It chose the enhancement of profitability, debt reductions, and enhancement of the risk management system as its three major improvement tasks for the year. At the end of the year, EWP surpassed annual targets in all key areas such as stability, profitability and growth potential. It was presented with the 16th Financial Innovation Award hosted by the Ministry of Strategy and Finance, for the first time among public companies in the country.

Financial Innovation Award

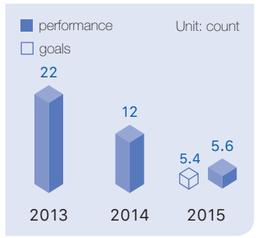
Stability_Debt ratio



Profitability_ROE



Growth Potential_Asset increase rate



Enhancement of Profitability

To make improvements in its cash flow through enhancement of its profitability, EWP has reduced costs and improved its power generator operation rate. Also, EWP achieved the highest rank in cost reductions for standard coal-fired power generation through the standardization of internal and external variable management including market prices and macroeconomic variables. It increased profits through value increases of assets denominated in foreign currency. As a result, the company achieved KRW 454.9 billion in net income in 2015, the largest since the company inception.

The largest since the company inception

454.9 billion(KRW)

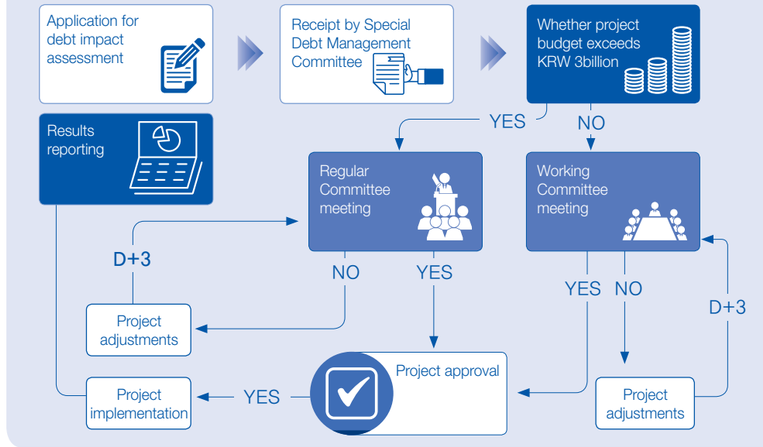
Debt Reductions

Through highly intensive self-help efforts, EWP reduced its overall debt in 2015 by KRW 588 billion compared to its goal KRW 329.5 billion. The company also reduced debt by an additional KRW 79.6 billion by discovering and implementing extra tasks in addition to its original debt reduction plan. With the additional resources, EWP expanded investments in its future. It has set an allowable limit on its debt ratio and carried out debt impact assessments according to a debt impact assessment process. It strives to prepare reasonable budgets through enhanced feasibility evaluation of project budgets and effective operation of Deliberation Committee.

Debt Management Committee

Eligibility	All projects with a budget of more than KRW 3 billion per project
No. of deliberation cases	221 cases handled in 25 meetings
Effects	Curbing debt increases by KRW 128.5 billion

Procedures for debt impact assessment



Enhancement of Debt Reduction Monitoring Activities

Management Efficiency Improvement Committee	Debt Management Committee	Financial Risk Management Committee	Sub-committees in various fields
Finalization of debt reduction plans Discovery and management of additional tasks	Establishment and review of debt reduction plans Debt impact assessment	Analysis of environmental changes Market and operational risk management	Establishment and review of implementation tasks Prior debt impact assessment

Enhancement of Risk Management System

To maintain the stability and soundness of its financial structure, EWP has established and managed an integrated risk management system including financial risks and operation risks. In 2015, EWP measured and managed foreign currency VaR to address its financial risks. It implements prediction of foreign currency fluctuations and adjustment of hedge ratios. Also, to cope with its operational risks, the company monitors its forced outage rate and detects and counters power generation operational risks. By monitoring fuel consumption fluctuations, it secures a stable supply of fuels.

*VaR (Value at Risk): the maximum amount of losses possible

We take on new challenges

We actively embrace new challenges
We will overcome new environments together.
EWP copes with energy issues including response to
global climate change and create a co-existing future
through the development of green energies.

Environmental Performance

Environmental Performance

Sustainability Context

In line with the Paris Agreement on Climate Change adopted in 2015, major environmental issues have emerged as the most critical management issues. The government is tightening their own environmental regulations, and is adopting policies involved with restrictions on coal-fired power generation and expansion of environmentally-friendly power sources like green energy as well as GHG emission reduction. EWP has established green environment management strategies and worked to curb climate change.

Our Strategy & Commitment

With the goal of a 20% reduction in its GHG emissions by 2030, EWP has set up its green management strategy system with four specific strategic directions. To carry out the plan systematically, it has set up green management departments at its head office and all its operating sites, which continue to enhance their strategic implementation of their.

Our Progress & Next Step

EWP upgrades its green management performance indices through reflection of its internal and external environmental changes on an annual basis. It strongly motivates employees' voluntary participation in companywide efforts through the development and application of its own green management performance index. It will make all-out efforts to successfully realize its mid- to long-term goals: reduction of GHG emissions, green growth, and establishment of a green corporate culture.

Issue 1
Response to climate change

Issue 4
Compliance with environmental regulations

Issue 7
Development and distribution of eco-friendly energy technologies

Issue 12
Effluent and waste management

Key Performance Indicator

1.82 million tons
Reduction of additonal GHG amid the allocation of emissions allowances

2 years in a row
Designation as and outstanding business participation in the CDP

100%
Achievement of PRS implementaion rate

90%
Achievement of waste recycling rate

*RPS (Renewable Portfolio Standard): a regulation that requires the increased production of energy from renewable energy sources, such as wind, solar and geothermal

Green Management

EWP has promoted eco-friendly management activities under the conviction that taking a series of its activities designed to reduce GHG emissions and environmental pollutants is its critical social responsibility.

Goal for Green Management

EWP has defined green management as incorporation of its traditional environmental management into sustainability management. It has built its own green management system. Most notably, it has set its green management goals aimed at taking preemptive measures to fight climate change.

Green Management System and Strategy

EWP continues to take all the necessary supervisory and preventive measures keeping in contact with its stakeholders. Through an environmental monitoring system, it discloses its power plants' data on air pollution, water pollution and emission concentrations. For the first time among local power plant operators, EWP runs its own green management system and discloses comparative data on the implementation of green life at the level of both operating sites and individuals.

Green Management Performance Evaluation G4-EN29

To build a consensus on green management among all its employees and enhance the organizational capacity to promote green management, EWP runs internal performance index designed for improvements in its green management. The evaluation results are reflected in its incentive program. It continues to upgrade the performance indices by taking into account internal and external environmental changes. In addition, to boost its employees' awareness of green management, it has developed its own green management system and green management performance evaluation indices, which has motivated its employees to take part in the companywide effort.

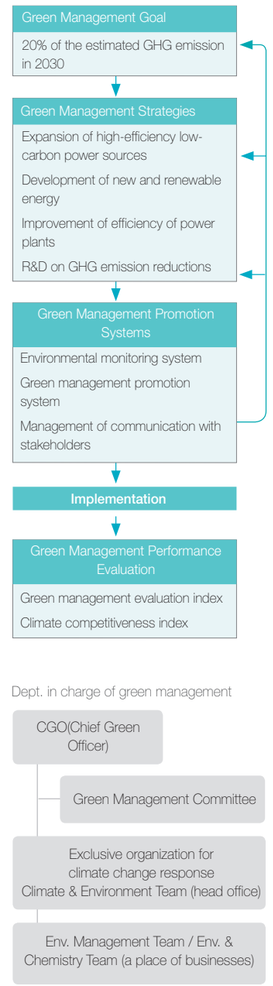
Green Management Evaluation and Performance

Indices	Detailed indices	Evaluation Items	2015 Performance
Compliance with environmental regulations	Compliance with environmental regulations	Compliance with emissions allowances, compliance with permit and license conditions, proper management of emission and prevention facilities, and appropriate management of chemicals	Environmental accident "Zero"
	Green management	Designation as a green enterprise, ISO 14000/9001 certification	Qualification maintenance
	Purchase of Green Products	Over 90% in the purchase rate of green product	97.9%
Improvements in green management	Improvements in green management	Decreases in pollutants and waste, and improvements in environmental facilities and relevant work	-
	Proper management	Efforts to recycle waste (goal: over 85%)	90%

Compliance with Environmental Regulations G4-EN29

EWP manages and complies with domestic and international environmental regulations and other requirements that directly correspond or relate to the environmental aspects of all its activities, production and services. Most notably, EWP takes active approaches to environmental management through the application of emission allowances that have been voluntarily set above the standards for green enterprises.

Green Management Goal and Strategies



Dept. in charge of green management

Coping with Climate Change

SDG 13

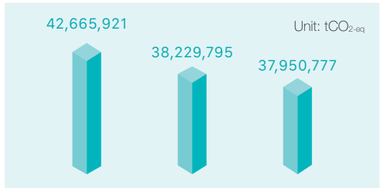
Most notably, EWP strives to achieve its own GHG emission reduction goal by expanding of high efficiency low-carbon power sources, developing new & renewable energy, and R&D on GHG reduction technologies. As a result, EWP reduced 1.82 million tons of GHG emissions more than allocated by the government, and achieved the highest score in the power generation industry in the Competitiveness Index in Climate Change for five consecutive years.

Current Status of GHG Emissions and Energy Used

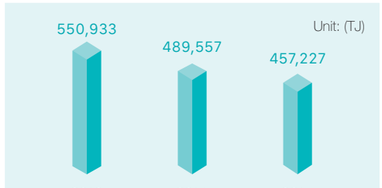
G4-EN3 G4-EN15 G4-EN16

EWP's GHG emissions and energy consumption have continued to decline since 2013 through its efforts to cut down on its GHG emissions, including various GHG emission reduction businesses and GHG reduction technologies. Meanwhile, its facility capacity rose by 21.8% following the completion of Dangjin #9 and #10 in 2016. An increase is anticipated in its GHG emissions. It will strive to minimize its GHG emissions through active efforts to respond to climate change.

GHG Emissions(Scope 1+Scope 2)



Energy Consumption



Current Status of Other Relevant Indirect GHG Emissions

G4-EN17

Besides direct and indirect GHG emissions, EWP has voluntarily managed other relevant indirect GHG emissions (SCOPE 3) such as water for electricity, supplies purchase, GHG emissions from business trips and commuting since 2014. In 2015, it reduced other indirect GHG emissions by 5.6% over the previous year through the reduction of water for power generation and fuel consumption.

Other Relevant Indirect Greenhouse Gas Emissions (Scope 3)

Other Indirect GHG Gas Emissions Scope 3	Type	2014	2015
	tCO2-eq	9,262,519	8,742,014

Reduced other indirect GHG emissions

5.6%

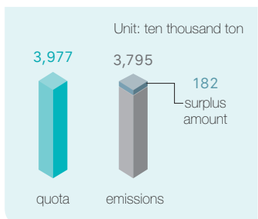
Efforts of GHG Emissions Reduction

G4-EN19 SDG 13

Successful Implementation of Emissions Trading Scheme

EWP has successfully implemented its emissions trading scheme. In 2015, it reduced 1.82 million tons more than allocated by the government. During the year, it emitted the least amount among power companies although it ranked 2nd in the country in terms of the proportion of coal-fired power generation. Through the development of technologies converting GHG into high value-added chemicals, EWP will expand high-efficiency low-carbon power sources and biomass and other new and renewable energy-based power plants and minimize GHG emissions.

2015 performance of emission trading



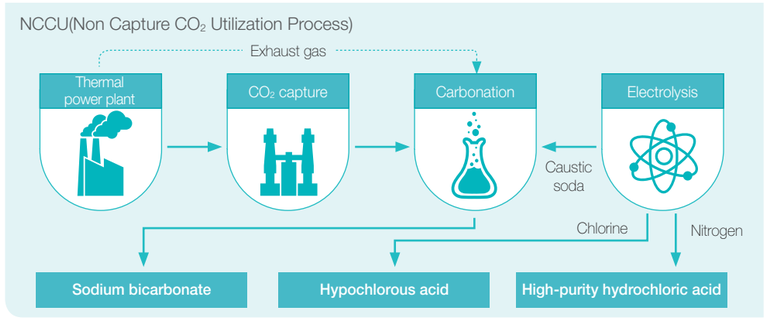
R&D on GHG High Value-Added Conversion Technologies

G4-EN19

EWP is striving to develop GHG high value-added technologies to secure profitable CO_2 treatment technologies by directly reducing GHG emitted by thermal power plants. When EWP began to promote R&D on CCS*, it was challenging to secure storage space following CO_2 capture. Thus, EWP invested KRW 1.9 billion in the development of technologies designed to manufacture sodium bicarbonate without the need to store CO_2, NCCU(Non Capture CO_2 Utilization Process) through the reaction between CO_2 and NaOH in emissions.

*CCS(Carbon Capture & Storage: a technology that collects, compresses, transports more than 90% of CO_2 emitted from large-scale CO_2 sources such as power generation and industrial processes, and then stores it in oil fields, gas fields or saline aquifers.

NCCU(Non Capture CO_2 Utilization Process)



Expected economic value through NCCU technology

5.2 billion(KRW)

Expansion of High-efficiency Low-carbon Power Sources

EWP actively promotes GHG emission reduction through improvements in its power generation efficiency. Specifically, it strives to not only upgrade the efficiency of its existing facilities but also expand low-carbon high-efficiency power generation facilities that will replace existing facilities, as a way to escalate the efficiency of its total power generation facilities, and make improvements in its emission reduction unit. It is building its Dangjin #9 and #10 into a 100MW class ultra-super critical power plant* respectively for the first time in Korea, which are expected to reduce GHG emissions by 9.7% compared to standard coal-fired power plants.

*Ultra-Super Critical Power Plant: a power plant maintaining over 593 degrees Celsius of steam temperature while keeping its steam pressure above 246kg/cm2, higher than an existing super critical power plant

Expected GHG reduction of Dangjin Thermal Power Plant Units #9,10

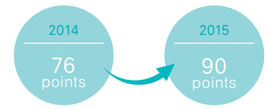
9.7%

Voluntary participation in CDP

SDG 13

EWP began to participate voluntarily in the CDP in 2012 with the aim of converting the global climate change crisis into an opportunity for itself in terms of its CSR efforts. Its climate competitiveness has been evaluated ever since. Most notably, it won a CDP Special Carbon Management Award in 2015 for two consecutive years for its efforts to manage its indirect emissions and enhance its reporting level.

CDP score rose in 2015



No. 1 in the Competitiveness Index in Climate Change (the Minister of Trade, Industry and Energy Award)

CDP Special Carbon Management Award for the second straight year (Nov. 2015)

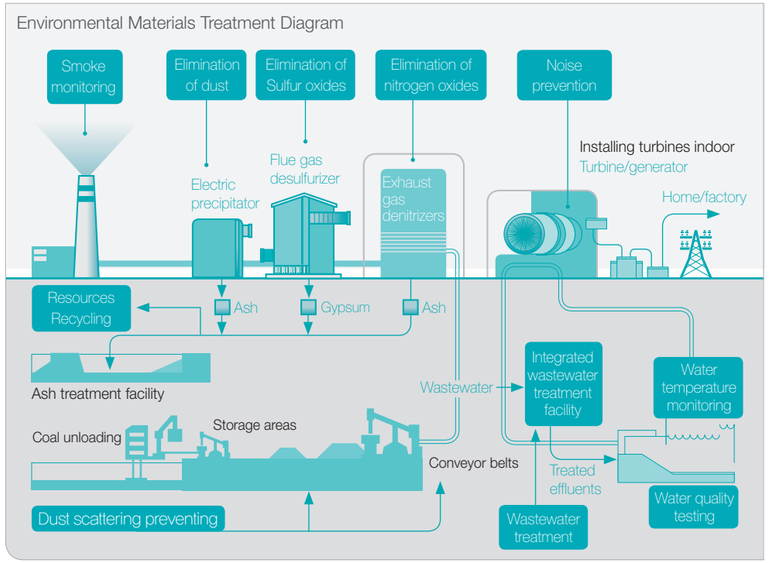
Environment Management

Power plants inevitably emit pollutants while generating electricity. EWP strives to minimize its emission of pollutants. It takes actions to help protect the environment and fulfill its environmental responsibilities.

Current Status of Environment Management

EWP minimizes its production of pollutants from power generation process. EWP is operating environmental facilities for managing air and water pollutant materials above the standards with real time disclosure.

Environmental Materials Treatment Diagram



Air Environmental Management

G4-EN21 SDG 11

For the management of its air pollutants, EWP has installed reduction facilities, set its goals higher than required for legal standards in Korea and met the goals. It fulfills its responsibility for environmental management in an active manner.

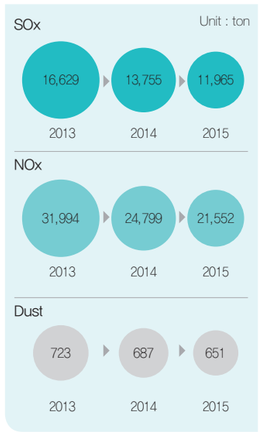
Air Pollutant Treatment Facilities as of 2015

Power Plant (Thermal)	Desulfurization facilities (to reduce sulfur oxides)		Denitrification Facilities (to remove nitrogen oxides)		Dust Collector (to remove dust)	
	Units	Type	Units	Type	Units	Type
Dangjin	8	Wet limestone-gypsum Gypsum process	8	SCR	8	Electric Precipitator
Ulsan	3	Wet limestone-gypsum Gypsum process	5 3	SCR SNCR	3	Electric Precipitator
Honam	2	Magnesium hydroxide	2	SCR SNCR	2	Electric Precipitator
Donghae	2	Desulfurization in a dry furnace	-	-	2	Electric Precipitator

2015 Status of EWP Plant Emissions

Power generation	Generation (Renewable energy not included)	GWh	49,239
	Transmission	GWh	45,840
Fuel for power generation	Coal	10,000 tons	1,500
	Oil	1,000 ㎘	660
	LNG	1,000 tons	960
Power generation water	Boiler water	1,000 tons	10,267
Limestone	For desulfurization	1,000 tons	343
Magnesium hydroxide	For desulfurization	1,000 tons	55
Hazardous chemicals	For water treatment	1,000 tons	11
Air pollutants	SOx	ton	11,965
	NOx	ton	21,552
	Dust	ton	651
	CO_2	1,000 tons	37,951
Water pollutants	COD	ton	27
	SS	ton	12
	Total nitrogen	ton	47
	Total phosphorous	ton	0.4
Power generation by-products	Fly ashes	1,000 tons	1,802
	Desulfurized gypsum	1,000 tons	495

Air Pollutants



2015 Air Pollutants Regulation and Emissions

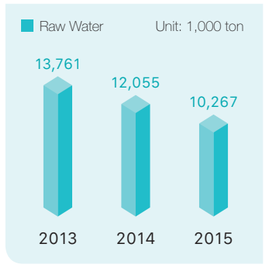
Power Plant	SOx		NOx		Dust	
	Regulation (ppm)	Emissions (ppm)	Regulation (ppm)	Emissions (ppm)	Regulation (mg/Sm^3)	Emissions (mg/Sm^3)
Dangjin Thermal	100	24	140	73	25	5
Ulsan Steam	150	58	150 (#4~6)	132	20	5
Ulsan Combined	-	-	80	35	-	-
Honam Thermal	100	70	140	116	25	3
Donghae Thermal	150 (#1~2)	83	140 (#1~2)	46	25 (#1~2)	4
Donghae Bio	50	-	70	18	20	3
Ilsan Thermal	-	-	100	33	-	-

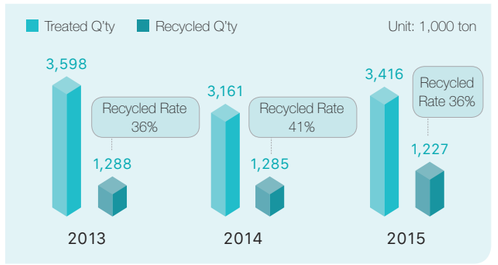
Usage of Service Water and Water Quality Management

G4-EN22 SDG 11

EWP makes all-out efforts to reduce water pollution. In order to treat wastewater from power plants properly, it has built a comprehensive wastewater treatment facility and treated wastewater according to its management criteria that is stricter than legal requirements. It has also boosted the recycling of water and wastewater through the recycling of starting water from combined-cycle power plants and the reuse of thoroughly treated water as process water, among others. As a result of such efforts, EWP was able to recycle 1,227 tons of wastewater, or 36% of its total wastewater produced in 2015.

Quantity of usage of raw water and quantity of recycled wastewater





Recycling rate of wastwater in 2015

36%

Emission Allowances and Concentrations for Water Pollutants

Unit: mg/ℓ

Power Plant		Area (type)	COD		SS		Total Nitrogen		Total Phosphorous	
			Regulation	Emissions	Regulation	Emissions	Regulation	Emissions	Regulation	Emissions
Dangjin	Power generation	Area B (Grade 1)	90	5	80	2	60	9	8	Less than 1
	Desulfurization			21		21		45		
Ulsan		B(Grade 1)	90	7	80	2	60	10	8	-
Honam	Power generation wastewater	Special Area (Grade 1)	40	6	30	2	60	3	8	Less than 1
	Desulfurization wastewater			19		7		34		
Donghae		Special Area (Grade 3)	130	2	120	1	60	1	8	Less than 1
Ilsan		Area B (Grade 1)	40	6	10	3	60	11	8	-

Recycling of Waste and By-products

G4-EN23 SDG 11

To boost its management efficiency, EWP has increased the recycling rate of the waste and by-products generated during its operations. Out of more than 30 kinds of waste produced at its power plants, EWP recycles coal ash, gypsum and waste oil, among others, and uses them as new sources of revenue creation. Those that are hard to recycle are handled by external licensed businesses. In a bid to continue to expand its recycling efforts and cut down on treatment costs, EWP will diversify the demand for its recycled resources, boost R&D in this regard, and discover ways to expand their usage.

Current status of Waste Production and Recycling

Classification	Unit	2013	2014	2015
Power generation (except for new & renewable)	GWh	56,611	50,699	49,239
Waste production	1,000 tons	1,839	1,906	1,824
Basic unit quantity	ton/GWh	32	37	37
Recycled Q'ty	1,000 tons	1,857	1,851	1,635
Recycled Rate	%	101	97	90

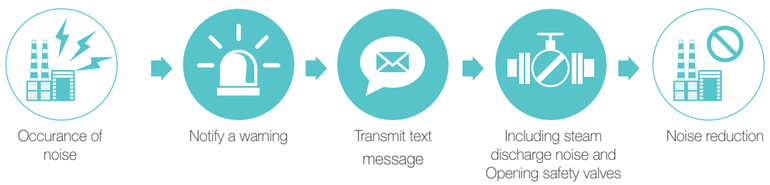
Recycling coal ash and desulfurized Gypsum

Classification		Unit	2013	2014	2015
Gypsum	Recycled Q'ty	1,000 tons	557	459	480
	Recycled Rate	%	97.6	98.3	97.0
	Use	Gypsum board, raw material for cement, etc.			
Coal ash	Recycled Q'ty	1,000 tons	1,829	1,844	1,615
	Recycled Rate	%	101.2	98.6	89.6
	Use	Concrete admixtures, embankment materials, etc.			

Noise Management

In an effort to minimize noise from its power plants and substations, it has installed noise monitoring systems in all the relevant areas and keeps track of the noise level there around the clock. The systems issue alarms and immediately send out text messages to the personnel in charge when an extraordinary level of noise occurs. Upon the request of the personnel, Control Center of each power plant takes immediate actions on noise sources, including steam discharge noise and opening safety valves.

Noise Management Process



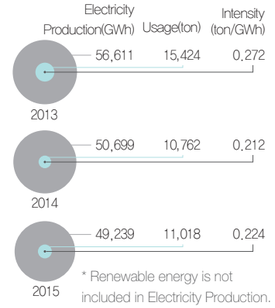
Soil Management

As part of its efforts to prevent soil contamination, EWP carries out soil contamination inspections and leakage tests. Soil contamination inspections are focused on the inspection of soil contamination caused by oil due to failure in the storage and handling of fuel for power generation and heavy equipment. EWP's soil inspections intended to maintain sustainable soil environments are held at least once a year.

Management of Chemicals

To prevent chemical disasters and provide the public with a safe living environment, EWP has established a chemical management system for the first time among public companies. It manages hazardous materials and non-hazardous materials for each operating site according to its standards. It enhances preventive measures through the safety inspection of chemical-handling facilities and the effective management of chemicals. It has also set up a response system for integrated management that includes post-response actions. In 2015, EWP experienced no chemical accidents.

Current Status of Management of Chemicals

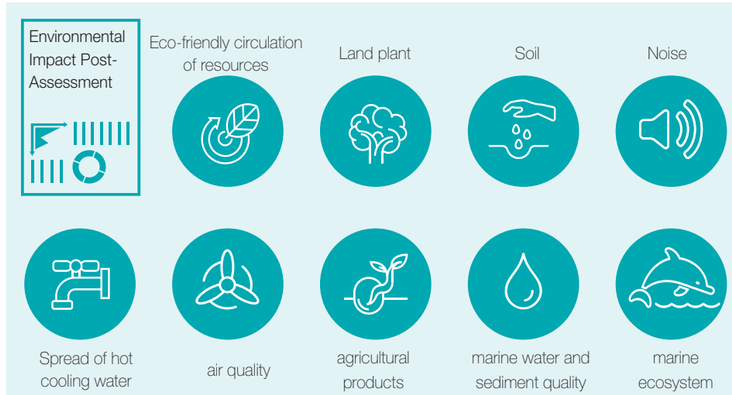


Implementation of Green Life

Environmental Impact Post-Assessment

SDG 14

EWP monitors the impact of its power plant operations on the surrounding environments and analyzes the results. To secure accuracy in its monitoring, EWP has an external specialized institute carry out environmental impact assessment (water quality, air, noise, soil) in the areas surrounding its power plants. Most notably, when a negative impact is detected, countermeasures are set up based on the relevant data with the results notified to relevant government ministries (the Ministry of Trade, Industry & Energy, the Ministry of Environment, and the Ministry of Oceans and Fisheries) for thorough preventive measures against environmental contamination.



Assessment period	
Dangjin #1~8	1994~2017
Dangjin #9~10	2009~2021
Dangjin Coal Fired Power Complex Offshore Environments	2010~2015
Donghae Biomass Power Plant	2011~2018
Ulsan Oil Fired & C.C Power Complex Unit #4	2012~2019

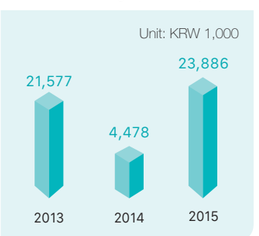
Management of Environments Surrounding Power Plants

SDG 14

In an efforts to minimize changes to the ecology surrounding its power plants and maintain the integrity of the surrounding natural environment, EWP carries out diverse environmental protection programs entitled '1-Company 1-Shore,' '1- Company 1-River,' '1-Company 1-Road' and '1-Company 1-Wetland'. In 2015, more than 40 EWP employees planted 300 Hinoki cypress seedlings at Hamwol Park in Ulsan and cleaned the surrounding areas.

EWP Environmental Protection Activities

Environmental Management Activity Costs



Establishing a basis for a new growth engine

In line with the UN Framework Convention on Climate Change and the changes in the power industry at home and abroad, EWP is concentrated on building the foundation for its future growth engines that can lead the government policies in its area. It strives to expand its new and renewable energy business and establish infrastructure required for green growth.

Expand New & Renewable Energy Business SDG 11

Establishing a New and Renewable Energy Promotion System

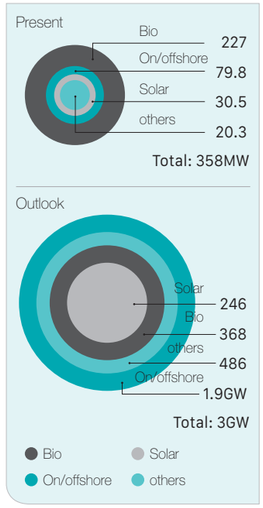
EWP has established a new and renewable energy promotion system with the goal of 'Top 1 Korean Green Energy Company by 2030.' To carry out its Renewable Portfolio Standards (RPS) most efficiently, EWP has set a new-renewable energy roadmap that calls for the reduction of the costs of renewable energy to around 20% of the costs of fossil fuel power generation by 2030. In addition, to secure future growth potential for new and renewable energy, it is focused on the expansion of its global business and secure business competency needed to create revenue sources.

Current Status and Outlook of New & Renewable energy Facilities

2010~2016 Growth Stage	2017~2023 Jumping Stage	2024~2030 Expanding Stage
Competency enhancement for new and renewable energy	Laying the foundation for strategic business	Securing future growth engines
Demonstrative study for tidal power generation MW class fuel cells Small Hydro Power, Bio, Land wind power	Commercial tidal currents and tidal power Onshore & offshore wind power Bio and waste-to-energy	Large-scale commercial tidal currents & tidal power Large-scale offshore wind power Launching *Byungsan business of coal gasification and Group energy

*Byungsan business: The way to produce fuel and raw materials at once.

Current Status of and Plans for Facilities



New & Renewable Energy Convergence Complex SDG 7

EWP is building the country's largest new & renewable energy town that will serve as its strategic hub for new and renewable energy at a location where it can make the most of Dangjin Power Plant and its surrounding infrastructure. With the purpose of 'creating a new energy business model on top of the country's largest capacity coal-fired power plant (6,000MW),' EWP has devised a master plan and is promoting the creation of an energy town centered around four energy themes. The town with a facility capacity of 174.5MW is scheduled to be completed in October 2019. Along with the huge new and renewable energy complex, which will seek win-win situations with local communities, a tourism belt will be created in the region to help with the invigoration of local economy.

Dangjin Future Energy Town (bird's-eye View)

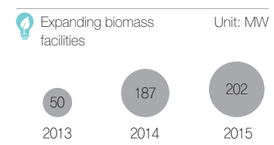
Plan for Facility Operations at 'Dangjin Energy Town'

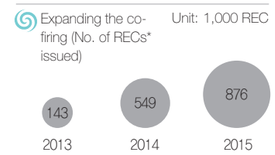
Classification	New & Renewable Energy	Unit	Type of Energy: New & Renewable Energy Convergence	Type of Energy: Nitrogen Energy	Type of Energy: Clean Energy Independent Island	Type of Energy: Bioenergy	Total	
Facility capacity	Wind Power + ESS	MW	20	-	8	-	28	174.5MW
	Photovoltaic Power	MW	37	-	0.5	-	37.5	
	Hydrogen fuel	MW	-	50	-	-	50	
	Seokmun Bio	MW	-	-	-	39	39	
	Power to Gas	MW	-	20	-	-	20	
	Spread of hot cooling water	Gcal	15,000	-	-	-	15,000 Gcal	
	Hydrogen charging stations	No.	-	1	-	-	1	

Strategic Biomass Fuel Purchase and Facility Expansion

To maximize the recycling of waste resources and implement the country's RPS (Renewable Portfolio Standards), EWP has expanded its existing biomass facilities in a bid to increase its fuel co-firing. It has secure additional co-firing capacity by expanding the generators in use at Dangjin Coal Fired Power Complex, Ulsan Oil Fired & C.C Power Complex expanded the trial business period for bio-fuel oil by a year through negotiations with the Ministry of Trade, Industry and Energy. It also sought to secure price competitiveness in order to expand its co-firing of bio fuels. Most notably, Donghae Biomass Power Complex has secured an additional 20,000 tons of biomass fuels for co-firing at low open competitive bid prices.

Bio Fuels Purchased for Three Years





*REC (Renewable Energy Certificate): a certificate proving the production of electricity through new and renewable energy facilities

Regulation Improvements for the Onshore Wind Power SDG 7

Promotion of the Creation of a Wind Farm through Improvements of Regulations

Regulatory guides on the environmental impact assessment of onshore wind power business have been upgraded, enabling previously restricted areas to embrace wind power complexes. Now, complexes can be constructed high in mountains and areas classified as Grade 1 in ecological naturalness. EWP is carrying out two wind farm projects in Dongdaesan Mountain, Ulsan and Yeomsubong Peak in Yangsan. It is awaiting a government license for its Taebaek Gadeoksan Project.

Creation of Korea's Biggest Wind Farm for Win-win with Local Communities

EWP has changed its business strategy from the supplier's profitability to profit-sharing with customers. It has developed additional wind farms in the neighborhood of its existing wind farms to implement its new strategy. In 2014-2015, it completed Honam Wind Farm (20MW) and Yeonggwang Baeksu Wind Farm (40MW). In November 2015, it obtained a power generation business license for Yeonggwang Wind Farm (80MW). EWP uses a part of its revenues from Yeonggwang Wind Farm for the support of those eligible for the National Basic Livelihood Security System and those in the next neediest classes.

Establishment of Green Infrastructure

The entire world pays keen attention to the issue of sustainable green growth through the realization of eco-friendly energy. EWP has worked hard to continue to develop eco-friendly technologies and eco-friendly energy sources to fulfill its responsibility as a public energy enterprise to supply clean energy to the public.

Development of Eco-friendly Technologies

EWP continues to develop eco-friendly technologies to achieve environmentally sound, sustainable growth. Most notably, it has developed the recycling technologies for coal ash and heavy oil fly ash and solved the oversupply issue as a way to minimize environmental pollution and realize a resource circulation society.

Display of coal ash recycling technologies (Feb, 2015)

Recycling of Coal Ash and Heavy Oil Fly Ash

Coal ash	→	Recycling to architectural interior materials
Heavy oil fly ash	→	Recycling into fuel that can be deodorized

Development of Coal Ash Recycling Technologies

G4-EN19 G4-EN27 SDG 7

The supply of coal ash is anticipated to increase by 67% by 2022, while the demand for coal ash is expected to suffer a glut in supply owing to a slowdown in construction business, making it crucial to develop coal ash recycling technologies. EWP therefore carries out a project tasked with the production of architectural interior materials that can replace cement with coal ash. The project is expected to save KRW 2.6 billion in landfill costs due to the increased recycling of 300,000 tons of coal ash and KRW 1.1 billion in landfill charges and GHG emission reduction.

Plan for Coal Ash Recycling Business

2013~2014 Technological Development	2015 Certification and Preparations	2016 Commercial Production
Development of architectural interior materials, 70% of which are made of coal ash weight 15%▼ cost 30%▼ Demonstration production (40 tons) and attribute evaluation (strength, sound insulation, fire-resistance property)	Acquisition of certification for commercial production Certification about fire resistance (Fire Insurers Laboratories of Korea) Market surveys and laying the foundation for production Display at architectural trade fairs and presentations Licenses for commercial production	Commercial production using existing facilities and supply of goods to markets Horizontal member, soundproof walls, partitions Promotion of exportation of drywalls Execution of exclusive distribution contracts with Australian and Taiwanese businesses
Expected Outcomes		
Increased coal ash recycling **300,000 tons**	Reduced landfill costs **KRW 2.6 billion** Reduced landfill charges	Reduced GHG emissions about **110,000 tons** /year worth KRW 1.1 billion

Development of Recycling Technologies for Heavy Oil Fly Ash

G4-EN27 SDG 7

EWP has developed recycling technologies for heavy oil fly ash by making the most of its heating value and deodorizing feature. EWP has developed heavy oil fly ash into high-energy fuel with biofuel deodorization in collaboration with Taehwa Environmental Research Institute, Ulsan Metropolitan Government, and Korea Industrial Complex Corp. It is using the product as deodorized fuel for organic solid fuel for Dangjin #3 and #4. Through the effort, EWP expects to save KRW 800 million a year in the treatment costs of heavy oil fly ash, KRW 150 million a year in fuel costs, and a certificate of the supply of new and renewable energy worth 10,000 REC a year.

Development of Eco-friendly Energy Sources

Promotion of the Construction of a Livestock Manure Biomass Power Complex

EWP is promoting the construction of biomass power complex that recycle livestock manure as part of its efforts to secure new energy sources. In 2015, it developed combustion technologies required for the stable operation of a livestock power complex. It secured economic feasibility by drawing support from the Ministry of Environment, the Ministry of Agriculture, Food and Rural Affairs, and the Ministry of Trade, Industry and Energy. In addition, it signed a MoU about laying the foundation for the construction of a livestock manure power complex with Hoengseong-gun which is fully committed to building the plant in its area.

MoU with Hoengseong-gun(Mar, 2015)

Promotion of Asan Bay Tidal Power Plant Project

As part of its efforts to secure new and renewable energy, EWP has promoted the Asan Bay Tidal Power Plant since 2015 which will make the most of the tidal range of the West Sea. To prevent conflicts with local communities, EWP had Korea Ocean Research Development Institute conduct technological, environmental and economic feasibility studies of the project and devised solutions to potential problems. In May 2015, EWP completed the review of the feasibility study results and submitted a letter of intent for the construction of the power plant to Asan City Hall. It has held town hall meetings to publicize the project and secure the consent of local residents with regards to it.

New Energy Business Using Waste Heat and Water

SDG 2

To recycle waste heat and water from its thermal power complexes, EWP is striving to expand its use not only in fish farms but also in agriculture. In 2013-2014, EWP succeeded in abalone fish farming using waste heat and water from its power plants, contributing to increased income and job creation in nearby fishing villages. However, most of the communities around its power plants are engaged in agriculture. Therefore, in 2015, EWP established a plan for agricultural pilots projects using its waste heat and water in diverse agricultural sectors based on financial support from the Ministry of Agriculture, Food and Rural Affairs.

A fishing farm operated with waste heat & water

Master Plan for Recycling of Waste Heat and Water

	Fishing Industry	Agricultural Industry	System/technology
2014	R&D on sea ranches	Establishment of collaboration system	Technical development for fish farming
2015	Expansion of fish farming (100,000 abalones) and demonstration	Planning and designing	Including wastewater and new & renewable energy
2016		Creation and operation of an agricultural complex (a pilot project)	Development of optimal heat supply technologies
2017	Commercialization and its expansion Building a Eco-friendly fish farming complex	Complex expansion and new complex development	Development of cultivation techniques Establishment of plans to invigorate government support

We build up your endless trust

We grow together through trust.
EWP will help create a sustainable future where it will grow together with its employees, suppliers and local communities based on trust.

Social Performance

Employees

Sustainability Context

EWP's stakeholders place a high value on the creation of a pleasant work environment for employees. Therefore, it has launched a safety culture movement, established a disaster response system, and implemented employee health programs. It is also crucial for EWP to strive to create a safe, pleasant and happy workplace for its employees who are motivated to continue to improve their competency.

Our Strategy & Commitment

EWP has built a disaster response system and launched a safety culture movement. It has boosted employees' safety and health through the establishment of a safety-first value system. It has helped them implement healthy lifestyles. It has narrowed the gap in perspectives between employees and management. It has strengthened its equitable business management practices through the operation of competency- and performance-centered evaluation and compensation systems as well as respect for diversity in the workplace.

Our Progress & Next Step

EWP will do its best to maintain the zero-mortality rate industrial accident record in its construction sites. In terms of employee education, EWP will continue to carry out competency assessment tests and surveys in order to promote employees' competency development. It will strive to settle any and all of its employees' grievances. EWP will continue to offer its employees with equal opportunities without gender discrimination. EWP will create a happy workplace for all its employees.

Issue 3
Employee safety and health

Issue 10
Prohibition of workplace discrimination

Issue 13
Employee job security

Issue 17
Respect for employee diversity and guarantee of fair opportunities

Key Performance Indicator

ZERO
Zero-mortality in construction sites

3 consecutive years
The highest rank in Safe Korea Anti Disaster Exercises

2 consecutive years
The highest rank in Anti Disaster Safety Management Evaluation

Won Outstanding Business Award
at Korea Safety Grand Prize

Safety-First Business Management

Internalizing its corporate safety culture is the top priority in the company's sustainability management efforts. EWP strives to guarantee its employees with safer work environments through the spread of its safety culture movement and the enhancement of its safety management competencies.

Spreading a Safety Culture Movement

To implement safety-first business management as a power company, it has recognized the necessity to share a safety-first value system and launched a safety culture movement. In 2015, it set the four promotion directions and promoted reforms in its safety culture.

Promotion goals	Promotion directions			
Spreading a Safety Culture Movement	Safety implementation leadership	System improvements	Enhancement of safety competencies	Win-win cooperation

Safety Implementation Leadership

Management of EWP makes all-out efforts to fulfill the company's social responsibilities for the prevention of industrial accidents. In 2015, management carried out On-Site Safety Management that involves safety inspections and impromptu disaster drills on Safety Inspection Day that is held each month in collaboration with representatives of the labor union and resident suppliers. Management also conducted 'Safety Contact' sessions prior to the start of Management Strategy Meeting held each month to meet increasing requests that businesses' upper management become involved in fulfilling their social responsibility for the prevention of industrial disasters.

Management's on-site safety management

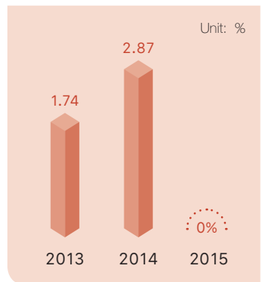
Enhancement of Safety Guidelines and Systems G4-LA6

EWP has issued the 'ABC (Always Be Careful) Rule' composed of five core safety rules and urged all its workers to abide by them. As part of its efforts to enhance its safety process, EWP had its scaffolding installation plans approved by management in advance in a bid to prevent falls which account for 40% of its occupational accidents. In 2015, EWP achieved the zero-mortality rate in its operation and construction sites. As such, the company accomplished '0%' in the mortality rate per 10,000 employees.

'Safety ABC Rule' Compliance Campaign

Presentation on Successful Big Business Safety & Health Efforts

Mortality rate per 10,000 people



Mortality Rate per 10,000 People : the mortality rate per 10,000 paid workers

Employees

Enhancement of Safety Management Competencies

EWP carries out professional safety education with the purpose of raising its employees' awareness of safety, altering their perception on safety issues, and creating a safety-friendly atmosphere. In June 2015, EWP joined forces with the Korea Occupational Safety & Health Agency to provide all its employees with 'Basic Safety Education' and 'Customized Safety Education' in order to equip them with fundamental safety knowledge and safety management competency in their respective areas. In addition, EWP provided 633 employees above Grade 3 companywide with safety leader education including safety policies, managers' roles, and emotion coaching techniques.

2015 Basic Safety Education for All Employees

Education targets	All employees
No. of Courses	12
No. of trainees	2,120
Completion rate	99.4%

Win-win Cooperation to Build Safety Community

EWP has developed win-win cooperation programs to secure the safety of all its employees and help its clients and suppliers realize a zero-accident rate. It has boosted its own safety measures including improvements in the payment of its safety management fees and the operation of special conditions of its safety contracts. Furthermore, it has joined hands with the Korea Industrial Safety Association to build a companywide supplier system including support for safety diagnosis and provision of safety goods.

Classification	Contents
Improvements in the payment of safety management fees	Promotion of institutional improvements to completely prevent suppliers' accidents for the first time among power companies -Change of the payment of design safety management fees to 100% payment instead of its link to bidding success rates -Expanded application of safety management fees to all projects from those over KRW 40 million
Operation of special conditions for safety contract	Operation of 17 special conditions of the EWP safety contract, which specify suppliers' safety management responsibilities and roles -Application of the rules to 20 EWP contracts since August 2015 -Promotion of the enhancement of subcontract review standards and the acquisition of KOSHA 18001 by its regular maintenance contractors
Support for safety diagnosis	Use of disaster & safety professionals of various institutions like the Korea Industrial Safety Association as its safety supporters -14 incidences of safety inspections and diagnoses of its suppliers' operating sites in 2015
Support for safety goods	Provision of safety goods (worth about KRW 20 million) for the development of its local communities and safety community when its resident suppliers have achieved zero accidents through collaboration with EWP -Support beneficiaries: local governments, neighboring related institutions, senior citizens' centers, local childcare centers, small suppliers, etc. -Support of disaster prevention equipment and support of firefighting equipment for the safety vulnerable in areas surrounding EWP power plants
2015 Safety Culture Movement results	 Achievement of 0% in the mortality rate per 10,000 employees Ulsan Complex won the Excellence Award in 'Big Business Safety & Health Outstanding Cases' and 'Outstanding Cases in the No-accident Promotion Campaign (hosted by the Ministry of Employment and Labor)

Disaster Response

Building Disruption-free Electricity Supply System

EWP has built BCM, a recovery plan designed to maintain the continuity of its work, for the head office and all its operating sites. It continues to analyze its potential disaster and crisis risks. In 2015, it made improvements in facilities vulnerable to fire risks in all its power plants on three occasions. The plants acquired Safety Zone certification from SAFETY ZONE - CERTI. In October 2015, EWP obtained ISO 22301, international business continuity standards, demonstrating its reliability in terms of disaster & safety management for the general public.

ISO 22301 Certificate (Oct, 2015)

Enhancement of Disaster Management Competencies

To beef up its expertise in disaster safety & health management, EWP has increased its pool of experts from 10 to 16 and introduced a disaster post-response system. It operates a TRS (Trunked Radio System) wireless telecommunication system to establish an integrated companywide disaster telecommunication system and build a rapid emergency situation alert and management system. To enhance the operability of the EDMS (Electronic Document Management System) disaster management system, EWP has continued to improve the system and maximize its effectiveness.

제 14 회 대한민국안전대상

2015 disaster safety response performance	The highest ranking for 3 consecutive years	The highest ranking for 2 consecutive years	Top Company Award	ISO 22301 Acquired
	The highest rank in Safe Korea Exercise among the organizations under the auspices of the MOTIE	The highest rank in the MOTIE's disaster safety management evaluation of its industrial organizations	Won Excellence Award in Korea Safety Grand Awards (the Prime Minister award, Dangjin Thermal Power Plant Complex)	Head office and all its operating sites (2015.10)

Safety and Health Management Programs

Work Environment Evaluation and Safety & Health Activities

To guarantee its employees' safety, EWP evaluates the work environment for those working in hazardous environments twice a year, analyzes the results, and makes improvements about the identified issues. It also provides education on emergency response and recovery competencies including CPR and defibrillation in a bid to respond to patients facing an emergency within its operating sites as early as possible.

Employee Health Management Program

To meet employees' increasing interest in health and the organizational need to create an atmosphere for the prevention of various diseases, EWP has introduced an employee health management program. To raise employees' health awareness, it emails health related data to all its employees once a month and motivates them to get involved in systematic health management. In addition, EWP provides healthcare counseling to those who have returned from sick leave. For those who cannot leave their workplace, on-site counseling service is also provided.

Creation of a 3ZERO Workplace

EWP has participated in the pilot project for the creation of a 3ZERO workplace launched in February 2015 for all the public agencies located in Ulsan Innovation City. 3ZERO refers to the non-existence of smoking, obesity and stress. To that end, EWP offers its employees with medical checkups, a stop-smoking clinic, support for fitness programs, and education on healthy lifestyles.

CPR education

Selection as an outstanding company in the 3ZERO movement

Human-centered Happy Workplace

EWP makes diverse efforts to provide its employees with a happy workplace. It helps them improve their quality of life through the elimination of extended hours of work. For their work-life balance, it implements flextime and childcare leave, among others.

Enhancement of Work-Life Balance

G4-LA2 SDG 8

Institutional Improvements to End Extended Hours of Work

With the purpose of bringing an end to its employees' extended hours of work, EWP has made improvements in its Multi-Engineer Shift system while invigorating its employee leave system. EWP has reduced employees' work hours by improving the operations of its existing alternative work team through the combination of the 4-team 3-shift system and the ME team shift system. EWP encourages its employees to use their vacation by allowing them to carry over their annual leave to the following year, hosting Family Love Day, reflecting managers' use of their vacation in their personnel evaluation, and publicizing each department's record in its employees' actual use of vacation. Through such efforts, EWP has reduced its employees' actual working hours and improved its employees' satisfaction with their time-off.

Pursuit of Work-Life Balance

EWP continues to improve its childcare leave system. It offers its employees a customized lifecycle support program. It effectively resolves the issue of employees' long-term absence from work due to childcare leave through the implementation of employees' prior notice and the use of the Substitute Manpower Bank. EWP has continued to expand the scope of childcare leave. Both the number of employees on leave and the period of their leave have increased. In 2015, it won the Family-friendly Workplace Certificate from the Ministry of Gender Equality & Family again particularly for its operation of a customized lifecycle support program in three stages such as the marriage/pregnancy period, the childbearing/childcare period, and the married couple/retirement preparation period.

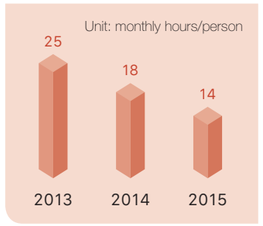
Invigoration of Flextime

G4-LA3

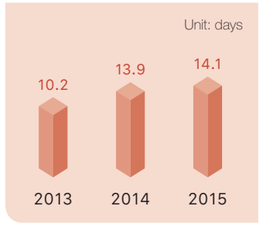
EWP has made improvements in its flextime system to activate the to activate the system for the employees. Application for flextime is now possible online. Its approval procedures have been simplified as well. The minimum period has been shortened from a month to a week while the maximum period has been extended from 3 to 12 months. Most notably, eligibility has expanded from pregnancy to childcare, which has been well received by employees. As a result, the number of employees on flextime increased from 547 in 2014 to 595 in 2015, with employees' satisfaction rising from 77.5 to 88.8 points.

Flextime Operation Results	Part-time		Flextime			Telecommuting	
	Transfer	Hire	Flexible commute time	Flexible work hours	Compressed work schedule	At-home work	Smart work
2013	8	4	85	74	4	37	26
2014	13	7	134	332	5	44	12
2015	23	8	357	163	2	27	15

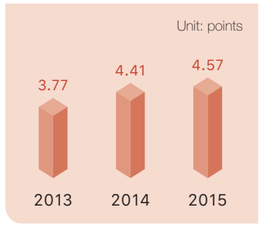
Improvements in Extended Hours of Work

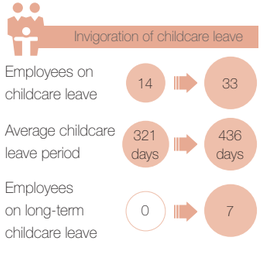


Annual Leave Used per Person



GWP Index (Great Work Place on a scale of 1-5)





Implementation of HRD Strategic Tasks

To achieve its companywide vision '2030 Most Valuable Power Company,' EWP implements its three major HRD strategies and enhances its employees' competencies.

Mission of HRD	Cultivation of EWP (Energy World Pioneer) that will lead corporate growth
Goal of HRD	Globalized Skill + Global Talent + Consilience
Three Major HRD Strategies	**People** Competency development **Infrastructure** System establishment **Culture** Communication & unity

Employees' competency development by their needs

EWP carries out employee education and training according to its talent cultivation policies and its employees' needs. Courses reflect the results of the employee competency assessment and the employee surveys conducted on an annual basis. The employee competency assessment is focused on the analysis of employees' individual needs to enhance their competency and the identification of necessary training contents to strengthen their job competencies.

Building a Sophisticated HRD Infrastructure System

For each course, EWP runs 'a two-track' evaluation system composed of Track 1 (educational satisfaction and learning accomplishment) and Track 2 (training effectiveness, contribution to management performance) so it can carry out quantitative evaluation of its education programs. EWP gets all in the organization to complete an online HRD Expert course. It had some of them attend the ATD International Conference & Exposition 2015 and HR Summit Brisbane 2015 to learn about the latest global HRD trends. It has also reinforced its internal job training evaluation index.

EWP Renaissance through Books

EWP is building a reading culture under the goal of 'EWP Renaissance that Begins with Books.' It has opened up book cafes (at seven locations with a total of 7,280 books) operated by an electronic book management system. The cafes are also available to local residents, in line with the government's reading culture promotion policy. The company's efforts in this area are instrumental in its drive to cultivate creative talents.

EWP book cafe

Building Consensus between Labor and Management

G4-HR12

EWP has built a happy labor culture with the participation of all its employees. It has established effective communication channels between labor and management. It has promoted open communication with the purpose of sharing labor issues, deepening mutual understanding and immediately settling employees' grievances.

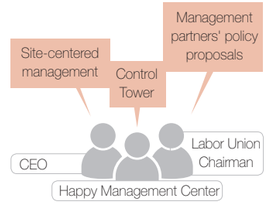
Systemization of Labor-Management Communication

EWP has set 'respect for human beings' as its top value in order to have allow for its happy management labor-management culture take root. The company continues to enhance open communication. It has established an open communication system participated by all its employees through the three major players in communication.

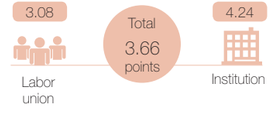
Outcomes of Labor-Management Communication

In 2015, EWP resolved diverse labor issues including the wage peak system, retirement age extension, and the 'ordinary wage' issue through the operations of its diverse communication channels. It measures labor-management cooperation index and uses the results in the analysis of the current status of its labor-management and the establishment of strategies to boost labor-management cooperation.

Open Communication System

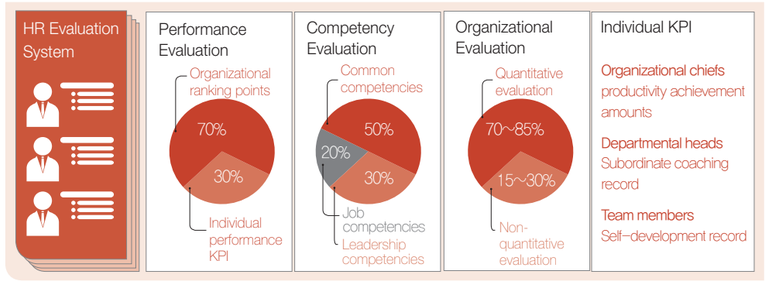


Labor-management cooperation index (on a scale of 1 to 5)



Remuneration System & Welfare Benefits

EWP pursues reasonableness and fairness through the operation of a remuneration system centered on competency and performance. It implements a performance-based pay system through evaluation of performance, competency and organization. In addition, it applies the same remuneration and welfare benefits of high school graduates and irregular workers in a bid to prevent wage discrimination.

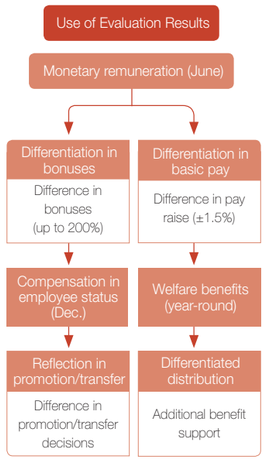


Performance Based Remuneration and Compensation System

SDG 8

EWP has established a performance-oriented culture through the establishment performance-based remuneration system, job performance based pay system, and performance-based compensation system. It differentiates its pay to employees according to competency evaluation, MBO performance appraisal, and organizational evaluation. It enhances performance-based compensation reflecting individual employees' competencies and work values through a sharp pay difference that amounts to a KRW 30.46 million difference between the highest and the lowest within the same rank. It runs an award system that recognizes employees with outstanding performance in terms of productivity. It also offers them favors in incentives and promotion.

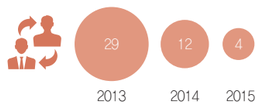
Remuneration System based on Evaluation Results



Organizational Unity

EWP applies the same remuneration system and welfare benefits to its high school graduates, indefinite period contract workers and irregular workers as its college graduates and regular workers, respectively. Furthermore, it helps its high school graduate employees attain college degrees at its regional in-house colleges. To help its irregular employees obtain regular worker stature, EWP has set three directions of action. EWP has reduced the number of its irregular workers year after year. As result, EWP has been able to hire eight senior citizens and females who had to experience a career disruption. It provides all of its irregular workers with reasonable compensation comparable to market situations in order to take the lead in resolving the issue of irregular workers in practical terms. To invigorate their transfer to regular workers, EWP has continued to improve its work environment so that anyone can continue to work for an extended period of time.

No. of irregular workers — Unit: people



Except for 8 persons substituting employees on childcare leave in 2015

Establishment of three major directions for the transfer of irregular workers to regular workers and positive results

Three Major Directions	1 Employment	2 Remuneration improvements	3 Job
Contents	Hiring through Substitute Manpower Bank	Payment of competitive wages	Regular continuous work → employment as regular workers
Results	Hiring eight senior citizens and females who experienced a career disruption	Wage redesign Office workers: Wages comparable to Grade 6 Technicians: Wages comparable to entry level skilled technicians in relevant areas	6 coal sample prescribers 1 forklift operator

Welfare

G4-LA2 SDG 8

EWP has striven to normalize its welfare benefits in line with the government's policy of 'the normalization of lax management of public institutions.' In 2014, it completed the implementation of 31 normalization tasks earlier than scheduled. In 2015, it promoted the branding of its happy management model for continuous promotion of the normalization of lax business management and prevention of a return to previous practices. It restructured the Labor Welfare Team into the Happy Management Center that has sought to trigger a paradigm shift to non-financial welfare benefits. As a result, EWP has succeeded in boosting its employees' morale through increased non-financial welfare benefits.

Welfare Benefits — Unit: KRW 10 thousand

Welfare Satisfaction — Unit: points

2.4% reduction (over 2013)

Respect for Diversity

SDG 10

Expanded Special Employment of Social Consideration

G4-LA12

EWP has expanded employment in terms of special social considerations as part of CSR activities. It gives additional points in employment to those with disabilities and those eligible for the government's special protection in employment, who account for 3.4% and 9.1%, respectively, in the total number of current employees, surpassing the legal requirement in both areas. It substitutes those on childcare leave and others to be replaced for other reasons with females with a career disruption and senior citizens. In 2015, EWP eliminated the academic barrier in job applications and introduced NCS (National Competency standards)-based On-Spec employment in a bid to promote job competency-centered employment.

Current status of Special employment

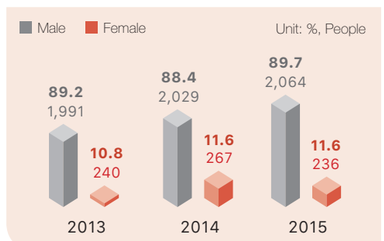
	Female	The handicapped	Local talents (non-capital area)	Local talents (non-capital area)	High School Graduates	Vocational school graduates	Engineering college graduates	Total recruits
2013	48	10	92	5	48	44	145	206
2014	32	9	62	16	37	36	78	131
2015	0	0	9	1	5	0	7	16

Female Talent Employment and Gender Equality

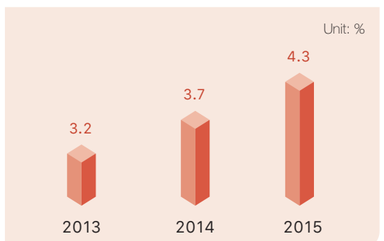
G4-10 SDG 5

There are 236 women workers in EWP, accounting for 10.7% of its employees. The ratio of female managers is 4.3% in 2015. EWP has set a plan to increase the ratio to 5% by 2017. EWP plans to continue to expand the ratio of female workers to over 15% at a minimum. To expand the ratio of female managers, it will reduce the minimum years of service for female candidates.

Gender Proportion in Employment



Status of Female Managers



Improvement of Personnel management system for Gender Equality

G4-HR3 SDG 5

As part of its gender equality policies, EWP reduced the minimum service years for female promotion candidates by 3.6 years compared to their male counterparts, promoting three female employees through such special arrangements. In addition, it made improvements in the employees' working conditions to expand the maximum period of childcare leave to three years and exempt female workers from night shifts, reinforcing the effectiveness of its female-friendly policies.

Social Contribution & Economic Activation

Issue 15
Indirect economic contributions

Sustainability Context

Power plants may unintentionally inflict negative environmental and social impacts on local communities in the construction and operation processes designed to provide citizens with critical resources. To minimize negative impacts and develop alongside local communities, EWP engages in diverse social contributions activities.

Our Strategy & Commitment

EWP aims at achieving its social contribution goal - happy growth with local communities through 'Happy Energy Dream' in three directions. It has established the EWP Volunteer Corps to promote its social contribution activities more effectively. It further promotes active corporate community involvement in partnership with some reliable external organizations.

Our Progress & Next Step

EWP undertakes its social contribution activities in three directions. It has devised diverse social contribution programs directly linked to its core capabilities with the purpose of contributing to eliminate the energy poverty of the underprivileged and save energy costs of SMEs. In addition, it strives to develop together with its local communities by spreading 'a sharing DNA' through the establishment of a welfare service system and the partnership with relevant organizations. EWP plans to stabilize its eco-friendly energy business according to its social contribution vision and offer active support the business designed to solve social issues.

Key Performance Indicator

88.4 points
Inprovemnet in local communities' satisfaction

26.6 hours
Increase in employee social contribution hours

Won the Minister of Health & Welfare Award
National Sharing Awards 2015

Won 'Green Energy Citizen Award' in 2015

Happy Sharing and Growth

EWP is committed to growing together with its local communities through sharing. To that end, it has designed diverse sharing programs and engaged in continuous social continuous activities. EWP will realize genuine sharing on the basis of its own knowhow and collaboration with local communities and other relevant organizations and strive to realize economic invigoration.

Social Contribution

EWP intends to implement genuine sharing and become a companion for its local communities through social contribution activities reflecting its business competencies. To offset its social contribution activities becoming a one-time donation, EWP seeks the development of its local communities in a very real sense through strategic social contribution programs such as the enhancement of energy welfare, win-win development with local communities, and sharing DNA events.

Goal and Implementation System for Social Contribution

EWP seeks to achieve happy growth with its local communities through 'Happy Energy Dream.' In 2015, it set three directions of actions such as the enhancement of energy welfare, win-win development with local communities, and spread of a sharing DNA. It devised promotion systems, too.

2015 Goal	Happy Growth with Local Communities through 'Happy Energy Dream'		
Promotion Directions	Enhancement of energy welfare	Win-win development with local communities	Spread of a sharing DNA
Promotion Systems	Invigoration	Power Love Day — Matching grants; Recognition of excellent contributors	
	Evaluation system	Internal evaluation index (service hours, participation frequency), mileage management	

Social Contribution Outcomes	Social contribution outcomes in energy welfare	Social contribution outcomes in communication with local communities	Social contribution outcomes in the spread of a sharing DNA
	Won 'Green Energy Citizen Award' from Green Energy Citizen Forum in November 2015	Improvements in local communities; satisfaction with EWP social contributions: 87.8 points in 2014 ▶ 88.4 points in 2015	Won the Minister of Health & Welfare Award at Korea National Sharing Awards 2015

Social Contribution Promotion Organization

For continuous promotion of its companywide social contribution activities, EWP launched its EWP Volunteer Corps in February 2004. As of 2015, a total of 2,060 employees are working as volunteers in 140 teams. They regularly engage in activities designed to help with the underprivileged in local communities, such as environmental protection activities, support for households headed by teenagers, and assistance of senior citizens without guardians. Moreover, it engages in active volunteer service activities through partnership with the External Private Council composed of local governments, government agencies, NGOs, public energy institutions and its suppliers.

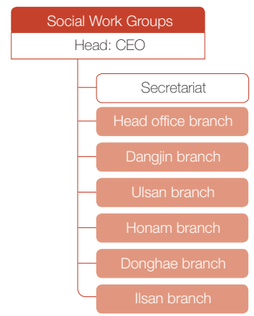
Voluntary Service Groups G4-SO1

Internal
EWP Social Work Group
2,050 employees in 140 teams
Family Volunteer Group
220 people in 6 teams

External
Private Council (local governments, office of education, NGOs, Council of Social Welfare)

Partnerships
① Happy Energy Volunteer Service Corps (public energy institutions)
② Good Neighbors(partners)
③ Stepping Stone Voluntary Service Corps (Ulsan Innovation City)

Organizational Chart of EWP Volunteer Groups



Major Social Contribution Activities

G4-SO1

Energy Welfare Social Contributions linked to Core Capabilities

EWP's social contribution efforts have helped the disadvantaged to reduce their energy poverty and SMEs to cut down on their energy costs. It has promoted its social contribution programs in three categories - experience, support and service. To solve the issue of energy poverty, EWP has launched diverse eco-friendly experience programs linked to electrical energy and provided energy support to the disadvantaged. Through collaboration with three public energy institutions, EWP offered the underprivileged with services in three areas such as inspection, repairs and insulation work in 2015. It provided 10 SMEs with energy efficiency and electrical safety diagnoses so that they could conserve energy worth KRW 200 million a year.

Social Contribution through Communication with Local Communities

EWP has promoted win-win development through the implementation of social issue solution type programs reflecting the needs of its local communities. EWP has also reflected conflicts related to the operation and construction of a large-scale power plant in the Dangjin area, for instance, in its social contribution activities to carry out practical activities. In addition, EWP implemented 'onnuri' vouchers worth KRW 740 million in 2015 and contributed to the increase of farm households' income worth KRW 120 million through the operation of an in-house market for regional agricultural goods and an online agricultural goods market. It has also bolstered its local communities' trust in itself through the invigoration of the local economy and the increase of consumption of local agricultural products.

2015 Social Contribution Programs

Increased Voluntary Service Hours per person

Increased Participation in Voluntary Services

Status of Social Contributions that Contributed to Solving Conflicts in the Dangjin Area in 2015

Contents of conflicts	Warm water damage to local fishing industry	Environmental degradation in local communities	Flying dust in coal storage areas	Risk to human health
Actions taken	Transfer of water heat energy: operation of abalone farms and creation of large-scale farms with warm water	Enhancement of monitoring: Installation of environmental information digital signage and development of non-recovery type CO_2 treatment technology	Facility innovations: installation of complete hermetic type coal transfer facilities and completion of an indoor coal storage area at Dangjin Thermal Power Plant	Safety & health programs: safety experience sessions, transparent umbrellas for transportation safety, and installation of air purifiers at senior homes
Outcomes	Saving KRW 2.2 billion in fishing costs	Additional reduction GHG emissions	Reduction of residents' grievances by 22%	Improved trust relationship

Spread of a Sharing DNA

EWP undertakes various social contribution businesses designed to establish a welfare service system and expand its employees' voluntary participation. It is striving to build a comprehensive welfare service system in collaboration with a host of relevant organizations such as local governments, suppliers, government institutions, energy companies and universities. To further increase its employees' voluntary participation in its social contribution activities, EWP has invigorated its employees' talent donation programs. EWP ensures that all its previous social contribution programs contribute to program improvements and participation increase through the feedback of the satisfaction survey results of the programs.

Weekend farm (collaboration with a daycare center)

Improvement of lighting for single senior households

A tree planting event

Job Creation

EWP contributes to job creation in local communities through the launch of large investment projects and the implementation of win-win cooperation with the private sector. It helps its partner SMEs to achieve corporate growth and hire people by discovering additional tasks that it could outsource. Through the implementation of open employment, EWP strives to enhance social equitability.

Launch of Investment Projects and Win-win Cooperation

EWP has created jobs through large investment projects and joint investments with the private sector. In 2015, it created 6,183 jobs through joint investments. To make improvements in the quality of jobs it creates, EWP offers jobseekers with chances to acquire professional licensing through its 'EWP Training Center.' It endeavors to create job through collaboration with external research institutions, SMEs and local communities.

Job creation in 2015

6,183 Jobs

Status of Job Creation through Investment Projects in 2015

Category	Projects	Investment cost	Jobs created
Large-scale investment projects	Construction of Dangjin Thermal #9 & #10	KRW 395.6 billion	4,193
	Introduction of new technologies and refurbishment of aging facilities	KRW 109.2 billion	1,158
	New & renewable energy projects to reduce carbon emissions	KRW 13 billion	138
WinJoint investments with the private sector	Construction of Dangjin PPI Power Plant (joint investment with SK Gas)	KRW 20 billion	212
	Investment in Chuncheon Energy Corp. (in connection with an industrial complex)	KRW 32.9 billion	349
	Photovoltaic Power Station Project to support residents along Miryang transmission lines	KRW 390 million	4
	Gyeongju Wind Farm Project, Phase 2, for RPS implementation	KRW 12.2 billion	129

Expansion of Outsourcing and Fostering Partner SMEs

EWP has created jobs through additional discovery of the tasks that it can outsource and efforts to foster partner SMEs. In 2015, EWP discovered additional management jobs in relation to Dangjin #9 and Yeonggwang Baeksu Wind Farm construction projects, and trained new power plant mechanics for a private maintenance company that will serve to improve the productivity of the projects. In addition, it increased purchase from SMEs through support for the expansion of their markets, joint R&D, and improvements in relevant regulations, creating an additional 3,121 jobs in 2015.

Status of Job Creation for Partner SMEs in 2015

Category	Contents	Sales (Purchase)	Jobs created
Support for market expansion	Development of overseas markets: 48 companies	KRW 563.9 billion	2,336
	Operation of overseas office and export performance: an increase of US$69.41 million		
Joint R&D	Accomplishment of localization of power generation equipment: 82%		
	Purchase of successful joint R&D products: KRW 16.1 billion		
SMEs	Improvements in regulations through enhanced communication including CEO's on-site visits, etc.	KRW 182.16 billion	710
	Holding meetings with buyers for products from outstanding SMEs		
Businesses owned by women	Implementation of obligatory purchase of goods produced by companies owned by women	KRW 19.45 billion	75
	Holding workshops for the support of growth		
Total		KRW 765.51 billion	3,121

Job Creation through Co-prosperity with Private Company

It created 694 jobs through joint investments with the private sector for Dangjin PPI Power Plant and Gyeongju Wind Farm, Phase 2. In addition, EWP created 1,012 jobs through collaboration with external R&D institutions, SMEs and local communities for coal ash recycling business and and startup support.

Summary of New Job Creation

Unit: People

Year	The number of employees	Type	Investment projects	Partnership with the private sector	Outsourcing	Others(Win-win Growth)	Total
2013	2,201	Regular Position	11,882	644	138	3,739	16,403
		Temporary Position	5,933	313	69	1,845	8,160
		Total	17,815	957	207	5,584	24,563
2014	2,295	Regular Position	10,096	1,001	162	3,407	14,666
		Temporary Position	4,973	489	54	1,535	7,051
		Total	15,069	1,490	216	4,942	21,717
2015	2,300	Regular Position	3,119	648	211	5,875	9,933
		Temporary Position	1,576	307	91	1,367	3,341
		Total	4,775	955	302	7,242	13,274

Enhancement of Social Equity through the Promotion of Open Employment

SDG 10

EWP has set the plan of promoting open employment based on the analysis of its past manpower hiring practices. EWP hired 99 interns in 2015 through career experience programs and expanded internship programs in a bid to help solve the aggravation of youth underemployment. It hired additional 59 persons through the wage peak system. EWP implements a mandatory local talent employment system for Ulsan. As a result, compared to the area's college graduates against the national total (1%), EWP has hired 6.3% of its new recruits from the Ulsan area.

Youth & Adolescents Career Experience and Job Competency Enhancement Program

Unit: People

Objects	Objective	Trainees	Contents
Job seekers	Job competency verification and job experiences	59	Enhancement of employment opportunities through job competency verification and job experiences
College students	Job competency development	99	Operation of on-the-job internships for college students Cultivation of local talents through the selection of 30% of the students from local communities
	Career experiences	249	Operation of career experience programs for college students from across the country
Youth	Career experiences	755	Operation of career experience programs for elementary and secondary school students in collaboration with Ulsan Office of Education

Offering Customized Part-time Jobs

EWP substitutes employees on childcare leave to be replaced with females with a career disruption and senior citizens, preventing job vacancy and contributing to job creation for second-class citizen. EWP carried out a job analysis with the purpose of identifying jobs suitable for a customized part-time job system allowing employees to maintain work-life balance. It uncovered 10 jobs eligible for the system in the areas of storage management, reading management, employee welfare and general affairs as a result of its job analysis by placing emphasis on continuous tasks, contribution to organizational productivity improvements, and jobs that will be applied for by a majority of potential applicants.

Win–win Growth

Sustainability Context

EWP is fully committing to making the world a happy place for all as declared in its mission, "We Make Energy for Happiness." As such, not only its growth but also shared growth with its suppliers is a material aspect as indicated in its materiality test.

Our Strategy & Commitment

For shared growth with its suppliers, EWP implements a profit-sharing system and supports the enhancement of their management and technology competencies. To help them improve their productivity, EWP also promotes joint R&D, manufacturing business innovation movement 3.0, and partnership support business. In addition, it enhances transparent fair transactions with them in a bid to protect the interests of SMEs and help invigorate the national economy.

Our Progress & Next Step

Through the implementation of a profit-sharing system, EWP recorded KRW 105 billion in sales and 318 persons in employment in 2015. It helped the participants in its manufacturing bylines innovation movement 3.0 to cut down on their manufacturing costs by KRW 790 million. It won a grand prize at the 2015 Big and Small Business Productivity Innovation Partnership Competition for the company's implementation of support for productivity innovation partnership with its suppliers. It also reinforced its fair transaction promotion system and principles and maximized the transparency in its contract execution and bidding processes.

Issue 11
Elimination of unfair transactions

Issue 18
Shared growth with suppliers

Key Performance Indicator

Anti-corruption policy evaluation
1st

Outcome of profit sharing system
Sales
105 billion(KRW)
Employment
318 Employment

Good grade
in the shared growth evaluation in 2015

Won 'Big & Small Business Productivity Innovation Partnership Promotion Competition' in 2015

Win–win Growth

EWP contributes to bolstering SMEs' enhancement of competitiveness through the implementation of various programs designed to achieve shared growth with its suppliers. It promotes a profit-sharing system with its small- to mid-sized suppliers. It also helps them increase sales and employment through support for the enhancement of management and technological competencies. To help them improve their productivity, EWP has implemented three innovation projects which has resulted in positive results in cost-cutting and sales increase.

Results of the MOTIE's shared growth evaluation

Implementation of a Profit-Sharing System

Profit-sharing implementation system	Task development	Establishment of profit-sharing models, Proposal of profit-sharing tasks
	Task implementation	Planning and implementation, Implementation of mid-term evaluation
	Task evaluation	Evaluation of outcomes against goals, Task changes when necessary
	Profit-sharing	Profit-sharing cash distribution, Re-investments in SME suppliers'

EWP has implemented a profit-sharing system to distribute the outcomes of the mutual cooperative efforts to reduce costs and improve productivity between itself and SMEs. It has set a four-stage promotion system and shared outcomes in five areas such as R&D, trial installation, competency enhancement, technology transfer and win-win finance. EWP provided its share - KRW 100 million - as a re-investment in the secondary and tertiary suppliers' improvements in productivity and technology competencies. As a result of its expanded implementation of the profit-sharing system to include secondary and tertiary suppliers in the scheme, the relevant supplier increased its sales by KRW 105 billion and its employment by 318 people in 2015. EWP reduced relevant costs by KRW 19 billion.

Outcomes of the EWP Profit-sharing System

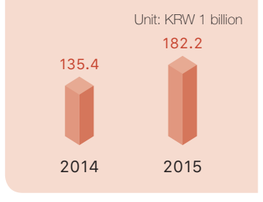
Profit-sharing types	Contents	Profit-sharing methods	Discovery efforts
R&D type	R&D funds support Joint technological development	Preferential purchase of successful R&D products Collection of technology fees	**Expansion of R&D investments** KRW 14.2 billion in 2015 (▲ KRW 1 billion)
Trial installation type	Support for site demonstration Self-development	Preferential purchase Sharing 1% of sales	**Promotion of expansion of trail installation** 18 cases in 2015 (▲2 cases)
Competency enhancement type	Technical mentoring Task discovery	Support for purchase and marketing Sharing 1% of sales	**Support for productivity improvement programs** KRW 330 million for 28 firms
T/T type	Support for commercialization Product development	Preferential purchase Collection of technology fees (a minimum of 2.5%)	**T/T about patents in possession** 71 cases in 2015 (▲ 2 cases)
Win-win finance type	Support for funds in need Improvement of productivity	Payment of 5% of interest earned for a 5% improvement in sales	**Expanded loans from a KRW 10 billion fund** Secondary & tertiary suppliers (previously primary only)

Efforts and Outcomes of Support for SME Suppliers

Enhancement of Competitiveness through expanded Sales Routes

EWP has contributed to boosting SMEs' sales increases through preferential purchase and expanded sales routes. In 2015, EWP expanded its preferential purchase of SMEs' products through online purchase meetings - a first among local public institutions - purchase meetings held at its operating sites, and expansion of single source procurement from SMEs. To help the companies expand their sales network, EWP helped with their participation in trade fairs and export road shows, enabling them to open themselves up to the Chinese and Indonesian markets.

Purchase of SMEs' Products



Efforts for Support Capability Reinforcement

EWP has provided diverse support to help SMEs to enhance their management competencies. With improvements in regulations and systems related to SMEs, EWP officially visited 12 companies in 2015 to listen to their difficulties and worked to eliminate barriers to SMEs' access to conduct business with itself. To help with their shortage in funds, EWP provided KRW 12.5 billion in loans in 2015. Due to such efforts, the sales of its partner SMEs rose by 6% in 2015 - from KRW 57.3 billion in 2014 to KRW 61 billion in 2015. Employment increased by 10% during the same period - from 320 persons in 2014 to 353 persons in 2015.

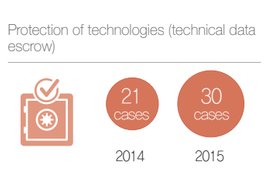
Promotion of Three Innovation Projects

Technological Innovation through the R&D Invigoration Support

EWP pursues SMEs' productivity improvement through its R&D invigoration support project. It has bolstered the implementation of the localization of power generation facilities and provided relevant information to its partner SMEs. It has succeeded in free transfer commercialization through the transfer of technologies in possession and the implementation of technological protection. In 2015, it carried out 18 test-bed cases leading to the increase of SME sales by KRW 5.687 billion.

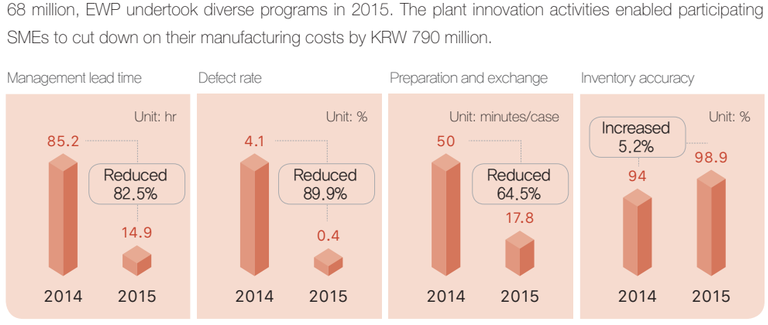
Localization of power generation facilities

Protection of technologies (technical data escrow)



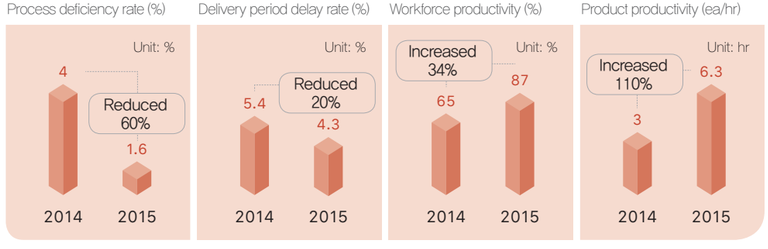
Management Innovations through 'Industrial Innovation Movement 3.0'

To support SMEs' productivity improvement, EWP has promoted its 'Industrial Innovation Movement 3.0.' Compared to 2014, it increased participants to 8 companies in 2015. With an increased budget by KRW 68 million, EWP undertook diverse programs in 2015. The plant innovation activities enabled participating SMEs to cut down on their manufacturing costs by KRW 790 million.



Productivity Innovation through Partnership

EWP has joined hands with the government to provide comprehensive support to its suppliers for their productivity improvements through 'the Productivity Innovation Partnership Support Project.' The program package is composed of a three-dimensional site diagnosis, creation of innovative environments, education on methods of manufacturing innovations, and education on productivity innovation, In 2015, EWP won a grand prize at the '2015 Big and Small Business Productivity Innovation Partnership Competition' for its efforts that are self-funded with KRW 114 million and participated by 5 suppliers.




제 2015-152호

상 장

주관기업부문 대 상 — 한국동서발전㈜ 차장 엄상민

귀하는 2015년 대·중소기업 생산성 혁신 파트너십 경진대회에서 위와 같이 입상하였으므로 이 상장을 수여합니다.

2015년 12월 22일

동반성장위원회 위원장 안 충 영

Grand prize at 2015 Big and Small Business Productivity Innovation Partnership Competition

Transparent Fair Transactions

G4-SO7

EWP has actively made an institutional overhaul to promote fair transactions, prevent irregularities such as bid rigging, and protect the economically vulnerable. It also strives to upgrade its regulations with the purposes of protecting vulnerable companies and revitalizing the national economy.

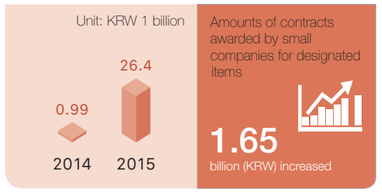
Fair Transactions Promotion Systems and Principles

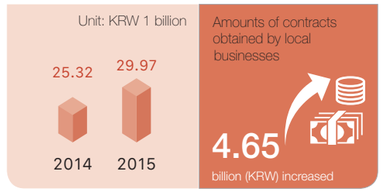
EWP's procurement ombudsman system serves as a window of cooperation with the company's suppliers. In 2015, it led the company to re-deliberate 10 proposals for regulation changes that were initially not accepted by the company out of the company's 2015 regulation improvement proposals made internally and externally. The system helps EWP secure fairness and momentum in its regulation changes. EWP implements the 'one strike, you're out' system about bid rigging. When a suspected case has been proven to be involved, EWP bans the relevant business from participating in its work through bids or otherwise for five years as an example of its principle of zero tolerance on bid rigging.

Transparency of Contract & Bid Information

EWP made reforms in its contract and bidding system to heighten the transparency of the system, among others. The obligation of pre-bidding information disclosure has expanded in addition to previously required goods purchase specification. The papers must be submitted prior to contract execution. The establishment of particular specifications is fundamentally blocked. The subcontractor selection methods and results have to be announced now in an effort to prevent a client's influence. In the event of negotiation-based contracts, the evaluation of subcontractor candidates has changed to an anonymous evaluation system to prevent any special favors from being given to a particular subcontractor or two.

Protection of Financially Vulnerable Companies





EWP has taken active measures to protect financial vulnerable companies like small businesses and merchants and promote practical elimination of access barriers. It has added mandatory preferential purchasing from small businesses and merchants to its internal regulations. It has designated five items requiring the expansion of sales opportunities on the part of small businesses, leading small businesses to increase their contract awards for those items. Previously, regional limitation in bidding process was optional according to the department in charge. Now, regionally limited open bids have become mandatory at first. Local businesses' contract awards have also increased. Its Payment Monitoring System, which applied only to secondary and tertiary suppliers taking part in construction contracts, has been upgraded to include those involved in software related contracts, bolstering timely payment to its subcontractors.

Results of efforts to promote fair transactions in 2015

Improvements in the evaluation of 2015 public institution external integrity
2014 **8.95** Points
2015 **8.98** Points

Evaluation of anticorruption policies
4 consecutive years
1 st grade

Special Issue

Developing Overseas Markets

Directions for Market Development at Home and Abroad

EWP has set the directions for the development of sales routes. It has broadened its overseas markets and increased the number of its partner companies as a way of implementing shared growth with its suppliers. In 2015, which was part of Stage 3 seeking the fortification of the company's footholds.

Promotion Stages		2013 Laying the foundation for an overseas market advance	2014 Fortification of its footholds	2015 Expansion of its presence in global markets
Overseas markets	Overseas regions to advance into	China, Southeast Asia, the Middle East	Americas, Eastern Europe, Russia	The EU, Africa
	No. of companies	40	60	100
	Core business to promote	- Expansion of EWP-MAP, the company's overseas marketing model for SME products (Four Southeast countries ▶ four Southeast countries + China)		
		- Joint participation in 7 trade fairs including WETEX with five other power companies - Export roadshows - Increase of overseas branch offices		
		- Korea-China Thermal Power Generation Partnering Plaza - Discovery and cultivation of hidden champion SMEs - Operation of overseas shared growth offices - Establishment of a mobile export exhibition hall		
		- Promotion of overseas demonstrative installation business (three Southeast countries) - Upgrade of demand-centered tailored EWP-MAP (Southeast Asia ▶ global markets)		

Differentiated Market Opening Efforts to Fortify Overseas Market Footholds

EWP takes strategic approaches in order to expand the markets for SMEs' products. It conducted surveys among the members of 83 councils and reflected the results in its MoU with an Indonesian power company for technological cooperation. EWP also owes the establishment of a solution provider strategy for the Indonesian project to the survey results. EWP intends to push forward with the project in directions. Most notably, for the overseas demonstrative installation of SME products, EWP has offered SMEs with opportunities to publicize their self-developed goods through meetings between EWP and the Indonesian counterpart and to use its test-beds installed in its power plants in operation. Aside from this, EWP has established various performance indices. It has continued to implement systematic monitoring to boost the effect of its strategies.

Strategic System to Expand the Sales Routes for SME Products

Goal	Expansion of sales routes for SME products through strategic approaches to Indonesian power plant markets		
Promotion directions	Support for overseas demonstrative installation of SMEs' self-developed products	Holding conferences on Korea-Indonesia technology exchange	Product promotion and feature improvements
Actions taken	Indonesia (PT.PJB) - EWP◀▶PJB Technical Meeting - Offering test-beds at power plants in operation - Providing chances to publicize SME products	EWP - Selection of SME goods optimized for Indonesian markets - EWP◀▶PJB Technical Meeting - Technical advice about SME goods	SMEs - Product briefings to experts - Reflection of experts' advice on products - Presentation - Visit and presentation at Indonesian power plants
Performance indices	Increase of companies operating in Southeast Asia	Increase of exports to Southeast Asia	Increased employment by export businesses
Monitoring tools	Integrated performance management system	Management strategy meetings (weekly/monthly)	Internal evaluation system

APPENDIX

Data Center

G4-17 G4-EC1

Financial Performance

Summary Statement of Financial Position

Unit: KRW 100 million

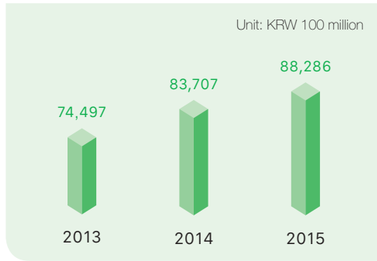
Classification	2013	2014	2015
Current asset	8,677	8,279	9,380
Non-current asset	65,820	75,428	78,906
Total asset	74,497	83,707	88,286
Current liabilities	11,544	6,322	10,211
Non-current liabilities	28,601	41,731	38,158
Total liabilities	40,145	48,053	48,369
Paid-in capital	21,381	21,381	21,381
Retained earnings	13,794	15,324	19,539
Total equity	34,352	35,654	39,917

Summary of Income Statement

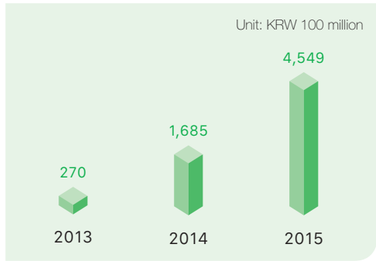
Unit: KRW 100 million

Classification	2013	2014	2015
Sales	53,683	45,070	40,477
Cost of sales	52,067	41,710	33,548
Gross profits	1,616	3,360	6,928
Selling and administrative expenses	578	536	766
Operating profit	1,038	2,824	6,162
Other gains	125	93	297
Other costs	10	34	32
Financial gains	218	565	1,370
Financial costs	706	987	1,530
Profit (loss) before income taxes	314	2,104	6,096
Corporate tax expense	44	419	1,546
Net Profit	270	1,685	4,549

Trend in Asset Values



Trend in Net Income

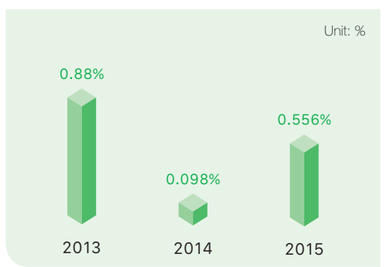


APPENDIX

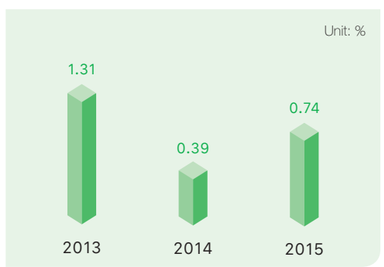
Economic Performance Indicators G4-EC1

Category	Unit	Type		2013	2014	2015
Facility capacity	MW			9,343	9,138	9,139.4
Power generation	GWh	Fossil fuels	Coal	39,661	38,781	39,252
			LNG	10,114	9,225	6,873
			Oil	6,836	2,693	3,114
			Total	56,611	50,699	49,239
		New-renewable	Total	153	305	286
		Company	Total	56,764	51,004	49,525
Sales	GWh	–		54,069	48,549	45,840
Sales price	won/kWh	–		98.04	91.19	85.09
Forced outage	%	–		0.88	0.098	0.556
Unplanned losses	%	–		1.31	0.387	0.743
Operating rate	%	–		91.36	99.88	91.44
Consumption rate	%	–		71.4	65.06	60.38
Thermal efficiency	%	–		38.96	39.65	39.5
Service power rate	%	–		5.13	5.19	5.46
Biz. Partners	KRW 100 million	Purchased products & services		4,609	3,533	2,719
Employees	KRW 100 million	Salary, Benefits		1,962	1,479	2,054
Shareholders	KRW 100 million	Dividends		81	253	679
Creditors	KRW 100 million	Interests		316	371	296
Government	KRW 100 million	Corporate tax, Local tax		53	543	1,643
Local Society	KRW 100 million	Social contribution, donation		41	41	40
Reinvestments	KRW 100 million	Surplus excluded from dividend		259	1,502	3,957

Forced outage



Unplanned losses



* Forced outage rate = outage hours/calendar hours

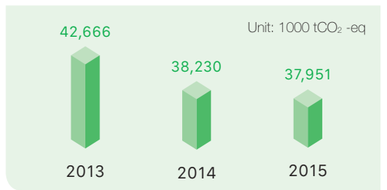
* Unplanned loss rate = quantity of unplanned lost power/standard power quantity

* Localization rate of power generation equipment = {domestic capital cases/ (domestic capital cases + foreign capital cases)} ×0.2 + {domestic capital amounts/ (domestic capital amounts + foreign capital amounts)} ×0.8

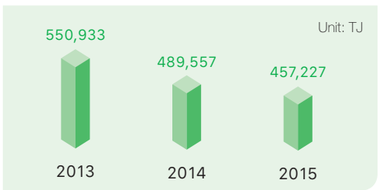
Environmental Performance Indicators G4-EN15 G4-EN16 G4-EN17 G4-EN19 G4-EN21 G4-EN22 G4-EN23

Category	Unit	Classification	2013	2014	2015
GHG	1,000 ton tCO_2-eq	GHG emissions (Scope1+Scope2)	42,666	38,230	37,951
		GHG emissions (Scope3)	–	9,263	8,742
Energy consumption	TJ	Energy consumption	550,933	489,557	457,227
	GJ/MWh	Energy basic unit	9.85	9.76	9.232
Fuel consumption	10,000 tons	Coal	1,603	1,542	1,500
	1,000 KL	Oil	1,616	628	660
	1,000 tons	LNG	161	131	960
Air pollutant emissions	ton	SOx	16,629	13,755	11,965
	ton	NOx	31,994	24,799	21,552
	ton	Dust	723	687	651
Air pollutant emissions relative to basic unit	ton/GWh	SOx	0.294	0.271	0.243
		NOx	0.565	0.489	0.437
		Dust	0.013	0.014	0.013
Wastewater discharged	ton	COD	11	22	27
	ton	SS	62	52	12
	ton	T-N	1	1	47
	ton	T-P	0.58	0.62	0.4
Wastewater discharged relative to basic unit	Kg/GWh	COD	0.26	0.38	0.55
		SS	1.49	1.03	0.24
		T-N	0.02	0.02	0.95
		T-P	0.01	0.01	0.01
Wastewater generated	1,000 tons	–	3,598	3,161	3,416
Wastewater reuse quantity	1,000 tons	–	1,288	1,285	1,227
Wastewater reuse rate	%	–	36	41	36
Waste quantity	1,000 tons	–	1,839	1,906	1,824
Waste recycling quantity	1,000 tons	–	1,857	1,851	1,635
Desulfurized gypsum generation	1,000 tons	–	571	467	495
Desulfurized gypsum recycling rate	1,000 tons	–	557	459	480
Coal ash generation quantity	1,000 tons	–	1,807	1,871	1,802
Coal ash recycling quantity	1,000 tons	–	1,829	1,844	1,615

GHG emissions (Scope 1+ Scope2)



Energy consumption

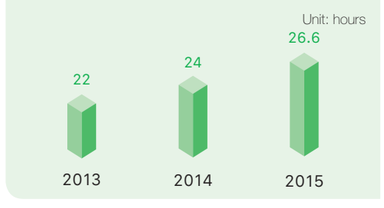


APPENDIX

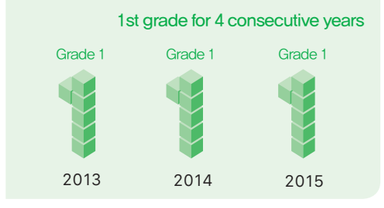
Social Performance Indicators

Category	Unit	Classification		2013	2014	2015
Employees	People	Regular positions	Total	2,231	2,296	2,300
			Male	1,991	2,029	2,064
			Female	240	267	236
Minorities	%	The handicapped		3.4	3.4	3.4
	%	Females		10.5	11.5	10.7
	People	Female managers		18	22	28
	%	Female managers(rate)		3.2	3.7	4.3
Job security	Year	Average service years		15.1	16.0	15.7
	%	Turnover		0.54	0.93	0.78
Socially equitable employment	People	No. of recruits		206	131	16
		Personnel from non-capital area		97	78	10
		Individuals of national merit		10	11	0
		High school graduates		48	37	5
		The handicapped		10	9	0
		Females		48	32	0
Family-friendly management	People	Employees on childcare leave		14	14	33
	%	Post-childcare leave return rate		100	100	100
Employee satisfaction	Points	GWP index (full score: 5)		3.77	4.41	4.57
Manpower Training	Hours	Training hours per person		110	124	188
	KRW 1 thousand	Education costs per person		3,512	2,680	2,540
	KRW 100 million	Education budget		77.3	58.2	58.4
Social Contribution	KRW 100 million	Donation		8	6	6
	Hours	Volunteer service hours		47,644	55,588	58,482
	Hours	Volunteer service hours per person		22	24	26.6
Integrity Assessment	Points	Evaluation of Anti-corruption & Civil Right Commission		8.53	8.56	8.80
Anti-corruption policy assessment	Grade	Evaluation of Anti-corruption & Civil Right Commission		1	1	1
Employee safety	%	No. of deaths x 10,000 / total No. of employees		1.74	2.87	0
Win-win Growth	KRW 100 million	Support of SME R&D Funds		93	164	143
	KRW 100 million	Purchase of successful joint R&D products with SMEs		194	158	195
Local community support	KRW 100 million	According to the Act on Assistance to Electric Power Plants-Neighboring Areas		33	35	34

Volunteer service hours per person



Anti-corruption policy assessment

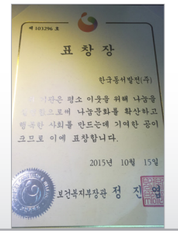


* 2012 Anti-corruption policy assessment 1st grade

Awards in 2015

Won the Exellence Award in the areas of "Outstanding Cases in Big Business Safety&Health"

Award as an excellent institution in the Creation of 3ZERO Workplace Project



Won the Minister of Health and Welfare Award at 2015 Korea National Sharing Awards

Won the grand prize at '2015 Big & SME Productivity Innovation Partnership Competition'

Won 'SMBA Task Discovery Award' for 8 consecutive years

Won 'Financial Innovation Grand Prize'
at the 16th Korea Financial Management Awards

Ranked 1st in climate competitiveness
(the Minister of Trade, Industry and Energy award)

Won Carbon Management Special Award in Carbon Disclosure Project
for two consecutive years

(Dangjin Thermal Power Plant Complex) won an Excellent Award
at the 14th Korea Safety Awards (the Prime Minister Award)

GRI G4 Application

General Standard Disclosures					
GRI index	Index Description	Details	Page	ISO 26000	Verified
Strategy and Analysis					
G4-1	Statement from most senior decision-maker of the organization	• EWP intends to establish its vision in terms of sustainability management and continue to make innovations in its business operations with the purpose of achieving continuous corporate growth by actively coping with the ongoing social and environmental paradigm shift throughout the world.	2, 3	7.4.2	V
Organizational Profile					
G4-3	Name of the organization	• Korea East-West Power Co., Ltd.	6	-	V
G4-4	Primary brands, products and services	• Power generation and development of electric power sources	6	-	V
G4-5	Location of the organization's headquarters	• 395, Jongga-ro, Jung-gu, Ulsan, Korea	6	-	V
G4-6	Number of countries where the organization operates, and names of countries where either the organization has significant operations or that are specifically relevant to the sustainability topics covered in the report	• Domestic power plant: Dangjin Thermal Power Plant complex, Ulsan Thermal Power Plant complex, Honam Thermal Power Plant complex, Donghae Bio Thermal Power Plant complex, Ilsan Thermal Power Plant complex • Overseas power plant: Vietnam, Indonesia, Guam, Jamaica, USA	9	-	V
G4-7	Nature of ownership and legal form	• 100% owned by KEPCO	6, 7	6.2.1	V
G4-8	Markets served	• Power plant operations at home and abroad and investments and development	6	-	V
G4-9	Total number of employees, total number of operations, and net sales, Total capitalization broken down in terms of debt and equity, Quantity of products or services provided	• No. of employees : 2,300 people • No. of operations: 10 (5 at home, 5 overseas) • Net Profit: KRW 454.9 billion, Debt: KRW 4.8369 trillion • Generated electricity: 49,525GWh • Sales: KRW 4.0477 trillion	6, 7, 9	-	V
G4-10	a. Total number of employees by employment contract and gender b. Total number of permanent employees by employment type and gender c. Total workforce by employees and supervised workers and by gender d. Total workforce by region and gender e. Whether a substantial portion of the organization's work is performed by workers who are legally recognized as self-employed, or by individuals f. Any significant variations in employment members	Classification (Unit : People) / 2013 / 2014 / 2015 Employees – Total: 2,231 / 2,296 / 2,300 Employees – Male: 1,991 / 2,029 / 2,064 Employees – Female: 240 / 267 / 236 Retired employees in 2015: 40 / 37 / 56 Voluntary retirees in 2015: 5 / 3 / 3 Non-fixed-term employees: 0 / 0 / 0 Irregular workers (direct employment): 29 / 12 / 12 Indirectly employed workers: 250 / 284 / 326 2015 regular employee recruits (except for executives) – Female: 48 / 32 / 0 2015 regular employee recruits (except for executives) – The handicapped: 10 / 11 / 0 2015 regular employee recruits (except for executives) – Local talents (non-capital area): 92 / 62 / 9 2015 regular employee recruits (except for executives) – Local talents (Ulsan): 5 / 16 / 1 2015 regular employee recruits (except for executives) – High school graduates: 45 / 37 / 5 2015 regular employee recruits (except for executives) – Vocational high school graduates: 44 / 36 / 0 2015 regular employee recruits (except for executives) – Graduates of science & engineering colleges: 145 / 78 / 7 2015 regular employee recruits (except for executives) – Total recruits: 206 / 131 / 16 2015 irregular worker recruits – Interns: 132 / 131 / 99 2015 irregular worker recruits – Part-time workers: - / - / - 2015 irregular worker recruits – Fixed-term workers: 51 / 2 / 13 Ratio of employees with special status – Females (rate): 240(10.5%) / 267(11.5%) / 236(10.7%) Ratio of employees with special status – Female managers (rate): 18(3.2%) / 22(3.7%) / 28(4.3%) Ratio of employees with special status – Handicapped employee rate: 3.4% / 3.4% / 3.4%	65	6.3.7	V
G4-11	Percentage of total employees covered by collective bargaining agreements	Ratio of employees' union membership* — 2013: 97.5 / 2014: 97.7 / 2015: 98.5 (Unit : %) *Union membership is available to all the employees of grade-4 or below.	82	6.4, 6.4.3, 6.4.4, 6.4.5, 6.3.10	V

General Standard Disclosures					
GRI index	Index Description	Details	Page	ISO 26000	Verified
G4-12	Describe the organization's supply chain	• EWP produces electricity along with private power companies and regional electric operators and sells it to KEPCO through the Korea Power Exchange. KEPCO sells electricity to consumers through its national transmission and distribution networks.	6, 12	6.6.6	V
G4-13	Significant changes during the reporting period regarding the organization's size, structure, ownership, or its supply chain, including	• Domestic power plants: Dangjin Units 9 & 10 under construction • Overseas power plants: the Kalsel Indonesia project in progress • New energy project: participating in an group energy project through strategic alliance with domestic IPPs • New & renewable energy: promoting the construction of a new wind farm and preparing for Miryang Photovoltaic Power Station Project	10	-	V
G4-14	Report whether and how the precautionary approach or principle is addressed by the organization	• EWP has established an integrated risk management system by integrating its financial and operational risks as a precautionary approach to changes in management environments. It has also set up an Integrated Crisis Response Center that can immediately cope with any type of disaster around the clock.	23	-	V
G4-15	List externally developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes or which it endorses	• EWP endorses global CSR initiatives such as UN Global Compact, ISO 26000 and CDP	1, 7	7.8	V
G4-16	Associations the organization has joined as a member	• EWP is a member of a total of 25 associations.	92	-	V
Main issue and report boundary					
G4-17	All entities included in the organization's consolidated financial statements or equivalent documents	• Please refer to the company's financial statements.	77	6.2	V
G4-18	The process for defining the report content and the Aspect Boundaries	• EWP has followed the Reporting Principles for Defining Report Content specified in GRI G4 Guidelines and decided on its report content through a materiality assessment.	1, 25	-	V
G4-19	List all the material Aspects identified in the process for defining report content	• Please refer to the results of the materiality assessment and the third party assurance issued by BISD (Business institute for Sustainable Development of the KCCI (Korean Chamber of Commerce and Industry.	25	-	V
G4-20	The Aspect Boundary for each material Aspect within the organization	• EWP has reported the Aspect Boundary for each material Aspect at the top of the DMA page of each chapter of this report.	25	-	V
G4-21	The Aspect boundary for each material Aspect outside the organization	• Please refer to each Aspect Boundary index.	25	-	V
G4-22	The effect of any restatements of information provided in previous reports, and the reasons for such restatements	• There are some restatements of information provided in previous reports due to changes in calculation methods and units (value distribution among employees, wastewater discharge quantity, support for local communities)	83	-	V
G4-23	Significant changes from previous reporting periods in the Scope and Aspect Boundaries	• No significant changes in the Scope and Aspect Boundaries	83	-	V
Stakeholder Engagement Stakeholders Participation					
G4-24	List of stakeholder groups engaged by the organization	• Governments and relevant institutions, Power companies, Media, NGOs, Local community, Employees, Biz. Partners, Labor Unions, Shareholders, People	24	-	V
G4-25	Basis for identification and selection of stakeholders with whom to engage	• EWP identifies and selects its stakeholders in terms of value impact, value production and value consumption in connection with its value creation process.	24	-	V
G4-26	The organization's approach to stakeholder engagement, including frequency of engagement, including frequency of engagement by type and by stakeholder group	Stakeholders / Stakeholder engagement Value impacts – Governments & relevant authorities: Government Communication Portal Value impacts – Power companies, mass media: Power Company Council, etc. Newspaper articles, broadcast. Value impacts – NGOs, Local communities: Local Council Value production – Employees: Education to share the vision, management meetings, weekly meetings Value production – Biz. Partners: Town hall meetings, special lectures, SME Shared Growth Center, etc. Value production – Labor union: Labor-Management Strategy Meeting Value consumption – Shareholders: Electricity trading system, Management Information Allio Value consumption – People: Korea information portals, the Open Management website, etc.	24	6.8.3	V

General Standard Disclosures

GRI index	Index Description	Details	Page	ISO 26000	Verified
G4-27	Key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting. Report the stakeholder groups that raised each of the key topics and concerns	Stakeholders / Key topics and concerns Value impacts: Governments & relevant authorities — Stable power supply Value impacts: Power companies & mass media — Securing competitiveness in the power industry, interest in compelling issues, competitive cooperation Value impacts: NGOs, Local communities — Local power generation, environmental protection, economic invigoration in regions around power plants Value production: Employees — Enhancement of corporate competitiveness, work-life balance, etc. Value production: Biz. Partners — Invigoration of shared growth and economic growth, establishment of fair and transparent transaction systems Value production: Labor union — Establishment of corporate culture based on communication and trust Value consumption: Shareholders — Requests for information disclosure Value consumption: People — Stable supply of high-quality economical electricity	24	-	V
Report Profile					
G4-28	Reporting for information provided	• Jan. 1, 2015 ~ Dec. 31, 2015	1	-	V
G4-29	Date of most recent previous report	• Sept. 2015	1	-	V
G4-30	Reporting cycle	• Reporting cycle: 1 year	1	-	V
G4-31	Contact point for questions regarding the report or its contents	• Department in charge: Climate & Environment Team, Power Generation Division • Contact: Tel)070-5000-1544	1	-	V
G4-32	The 'in accordance' option the organization has chosen	• EWP has chosen 'in accordance with GRI G4 - Core' • EWP reports all indices in General Standard Disclosures and at least one index for each material Aspect in Specific Standard Disclosures.	1	-	V
G4-33	Organization' s policy and current practice with regard to seeking external assurance for the report	• Organization' s policy and current practice with regard to seeking external assurance for the report	1	7.5.3	V
Governance					
G4-34	Organization's policy and current practice with regard to seeking external assurance for the report	• EWP has a BOD composed of secretariat, professional subcommittees, Audit Committee and Executives Recommendation Committee.	18	6.2	V
G4-39	Report whether the Chair of the highest governance body is also an executive officer	• The chair of the BOD, the highest governance body, is the senior non-executive director and maintains independence of the board from the company management.	18	-	V
G4-45	The highest governance body's role in the identification and management of economic, environmental and social impacts, risks, and opportunities. Include the highest governance body's role in the implementation of due diligence processes	• The BOD runs discussion-centered meetings. Brainstorming opportunities are given to executives. Participation of non-executive directors is actively sought. BOD members have in-depth discussions about the company's economic, environmental and social impacts, risks and opportunities. They comprehensively deal with not only the company's business aspects but also its social responsibilities.	19	7.4.3	V
G4-47	Report the frequency of the highest governance body's review of economic, environmental and social impacts, risks, and opportunities	2015: No. of BOD meetings 11; BOD resolutions 31	19	-	V
Ethics and Integrity					
G4-56	Organization's values, principles, standards and norms of behavior such as codes of conduct and codes of ethics	• EWP has established its own ethical vision and mid- to long-term strategies to promote ethics and integrity. • It has norms of behavior such as codes of conduct, guidelines on disciplinary actions, reporting on rimes and contract execution. • It runs the Integrity & Ethics Committee.	20	4.4	V
G4-58	Internal and external mechanisms for reporting concerns about unethical or unlawful behavior, and matters related to organizational integrity, such as escalation through line management, whistleblowing mechanisms or hotlines	• EWP has enhanced its rules on new contract execution as a way of strongly enforcing its codes of conduct, guidelines on disciplinary actions, reporting on crime, and codes of ethics. • To minimize ethical risks, it has expanded the application of the norms to its employees who are dispatched or transferred to outside organizations.	20	7.7.5, 4.4, 6.6.3	V

Specific Standard Disclosures_Economic Category

GRI index	Index Description	Details	Page	ISO 26000	Verified
Economic Performance	Disclosures on Management Approach(DMA)	• Through domestic and overseas projects, EWP provides electricity in a stable manner while expanding its business scope to the creation of new and renewable energy complexes and the diversification of biomass fuels. • Aside from this, it bolsters it future growth engines through intensive R&D efforts. It continues to improve its financial soundness through upgrades in its financial structure	30		
G4-EC1	The direct economic value generated and distributed (EVG&D) on an accruals basis, direct economic value generated, economic value distributed, and economic value retained	Direct Economic Value — Unit: KRW 100 million	77,78	6.8.1, 6.8.2, 6.8.3, 6.8.7, 6.8.9	V

Classification	2013	2014	2015
Sales	53,683	45,070	40,477
Cost of goods sold	52,067	41,710	33,548
Gross profit	1,616	3,360	6,928
Selling and administrative expenses	578	536	766
Operating profit	1,038	2,824	6,162
Other gains	125	93	297
Other costs	10	34	32
Financial gains	218	565	(273)
Financial costs	706	987	1,530
Profit (loss) before income taxes	314	2,104	6,096
Corporate tax expense	44	419	1,546
Net Profit	270	1,685	4,549

Distributed Economic Value — Unit: KRW 100 million

Classification	2013	2014	2015
Biz. Partners	4,609	3,533	2,719
Employees	1,962	1,479	2,054
Shareholders	81	253	679
Creditors	316	371	296
Government	53	543	1,643
Local society	38	42	39
Reinvestments	259	1,502	3,957

Indirect Economic Impact	Disclosures on Management Approach(DMA)	• EWP is building infrastructure in various local communities including Dangjin, bringing benefits in terms of not only its economic gains but also increased electricity generation for local residents.	30,31		
G4-EC7	The extent development of significant infrastructure investment and services supported	• EWP has installed 345kV transmission lines in the Dangjin area. It has developed a simulation program intended for optimal output distribution of Dangjin Thermal Power Plant. As such, it has increased its power generation by 321GWh and profits by KRW 1.6 billion. • It is now engaged in diverse infrastructure investments such as wind farms, biomass power plants and the creation of Future Energy Town.	32,34	6.3.9, 6.8.1, 6.8.2, 6.8.7, 6.8.9	V

Specific Standard Disclosures_Environmental Category

GRI index	Index Description	Details	Page	ISO 26000	Verified
Energy	Disclosures on Management Approach(DMA)	• EWP realizes energy conservation through diverse efforts including technical development and the development of low-carbon power plants.	44,46		
G4-EN3	Energy consumption within the organization	Total energy consumption	46	6.5.4	V

Category	2013	2014	2015
Energy Usage (Unit: TJ)	550,933	489,557	457,227

• There is a slight discrepancy between the total emissions and the total of the emissions of all its operating sites because the sites use rounded totals.

Specific Standard Disclosures_Environmental Category

GRI index	Index Description	Details	Page	ISO 26000	Verified
Emission	Disclosures on Management Approach(DMA)	• To reduce its GHG emissions, EWP is engaged in diverse activities such as voluntary participation in CDP and the development of technologies for turning GHG into high value-added goods.	44,46		
G4-EN15	Direct greenhouse gas(GHG) emissions(SCOPE1)	Scope1+Scope2(GHG emissions) Unit: tCO_2-eq 2013: 42,665,921 / 2014: 38,229,795 / 2015: 37,950,777	46,79	6.5.5	V
G4-EN16	Energy indirect greenhouse gas(GHG) emissions(SCOPE2)		46,79	6.5.5	V
G4-EN17	Other indirect greenhouse gas(GHG) emissions(SCOPE3)	Scope3(Other relevant indirect GHG emissions) Unit: tCO_2-eq 2013: - / 2014: 9,262,519 / 2015: 8,742,014	46,79	6.5.5	V
G4-EN19	Reduction of greenhouse gas(GHG) emissions	• EWP expects to acquire KRW 5.2 billion worth of economic value through the CO_2 treatment technology that it developed through its R&D efforts to transform GHG into high value-added goods. • EWP is promoting the production of architectural interior goods that replace cement with coal ash. • Through the increased recycling of coal ash by 300,000 tons a year, EWP expects to reduce its landfill costs (KRW 2.6 billion) and save landfill charges and GHG emissions (KRW 1.1 billion).	46,47,54	6.5.5	V
G4-EN21	NOx, SOx and other significant air emissions	Air Emissions Unit : ton	48,79	6.5.3	V
Waste-water and waste	Disclosures on Management Approach(DMA)	• EWP continues to improve its efficiency in terms of effluents and waste management to minimize its negative impact on the environment.	44, 48, 49, 50		
G4-EN22	Total water discharge by quality and destination	• EWP has installed a comprehensive wastewater treatment facility at each of its power plants and thus improve the service water and wastewater recycling rates.	49, 79	6.5.3, 6.5.4	V
G4-EN23	Total weight of waste by type and disposal method	• EWP reuses coal ash, gypsum and waste oil from its power plants and creates additional profits. • Those that are difficult to reuse or recycle are disposed of by licensed businesses.	50, 79	6.5.3	V
Product and service	Disclosures on Management Approach(DMA)	• As a by-product supply glut was anticipated following the expansion of its power plant facilities, EWP has enhanced its recycling of coal ash and heavy oil fly ash.	44, 54		
G4-EN27	Extent of impact mitigation of environmental impacts of products and services	• EWP is undertaking a project designed to produce architectural interior materials with coal ash. With an increase of 300,000 tons in the annual coal ash recycling volume, it is expected to reduce its landfill costs (KRW2.6 billion) and landfill charges and GHG emissions (KRW 1.1 billion). • It has developed bio fuel deodorization and high calorific fuel by taking advantage of the heating value and deodorization power of heavy oil fly ash, reducing treatment costs of heavy oil fly ash (about KRW 800 million/year) and fuel costs (KRW 300 million/2 years) and new and renewable energy supply certificates (10,000 REC/year).	54	6.5.3, 6.5.4, 6.5.5, 6.7.5	V
Com-pliance	Disclosures on Management Approach(DMA)	• EWP keeps track of, manages and complies with domestic and international environmental laws and regulations and other requirements that are directly related or relevant in any other way in terms of the environmental aspects of its activities, business and services.	44,45		
G4-EN29	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations	• EWP imposes its own environmental rules and regulations, far stricter than those required by the government for green enterprises, to meet all its environmental responsibilities. • In 2015, it had two non-compliance cases. • Dangjin: KRW 3 million, Donghae: KRW 2 million	45,87	4.6	V

Power plant	service water		waste water		
	Usage (1,000 tons)	Intensity (ton/GWh)	Output	Recycled Q'ty (1,000 ton)	Recycled Rate (%)
2013	13,761	242	3,598	1,288	36
2014	12,055	237	3,161	1,285	41
2015	10,267	209	3,416	1,227	36

Emission Allowances and Concentrations for Water Pollutants(COD / SS) Unit: mg/ℓ

Power Plant		Area (type)	COD Regulation	COD Emissions	SS Regulation	SS Emissions
Dangjin	Power generation	Area B (Grade 1)	90	5	80	2
	Desulfurization			21		21
Ulsan		B (Grade 1)	90	7	80	2
Honam	Power generation wastewater	Special Area (Grade 1)	40	6	30	2
	Desulfurization wastewater			19		7
Donghae		Special Area (Grade 3)	130	2	120	1
Ilsan		Area B (Grade 1)	40	6	10	3

Emission Allowances and Concentrations for Water Pollutants(T-N / T-P) Unit: mg/ℓ

Power Plant		Area (type)	Total Nitrogen Regulation	Total Nitrogen Emissions	Total Phosphorous Regulation	Total Phosphorous Emissions
Dangjin	Power generation	Area B (Grade 1)	60	9	8	Less than 1
	Desulfurization			45		
Ulsan		B (Grade 1)	60	10	8	-
Honam	Power generation wastewater	Special Area (Grade 1)	60	3	8	Less than 1
	Desulfurization wastewater			34		
Donghae		Special Area (Grade 3)	60	1	8	Less than 1
Ilsan		Area B (Grade 1)	60	11	8	-

Classification	Emissions 2013	Emissions 2014	Emissions 2015
SOx	16,629	13,755	11,965
NOx	31,994	24,799	21,552
Dust	723	687	651

Classification	Unit	2013	2014	2015
Power generation Q'ty (except for new & renewable energy)	GWh	56,611	50,699	49,239
Total weight	1,000 tons	1,839	1,906	1,824
Waste generation per basic unit	ton/GWh	32	37	37
Recycled Q'ty	1,000 tons	1,857	1,851	1,635
Recycling Rate	%	101	97	90

Classification		Unit	2013	2014	2015
Gypsum	Recycled Q'ty	1,000 tons	557	459	480
	Recycling Rate	%	97.6	98.3	97.0
	Usage	Gypsum board, raw material for cement, etc.			
Coal ash	Recycled Q'ty	1,000 tons	1,829	1,844	1,615
	Recycling Rate	%	101.2	98.6	89.6
	Usage	Concrete admixtures, cement raw materials, filling materials, etc.			

Specific Standard Disclosures_Social Category

GRI index	Index Description	Details	Page	ISO 26000	Verified
		Sub-Category: Labor Practice and Decent Work			
Employ-ment	Disclosures on Management Approach(DMA)	• EWP expands the employment of socially vulnerable people. It offers preferential points to job applications with disabilities and people designated by the government as being eligible for special protection in employment.	65		
G4-LA1	Total number and rates of new employee hires and employee turnover	Employment of regular workers Unit: people	87	6.4.3	V

Classification	2013	2014	2015
Female	48	32	0
The handicapped	10	9	0
Local talents (non-capital area)	92	62	9
Local talents (non-capital area)	5	16	1
High school graduates	48	37	5
Vocational high school graduates	44	36	0
Graduates of science and engineering colleges	145	78	7
Total no. of recruits	206	131	16
Amount of turnover	12	17	18
Turnover rate	0.54	0.93	0.78

Specific Standard Disclosures_Social Category						
GRI index	Index Description	Details	Page	ISO 26000	Verified
		Sub-Category: Labor Practice and Decent Work			
G4-LA2	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by significant locations of operation	• Non-financial welfare benefits including operation of an in-house college, establishment of flexible work infrastructure through the operation of smart office, and re-certification of a family-friendly company by the government (Unit: KRW 1 million) Welfare benefits per person: 2013 3.7 / 2014 2 / 2015 2.3	62,65	6.4.4, 6.8.7	V
G4-LA3	Return to work and retention rates after parental leave, by gender	(Unit: people, days) No. of employees on parental leave: 2014 14 / 2015 33 Average length of parental leave: 2014 321 days / 2015 436 days No. of employees on long-term parental leave: 2014 0 / 2015 7	62	6.4.4	V
Industrial Safety & Health	Disclosures on Management Approach(DMA)	• EWP has set 5 detailed safety regulations and systems including the ABC Rule composed of five major safety rules, achieving 0% per 10,000 workers in fatality rate in 2015.	58,59		
G4-LA6	Type of injury and rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender	Classification / 2013 / 2014 / 2015 Fatality rate per 10,000 persons: 1.74% / 2.87% / 0%	59	6.4.6, 6.8.8	V
Diversity and Equal Oppor-tunity	Disclosures on Management Approach(DMA)	• For fair compensation, EWP bases its employee evaluation on their performance and competencies. Furthermore, it respects diversity in employment. It never discriminates in employment.	58,64,65		
G4-LA12	Composition of governance bodies and breakdown of employees per employee category	Ratio of employees with special status: No. of female employees: 240(10.5%) / 267(11.5%) / 236(10.7%) No. of female managers: 18(3.2%) / 22(3.7%) / 28(4.3%) Ratio of people with disabilities: 3.4% / 3.4% / 3.4%	65,88	6.2.3, 6.3.7, 6.3.10, 6.4.3	V
		Sub-Category: Human Rights			
Non-discri-mination	Disclosures on Management Approach(DMA)	• EWP promotes policies advocating gender equality in all aspects.	58,64,65		
G4-HR3	Total number of incidents of discrimination and corrective actions taken	• EWP had no incidents of discrimination on grounds of race, gender, religion, political opinion, nationality or social status, or other relevant forms of discrimination in 2015.	65	6.3.6, 6.3.7, 6.3.10, 6.4.3	V
Human rights grievance mecha-nisms	Disclosures on Management Approach(DMA)	• EWP has established an open communication system with its stakeholders and takes immediate actions on human rights violations.	58,63		
G4-HR12	Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms	• EWP had 39 grievances about human rights and settled 20 of them in 2015 (including grievances over transfer between operating sites).	63,88	6.3.6	V
		Sub-Category: Society			
Local Society	Disclosures on Management Approach(DMA)	• EWP realizes the value of sharing through active implementation of its social contribution activities.	66,67		
G4-SO1	Ratio of workplaces that are involved with the local community and implement on impact evaluation and development programs	• EWP carries out diverse social contribution activities including energy welfare social contributions linked to its core capabilities, social contributions through communication with local communities, and social contributions through collaboration with relevant authorities.	68	6.3.9, 6.5.1, 6.5.2, 6.5.3, 6.8	V
Anti-compe-titive behavior	Disclosures on Management Approach(DMA)	• EWP has been active in improving its institutional arrangements such as the establishment of a fair trade order, the prevention of corporate malfeasance such as bid rigging, and the protection of the economically vulnerable in order to protect vulnerable companies and help reenergize the national economy.	71,74		
G4-SO7	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes	None	74,88	6.6.1, 6.6.2, 6.6.5, 6.6.7	V
Com-pliance	Disclosures on Management Approach(DMA)	• EWP enhances its ethical management and promotes transparent, fair transactions in order to prevent non-compliance with laws and regulations.	74		
G4-SO8	Monetary value of significant fines and total number of non-monetary sanctions of non-compliance with laws and regulations	• Seven lawsuits with EWP and the country's four other power companies as defendants are underway.	89	4.6	V
		Sub-Category: Product Responsibility			
Customer privacy	Disclosures on Management Approach(DMA)	• EWP complies with regulations on the protection of personal information in relevant laws including the Personal Information Protection Act. It has set 'Policies on Personal Information Handling' about the following items according to Article 30-1 of the same law and Article 31-1 of the enforcement decree.	89		
G4-PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data	None	89	6.7.1, 6.7.2, 6.7.7	V
Com-pliance	Disclosures on Management Approach(DMA)	• EWP imposes strict ethical standards on its stakeholders to prevent them from becoming involved in any unethical incidents.	89		
G4-PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	None	89	4.6, 6.7.1, 6.7.2, 6.7.6	V

UN Global Compact Advanced Level

NO.	Category	Principle	Page	GRI G4 Index
1	Governance	This integrated report(the Report) describes the discussions at the level of the CEO and the BOD regarding the strategic aspects of the implementation of the UNGC.	2, 3	G4-1
2		The Report explains the company's decision-making processes and corporate governance to achieve its sustainability.	18	G4-34
3		The Report describes the engagement of all of the company's major stakeholders.	24	G4-24~27
4	UN Goals and Issues	The Report describes activities designed to support comprehensive goals and issue of the United Nations.	1, 7, 92	G4-15,16
5	Human Rights	The Report describes the company's strong commitment, strategies and policies in the area of human rights.	1, 7, 92	G4-15,16
6		The Report describes and effective management system designed to integrate its human rights principles.	-	
7		The Report describes effective monitoring and evaluation mechanisms about human rights principles.	63, 91	G4-HR12
8		The Report applies standardized performance indices(including GRI) about human right.	91	G4-11
9	Labor	The Report describes the company's strong commitment, strategies and policies in the area of labor.	62	
10		The Report describes an effective management system designed to integrate its labor principles.	63	
11		The Report describes effective monitoring and evaluation mechanisms about labor principles.	63	
12		The Report applies standardized performance indices(including GRI)about labor.	59, 62, 65, 92	G4-10, G4-LA1, 3, 6, 12
13	Environment	The Report describes the company's strong commitment, strategies and policies in the area of environmental management.	44, 45	
14		The Report describe an effective management system designed to integrate its environmental principles.	45	
15		The Report describes effective monitoring and evaluation mechanisms about environmental management.	45, 47	
16		The Report applies standardized performance indices about environmental management.	45-50, 54, 79	G4-EN3, 15 16, 17, 19, 21, 22, 23
17	Anti-Corruption	The Report describes the company's strong commitment, strategies and policies in the area of anti-corruption efforts.	20	
18		The Report describes an effective management system designed to integrate its anti-corruption principles.	21	
19		The Report describes effective monitoring and evaluation mechanisms in the area of anti-corruption efforts.	21	
20		The Report applies standardized performance indices about anti-corruption efforts.	22	
21	Strategies, Governance and Engagement	The Reports explains about the implementation of Global Compact Principles within the company's value chain.	6, 12	G4-12
22	External Assurance and Transparency	The Report offers information on the corporate profile and operational environments.	1, 6, 7, 9, 10, 12, 23, 65, 92	G4-3~16
23		The Report includes a high level of transparency and disclosure.	1	G4-28~33

Independent Assurance Statement

The Business Institute for Sustainable Development (BISD), led by the Korea Chamber of Commerce & Industry, was requested by Korea East-West Power Co., LTD (EWP) to serve as an independent 'third-party assurance institute' for the '2016 EWP Sustainable Management Report' (hereinafter 'Report'), and submits the assurance statement as follows.

Purpose

The purpose of this assurance report is to identify any major errors or biases in the Report, to conduct independent assurance procedures to determine whether the sustainable management issues of EWP were appropriately reported, and to present an assurance opinion.

Responsibilities and Independence

The Report contains matters on EWP's sustainable management efforts, achievements and future plans. All responsibility regarding the drafting of the Report lies with EWP.

In conducting assurance procedures on the Report and providing assurance opinions to the board of directors, BISD has no management-related interests in profits with EWP, aside from carrying out third-party assurance, in order to maintain independence and autonomy.

Assurance Standards and Restrictions

BISD performed the assurance evaluation in consideration of the three accountability principles (inclusivity, materiality and responsiveness) of AA1000AS (2008) and the principles for defining report content and report quality of the Global Reporting Initiative G4 guidelines.

The scope of the assurance evaluation was limited to only those performances stated in the Report and excludes data from previous years and data reported online. Furthermore, greenhouse gas data that has already been verified from another third-party organization was not subjected to the assurance evaluation.

Major Assurance Procedures

For the assurance process, EWP's employees were engaged in interviews. Results from the interviews and other relevant documents provided by EWP were examined. Major assurance procedures undertaken are as follows:

Review of application of company's internal sustainability report standards
Review of the Report contents and the information collection process
Review of the materiality test process, core issues and company policies

Opinions

BISD performed the assurance evaluation in accordance with the procedures identified above, and the Report was modified by EWP if and when deemed necessary. Based on the assurance evaluation, BISD is not aware of any significant errors in the Report and confirmed that the Report was written in accordance with GRI G4 guidelines (core option). The opinions of BISD produced as a result of its assurance evaluation and in consideration of the AA1000APS accountability standards are explained below.

Inclusivity: Does EWP adhere to the principle of stakeholder engagement in order to ensure a responsible and strategic response in advancing sustainability management?

- EWP gathered major concerns and opinions from core stakeholders, including its government and relevant institutions, power companies, the media, NGOs, local communities, employees, partners, shareholders, and the public through stakeholder communication channels.
- BISD is not aware of any significant stakeholder groups that were omitted from the process of gathering sustainability management issues through EWP's stakeholder communication channels.

Materiality: Does EWP include material issues that affect stakeholders in the entire spectrum of sustainability management in the Report?

- EWP identified major issues through the materiality test and compiled opinions through a survey from each stakeholder group in the process of the materiality test process.
- BISD is not aware of any significant issues that were omitted from the process.

Responsiveness: Does EWP respond appropriately to stakeholder issues?

- EWP has acknowledged the impact of its business decisions on stakeholders and responded properly with coherent actions. The Report presents related performances during the reporting period.
- BISD is not aware of any violations of the principle of responsiveness in EWP's response to major sustainability management issues or performances that are described in the Report from the perspective of materiality.

Recommendations

BISD makes the following recommendations within a scope that does not affect the assurance results

- Based on EWP's 10th Sustainability Report, the efforts that EWP has put into sustainability of the environmental and society is recognized. Some of the remarkable environmental achievements are the development of new low-carbon technology and the use of renewable energy. In addition, localization of technologies and consideration of local community's environmental effects are equally remarkable. Going forth, BISD recommends and expects EWP achieve sustainable management activities within EWP's sphere of influence and capabilities.
- EWP reports several different sustainable management activities. However, some of the listed activities and their project outcomes were reported repeatedly. For future reports BISD recommends EWP select different activities and create a table of contents according to EWP's activity characteristics. This will allow clear reporting of activities and their distinctive outcomes.
- The efforts of EWP for sustainable management activities and report such as dividing each aspect's boundary into interior and exterior in the process of materiality test and matching EWP's main sustainable management activities to UN SDGs published last year is remarkable. BISD recommends EWP continuously bring positive impact to the society as consider thoroughly about the global trends and stakeholders' interested issues and intensify sustainable management activities.

July 2016, President Chun, Subong

대한상공회의소 지속가능경영원

Association Memberships, Corporate Governance

Association Memberships

G4-16

Membership Organization	Purpose	Time of Subscription
The Korean Association of Small Business Studies	To ensure rapid policy response and exchange of academic information with active participation in the government's establishment of shared growth policies	2011.07
The Korea Electric Association	To establish and modify technical standards for the electrical industry designed to boost the credibility of power generation facilities and develop new codes	2002.09
The Korea Energy Foundation	To promote energy welfare programs like the support for low-income households together with scholarship programs	2002.05
World Energy Congress	To establish human and technical exchange networks with the member countries of an energy-related international body	2007.01
Korea Institute of Enterprise Architecture	To collect information on ways of upgrading the EA level	2013.03
Korea International Trade Association	To cooperate on the data and information related to international trade.	2001.05
KEPIC	To participate in KEPIC development directions and secure funds	2002.05
Korean Standards Association	To introduce advanced quality control techniques and spread quality management mind throughout the company	2003.01
Korea Suggestion System Association	To acquire information for the promotion of suggestions and small group activities in the company.	2007.05
The Electric Utility Cost Group (EUCG)	To collect information on overseas electric power supply and benchmarking	2006.01
The Business Institute for Sustainable Development	To exchange information on sustainability management	2008.11
The Korea Carbon Capture and Storage Association	To exchange information on carbon capture and storage	2010.09
Korea Smart Grid Association	To exchange information on smart grid and collect information on industrial trends	2012.07
United Nations Global Compact (UNGC)	To exchange information on sustainability management and engage in exchange at home and abroad	2006.06
Korean Green Business Association	To support the Big and SME GHG Mentoring Project	2012.03
The Korean Society of Mechanical Engineers	To identify domestic trends in mechanical engineering and exchange information	2002.08
The Korean Institute of Electrical Engineers	To identify domestic trends in electrical engineering and exchange information	2002.06
Korean Association of Power Generation Studies	To enhance the power industry and discover joint research topics	2010.07
Korea Project Management Association	To enhance the capabilities for project execution.	2008.03
KOREA Engineering & Consulting Association	To promote advance into new business at home and abroad in the areas of design and technical support through certification of corporate engineering performance	2012.07
Korea New & Renewable Energy Association	To exchange information in the area of new & renewable energy.	2003.01
EEI(Edison Electric Institute)	To obtain information to expand into overseas markets or increase its overseas presence	2004.03
Association of the Electricity Supply Industry of East Asia and Western Pacific (AESIEAP)	To obtain information to expand into overseas markets or increase its overseas presence	2011.02
Korea Electric Engineers Association	To promote R&D in electric engineering and boost training of electric engineers	2008.03
Maritime Resource & Salvage Association	To enhance cooperation between public and private sectors in order to prevent and respond to maritime disasters and accidents	2013.05

Controlling Structure of the Related Companies

Classification	Gyeongju Wind Power	Share
Domestic	Gyeongju Wind Power	70%
	Green Biomass Energy	34%
	Korea Offshore Wind Power	12.5%
	GS Donghae Power	34%
	Busan Sinho Solar Power	25%
	Honam Wind Power	29%
	Dangjin Eco Power	33.1%
	Seokmun Energy	34%
	Chuncheon Energy	29.9%
	Yeonggwang Baeksu Wind Farm	15%
	Hope-Light Power Generation	8.33%
	Korea Power Exchange	7.14%
	KEPCO-Uhde Inc.	3%

Classification	Gyeongju Wind Power	Share
Overseas	EWP Philippines Corporation	100%
	EWP America. INC.	100%
	EWP Renewable Corporation	100%
	DG Fairhaven Power. LLC	100%
	DG Kings Plaza. LLC	100%
	DG Whitefield. LLC	100%
	Springfield Power. LLC	100%
	California Power Holdings. LLC	100%
	EWP RC Biomass Holdings. LLC	100%
	EWP(Barbados)1 SRL	99.9%
	PT. EWP Indonesia	99.9%
	Jamaica Public Service Co.Ltd	40%
	PT. Tanjung Power Indonesia	35%
	Cockcatoo Coal Limited	0.66%

EWP Sustainability Report 2016

Happy World with Hearty Energy
We Make Energy for Happiness

EWP genertates high efficient energy through its technique and management innovation. We enrich lives of our people by supplying top quality of low priced energy with a stability.
EWP reflects attentively to the stakeholder opinion and makes a bright future by creating sustainable values for all business and society.

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