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Happy World with Hearty Energy

**EWP**



 KOREA EAST-WEST POWER CO.,LTD.

 **KOREA EAST-WEST POWER CO.,LTD.**

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CEO's Message

Creating the Driving Force for Future Growth

Happy Work Place of a People-Oriented Environment

Stable Power Supply



About this Report

Purpose of report

This is the 9th sustainability report issued by KOREA EAST-WEST POWER CO., LTD (EWP), with a purpose to disclose the economic, social, and environmental efforts and achievements of EWP as an ethical and responsible member of society to various parties of interest.

Reporting guidelines

The 2014 Sustainability Report is based on the G4 Guideline of GRI (Global Reporting Initiative), ISO 26000, and the principles of the UN Global Compact. The reporting standards and definitions of financial data are in accordance with the IFRS (International Financial Reporting Standards).

Period

The reporting period of this report is from January 1, 2014 to December 31, 2014 (including some of the performances in 2015). For the quantitative achievements, the date for the three years from 2012 to 2014 is included, so that a time sequence analysis can be performed.

Happy World with Hearty Energy

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Management of Chemicals  
Protection of Bio-Diversity

Ethics Management  
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Respect of Diversity  
Enhanced Disaster Response



Scope of Reporting

The scope of reporting includes 5 business facilities, and the reporting interval is one year.

Features of the report

The report for 2014 was prepared by applying the new GRI G4 guideline which was revised and announced on May 2013. Before the issuance of the report, the issuing entity formed a sustainability issue pool, through media research, interviewing the interested parties and experts, and benchmarking outstanding companies, and energy firms in terms of sustainability. With this, an importance evaluation from January to December, 2014 was performed. The results were reclassified based on the meaningful units and organized in five focus reports.

Additional information

Additional information on this report can be checked through the internet and the relevant department in charge.  
Website : <http://www.ewp.co.kr>  
Department in charge : Creative Environmental Team, Power Generation Division  
Contact : Tel) 070-5000-1544  
e-mail : [leehk@ewp.co.kr](mailto:leehk@ewp.co.kr)

## CEO's Message

With, 'Happiness Energy,'  
we will communicate with the  
interested parties more closely  
and create more shared values,  
to create a community of companies  
that grows together.



## Our respected interested parties!

Thank you for your continued support which made our sustainable management possible.

We, EWP, are a public corporation which communicate with our interested parties via energy and cooperate with them to grow together, to create 'happiness energy' as we endeavor to carry on our missions. The 9th sustainability report issued this year contains contents on our efforts on the key mission of the company, which is to provide power with stability, as well as other efforts for growths in terms of economy, society, and environmental aspects for 2014.

Since our foundation in April 2001, we have been doing our best to become a beloved energy corporation and fulfill our duties as such a company, with our priority firmly set on stable power supply. Last year, we contributed further to stabilization of power supply by completing our No. 4 Ulsan Compound Thermal power plant. Our achievement for the year also include reaching 200 day without any failure in all of our generation units and 265 days without any breakdowns with our entire coal thermal power generation units (500MW), which is an unprecedented achievement through the history of power generation in Korea.

Also, as we performed our corporate rationalization program for 2014, we could be ranked as No. 1 in the interim assessment of public corporations, thank to the commitment and devotion by our entire employees. We ranked No. 1 in the anti-corruption policy assessment organized by ACRC for three years in a row. Also, we maintained the highest grade in co-prosperity assessments for 6 years in a row, selected as the best HRD corporation in the public sector, and awarded with the grand prize for family-friendly management. Our sustainability management achievements also include the first-ever book-reading management certification among the entire public corporations in Korea.

In addition, in June 2014, we moved the HQ of the company to Ulsan, in accordance with the government's policy to move the HQs of the public corporations to non-capital areas, and utilize this as a new opportunity to lead forward to another phase of our growth. We established a social contribution integration brand, 'Happiness Energy Dream' which is in conjunction with the purpose of foundation of the company. With this, we established for sectors of clean energy, healing energy, hope energy, and smile energy, as we engage in social responsibility activities based on Happiness Energy Dream programs. We also create shared-value type community co-prosperity models including development of agricultural complexes using the high temperature water discharge, and completion of the Shared Sunshine Power Generation plant which was built for the first time in Korea using Crowd Funding method to induce participation by citizens.

We clearly understand that our achievements for the past 14 years are based on the trust and love extended to us by the respected interested parties, such as the government, the customers, the local communities, the related public organizations, business partners, and employees. We will continue to communicate with these parties through our brand of 'Happiness Energy' and develop our company into a co-prospering community of companies as we create more shared values. Thank you for your support for our sustained growth and brighter future. Thank you!

September, 2015 CEO, Korea East & West Power

Joook Chang

A handwritten signature in black ink, reading 'Jo. Chang'.

# 2014 EWP 10's NEWS

What is the most important news among the management issues of EWP in 2014? We have summarized 10 most outstanding news of 2014 through based on a survey with the employees through our Corporate Intranet System

## Energy 생각 案/An

### 2014 한국동서발전 10대 뉴스

## 전 발전기 무고장 200일 달성...

### 최고의 뉴스 선정

청마의 해 2014년, 숨 가쁘게 달려왔습니다. 모두들 열심히 땀 날들을 되돌아보고 계신가요? 우리 회사 주요 경영 이슈 가운데, 꼭 기억해야 할 뉴스는 무엇일까요? 우리 직원들이 직접 고른 **2014 한국동서발전 10대 뉴스**, 지난 12월 15일부터 5일 동안 인트라넷을 통해 878명의 직원들이 21개 주요 이슈 가운데 10개 뉴스를 골랐습니다. 이주의 **Energy 案**에서는 그 뉴스들을 찾아, 소개해드립니다.

Powerian Ver04. 2014.12.31

### 0 1 200 days without break-downs for all power generators

Thanks to the non-breakdown proliferation campaign which has been in progress as an effort for increasing the productivity of EWP, as of August 29, 2014, the entire power generation equipment of the company reached 200 days without any breakdowns. This is a result of '8.29-200' project, in which the company and the employees cooperate in 8 sectors and 29 projects in order to ensure stabilized power supply during the summer season. This project has been introduced as an innovation case for the public organization productivity innovation case in the public organization productivity enhancement workshop.



### 0 2 Movement of the HQ to Ulsan Innovation City, marking the beginning of Ulsan Era

On July 21, 2014, the company held the celebration ceremony in celebration of moving into the new HQ building in Ulsan at the Grand Hall of the HQ building in Ulsan Innovation City. In the ceremony, a number of important figures from the government, companies, and the members of local communities were invited, and amazed to witness the wonders of the first-ever smart office system including virtualization of desk-top, integrated wired/wireless phones, and cloud printing system.

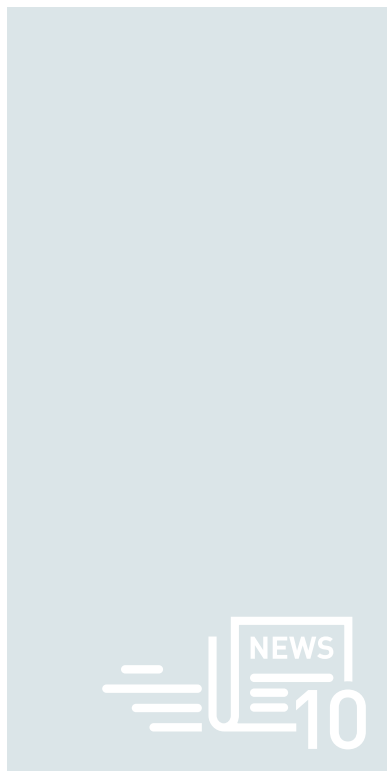
### 0 3 Completion of No. 4 Compound Thermal Power Plant, Ulsan

Ulsan No. 4 Compound Thermal Power Plant is a 948MW large-scale power plant with two gas turbines and 1 steam turbine. Its generation output is equivalent to around 20% of the total power demand in Ulsan. Ulsan No. 4 Compound Thermal Power Plan was also selected as the 'Project of the year' by Korea Project Management Association in October 2013 and awarded with the 'Top Plan Awards' by Power Magazine in September 2014.

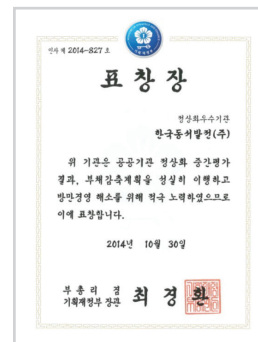


### 0 4 ACRC 2013 Anti-corruption competitiveness evaluation Ranked No. 1 among 9 public organizations

In January 2014, the company ranked no. 1 in 2013 ACRC anti-corruption competitiveness assessment among 29 public organizations. The assessment included evaluation on 7 sectors, including anti-corruption infrastructure establishment, transparency in policy, improvement of reliability, and removal of the causes of corruption, etc. EWP developed its own ethical management index and introduced anti-corruption w3arnign system, as a part of its commitment to ethical and transparent management in accordance with the global standard



## TOP 10 NEWS



### 0 5 Management of public organization debts EWP ranked no. 1 in the interim assessment for reckless management

EWP ranked No. 1 in the interim assessment for 2014 by the Ministry of Planning and Finance (reduction of debts and reckless management rationalization) among 18 public organizations, in recognition as the best public corporation corresponding to the expectation of the people. Especially, in the field of reduction of debts, a total of 296.6 billion won was reduced, which was beyond the target. As a result, the company earned 92.56 point, ranking the highest in the area of debt reduction.



the high pressure part water pressure test was conducted separately, followed by the moderate water pressure parts tests after one month, because the new test was conducted simultaneously on both the high water pressure part and the modest water pressure part.

### 0 9 First-time introduction of the 'Multi-engineer' shifts for Job sharing

EWP introduced 'Job Sharing Shift Program' in its power plants, which is to add multi-engineer shifts composed of 4 groups and 3 shifts to strengthen the operation and maintenance capabilities of the shift engineers and stabilized power supply. It is expected that the new programs will increase the reliability level of the equipment through flexible operation of the employees and the increased chances of job training for the operators.



### 0 6 Selected as the best organization for Safety Korea Drill for the second year in a row

The gold time training, which has been performed by EWP so that the company can fully utilize its disaster response capability, gained attention. During the 'Safety Korea Drill to Cope with Disasters' in October 2014, the company was selected as the best organization among the 15 organizations with disaster related responsibilities among under the supervision of the Ministry of Industry and Commerce, for the second year in a row. The fact that the entire power plant executed simultaneous trainings and the responses were made during the earlier phases promptly was recognized highly.

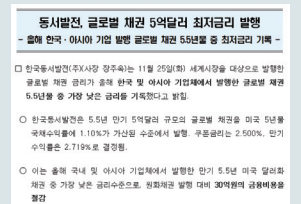
### 0 8 Stabilized construction including success in the water pressure test in Dangjin Unit No. 9.

In August 8, 2014, the 1000MW class Dangjin Thermal Unit No. 1 boiler water pressure test was successfully concluded. The water pressure of Dangjin Unit. No. 8, which is to be completed by December 2014, took one month less compared to conventional tests in which



### 0 7 Selected as the best organization for co-prosperity for 6 years in a row

EWP was selected as the best co-prosperity organization for 6 years in a row, in token of the recognition of the company's continuous efforts for co-prosperity. EWP developed the standard model for co-prosperity, in addition to its supports for the pilot installation of the products for SMBs in the power plant, joint research, support for the R&D, and many other activities of such kinds.



### 1 0 Issue Corporate Bonds of 300 billion won in Korea and 500 million dollars in overseas markets at the lowest interest rates

EWP issued 300 billion won worth domestic corporate bonds in March 2014 and 500 million dollar worth in November in the global market, with the lowest interest rate. Especially, the international market bonds marked the lowest corporate bond interest rate among the entire 5.5 years bonds issued by all Korean or Asian companies. As a result, it was possible to save as much as 3 billion Korean won compared to the bonds in Korean won.



# Make Happy Energy

At EWP, we create the best energy value  
for the happiness in life for all mankind.  
For this, we bravely challenge the best based on the firm confidence  
in our interested parties and practice our goals with no fear.




## Overview of EWP

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Overview of EWP

Company Introduction


Company status




**HQ**  
545 Jongga-ro,  
Joong-gu, Ulsan




**Establishment day**  
**April 2, 2001**




**No. of Employees**  
**2,240**



**Shareholders**  
**100% held by KEPCO**



**Power generation**  
**51,004GWh**




**Sales volume**  
**48,600GWh**

**3.5611 trillion won**  
**Capital**

**4.5733 trillion won**  
**Sales amount**

**8.4084 trillion won**  
**Total Asset**

**159.6 billion won**  
**Net Profit**



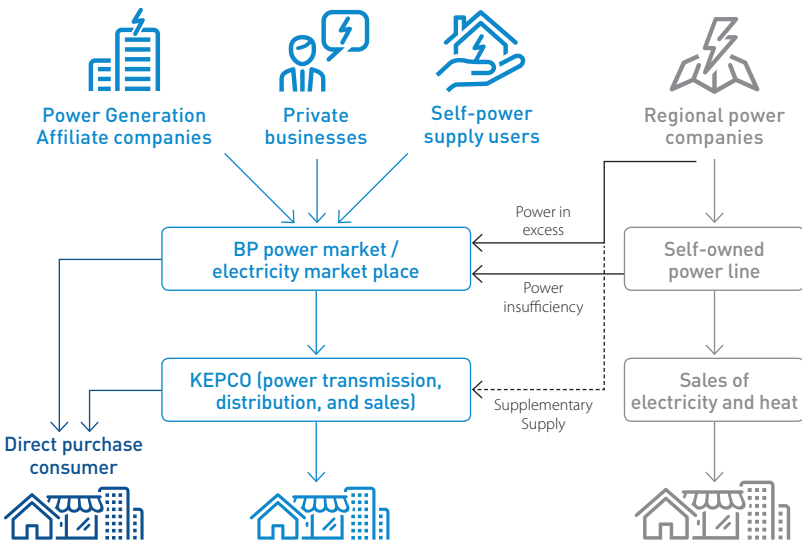
**Key business**  
Electricity resource development,  
power generation business, etc.

As of Dec. 2014

EWP is one of the 6 power companies established by separating the former power generation units of Kepco in accordance with the Law on Power Industry Restructuring Facilitation, on April 2, 2001. EWP is operated as a subsidiary of 100% ownership by KEPCO. The main field of business is power generation. Our power generation HQs include Dangjin Thermal HQ of 4,000MW, with 8 units of 500MW power generation units. Including other HQs in Ulsan, Honam, Donghae, and Ilsan, the company boasts a total power generation capacity of 9,138MW, which accounts for some 9.8% of the total power generation output in Korea. The power generated in these facilities is sold to Kepco through the power transaction marketplace and supplied to the end user. EWP is currently building No. 9 and No. 10 Shindangjin Thermal Power plants, which are the first ever 1,020 MW capacity coal power plants in Korea. Also, in order to overcome the nation-wide power crisis, Ulsan compound thermal power station of 948MW has been completed and in operation since July 2014.

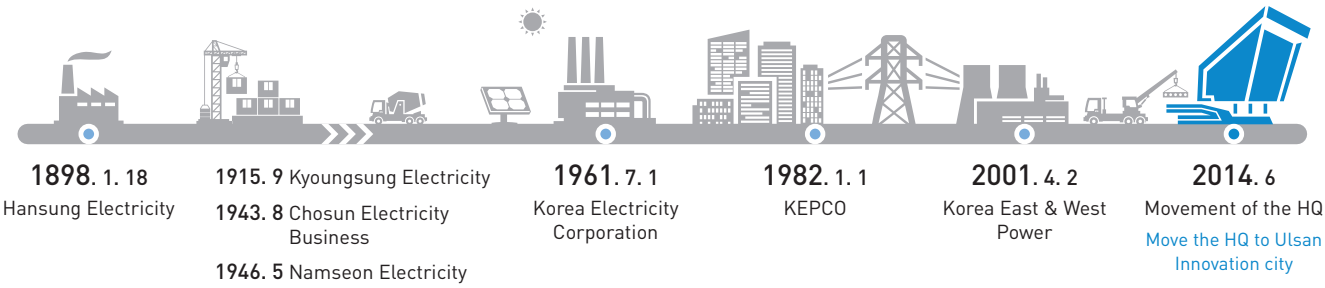
Characteristics of power industry

Previously, the power industry of Korea was monopolized by KEPCO (in power generation, distribution, transmission, and sales). However, as the related businesses grew too big to be properly controlled, the government took steps to increase the competitiveness of the power industry and enhance the levels of service quality provided to the end users. As a result, the government enacted the Law on Restructuring the Power Industry, and, in accordance with this law, the power generation sectors were divided into separate companies, including 5 thermal power generation companies, and Korea Hydro and Nuclear Power, totaling to 6 power generation public corporations, which compete with one another. The 6 power generation companies and the private power generation companies (SK, GS, and Posco) along with the regional power generation businesses are selling the power they generated on Korea Electricity Marketplace (establishment of power plants, wholesale transactions, and settlements) through KEPCO, which is responsible for transmission and sales of the power and the regional power companies, through which the power generated reaches the end users in Korean electric market.



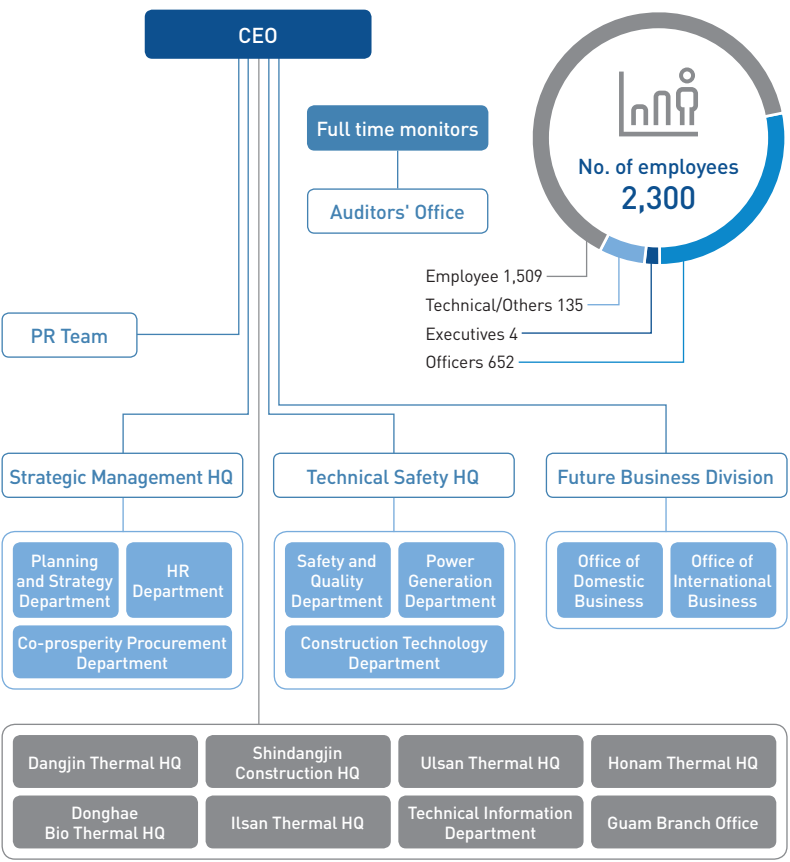
Company Introduction

Company history



Organization

EWP is a public corporation. And, the organization of the company is being operated with a view to realize the goals of the company, which is stable power supply, as the core mission of the company, and the goal of sustainable growth. The core business tasks are re-established as power station constructions, power generation operation, economic fuel procurement, sound financial management, fulfillment of social responsibilities, and advances in safety quality in connection with the managerial goals and strategic directions. Based on communication and horizontal operation of the organization, we realized efficient management of the organization in which we can focus our energy on core business functions in connection with our strategies in order to enhance our strategic capability of execution.

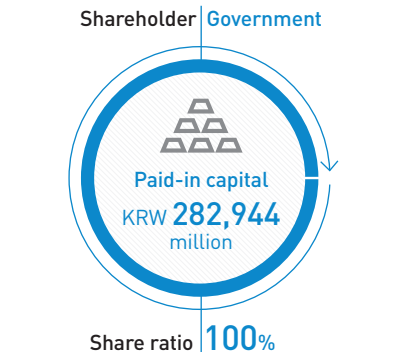


History

1898.01.18	Hansung Electricity (the first ever power company in Korea)
1961.07.01	Korea Electricity Co., Ltd. (established by the merger between three companies)
1982.01.01	KEPCO (Public corporation)
2001.04.02	Korea East & West Power (Restructuring of the electricity industry)
2001.12	Dangjin Thermal Unit 1 through 4 selected as 'Projects of the Year'
2002.12	Announcement of Ethics Management
2004.09	6 sigma managerial innovation announced
2006.09	Selected for BSC Hall of Fame
2008.01	EUCG - Award for the Longest Failure-free Operation
2010.11	Green Company award (Ministry of Environment)
2012.09	President's Prize, Co-Prosperity Practice Award for Public Corporations
2014.01	Ranked no. 1 in anti-corruption competitiveness by ACRC

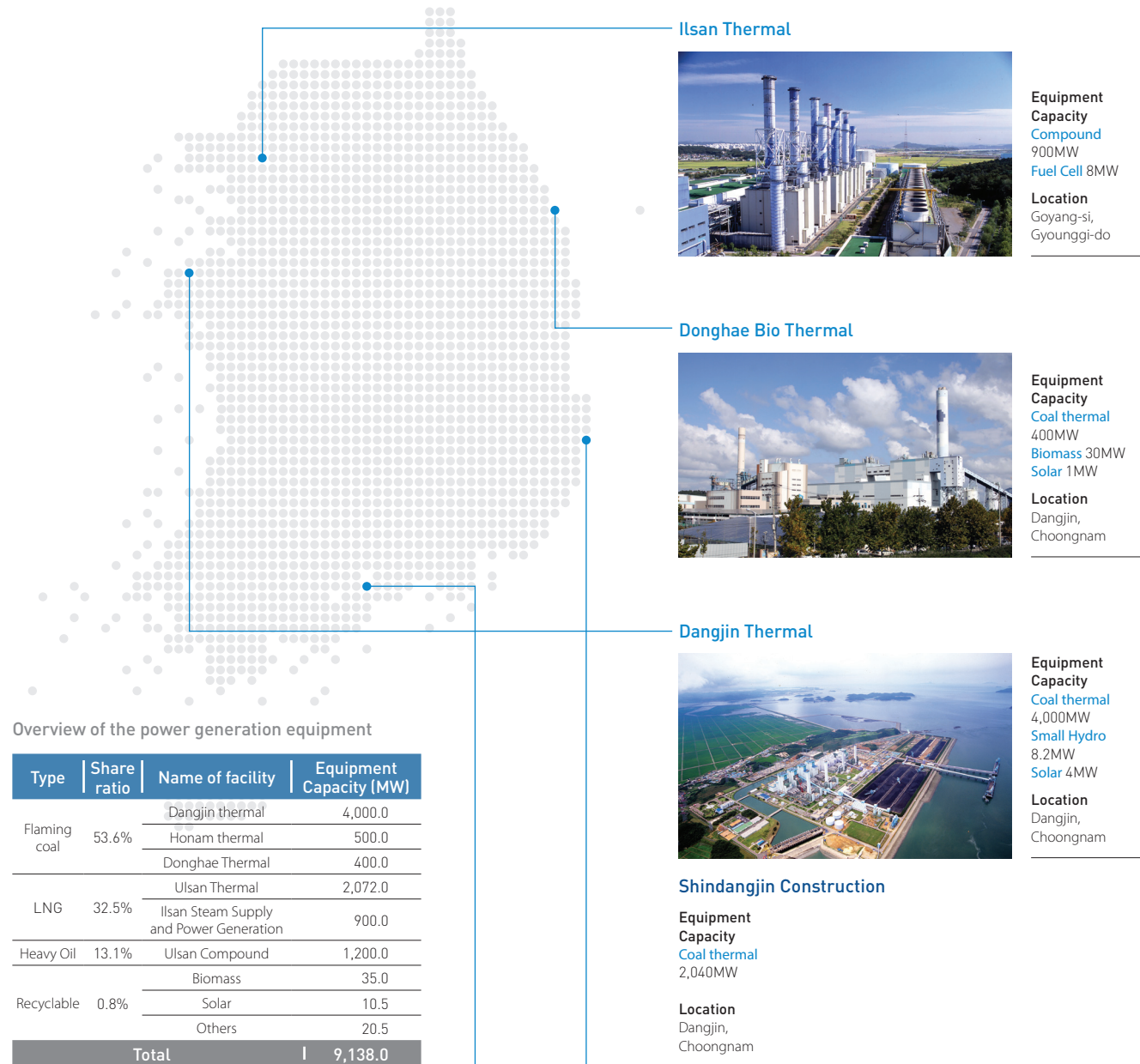
Shareholders

EWP is a public established by the capital investment by the government. 100% of the shares of the company is possessed by KEPCO and there is not any subsidiaries that the company receives.



## Overview of EWP

## Power stations



Honam Thermal



**Equipment Capacity**  
Coal thermal 500MW  
Solar 0.1MW

**Location**  
Yesou, Jeonnam

- Ilsan Thermal



**Equipment Capacity**  
Compound  
900MW  
Fuel Cell 8MW

**Location**  
Goyang-si,  
Gyeonggi-do

- Donghae Bio Thermal



**Equipment Capacity**  
Coal thermal 400MW  
Biomass 30MW  
Solar 1MW

**Location**  
Dangjin,  
Choongnam

- Dangjin Thermal



**Equipment Capacity**  
Coal thermal 4,000MW  
Small Hydro 8.2MW  
Solar 4MW

**Location**  
Dangjin,  
Choongnam

## Shindangjin Construction

Equipment Capacity  
Coal thermal  
2,040MW

**Location**  
Dangjin,  
Choongnam

- Ulsan Thermal



**Equipment Capacity**  
Compound 2,071.9MW  
Thermal 1,200MW  
Fuel Cell 2.8MW  
Solar 0.5MW

**Location**  
Namggu, Ulsan

## Overview of EWP

## Business Areas

The key businesses of EWP can be divided into thermal power operation, construction businesses, overseas businesses, and recyclable energy business. And, the company aims to achieve sustainable growth through diversification of its businesses.

## Power station operation

## Dangjin Thermal & Construction of Shindangjin Power Station

Dangjin Thermal is the flagship power station of EWP. The station is built with the primary consideration on the environment and employed various pollution prevention and environmental monitoring devices. The power station operates several 500 MW level super critical pressure power generation units (Unit 1 through 4) and super-super critical pressure power generation units (Unit 5 through 8) to function as the primary source of power for the Greater Seoul Area.

Now, the company is building high-efficiency super-super critical pressure generation units, which are Unit no. 9 and no. 10. Combined, these two units are said to be equivalent to a unit of nuclear power station. Once Unit No. 9 and 10 are completed, the complex will rise to its position as the largest coal thermal power generation complex with a total capacity of 6000 MW.

## Ulsan Thermal

After the city of Ulsan was designated as the industrial-specialized area in 1960s, Ulsan Thermal completed its first power generation unit in 1971 and has continued to be a stable source of power for Ulsan Petrochemical Industrial Complex. The complex is composed of two power generation types, which are thermal and compound thermal. Also, the complex aims to ensure stability in power supply by employing DSS or WSS operations. After the complex closed down Thermal Unit No. 1 through 3 in 2014, now they operate Ulsan No. 4 Compound Unit, which uses more environmentally friendly fuel, LNG.

## Honam Thermal

Honam Thermal first started its heavy oil power generation in 1973, when it first started power generation with a capacity of 500MW . However, due to the government's initiative to diversity the types of fuel used in the country, it completed its conversion to use coal in 1985. Afterwards, the complex went through service-life extension works in 1999 and 2010. Now, it supplies power to Yeosu National Industrial Complex and the surrounding areas with stability, contributing to the economic miracles of Korea.

Donghae Bio Thermal

Donghae Bio Thermal is operates the world's largest anthracite circulation floating later power station and the largest, 30MW wood biomass circulation floating layer power generation unit in Korea. A circulation floating layer power station (CFB) is capable of desulfurization without a separate desulfurization unit. Also, due to its low-temperature combustion, it can prevent generation of nitrites, making it more environmentally friendly.

Donghae Bio succeeded in developing floating technology on its own, and, with this unique technology, Donghae Bio secured the knowhow for constructing and operating the largest biomass power generation facility in Korea.

## Ilsan Thermal

Ilisan Thermal was established with a view to supply power to the Greater Seoul Area. By employing HRSG boilers, it produces electricity and provides the residual heat to the community for heating. Currently, Ilisan Thermal supplies power to 300,000 households while it provides heating to some 160,000 household units. Also, the complex operations fuel cell power generation units (8MW), which is well recognized as one of the environmentally-friendly energy sources for the future.

Overview of EWP

New businesses

Development of new energy

The company proceeds with new energy businesses in order to ensure stable power supply and create the driving force for future growth. By managing the construction projects and the technical supports initiated by EWP, the company successfully completed the largest, privately-invested coal thermal power complex, creating a synergy effect between the private capital and the technical capability of EWP. Efficient and strict business management ensures that the public nature of the private power generation business is maintained. At the same time, by completing those projects on schedule, it will contribute to stabilization of power supply.

Construction of coal power station by forming a consortium with private companies.



**Equipment Capacity**  
595MW×2units  
**Construction Period**  
2012.12~2016.06  
**SPC members**  
GS E&R + EWP  
**Location**  
Within Bookpyoung Industrial Complex, Donghae, Gangwon-do



**Equipment Capacity**  
580MW×2units  
**Construction Period**  
2014.06~2018.06  
**SPC members**  
SK Gas + KDB + EWP  
**Location**  
Seokmonmyeon, Dangjin, Choongnam

Participation in a group energy project



**Equipment Capacity**  
463MW  
**Fuel**  
LNG  
**Construction Period**  
2014.08~2016.12  
**SPC members**  
Posco E&C + Hanjin + EWP  
**Location**  
Dongsan-myeon, Chuncheon-si, Gangwon-do



**Equipment Capacity**  
38MW  
**Fuel**  
Bio  
**Construction Period**  
2014.07~2016.06  
**SPC members**  
Posco E&C + EWP  
**Location**  
Sokmun National Industrial Complex, Dangjin, Choongnam

Recyclable energy

For the sake of environmentally-friendly power generation and sustainable development, the company is proactively engaged in development of recyclable energy. From the small scale solar power generation units using the spaces on building rooftops to large scale solar power generation units using unused spaces in large scale industrial complexes, we are changing the paradigm from the previous model where the power company proceeded with the business according to a new model where the members of community are invited to participate in.

Solar power generation site



Bio-mass power generation unit



Wind power mill



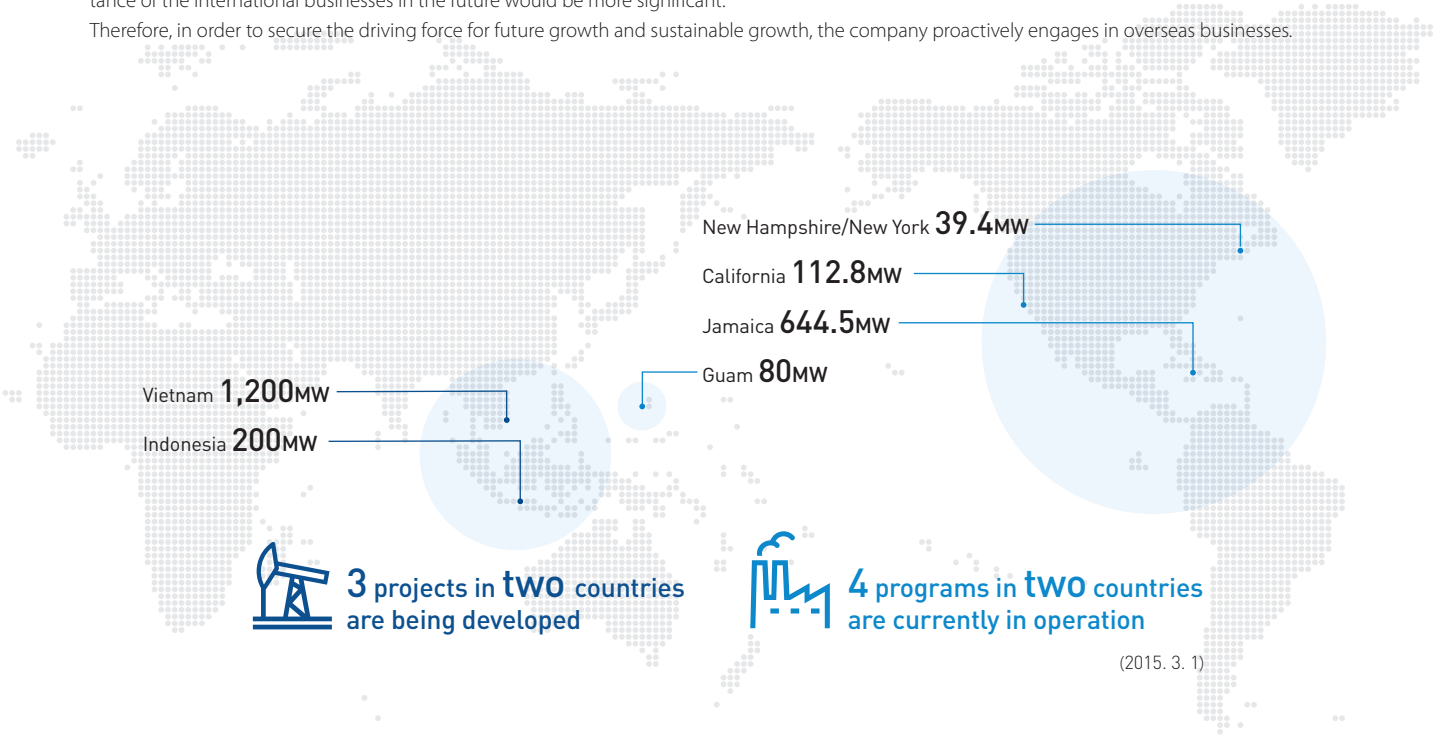
Fuel cell unit



Business

Overseas business

EWP has been participating in various overseas projects covering construction of power stations, operations, start-up, and resource development, etc. The domestic power generation business is expected to be subject to competition with the private sector. Therefore, the company anticipates that the importance of the international businesses in the future would be more significant. Therefore, in order to secure the driving force for future growth and sustainable growth, the company proactively engages in overseas businesses.



American Region

USA

The first company to expand to the American market. The company is running five power stations in the United States. Based on its local incorporation, EWP Renewable Corporation, the company expands its scope of businesses to M&A of power stations, Greenfield projects, and development of new recyclable energies etc.

Guam

Superb power generation capability recognized by the local partners. Operation and maintenance of the Cabras Thermal Power Station, Guam. For this project, EWP was recognized

for its superb service by the Bureau of Electricity in Guam. The company was recognized for the achievements in operation and awarded with the 'Unit of the Quarter' and the 'Unit of the Year' prizes.

Jamaica

Operation of JPS EWP participates in the operation of JPS and supports O&M, as well. For the first time as a Korean company, EWP operates an oversea company which covers power generation, transmission, and distribution. This experience will serve as the basis for the company to develop into a utility company. (Holds 40% shares of JPS.)

Asia Region

Vietnam

A project for constructing and operating a 1,200MW thermal power station currently in progress The company is participating in the thermal power plant construction and operation projects in Ha tinh province, Vietnam. For this, EWP entered into a joint investment MOU with Samsung Corporation in May 2014.

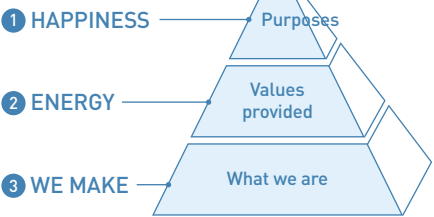
Indonesia

A project for constructing and operating a 200MW thermal power station currently in progress EWP was awarded with the project as a member of consortium, in which EWP played the role of a leader member along with Adrao Energy. EWP will take the overall responsibility for EPC contracting and construction supervision. Also, it will lead the operation and maintenance of the power station for 25 years after its completion.

Overview of EWP

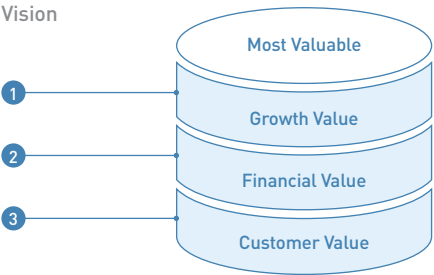
Sustainable Management

Mission



- 1 A happier life with a higher quality of life
- 2 Cheap, stable, and environmentally-friendly energy with the highest quality
- 3 Production of energy through maximization of the managerial efficiency and technical innovation

Vision



- 1 Expansion of the business scale and coverage to become a general energy company
- 2 Continued growth with soundness in finance
- 3 Energy security, human rights, anti-corruption - ethics, and social responsibility

Power Company	
Global Top 20	Equipment capacity 34,200MW
An ascend to become one of the world's leading energy companies	Sales 13trillion won
	Net profit 1.2trillion won
	ROIC 8.3%

EWP established its missions and visions around the purpose of foundation. And, based on the core shared values and the sustainable management system, accompanied by the strong commitment by the management and the capacity of all employees, the company pursues and practices sustainable management in which all interested parties co-exist and share the values of the future in all aspects of economy, society, and environment.

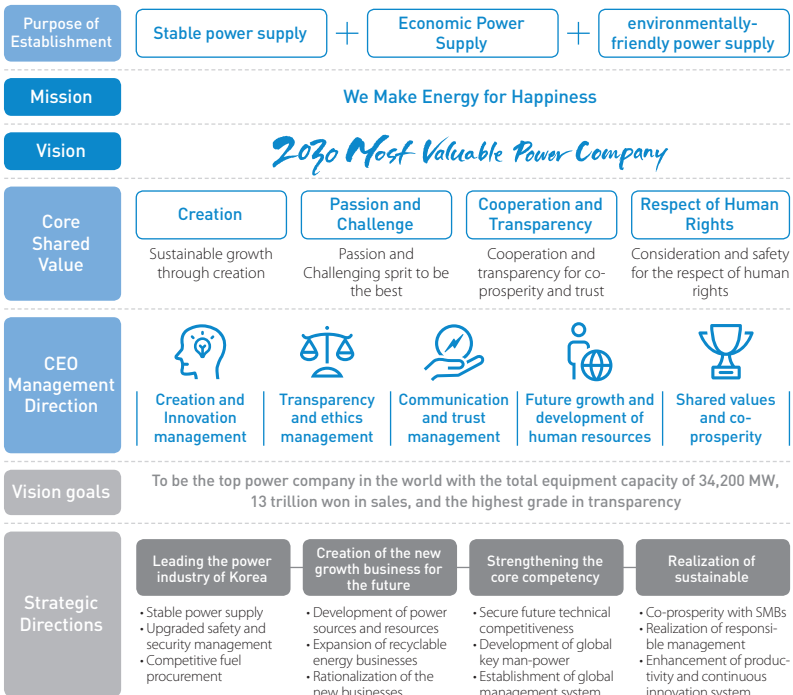
Articles of association and the related laws

The intended businesses of the company in the Articles of Association	The Law on Establishment of KEPCO	The Law on Restructuring of Electricity Industry
Power Source development, Power generation operation, R&D, International businesses, Investment businesses, supplementary businesses	Facilitation of the development of power source Stabilization of power supply and demand Contribution to the growth of national economy	Improvement of the competitiveness of the power industry Improvement of the services provided to the electricity users Sound and desirable development of the power industry

Sustainable management strategies

Strategies

EWP established a vision that goes '2030 Most Valuable Power Company' based on the company mission 'We make energy for happiness.' With this, the company established a vision system which contains creation, passion, challenge, cooperation, transparency, and respect of human rights as the core values. With this, the management direction of the CEO is set and realized by the management, who are committed to realize these goals and concentrate the capabilities of the employees to make it happen. In addition, these visions and core values are shared and proliferated among the customers and the interested parties, while they are to be realized in conjunction with the mid-long term management strategies.



Sustainable Management

Sustainable management system

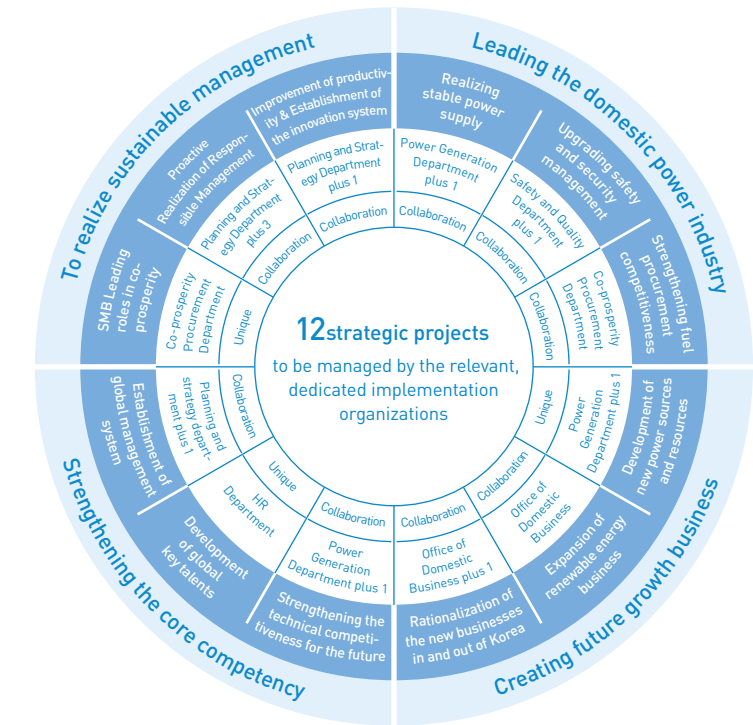
Vision and value communication

In order to share and communicate our vision and values more efficiently, the customers and the interested parties are classified into participatory customers, who are the internal customers, and the cooperative, sharing, and co-prosperity customers, who are all external customers. With this as the basis, the company developed communication strategies that suits the characteristics of each of these types of interested parties, and operates a sharing system for online and off-line sharing.

Communication targets key features	Participator customers (Employees / Union)	co-existing customers (community / media/ environment)	Cooperative customers (Government / partner companies)	co-prosperity customers (Power generators / IPP)
	•Pursuit of the personal happiness •Representing the interests of the union	•Interest in issues •Development of the local community •Environment protection	•Understanding and verifying the national governments' initiatives •Stable project implementation •Securing practical supports	•Different corporate culture •Competitive cooperation
Core communication strategies	➤ Tolerance, promotion of pride ➤ Maintenance of the sense of homogeneity ➤ Strengthening the trusting relationship	➤ Continue the close cooperative relationship ➤ Strengthening of the co-prosperity communication relationship ➤ Expansion of the basis for mutual understanding	➤ Close cooperation with the national policies ➤ Timely delivery of company information ➤ co-prosperity through sincerity and openness	➤ Expansion of the shared network ➤ Sharing of the current issues and strengthening cooperation

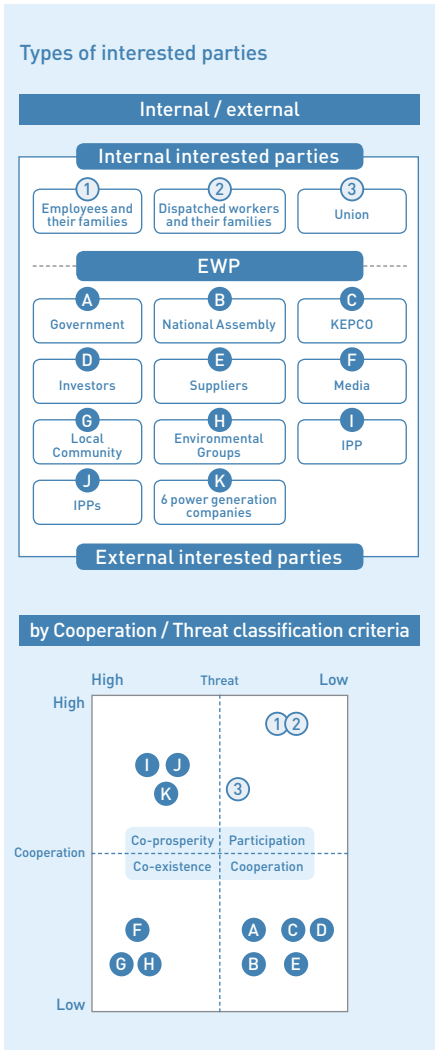
Sustainable management strategic system

In order to meet the 2030 vision management goals and fulfill the economic, social, and environmental responsibilities for all interested parties, EWP has established the four main strategic directions, which are, respectively, leading the domestic power generation industry, creating the future growth business, strengthening the core competency, and realizing sustainable management. The four strategic directions are being operated by establishing 5 principles of achievement management in consideration of the VOC in and outside of the company. The strategic directions are further specified in 12 implementation strategies, each of which is being implemented by the relevant implementation organization.



- STEP 1** Classification of the customers and the interested parties
  - Diversified classifications for inside/outside, cooperative/threatening, etc.
- STEP 2** Profiling of each customer
  - Identification of the characteristics of each interested party
- STEP 3** Customized shared strategies and systems
  - Customized sharing strategies for each interested party
  - To establish dedicated organizations and system
- STEP 4** Sharing and proliferation
  - To share the missions, visions, core values, and strategies
- STEP 5** Measuring and feedback of the shared achievements
  - Measure the internal and external level of sharing
  - Feedback of the success cases and improvement cases

# Communication with Interested Parties



EWP SR 2015

An interested party is defined as an individual or an organization that can be influential in reaching the strategic goals of the company successfully or in the operation of the company. EWP expanded the scope of interested parties in accordance with the changes in the managerial environment of power industry and the changes in the business structures. And, the company engages in various communication activities customized for each interested party.

## Classification and approach to each interested party

### Types of interested parties

Due to the recent changes in the environment (expansion of new growth businesses, the conflict surrounding the power transmission towers), the scope of customers is expanded and divided into internal customers and external customers. Then, they are divided to threat and cooperation categories, which are further divided into participator customer s(employees and the union), cooperative customers (government, partners, and electricity market), co-existing customers (media, community members, and environments), and the co-prosperity type cus-tomers (IPP and the power generation companies).

### Approach

For the approach to the participator customers, the company operates the "Direct Notification to CEO" system on the company website to ensure direct communication with the CEO. The Office of Shared Values provides the spaces for communication between employees to listen to the problems or difficulties the employees are faced with in real-time.

With regard to the cooperative type customers, the company operates regular discussion bodies and meetings. The company also holds regular workshops to reach out to the partners and hear about the problems they are faced with, accompanied by development of the internal experts for consulting services provided to the partners. In addition, there are a number of communication channels for understanding the needs of the partners on a continuous basis, to bring down the entry barriers for SMBs, CEO's visits to the SMBs, operating a discussion body for SMBs, and operating the Unfair Practice Eradication Center.

As for the approach to the co-existing type customers, the company holds hearings and in-formative sessions with the members of local community and environmental groups, while announcing a public call for win-win type policy proposals, using low-noise environmental-ly-friendly technologies, improving the appearance and looks of the facilities, supporting busi-nesses for sharing profits with the local community through crowd funding, and providing sup-ports to the surrounding areas. etc.

With the co-prosperity type customers, the company's power generation company coopera-tion HQ organizes technical exchange meetings, work-shops, and meetings for joint material procurement and establishment of mutual cooperation systems, etc. The company maintains a close relationship with these companies through running consortiums for new projects, etc.

Type	Related customers	Key features	Solidarity strategy
Participatory Customer	① Employees and their families	Pursuit of the personal satisfaction	Tolerance, promotion of pride
	② Dispatched workers and their families	In contact with different corporate culture	Maintenance of the sense of homogeneity
	③ Union	Represents the interest of the union	Strengthening the trusting relationship
Cooperative Customer	A Government B National Assembly	Policy verification and decision	Close cooperation with the national policies
	C KEPCO D Electricity Market	Stable project implementation	Timely delivery of company information
	E Suppliers	Securing practical supports	co-prosperity through sincerity and openness
	F Media	Interest in issues	Continue the close cooperative relationship
Co-existence Customer	G Local Community	protection of the environmental and the development of the community	Strengthening of the co-prosperity communication relationship
	H Environmental Groups	Priority in environmental protection	Expansion of the basis for mutual understanding
co-prosperity Customer	I IPP J IPP companies	Different corporate culture	Expansion of the shared network
	K 6 power generation companies	Competitive cooperation	Sharing of the current issues and strengthening cooperation

## Customized communication channels for each interested party





The voices of the customers are heeded for each type of customers who are classified in accordance with the characteristics and business conditions for the company. And, such voices are proactively reflected in the management of the company with a view to establish trust with the market and the customers and build the foundation for sustainable growth. With partner companies, the company runs online VOC hearing channels such as the 'Unfair Practice Report Center,' 'Transparency Implementation Cafe,' 'Tender Information System,' 'Partners' Suggestion Bulletin' and offline channels such as the 'Partner Company Advisory Committee,' 'Improvement of Procurement Difficulties,' 'supporting domestic and international customer development system,' 'Open Power Plant,' and the 'SMB council,' etc. Especially, with the residents living near the power station, if it is difficult to reach an agreement with them due to the conflicting interests and complaints that are raised during the construction and operation phases of a power station, an independent survey agency is commissioned to identify an objective proposal for agreement to address the VOC.

	Participator interested parities (Employees / Union)	Cooperative interested parties (Government / Partner companies)	Co-existent interested parties (Community / Media/ Environment)	co-prosperity interested parties (Power Generators / IPP)
 Online Shared System	Intra-net communication channels • Talk with the CEO board • Talking the King discussion, face book  Internal broadcasting channel Hellow EWP • Talk with the CEO and sharing of the Issue	Public cooperation managerial information system - Alio System  Financial Supervision Service, Fair Trade Committee announcement KCMI, Bio-mass Association  Transparency Cafe, Tender Information System	Government 3.0 Information Disclosure Portal (COW)  Open Management website  Environmental information disclosure system  External environment sign board	International business council for power generation companies  Workshop for the Site Supervisors in overseas project sites  Business Operation committee, PPP cooperation group
 Offline Shared System	Communication channels between the management and the employees • Town meeting, communication with the employees at the time of the beginning-of-the-year business reporting, Female board of directors  Circuit presentation of the vision by the CEO • Circuit presentation sessions in the HQ and all business facilities	Operation of Unfair Practice Report Center  co-prosperity 2.5 Support System  Test bed for the products by SMBs  SMB co-prosperity found amounting to 10 billion won	Sustainable management report - Published for 8 consecutive years, which is unprecedented by any other public corporation  Meetings with the specialized magazines, local news papers, and the national newspapers  Local support / environmental meeting group	International business council for power generation companies  Workshop for the Site Supervisors in overseas project sites  Business Operation committee, PPP cooperation group

## Creation of values for parties of interest

EWP goes beyond creating profits out of operations and returning them to the society. It aims to create shared values in all of its operational activities and believes that is the true way of sustainable management. In all aspects of its business management, the company identifies the value changes for each interested party, and the expectations on the achievements of the organization which is managed by the sustainable strategy performance index are interlinked with the expectations held by the interested parties in and out of the company, so that a set of shared values at which the expectations of both side are met, as the company endeavors to create such a shared value.

Of the customers who are engaged in creating values, the partner companies or the vendors of the materials, construction services and other services are surveyed through e-mail online surveys to investigate their satisfaction level. The results are shared with the relevant department and used as the basic material for future business implementation and management of the vendors. Also, for vulnerable factors, improvement plans are established and feedbacks are provided for them.

Expectations held by each type of interested parties		Expectations on the performance by the organization	Creation of value and balanced approach for EW
 Participator interested parities (Employees / Union)	• Co-existent labor union • Rewards based on merits and performance	• Strengthening the technical competitiveness for the future • Cultivating essential global talents • Establishment of a global management system	• Operation of an open union/employer committee • Sharing the current issues in the management through a management committee • Dialogs through on/off line channels
 Cooperative interested parties (Government / Partner companies)	• Improvement of the productivity for the public corporation • Maximization of the profits for the shareholders • Contribution to the society through co-existence	• Improvement of productivity, establishment of an innovative system • Lead the way of continuous with SMBs	• To participate in the Minister/Deputy Minister meetings and report the progress • To participate in the CEOs' meetings for KEPCO Group Companies • To visit the SMBs and listen to the difficulties they have
 Co-existent interested parties (Community / Media/ Environment)	• To create jobs for the local community • To endeavor to reduce the environmental impacts	• Develop new power sources and resources • Expansion of renewable energy business	• Construct Profit-sharing Nanum Habit Power Station • The first public corporation to adopt the Carbon Disclosure Program
 co-prosperity interested parties (Power Generators / IPP)	• Joint implementation of Government 3.0 • Joint development of power sources and sharing of the equipment operation technology	• Upgrading safety and security management • Develop new power sources and resources • Expansion of renewable energy business	• To participate in the meeting of CEOs of the power generation companies • To operate collaboration groups with the IPPs and PPPs

Overview of EWP

Materiality Assessment and Selection of Key Issues

Analysis of the internal environment

● Excellent ● Good ● Normal ● Poor

	Power source Plan	Power Plant Construction	Fuel Procurement	Power Plant Operation	
Business Competency	●	●	●	●	●
Financial Competency	●	●	●	●	●
Technical Competency	●	●	●	●	●
Management System	●	●	●	●	●

Analysis of the external environment

Status of the worlds power industry

- Diversification of the resources, including the Shale Gas Revolution
- Demands for strengthening the environmental standards, including responding to the climate changes
- Issues on the safety of nuclear power plants

Status of domestic power industry

- Intensifying competition with private power generation companies
- Strengthening the role as the public corporation
- Increasing the social responsibility of public corporation
- strengthening energy security, environmental/ safety standards
- To respond to the changes in the power transaction scheme

To understand the requirements by the interested parties

Cooperative interested parties (Government / partner companies)

- To expand the sales channels for the outcomes from the government funded projects
- To expand the opportunity for competition by lifting regulations
- To expand the opportunities to participate in overseas tenders
- To soften barriers on tender participation =or contracting requirements
- To strengthen the communication channels with SMBs

Co-existent interested parties (Local community members)

- To expand the opportunities for the local community members to work for the company
- Local economy invigoration projects
- To provide supports to co-prosperity welfare programs
- To provide supports to the low-income classes
- To minimize the environmental impacts in the local community

EWP adopted the significance evaluation process with a view to identify key issues for sustainable management as recommended by the guideline. The significance evaluation process uses various methods to identify issues related to sustainable management. Then, the process prioritize the values issues in accordance with their importance in the economy, environmental, and social impacts in connection with the managerial strategy to finally select the significant issue.

Materiality assessment process



STEP 1 Understanding of the social responsibility

Media analysis

The company identified related issues by analyzing 2500 articles on the media from January 2014 to December 2014.

Analysis of the related companies

The related issues have been identified by comparing and analyzing the key issues in other companies in the power industry or other companies with outstanding sustainable management achievements. Also, the issues were identified by analyzing and comparing the GRI achievement indexes or the ISO26000 diagnosis tools in order to identify the issues related to EWP.

Analysis of the managerial environment

In order to identify the direction of strategies and the sustainable issues, the internal competency was diagnosed based on the internal environment of the strategic industries, the external environment, the government's policy, and the requirements by the interested parties.

SWOT analysis

Based on the analysis of strength, weakness, opportunities, and threats through analysis of the external environment and the internal competency, the company identified issues on sustainability as well as the strategic directions of attack, compensation, bypass, and survival.

STEP 2 Participation by the interested partie

Identification of the demands of the interested parties

Based on the level of responsibility and influence on the management of EWP, the interested parties are divided into participatory, cooperative, co-existent, and co-prosperity groups as the company understood the requirements of the clients.

Consultation for Expert Opinions

Through interviews with experts in economy, society, and environment, the company obtained advice and recommendations on the social responsibility of the company and the sustainable management strategies.

Strategic interconnection analysis

The company analyzed the strategic interconnections of key issues on the TFT which was composed of the leaders of each office, executives, and the members who are in charge of key projects.

Evaluation of the significance

Opinions of the experts

- + To strengthen the sharing of the vision and strategies among the employees
- + Clarification of the top power generation technologies of the world
- + Re-establishment of the mid-long term roadmap for ethics management
- + strengthening the internal communication to increase the level of internal transparency

- + To manage the company's reputation by internalization of the social contribution among members
- + Necessary to increase interest in improvement of the performance of outsourcing
- + Necessary to establish a representing body of the demands of the interested parties for co-prosperity
- + Systematic approach to the satisfaction level survey among SMBs

- + To strengthen the self-initiation in the negotiation on the social contribution process
- + to design the volunteer work programs in cooperation with the civil society
- + To endeavor in managing the essential manpower and selection of the key business functions
- + To establish a response system for safety accidents in the construction sites

- + More endeavor is needed to improve the RPS performance rate
- + To increase the amount of flaming coal purchased jointly with the power generation companies
- + To devise a plan to improve the up-close management to prevent failures of the equipment
- + Ensure authenticity of the feasibility study outcomes for overseas projects

STEP 3 Identification of the key issues

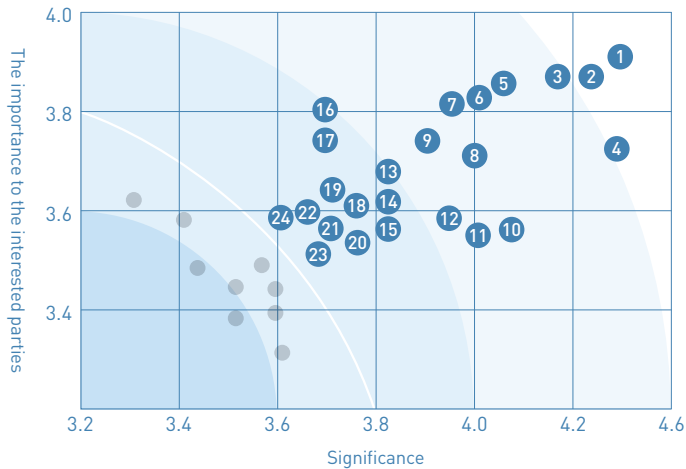
Materiality Assessment

The assessment of significance is based on the relevance and significance evaluation as set forth in ISO 26000 regarding the sustainability issues.

With the results, the company conducted significance assessment with the significance of the internal businesses and the impact on the interested parties as the basis .

As a result, a total of 25 key issues, which exceeded the overall average values, were identified.

Material Matrix



No.	Material Issues	Material Aspects (GRI)
1	To strengthen communication with the interested parties	Stakeholder Engagement
2	co-prosperity with partners	
3	To expand social contribution in connection with the main business of the company	Local Communities
4	Stable power supply during the peak time	Economic Performance
5	Transparent and ethical management	Ethics and Integrity
6	Provision of environmentally-friendly energy	Economic Performance
7	Balance between work and life	Employment
8	To proceed with the co-prosperity projects with the local community	Local Communities
9	Stable and reliable operation of the equipment	Economic Performance
10	To proceed with transparent and fair transactions	Supplier Assessment for Impacts on Society
11	To develop new business projects	
12	Secure future technical competitiveness	Economic Performance
13	To strengthen the responsive capabilities against the climate change	
14	To strengthen the capabilities of the employees	Emissions
15	To expand the renewable energy businesses	Training and Education
16	Better working environment	Economic Performance
17	Economic production of power	Employment
18	Creation of jobs	Economic Performance
19	Prevention of safety accidents in work places	Employment
20	To develop environmentally-friendly technologies	Occupational Health and Safety
21	To prevent conflicts in the course of project implementation	Products and Services
22	To abide by the social and environmental laws and regulations	Compliance
23	To strengthen responsible capabilities against disasters and safety accidents	Compliance
24	To increase the amount of investment into R&D	Occupational Health and Safety
25	To expand the scope of information disclosure	Economic Performance

Selection of the key issues

The key issues which were identified through the significance assessment were divided into 5 key themes and reported with a focus on the DMA and index performance analysis on the key issues.

5 Key Themes

Stable power supply

Prevention of equipment failures  
Stable power supply during the peak time  
Economic Power Supply

Strengthen the Driving Force for Future Growth

Safety-first Management  
Balance between work and life  
To increase the efficacy in operation

Strengthen the Driving Force for Future Growth

To develop new businesses  
Secure future technical competitiveness  
To strengthen the capabilities of the employees

To realize environmentally -friendly energy

To develop new businesses  
Secure future technical competitiveness  
To strengthen the capabilities of the employees

To ensure happy sharing and growth for all

To invigorate the strategic social responsibility works  
Creation of jobs  
To strengthen transparent and fair trading



# There is a future that we create together

EWP, as the leader of the energy industry,  
will open a sustainable future through our emphasis  
on the fundamentals, passion, and challenging spirits.



## Sustainable Management Key Issues

- 22 Stable Power Supply
- 28 Happy Work Place of a People-Oriented Environment
- 34 Creating the Driving Force for Future Growth
- 40 Realizing Eco-Friendly Energy
- 46 Ensuring Happy Sharing and Growth for All

# DMA

Disclosure  
Management  
Approach

## Stable Power Supply

Stable power supply is the purpose of our foundation and a mission given by the people of the country. When the cycling power down in September 15, 2011 happened, we experienced the significance of the instability in power supply first-handedly. To ensure stable power supply, it is important to minimize the failure of the equipment, especially during the peak time when the demand for the electricity is significant. It is also important to maximize the power supply capacity.

The very reason of existence for EWP, and its primary goals, is stable power supply and suppression of the factors for increasing the electricity fare through preventive maintenance and early warning on signs of failures.



### Achievements

2014



Area	Index	Target	Achievements	Key achievements	Basis of goal setting
Stable power supply	Failure-free	100 days	200 days	• All power generators reached 200 days without failure through company-wide innovation of equipment management	Failure rate target fulfillment conditions
	Failure-rate	0.440%	0.098%	• 500MW Dangjin Thermal power generators reached 365 days without failures (first time among all of the five power generation companies)	50% improvement from the previous year
Economic Power Supply	Flaming coal power station Lowest fuel cost	No. 1	No. 1	• Increasing the resolution of the In-house Research model to maintain the company's advantages in predicting and analyzing the fuel market direct and prices (Flaming coal fuel cost 39.3 won/kWh)	Maintained the top place for 6 years in a row

### Plan

→ 2015

EWP will do its best n order to reach 300 days without failures by introducing and spreading the culture of failure-free operations, customized maintenance, improvement of maintenance and operation procedures, and prevention of human errors in order to ensure stable and economic power supply, which is the very mission of the organization. For this, we will do our best to establish the optimized fuel procurement model for the new power generation units (Shindangjin No. 9 and No. 10) and realize the goal of staying in the top place for 6 years in a row.

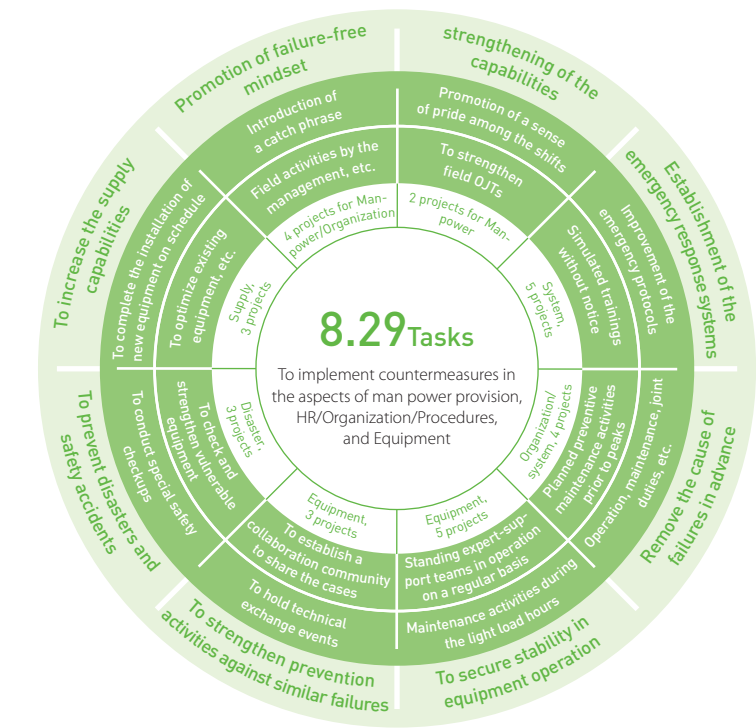
# Stable Power Supply

## Prevention of equipment break-downs

### Prevention of equipment break-downs

Innovation of the maintenance and inspection of the power generation equipment


An analysis on the failure pattern showed that the equipment failure has been a steady hike since 2009. And, 2013 saw the highest number of stoppage by failure. For this, the company established all-around Zero Base countermeasures to introduce failure-free culture and motivate and enhance the employees' failure minds. The company conducted field inspections and assessment/analyses where the executives participated in. Also, organizations composed of experts in technical diagnosis were deployed in every business units to strengthen the manpower and organization of the business units. Also, the power generation part leaders were endowed with the responsibilities to prevent human errors and similar failures by introducing intense monitoring during the hours prone to human errors, introducing voice warning systems to prevent human errors, and strengthening the equipment identification on the work floor.




Meetings with SMBs



Meaning of 8.29-200 Project



2014 Summer Peak Ended on 8.29



The date when all power generators 200 days without a failure

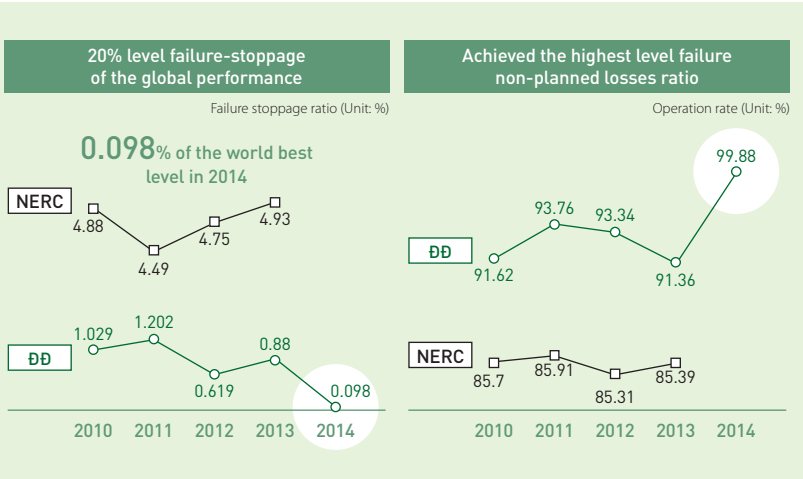
29 sub-projects in 8 sectors

→ To spread the driving forces for failure-free

### 8.29-200 Project for Failure-free operation of all power generation equipment

In order to ensure stable power supply during the peak power demands, the company implemented 29 projects in 8 areas (8.29 projects). With our catch phrase of "Details and Details for Inspections, Repair works with all hears!", the company promoted awareness on failure-free commitments. In addition, the management of the company strengthened field management activities and introduced the Power Generation Unit Operation under Responsibility programs. Also, by conducting 'Failure-stoppage prevention debates' events, all employees were encouraged to share their experiences in failures to prevent similar failures elsewhere. The equipment with likelihood of failures was maintained in advance. Also, by forming a close cooperative relationship with the partners for routine maintenance and engaging in various activities to enhance the maintenance equality and fundamental failure prevention, all of the power generators in the company reached 200 days without failures (August 29, 2014) and all high capacity power generators in Dangjin reached 365 days without failure (Dec. 12, 2014).

## Stable Power Supply



\*NERC  
North American Electric Reliability Corporation  
(The performance for 2014 has not been announced)

### POMMS

**Operation Information System**  
Monitors the operation status of the power generation equipment through analysis of the operation trends of key equipment, continuous monitoring of the troublesome items, and improving the convenience in the access items for the power generation equipment

**Management of the reliability**  
Checking the results of implementation and status of the equipment, with establishment of a database on all preventive maintenance, maintenance items, and frequencies, the results of the reliability analysis, and the preventive inspections-maintenance plans being interconnected

**Predictive Warning System**  
Early detection of anomalies in power generation equipment, execution of the predictive maintenance works through analysis of the cause, and the scientific and systematic analysis of the cause of failures

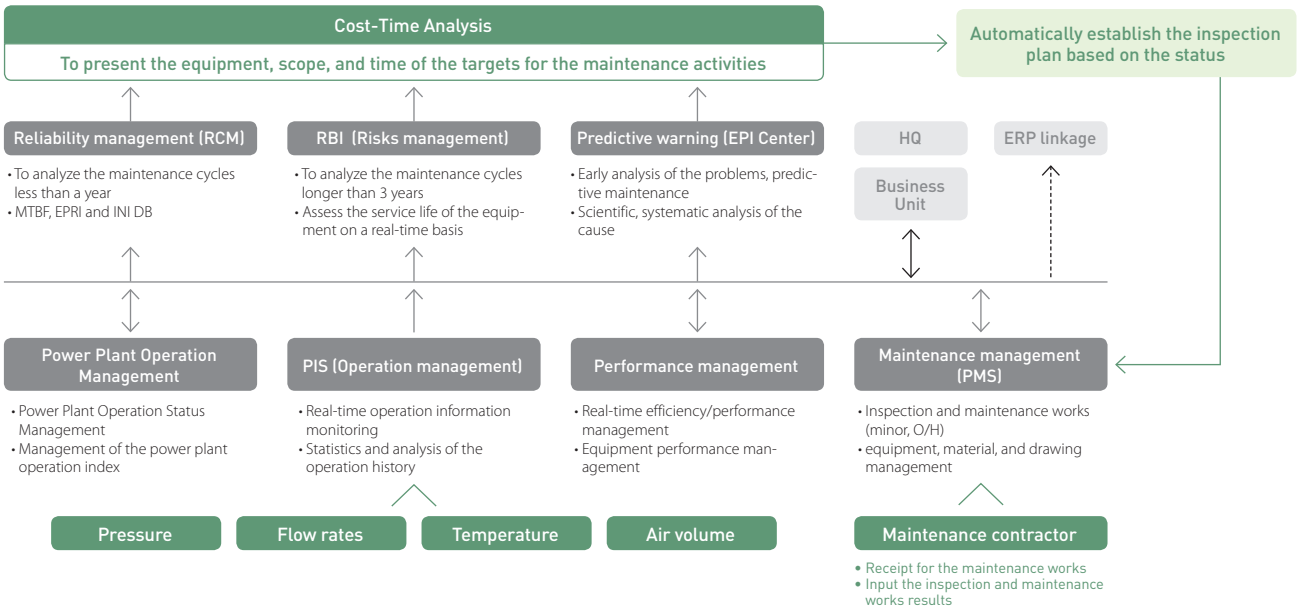
**Diagnosis based on risk levels**  
To analyze the damages in amount based on failure and the failure rate of the equipment, to predict the remaining service life and performance of the equipment in operation, while the result of prediction is interlinked through the establishment of the maintenance plans and managed through computerized systems

### POMMS

Through the POMMS (Plant Operation Maintenance and Management System) is a system which systematically controls the preventive maintenance and prevention of failures through seamless integration of operation information, reliability management, predictive warning system, and diagnosis based risk levels. With this, the company implements RCM (Reliability centered maintenance) and preventive maintenance activities by checking the results of implementation and status of the equipment, with establishment of a database on all preventive maintenance, maintenance items, and frequencies, the results of the reliability analysis, and the preventive inspections-maintenance plans being interconnected.

Also, the company runs a predictive warning system through earlier detection of anomalies in the power generation equipment and execution of predictive maintenance activities through the analysis of the cause of break-downs.

### POMMS(Plant Operation and Maintenance Management System) Composition



Sustainable Management Key Issues

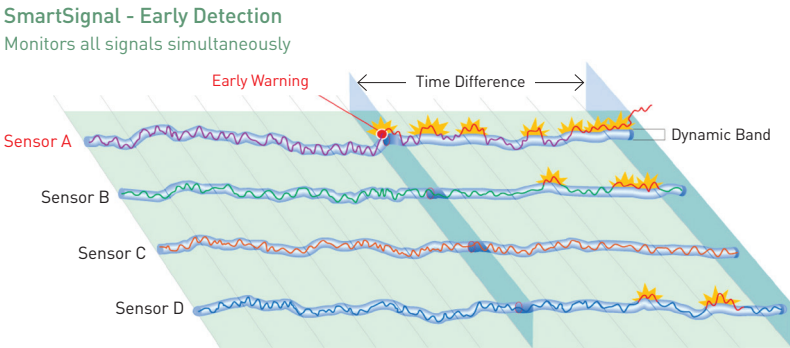
Predictive Warning System

The company has introduced and been operating a predictive warning system, which is called EPI (Equipment Performance Improvement) for earlier detection of anomalies in operation of the equipment. The real time operation data were composed and accumulate din necessary data and screens. Then, the correlation between these data, the current operation values, and the operation trends were analyzed. As a result, the smart operation diagnosis solution was proliferated across the company to prevent stoppages caused by failures to detecting abnormal operational conditions in advance.

Existing warning system :  
The warnings or alarms triggered only when the predetermined values were reached.



Predictive warnings :  
The alarm is activated when there is a difference fro from the existing learning patterns or the patterns of factors.



Stable power supply during the peak time

Earlier operation of the new equipment and optimized operation of existing equipment

In response to the government's request to secure emergency redundancy power supply due to the forecast of 3.9% power redundancy rate and the instability in power supply during the summer season, the company has endeavored to maximize the power supply capacity during the peak season. The company succeeded in supplying the pilot operation power 300 MW earlier than the scheduled dates owing to internal and external cooperation, including the improvement of the steam turbines of Ulsan No. 4 Compound Power generation unit, the improvement of the washing operation of the water supply pipes, and construction projects. As for the existing equipment, the emergency power supply capacity was increased to 126 MW through maximum guarantee power output operation, an increase of the power generation capacity after heating provision, and rescheduling the power usage within the power plant to avoid the peak time.

Increase of power supply capacity through optimization of the existing equipment  
**+126MW**

Dangjin	Maximum guaranteed output operation <b>+64MW</b>
Honam	Increased power generation after cutting off the heat supply <b>+21MW</b>
Compound	Low load utilization for washing the compressor <b>+23MW</b>
All facilities	The loads within the facilities were rescheduled to avoid the peaks <b>+18MW</b>

Improvement of precision in provision capacity of the compound thermal power plants

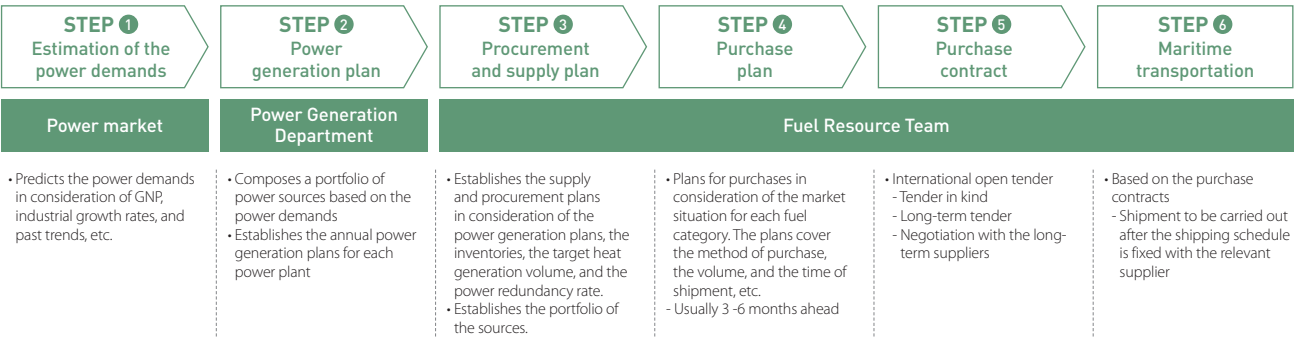
As for the compound thermal power plants, the supply capacity changes dramatically depending on the changes in the temperature and other operational factors. As the supply capacity is one of the important factors for stabilizing the power system (i.e., the cause of 9.15 cycling black out was the error in the redundancy calculation due to inaccurate calculation of the provision capacity), the company now recalculates the maximum provision capacity of the compound equipment for each tender in order to improve the accuracy of the production capacity. During the actual operation of the facility, the company developed and applied the power transmission amount management system in order to meet the maximum tender amount. After 223 cycles / 4 unit tests, the atmospheric temperature parameter was calculated to improve the precision of the supply capacity by 95% (error rate: 1.02% ~ 0.05%). As a result, the supply capacity was increased 86GWH/year. As a part of the power supply maximization efforts during the peaks. in parallel with the failure-free operation of all power generators, the company created a three-fold monitoring system and an early-warning system to prevent failure-originates stoppages, resulting in stabilized power supply during the summer season.

Stable Power Supply

Economic power supply through saving fuel costs

Fuel procurement process

For the sake of economic power supply, to prevent increases of power costs through saving of the fuel costs, which account for 70 to 80% of the power generation cost, it is imperative that the fuel for generation is procured in an economic manner. EWP bases its fuel procurements plans on the forecast of power demands and the plans on power generation. In order for economic and stable procurement of the fuel, it conducts in-house researches to develop a comprehensive valuation tools reflecting the market trends and the quality costs as the company runs its procurement process.



Optimized procurement through the comprehensive evaluation system.

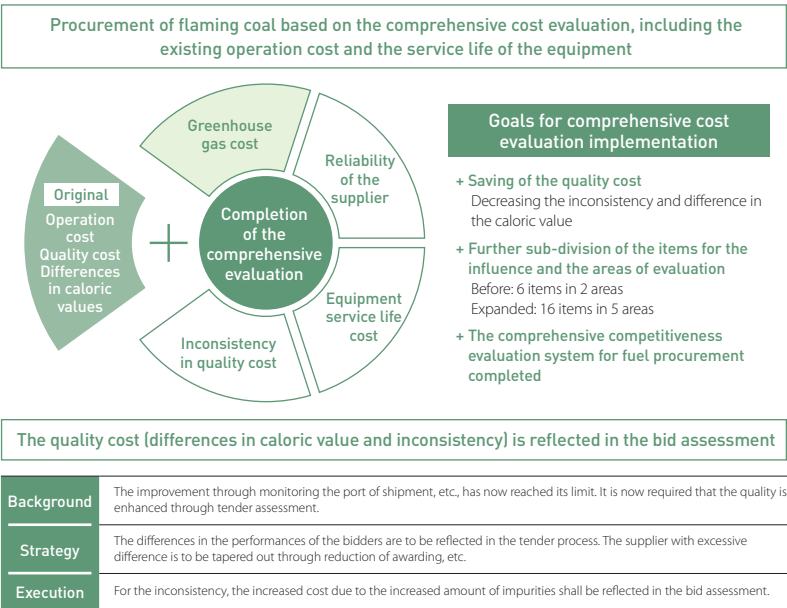
This in-house research fuel procurement model is capable of analyzing the factors that affect the procurement process of flaming coal, provision of real-time price information, and anticipation of the future price movement. The precision of this model is further enhanced, which helps our optimal decision making for economic procurement and stabilized supply of raw material. The evaluation covers the equipment service-life based on the quality of the flaming coal, the stability in supply by each supplier, and the reliability on the quality of the coal,. which are reflected in the evaluation of the procurement costs. As a result, the company has been achieving the lowest flaming coal procurement cost for five consecutive years.

In-house Research Model

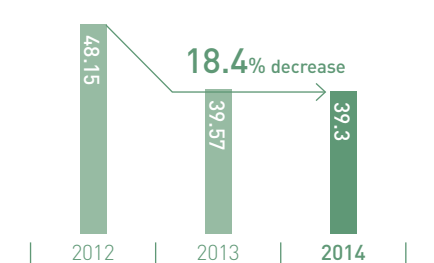


The model is based on the analysis on the factors that may affect the procurement process of flaming coal. With this, the future pattern of the price is anticipated, and the analysis model is used to make the optimal decisions on the timing and volume of procurement (introduced in 2007, settled in 2009, and upgraded in 2014).

Comprehensive cost assessment



Fuel cost for flaming coal (Unit : won / kWh)



DMA

Disclosure  
Management  
Approach

Happy Work Place of a People-Oriented Environment

The key of the sustainable management is the human-centered management. This is because the productivity and efficiency s well as creativity, of the workers are maximized when they find their company a safe company, a rewarding work place, and something that deserve their affection and passion. EWP is aware that the competitiveness of the workers is the competitiveness of the company. And, in order that the workers of our company may work in a safe environment, with joyful minds based on communication and cooperation, and having enhanced work productivity, the related system are continuously being improved.



Achievements

2014



Area	Index	Target	Achievements	Key achievements	Basis of goal setting
Safety work place	Disaster rates in contracted construction projects	0.10%	0.09%	• Disaster prevalence on decline three years in a row! (0.16% Ð 0.12% Ð 0.09%)	As of 2013, 20% of the disaster rates of public corporations
Balance between work and life	External certification as a family-friendly company	0.440%	0.098%	• Various flexible working arrangements in use and being recommended	Securing competitiveness through wining external awards
Increased work productivity	The number of employees who are on a flexible work hour arrangements	350 people	547 people	• Establishment of infrastructure, such as the Smart Office and promotion of the flexible work arrangements	up by 47% from the previous year

Plan

2015

EWP values safety the most important. The safety control procedures and systems which are field-oriented are continuously being improved, as the company concentrates its safety control capability on the suppliers. As we do, we will endeavor to realize a completely disaster free work place for all workers in the work places. Based on the happiness management master plan, the non-monetary welfare which is beneficiary centered and internalization of the family-friendly management of the company will contribute to enhancing the capabilities of the workers so that they can improve the quality of the relationship between their work and their families. With this, the company will keep working on to realize a great work place, where each individual may grow into an MVP.

Sustainable Management Key Issues

Happy Work Place of a People-Oriented Environment

Safety-first management

Establishment of an advanced disaster safety control system

EWP aims to realize a 'work place where the workers are respected as human beings and there is not any safety accident. For this the company set its safety and health policies of 'establishing an advanced disaster safety control system', 'prevention of safety accidents by adhering to the basics', 'health management respecting human beings'. For realizing the 'advanced disaster control', the company expanded and reorganized its safety related organizations. Also, it launched the safety control committee, supported the safety control of the small-sized suppliers, and established, for the first time as a public corporation, the chemical management system, all of which are effective and practical safety control measures. With this, the company is engaged in 'Smart' activities, and, for the sake of systematic safety management, the company obtained KOSHA 18001 and OHSAS 18001 certifications. Also, with the safety management system established, all of the employees are doing their best to create a 'safe and happy company to work for'.

Improvement activities in the field of disaster safety



Upgrading the Disaster Safety Management System



Evaluation of the health of the employees and their working environment

EWP established infirmaries in all sites, where a dedicated health manager works on a full-time basis. The health managers are, based on the health management programs for the employees, engaged in the health management program for each business unit. The company entered into an MOU with Ulsan Junggu Public Health Center, with a view to realize 3 zero management (no drinking, obesity, and stress) to trace the health of the employees. Also, each business unit runs it own health management program. In addition, for the workers who work in harmful environments, the work environments are evaluated in the first and the second half of each year. The items of the evaluation include noise, dust, and vibration, etc. The results of the measurement ware to be analyzed and fed-back for each of work units.

Settlement of safety control and safety culture

For the sake of the safety of the workers, the management participates in the Safety Inspection Day themselves to promote the culture of safety. Also, the safety management committee, which also contains 6 external members, is held regularly to check the safety management status and for getting feedbacks for improvements.

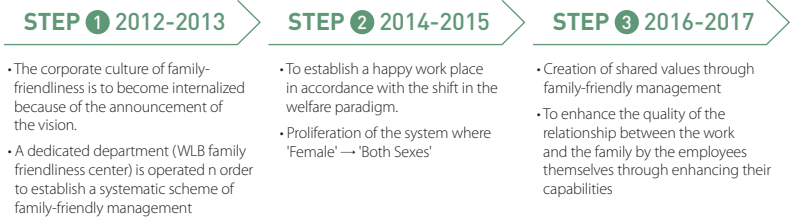
Also, in order to promote the awareness on safety among the workers, the company is engaged in safety campaign, construction safety experience training, and operation of the safety protection units. With these activities, the company aims to improve the awareness on safety and spread self-initiated safety activities to help the safety culture settle down in the country by proceeding with the safety management.

Happy Work Place where the Workers are Respected as Human Beings

Strengthening the balance between work and life

Family-friendly management strategy

In accordance with the CEO's management philosophy that 'Let's make a company where all members are treated ad MVP and they feel like coming to work in the morning,' EWP has established and operating the family-friendly management strategy in order to enhance the quality of life and promote a sense of pride among the workers through family - friendly management.



Expansion of non-monetary welfare

EWP is endeavoring to create a Great Work Place where everyone is happy by expanding the non-monetary welfare programs. To develop the non-monetary welfare polices and proliferate the value of happiness, the company is implementing sustainable welfare policies through the happiness management master plan. In order to support the government policies such as the balance between the works and the families and solving the low birth rate problems, and, at the same time, to improve the happiness index of the workers, the company extended the period of child-care leaves without payment from one year to three years, the annual leaves deferral programs, and the WLB support leaves, as well as other new leave and vacation programs.

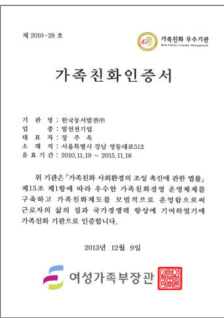
Customized systems in accordance with the lifecycle

In accordance with the CEO's management philosophy that 'When the family is happy, an employee can become happy, and the company can be successful', the company introduced various customized welfare programs to fit into the lifecycle and strengthen the balance between the work and the family, so that the workers may devote themselves to the organization even more blindly. The company has sought out the flexible time jobs for each phase in the life cycle and is operating flexible time system. Also, the company provides customized welfare systems in the perspectives of the beneficiaries for each phase in the life cycle, such as establishing birth and child-care friendly environment, providing life-stabilization support, and offering leisure and healthy life supports.

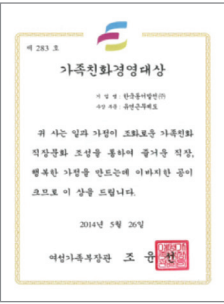
Life-cycle based "Flexible Time" Job Creation

	<b>Youth: Recruits with high school diploma</b>	Can work flexible time jobs to keep on studying to go to the college. - The program was executed in connection with the in-company university education program in 2014
	<b>Women: Pregnancy, Child-care</b>	The company offers flexible time arrangements, shorter working hours for pregnant women, and breast feeding time for babies for birth and child care phases.
	<b>Semi-old age: Employees who are facing their retirements</b>	Can work flexible time jobs to prepare for their retirements. - To proceed with the program as a part of the wage peak program after extending the retirement age

Family-friendliness Certificate



Grand Prize for Family-friendly Management



Certified as a Family-friendly company by the Ministry of Women and & Families (2010-2015)








GWP Index (out of a total of 5) enhanced by **0.64** points

(2013 3.77 → 2014 4.41)



Increased the number of the usage of annual vacation per employee (2013 10.2 days → 2014 13.9 days)



Sustainable Management  
Key Issues

Type	System	Details
 To create a birth and child-care friendly environment	Baby-shower, Prenatal test subsidiary to be paid out	To provide gifts to pregnant employees, such as the books for prenatal education, the prenatal test subsidiary, etc.
	To provide birth encouragement bonus money	To provide birth congratulate money (KRW 1 mill.)
	To establish and operate work place child-care facility	The HQ and the Dangjin Site operates child-care facilities
	Supports for child education	Education cost supported by the company for junior high school and high school
 Support for the employees and their families	The company provides a dormitory in Seoul.	The dormitory is used as the residence for the children of the employees who are attending colleges in Greater Seoul Area.
	Programs for educating the families of the employees	Programs for educating the families of the employees and providing financial consultations
	Supports for family occasions	Vacation and condolence (or congratulation) money for family occasions
	Support for disasters	Grant money in case of total combustion, total destruction, semi destruction, or flooding damages
	Provides family event programs	Provides family-friendly education
	Selective welfare program	Provides support for the employee, their families, for their self-improvement and cultural life
 Residence and stability in life for the families of the employees	Weekend family programs	Provides 'Visit the Dad's Work Place' event and other weekend events
	Life stabilization loan provided by the company	Loans for house lease or purchase
	Loan for housing fund	Low-interest rate loans provided to employees who worked for the company at least for 1 year or longer
	Provision of residential facilities	Providing support for housing of the employees in regional branches. The employees who work in Greater Seoul Area are provided with the dormitory spaces.
 Leisure culture support	Life Training Center	The company operates life training centers in Sokcho, Suanbo, and Muju, etc.
	Summer Resort Support	Provides resort facilities near the power station during the summer vacation season
	Discounts for leisure activities	Discount for transportation costs (3 companies), or accommodation (10 companies)
 Health life support	Company supports for health checkups	Legal health checkups and special health checkups - once a year
	Discounts on medical bills through corporate discount agreement with the company	17 hospitals in the country are in an agreement with the company and provide benefits for general health checkups, dentistry, and ophthalmology clinics.
	Sports Facility	The company provides sports / fitness facilities within the facility (fitness center, soccer field, etc.)

Increased work productivity

Flexible time system

EWP established the infrastructure to embrace flexible working type system through introduction of smart office and establishment of the smart work center on the occasion of moving its HQ to Ulsan in 2014. In consideration of the movement of the HQ to the non capital area, the subjects of the flexible time arrangement were extended from working moms to other employees who are staying away from their families due to the relocation, which increased the popularity of the program. Also, the usage period of the flexible time arrangement was reduced from one month to one week, making it more practical. The company actively reflected the opinions of the employees and induced participation to the family-friendly flexible time arrangements. As a result, a total of 547 employees, up by 309 from 2013, participated in the program. As a result, the company won the Minister's Prize in Family-friendly Management Award for Flexible Time.

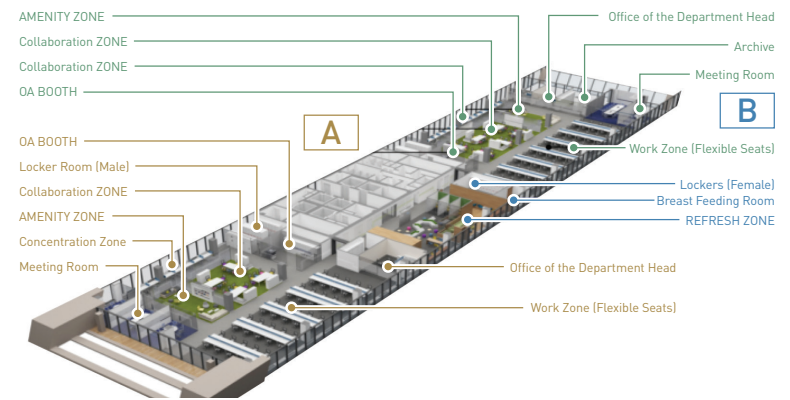
		2013	➡	2014
Selected Hours Arrangement	Conversion	8		13 ▲
	Recruiting	4		7 ▲
Flexible Time System	Delayed checking in/out	85		134 ▲
	Selective working hour time	74		332 ▲
	Concentrated working hours	4		5 ▲
Remote office	Home office	37		44 ▲
	Smart work type	26		1 ▼

Happy Work Place where the Workers are Respected as Human Beings

Operation of the Smart Office



EWP, in accordance with the will of the CEO, introduced the smart office for the first time ever as a public corporation and taking the leading role in proliferating the flexible work infrastructure and culture. By realizing a more flexible work space through the establishment of the ICT infrastructure, the company truly realized the philosophy of 'Work Anywhere'. As a result, the company could save a large amount of money (194 million won per year) and, at the same time, overcome the barrier in time and space as the workers worked freely and communicated more willingly with others to allow them work more creatively, due to the enhancement of the culture and the working method of them. The smart office provided a cozy and comfortable working environment to them. Also, the usage of the space became more efficient, and the chance of waste was further reduced. Also, removal of the partitions and the spaces for collaboration which became newly available enhanced the communication between departments and the quality of life for the workers.

Before	Improvement	Effects of Improvement
Fixed PCs for each individual	Cloud PC	Saving 125 million won per year
Wired phone at each desk	Mobile company phones	Saving 58 million won per year
One printer at a team	Cloud printer	Saving 11 million won per year



Establishment of reading management infrastructure

The company established a number of reading spaces, including the Book Cafe in the HQ and the Mini Library in the business facilities. Also, the company further established the reading infrastructure such as the book clubs, book read-out events, and announcement of the recommended books by the management of the company, in addition to distribution of the books wanted by employees, with a view to help the employees to obtain knowledge and use it in work as a part of the reading management of the company. Some achievements of the reading management include the increased number of books read by an employee per year (2 → 7). Also, the scores for creativity increased (2013 4.09 → 2014 4.61), and the company also achieved the Certificate for an Excellent Reading Management Work Place (September 2014).

 Establishment of the reading spaces  Mini libraries, book cafes, and spaces where the employees may read books at any time	 Electronic library (E-book academy)  Diversification of the educational programs to advance the convenience of the trainees and encourage them to read books whenever possible	 Book searching and borrowing through mobile applications (Library in My Hand)  Smart-phone based book searching and borrowing application was developed
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Smart Office

- + Flexible seats
- + Team Leader seats
- + No. of seats = 90% of the total number of employees %
- + Concentration work Zone, Collaboration Zone

Examples of reading management infrastructure operations



Electronic library (E-book academy)

PC  
<http://ebook.ewp.co.kr:3949>

Smart phones and tablets

Kyobo Bookstore New Electronic Library Application

# DMA

Disclosure  
Management  
Approach

## Creating the Driving Force for Future Growth

As far as the external environmental for the power industry is concerned, the diversification trend, as with the shale gas, and the demand for environmental considerations to cope with the climate change, etc. Also, the competition with the private power generation companies is also intensifying. Internally, the lower operation ratio due to aging of the equipment and the increased ratio of the high cost power generator units, it is expected that the profit ratio will go down in the future. In order for EWP to grow into a sustainable company and meet the mid-long-term goals, the company should develop new businesses for the future to create a stable stream of income, enhance its R&D capabilities to secure the competitiveness for the future, and strengthen the capabilities of its employees, who are to lead the way in this. All in all, these efforts should be made in order to ensure the happiness energy can be shared among all of the interested parties.



### Achievements

2014



Area	Index	Target	Achievements	Key achievements	Basis of goal setting
Development of new businesses	The number of newly developed business	2 or more	2	<ul style="list-style-type: none"><li>Development of new energy business using the heated discharge water from Dangjin Thermal Facility</li><li>Collective Energy Development Program for Wonju Horticulture Complex</li></ul>	doubled compared to 2013
to ensure the technical capability for the future	The ratio of domestic machinery among the power generation equipment	80% or higher	81%	<ul style="list-style-type: none"><li>To provide a test bed for the products developed by SMBs</li><li>Rolling of the Roadmap for R&amp;D to replace imported key parts with domestic products</li></ul>	From the previous year, 2%p up
Strengthening the capabilities of the employees	Satisfaction with the education	87%	88%	<ul style="list-style-type: none"><li>To seek out and share the model education cases through announcement for education essays and surveys</li></ul>	From the previous year, 1%p up
	Operation of in-house universities	4 facilities	4 facilities	<ul style="list-style-type: none"><li>Through collaboration with a nearby college for establishing evening courses, so on</li></ul>	the number of facilities increased by 2

### Plan

2015

EWP aims to growth as an energy company that provides high quality electricity with stability and economic, social, and environmental advantages. To do this, the company will pro-actively engage in profit-generating future businesses in conjunction with power generation related industries and by identifying new sights for power sources. The company will engage in securing high value-added core technology and solution of social issues, including green house gas reduction, and development of energy storage technology. With this, the company will strengthen its technical competitiveness that is market oriented. Also, to strengthen the capabilities of the employees who are to execute these new businesses and secure technical competitiveness, the company will ensure consistency in development and operation of the strategic training programs.

Sustainable Management  
Key Issues

# Creating the Driving Force for Future Growth

Process of developing domestic business



## To develop new businesses

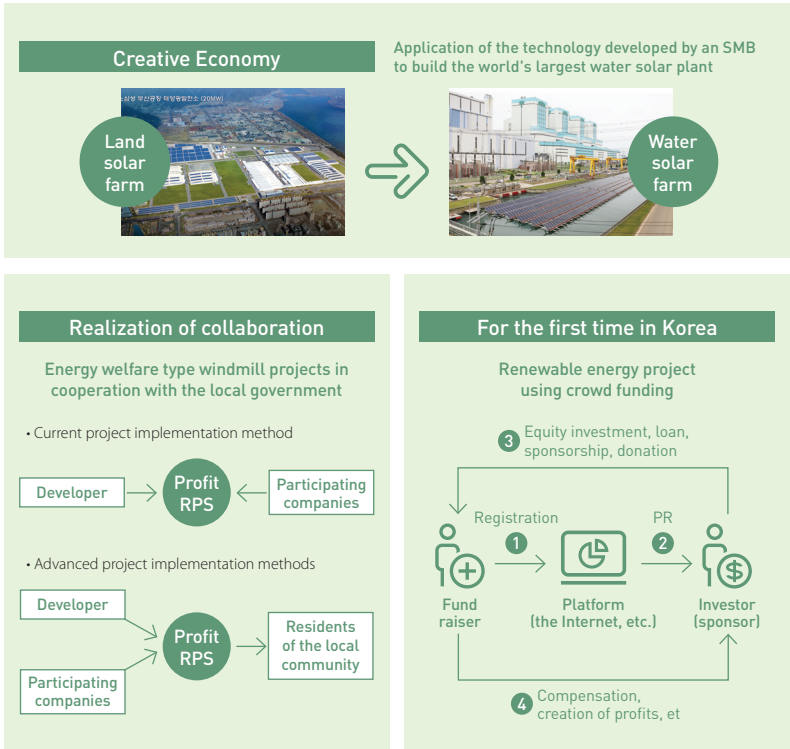
### Development of new power sources

To develop a new power source in Korean power generation market, one need to be included in the basic power supply plan, which is established by the government biannually in accordance with Article 25 of the Electric Business Act, if one wishes to construct a power station. The environment of reflected in the basic power supply plan is intensifying with more competition between the power generation businesses due to proactive participation in the market by the private power producers. EWP intends to estimate the scale of power demand in accordance with the economic growth rate and the size of Korean economy and submit a letter of intent that meets the requirements for the power industry and the market operation by the government. For this, the company is giving various efforts including buying lands for the power plant sites and developing renewable energy sources, etc.

### Development of the power sources that reflect the needs of the clients

EWP strengthens the public nature of the private and public joints projects in order to secure the future growth driving force through co-prosperity with the local community. At the same time, the company actively engages in power source development projects, such as the energy welfare type wind power projects, profit-sharing projects through crowd funding, and development of global small but strong companies, all for the purpose of reflecting the needs of the clients. Such moves of the company include construction of solar power plants using the new technologies developed by SMB, wind-mill projects in cooperation with the local governments, pilot projects for using the heated water discharge for farming, and development of new renewable models with profit sharing schemes through crowed funding, all in consideration of the acceptability and economy of the clients, minimization of complaints of the clients, and co-prosperity with the local community.

### Development of renewable energy sources reflecting the needs of the customers



Strengthen the Driving Force for Future Growth

### Distributed power source business development

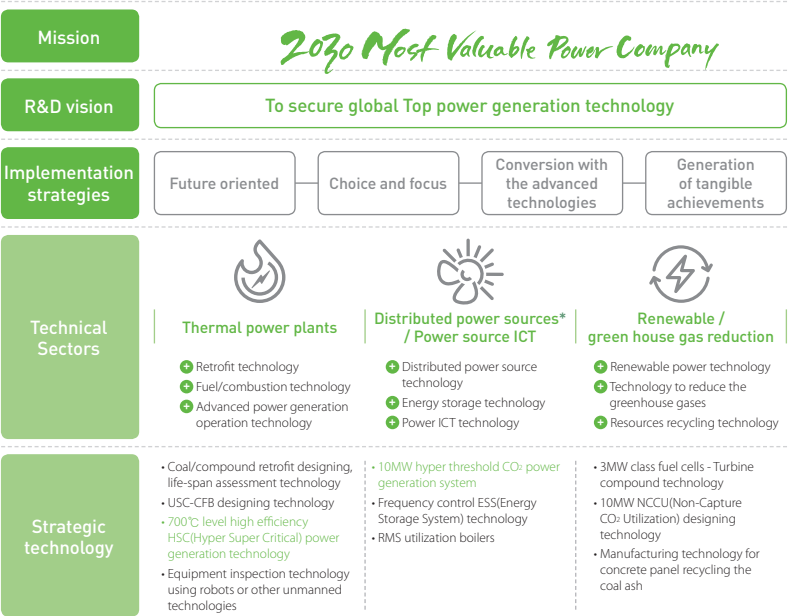
In accordance with the second energy basic plan announced by the government in January 2014, and the policy to proliferate the distributed power sources in the plan, the company strategically seeks after the concentrated industrial-complex-connected group energy distribution power sources in consideration of the RPS scheme and reduction of green house gases.

Sokmun Group e Project	Chuncheon Group e Project	Wonju Horticulture Group e Project
<b>Equipment capacity</b> 38.9MW+52.2Gcal/h <b>Location</b> Dangiin, Inside Sokmun National Industrial Complex <b>Project Period</b> 2013.08~2016.02 <b>Fuel Used</b> BIO-SRF*(WCF) <b>Progress</b> Progress Initiation of the construction (December 27)	<b>Equipment capacity</b> 463MW+130Gcal/h <b>Location</b> within DongChuncheon Industrial complex, Chuncheon <b>Project Period</b> 2013.11~2016.12 <b>Fuel Used</b> LNG <b>Fuel Used</b> PF Financial Agreement (Dec. 31)	<b>Equipment capacity</b> 30MW+45Gcal/h <b>Location</b> Bangye Industrial complex, Wonju <b>Project Period</b> 2014.04~2017.06 <b>Fuel Used</b> SRF*(RPF) <b>Fuel Used</b> Group e Project Approval obtained (DEc. 16)
<small>*BIO-SRF: WCF, Wood Chip Fuel *SRF: RPF, Refused Plastic Fuel</small>		

## To secure the power competitiveness for the future

### Mid-long term R&D execution system

EWP has established an R&D road map to ensure availability of key technologies to create a large amount of added values through systematic and continued technical development and indentify the future growth industry. With this, the company strengthens its basis for technical management. In order to become one of the global top 109s, the company is focused on securing the future growth drivers and the changes in the climate environment. With and the level of availability of the required competitiveness in mind, the company chose the core industrial groups. Then, the company evaluated that the business structure, the environmental responsiveness and the direction of execution. With this, finally, the company came up with the three key technical development R&D strategies for distributed power sources, renewable sources / green house gases, and thermal power generation.



### Distributed power sources

A power supply system which produces power near the location of the demand without a separate power transmission line

### Background

The 2nd Basic Energy Plan (Included in the Government's Announcement in January 2014)



- Expansion of the distributed power sources due to difficulties in the selection of the site and construction of the transmission lines.  
- 15% of the total power generation volume is to be generated through distributed sources by the year of 2035
- Distributed power sources to be developed in accordance with the basic power supply plane with a focus on the areas where transmission lines can be built

### \*Power ICT technologies

Power technology joined by ICT(Information Communication Technology)

Sustainable Management Key Issues

Two-Track Operation projects in progress



19 strategic R&D projects

Commercialization of 10MW Web Amine CO<sub>2</sub> collection technology

34 co-prosperity R&D projects

Development of domestic replacement for the high reliability protection of the power generators, monitoring diagnosis, integrated protection controlling IED

Clarification of mid-long term strategic technologies

By setting the directions of first mover type, securing the future competitiveness, mid/large scale government project compliance, 10 R&D projects in 9 areas were selected as a part of the company's endeavor to establish its foundation for mid-long term technical management. Also, the company identifies medium/large sized R&D ideas to create the growth driver for the future and advance the company's technical capabilities. Through quantitative and qualitative analyses, the company has established the R&D roadmap for strategic technologies, which it is currently implementing. Especially, the company is proceeding with the 2 projects, 'S-COS power generation system' and the 'USC-CFB technology' as the flagship R&D projects of the company. In addition, the company has established a new cooperative scheme with KEPCO, in which it will jointly respond to the current issues of renewable energy and CO<sub>2</sub>, etc. Also, the joint cooperative scheme will contribute to qualitative enhancement of the joint R&D programs and their usage of expert man-power.

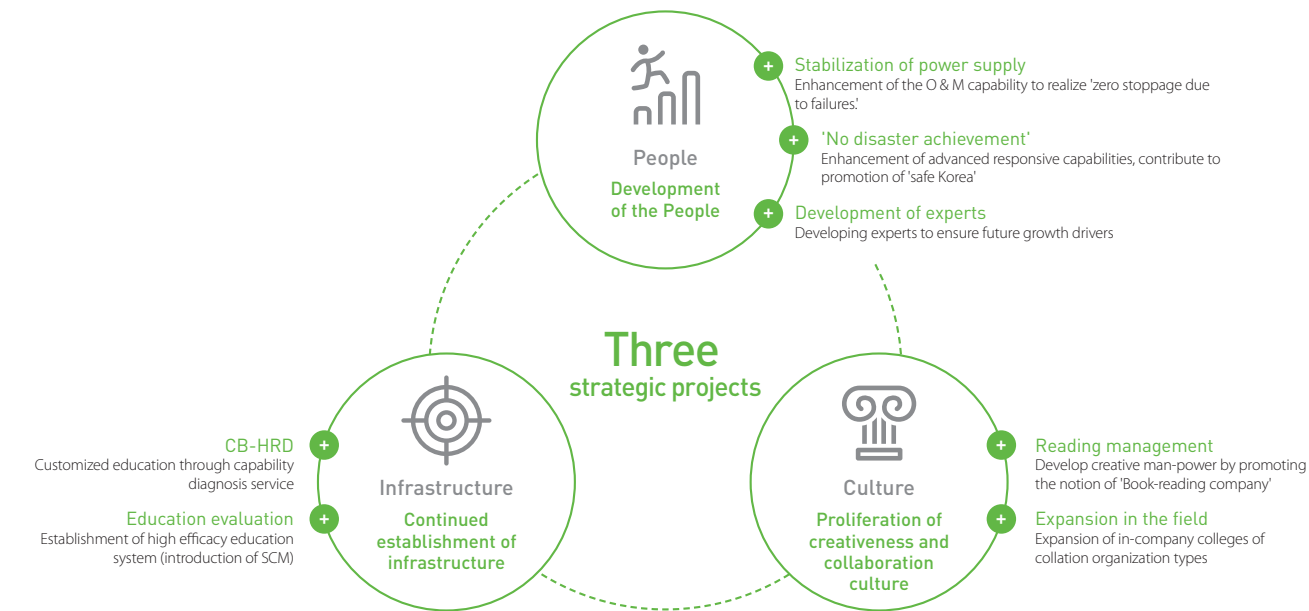
Two-track operation of the research departments

The company is engaged in efficient R&D projects through the 'strategic R&D' which is focused on the government programs and 'co-prosperity R&D' which is focused on SMBs. By operating the two track R&D departments, where one is focus on the government projects and the other is more focused on the cooperation with the small or medium level matching R&D programs for co-prosperity, the company is endeavoring to maximize the synergy effects of the company.

To strengthen the capabilities of the employees

Execution of the HRD strategic projects in connection with the management strategies

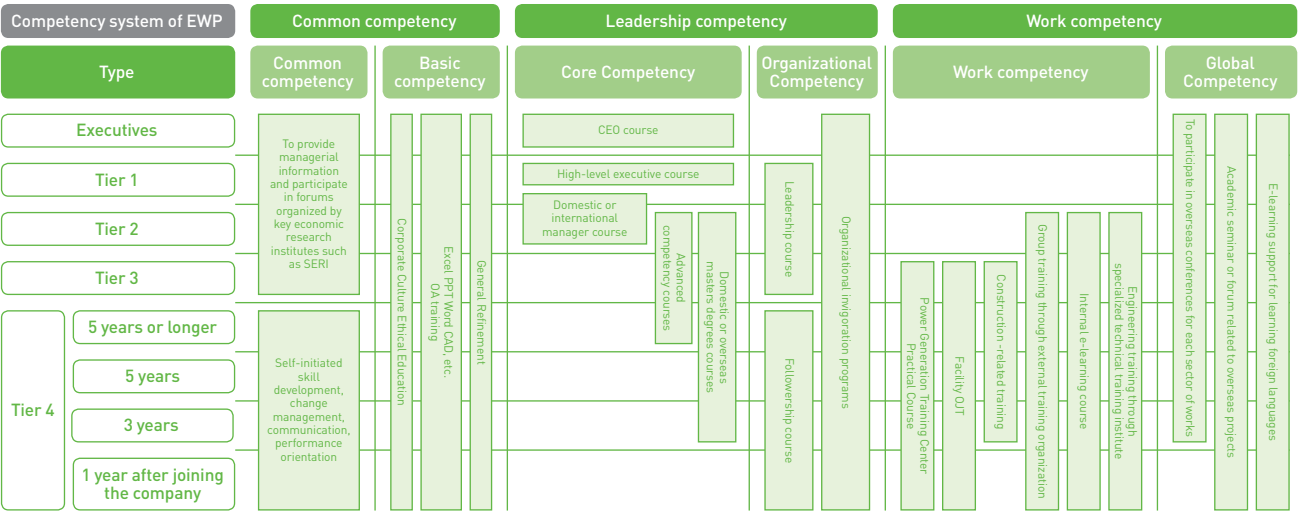
EWP, in order to strengthen the core capabilities for future growth and lead the domestic power industry, established HR development plans to function as the strategic partners of the CEOs and identified the three HRD strategic projects to fulfill the managerial strategic. The three HRD projects cover the PIC, which is, the People, the Infrastructure to support it, and the creative Culture. For each of these, smaller execution tasks are identified and executed.



Strengthen the Driving Force for Future Growth

Various capacity building training programs

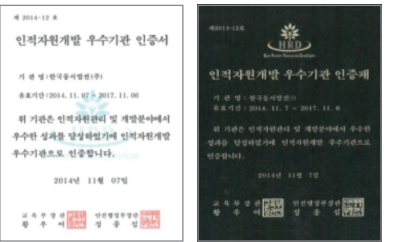
The company is currently applying various education programs to develop the 5 sub-capabilities (common/basic capabilities, key capabilities, organizational capabilities, work capabilities, and global capabilities). Also, in conjunction with the analysis of 360 multi-faceted needs (organization + individual + needs) and the focus group interviews, the company has developed and been operating as many as 1236 training and education programs.



strengthening specialized engineer training through operating in-company colleges

EWP has been taking a leading role in hiring based on one's capabilities rather than specifications. Not only in high school graduates recruitments, the company intended to reflect the skill development needs and furthering academic needs for the high school graduates among employees. For this reason, the company has established, for the first time among power generation companies, in-company colleges (or departments on contract) in cooperation with the colleges near the power plants to support skill development of the employees with high school education and helping the dreams of furthering their education come true later one. Based on the know-how in establishing the in-company colleges, the company succeeded in opening the in-company colleges of organizational cooperation type in 2014, contributing to expansion the infrastructure to help the employees with high school education achieve college diploma and become specialized engineers.

Certificates for Excellent Human Resources Development Organization



# Realizing Eco-Friendly Energy

Economic development should become mature based on the concept that that it should now be sound and sustainable. The entire world now focuses on developing eco-friendly energy through reduction of greenhouse gases, energy efficiency, proliferation of renewable energy, reduction of pollution, and development of resources recycling businesses, etc. EWP, as a public energy corporation, has been proactively engaged in development of environmentally-friendly renewable energies as a mandatory strategies rather than an option for sustainable growth in an effort to proactively respond to the climate change issues in and outside of the company. It is our mission to provide clean energy through reduction of greenhouse gas, low-carbon management through disclosure of carbon information, proliferation of renewable energy and reuse of the power generation byproducts.



## Achievements

2014



Area	Index	Target	Achievements	Key achievements	Basis of goal setting
Respond to climate changes	Introduction of the green house gases energy goal management program	100 days	200 days	• Meeting the goals for the greenhouse gas emission volume and source units	Fulfillment of the government goals
	Carbon information disclosure level	0.440%	0.098%	• Carbon information disclosure project (CDP) won (Special Prize for Carbon Management) (for the first time in the power generation sector)	Excellent company certification criteria
Expansion of renewable energy	RPS performance ratio satisfied	0.440%	0.098%	• Expansion of the renewable energy portfolio equipment and increase in the mixture ratio of biomass	Fulfillment of the government goals
environmen- tally-friendly technologies	Resource recycling business development	No. 1	No. 1	• Succeeded in sea farming using the heated discharge water from the power plant	Doubled compared to the previous year

## Plan

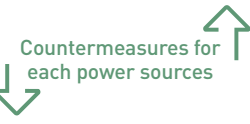
→ 2015

EWP is proactively participating in the carbon remission programs such as the RPS and the carbon footprint transaction programs.

Also, we will lead the way to realizing the eco-friendly energy by strengthening our carbon capabilities through improvement of the processes, construction of high efficiency facilities, expansion of the renewable energy resources, and se- curing the technology to reduce the volume of greenhouse gas. Also, we will make such responsive actions against climate changes an opportunity to build the foundation for sustainable growth, through optimization of the renewable energy portfolio, identification of the new energy business model, and new businesses for recourse recycling.

Sustainable Management  
Key Issues

# Realizing Eco-Friendly Energy



- High carbon facilities [coal]**  
Mixture with biomasses, heat supply project
- Intermediate carbon facilities [Heavy Oil]**  
Mixture with bio-heavy oil
- Low carbon facilities [LNG]**  
The first power generation company in Korea to proceed with the internationally verified carbon emission rights business

Carbon emission rights obtainment projects

Type	Implementation Projects	Reduction amount (ton/year)	Phase	Registration Dates	Certified amount (ton)
CER	Donghae Solar (1MW)	690	Registration	06.08	-
	Dangjin Small Hydro (5MW)	15,000	Registration	09.08	17,424
	Honam - Installation of high voltage inverter	7,917	Certification	07.05	49,741
	Dangjin - introduction of new technologies	56,667	Certification	08.09	135,424
KCER	Ulsan - HRS&G heat recollection	52,653	Certification	09.10	51,144
	Ulsan - improvement of the compound facility	5,547	Certification	09.11	6,945
	Ulsan fuel cell unit (12.4MW)	6,476	Certification	10.04	12,512
	Ulsan Fuel Cell Unit (22.8MW)	7,216	Certification	11.09	7,619
	Ulsan- Hybrid SCR	5,183	Certification	11.12	5,324
VER 01	Construction of Ulsan No. 4 Compound Facility	1,060,000	Registration assessment	in progress	
Early reduction	Goal management for 2014	2,590,000	Prospect		
	Total	3,807,349		285,933	

- CER** Certified Emission Reduction, UN CDM Business Emission Right
- KCER** KCER Korea Certified Emission Reduction, Korea certified emission reduction program
- VER** VER Verified Emission Reduction, International Verification Emission Rights

Carbon Information Disclosure Project



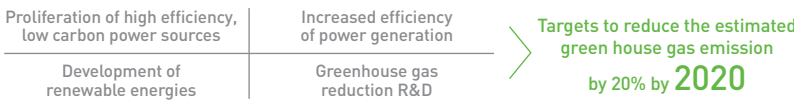
A global climate project which is implemented in 60 countries with the HQ stationed in UK

CDP Korea 250 requested top 250 companies as per the total market worth of the company to disclose their climate change-related information. However, a number of companies participated in the CDP program while they are not required to do so, as they did in previous years. Shimtech, EWP, Korail, and Hanhwa Group have been participating in the CDP programs for three years in a row. Yooyoung Textile and SK E&C joined the program from this year to disclose their climate change-related information. Especially, EWP and SK E&C were recognized for their high information disclosure levels, which earned them CDP Special Prizes introduced by CDP Korean Committee.

## To strengthen the responsiveness against the climate change

Efforts to cope with the climate change

EWP has been endeavoring to strengthen our capabilities to respond to the climate changes in preparation for the green house gas reduction goals introduction and the response to the climate changes by the international community through the company-wide carbon emission reduction endeavors and proliferation of the supports to such policies. The company aims to reduce the expected carbon emission by 20% by 2020. For this, the company has established and pursuing the 4 major implementation strategies and, starting from 2015, is deploying customized countermeasures for each of the power generation sources in preparation for the demands for reduction activities due to the introduction of the carbon transaction program.



Preparation for the Carbon Emission Right Program

The carbon emission rights program, which is to be introduced starting from 2015, is a program in which each of the companies are assigned with carbon emission rights, within which they are allowed to emit green house gas and trade abundant or insufficient emission rights with other companies. EWP has been preparing for the introduction of this emission regime and the reduction demands for green house gases, through CDM business registration for solar and small hydro power plants, energy efficiency enhancement, high efficiency, new technology power generation, and other national greenhouse gas reduction performance registration projects. As a result, in 2014, the company succeeded in exceeding the reduction goal assigned by the greenhouse gas energy goal management regime. The reduction achievements ahead of the schedule will be recognized as the emission rights when the emission right trade regime is introduced starting from 2015 and used to secure the emission right in shortage.

Performance records of the green house gas energy goal management program

	2012	2013	2014
Unit	CO <sub>2</sub> /MWh	CO <sub>2</sub> /MWh	CO <sub>2</sub> /MWh
Target	0.836 or higher	0.799 or higher	0.782 or higher
Performance	0.805	0.763	0.765

Carbon Information Disclosure and Greenhouse gas accompanying projects

Since the company is a public corporation that emits a large quantity of greenhouse gas, it is required that the company responds to the social demands to create a communication culture to respond to the climate change. For this, the company proactively seeks to realize low-carbon management to form a sense of agreement among the interested parties. As a result, the company has been the first among the public corporations to disclose on the CDP, which is an international regime of climate change response, voluntarily. In 2014, the company even won a special CDP prize. Also, as the representative public corporation, the company has participated in greenhouse gas and energy companion program and been providing advice on greenhouse gas reduction and energy improvement. In 2014, the company was selected as an 'Excellent Greenhouse Gas Mentor' company, as well.

Greenhouse Gas Companion Program



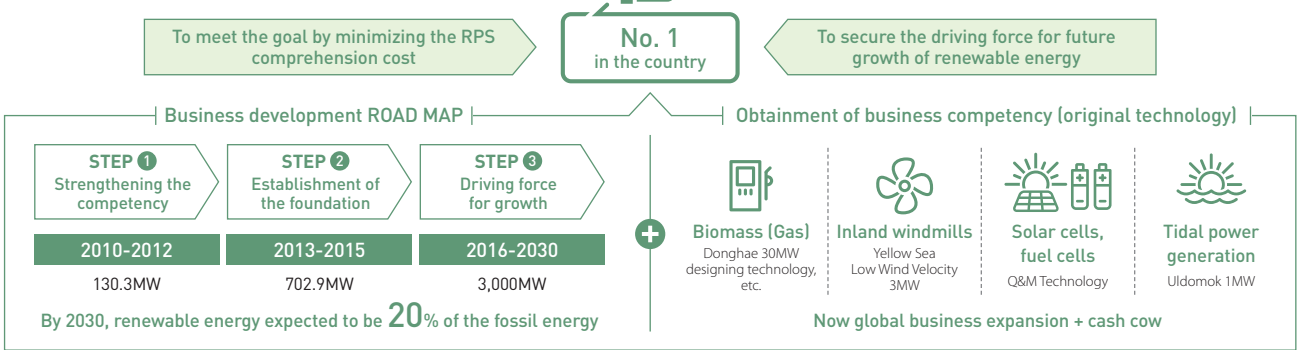
To realize Environmentally-Friendly Energy

## Expansion of the renewable energy businesses

Renewable energy implementation strategy

EWP focuses on implementation of the renewable energy as the core business to create its growth potential and proactively respond to the changes in the power industry in the future. The company is currently expanding its renewable energy facilities, such as solar, wind, and small hydro plants through business advantage assessment under the basic direction of developing new renewable energy sources with a view to compose an optimized renewable energy portfolio and minimize the cost to introduce the RPS regime. In short-terms, the company is proceeding with a differentiated strategy to meet the RPS goals by increasing the mixture ratio of the biomass in fuel for each of the business facilities.

2030 Korea's TOP 1 green energy company



Key projects

Solar power plants

The solar power plants of the company uses the spaces in the existing facilities, such as the roof top of the material warehouse and in-facility parking building within Donghae Thermal (1MW), the turbine building of Dangjin Thermal (1.0MW), the roof top of the materials warehouse (0.7MW) of the same building, the roof top of the waste disposal facility of Dangjin city (1.3MW), the roof top of the pier warehouse of the container wharf of Gwangyang Port (2.3 MW). As a result, they are free of environmental damages. And, as these facilities use the root-top type arrangements, which have a high bonus point, they contribute to the effective performance of RPS requirements. The water intake channel for Dangjin Thermal HQ is used to install the largest water solar power plant (1MW) in Korea. The new technologies introduced for the floating structures and the operation know-how placed the company at the leading position in the field of water solar power generation.

Construction of wind powers

The company concentrates on the in-land wind power generation operations close to the Grid Parity 1). With the completion of the Phase 1 Wind Power in December 2012 (16.8MW), Yongggwang Jisan Wind Power (3MW), Youngggwang Honam Wind Power (20MW) in March 2014, Youngggwang Baeksu Wind Power (40MW) in May 2015, the company has been engaged in operation of environmentally-friendly wind power plants. Ongoing construction works for wind power projects include Gyeongju Wind Power Phase 2 (20MW), Pohang Seongbeopryoung Wind Power (40MW), Samcheok Odu Wind Power (60MW), and Ulsan Dongdaesan Wind Power (20MW).

Bio Energy

With the experience of completing and operating the largest wood biomass power plant of 30MW in Korea in Donghae, the company endeavors to perform the RPS program of the government and maximize the reuse of the refused materials through the construction of the bio mass power plants, such as the 38.9MW biomass power plant in Sokmun Industrial Complex, usage of bio heavy oil in Ulsan Thermal, Sewage sludge mix-in combustion equipment in Dangjin Thermal, and bio-mass mix-in equipment in Donghae thermal.

1) Grid Parity : The point at which the price of the power generated using renewable energies and that generated from fossil energy source become identical.



Mandatory assignment of renewable energies  
RPS, Renewable Portfolio Standard

The program was first introduced in 2012 and demands that the a certain portion of the power generation should be performed using renewable energy sources in order to reduce the greenhouse gas emission and proliferation of the renewable energy. Power generation companies of 500MW or higher total capacity are subject to this program.

## Sustainable Management Key Issues

### Renewable energy projects

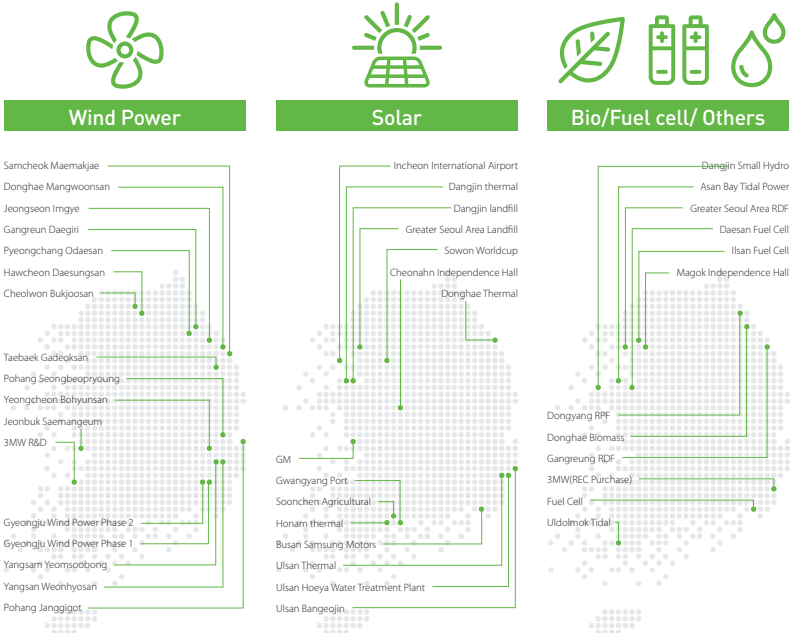
Type	Development status	Equipment Capacity (MW)	(Expected) date of completion
Solar	Donghae solar power	1	2006.09
	Dangjin Solar power	1	2010.09
	Honam Solar Power	0.1	2011.01
	Ulsan Solar Power	0.5	2011.03
	Dangjin Waste Material Solar Power	1.3	2011.12
	Gwangyang Port Solar Power	2.3	2011.12
	Renault Samsung Motors	20	2012.12
	Dangjin Material Warehouse	0.7	2012.12
	Dangjin Water Solar Power	1	2013.06
	Suwon Waste Water Treatment Plant Solar Power	1.5	2014.01
	Ulsan Community Sports Park Solar Power	0.1	2014.02
	Golden Logistics Center, Gwangyang Port, Solar Power	1.1	2014.06
	Coal Storage Yard for Dangjin Unit No. 9 and 10	3	2015.12
	Dangjin No. 2 Lime Treatment Facility	5	2016.06
Wind Power	Gyeongju Wind Power Phase 1	16.8	2012.1
	Yellow Sea Adaptation Type Wind Power	3	2012.1
	Honam Wind Power Phase 1	20	2014.03
	Younggwang Baeksu Wind Power	40	2014.12
	Gyeongju Wind Power Phase 2	20	2016.1
	Younggwang Baeksu Wind Power Phase 2	20	2016.12
	Youngdeok Cheonji Wind Power	28	2017.1
	Ulsan Dongdaesan Wind Power	20	2017.01
	Yangsan Yeomsoobong Wind Power	28	2017.05
	Pohang Seongbeopryoung Wind Power	40	2017.12
Wind Power	Samcheok Odu Wind Power	60	2016.12
	Taebeak Gadeoksan Wind Power	40	2017.12
	Saemangeum Wind Power	110	2017.12
Marine Energy	Ministry of Knowledge Economy 2.5GW Marine Wind Power	80	2016.12
	Yesu Budo Marine Wind Power	200	2019.12
Small Hydro	Asan Bay Tidal Power Generation	399	in progress
	Phase 1 Small Hydro for Danjin	5	2009.12
Fuel Cell	Phase 2 Small Hydro for Danjin	3	2014.09
	Isan Fuel Cell (Phase 1)	2.4	2009.09
	Isan Fuel Cell (Phase 2)	2.8	2011.03
	Isan Fuel Cell (Phase 3)	2.8	2013.02
	Ulsan Fuel Cell Power Generation	2.8	2013.09
Bio Energy	Hydrogen Fuel Cell Power Generation	30	2016.12
	Isan Fuel Cell (Phase 4)	2.5	2016.06
	Donghae Biomass (Total combustion)	30	2013.07
	Donghae Mixed Combustion (Automated)	40	2014.06
	Dangjin Sewage Sludge (mixed combustion)	25	2014.1
	Dangjin Wood Pellet	30	2014.06
	Ulsan Bio Heavy Oil	40	2014.06
	Sokmun Group Energy	38.9	2016.1
	Chookboon Biomass Total combustion	10	2018.06
	Gogeu Biomass Total combustion	40	2020.12
Waste Material	Wonju Horticulture Complex Steam Supply and Power Generation	30	2017.12



### Production of high value-added compound through CO<sub>2</sub>

By using CO<sub>2</sub>, which is one of the waste gas emitted from a power plant, NaHCO<sub>3</sub>, NaOCl, or HCL may be produced using this brand new original technology.

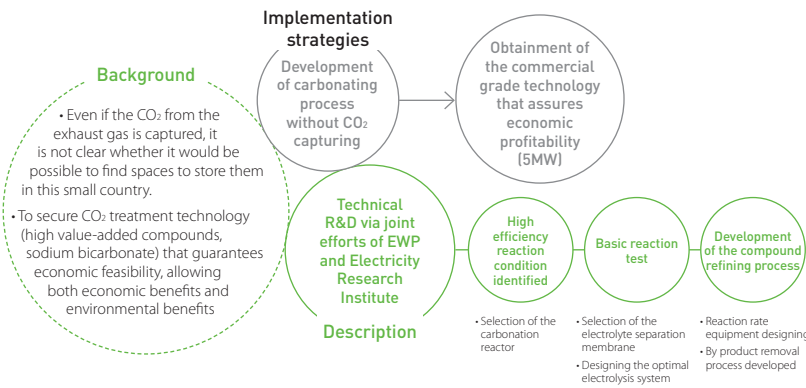
### Future Development plans



## Environmentally-friendly technology development

### Development of technology to reduce greenhouse gas

EWP invests continuously in R&D for greenhouse gas reduction projects. The company participates in the CCS (Carbon Capture & Storage) R&D project. And, it is also conducting R&D projects for Non-capture CO<sub>2</sub> recollection technology and high value-added chemical compound manufacturing. The non-capture type is free of the CO<sub>2</sub> capturing process, which reduces the construction cost by 24%. Also, it converts the CO<sub>2</sub> to some other high value-added chemical compounds to ensure economic feasibility. And, as it is not necessary to secure the storage space for CO<sub>2</sub>, this method is an efficient technology for Korea, which is a very small country.



### Achievements

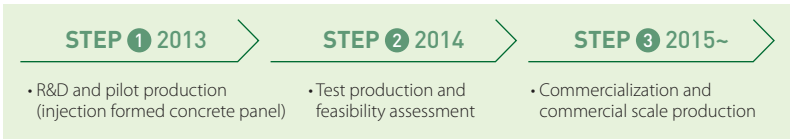
- + CO<sub>2</sub> Reduction: 35,000 ton / year (100,000 ton/year if the existing process is replaced.)
- + Effect of selling the high value-added compounds: 27.2 billion won / year
- + Higher economic feasibility as there is no need for CO<sub>2</sub> capturing process, saving the construction cost by 24 %

To realize Environmentally-Friendly Energy

### Development of businesses using the power generation byproducts

Due to the expansion of the coal thermal power plants, the volume of coal ash created is on a hike. (The amount of coal ash in 2016 is expected to be up by 38.9% from what it was in 2013.) On the other hand, the downturn of the construction industry created a condition of oversupply for the coal ash. As a result, a new business is required and the company has been endeavoring to solve this problem by developing the injection type concrete panel manufacturing technology in which coal ash, which is considered as a waste material, is to replace cement. It was confirmed that up to 70% of the concrete panel material could be replaced with coal ash. Now the test production and performance have been completed, and the company is now working on to make a profitable business out of this new technology.

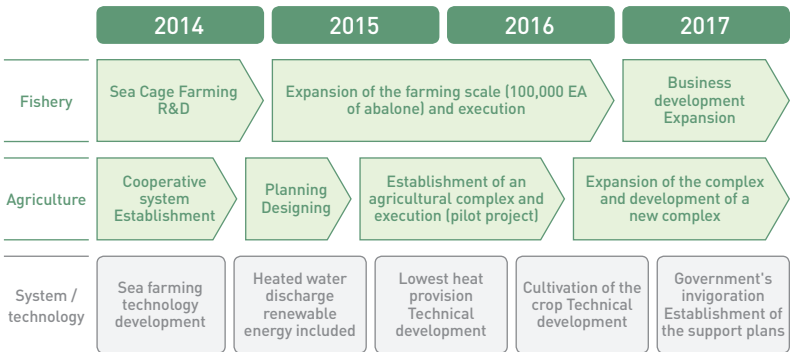
### Development of new demands and a viable business that can create a large amount of added values



### New energy business using the heated water discharged from a power plant

The heated water discharge, which is considered as the thermal waste of the power plan, can be highly valuable resources which can be used as an energy source for the local farming industry. The business model was identified as a sustainable new business model that can contribute to enhancement of the competitiveness of local faming and fishery communities. Thus, the company established a master plan to utilize this heated water discharge. The Ministry of Industry (Korea Energy Agency), City of Dangjin, Choongnam, and ERK formed a joint development group to proceed with new energy business development projects to boost the income of agricultural and fishery communities.

### Heated water discharge utilization master plan



### Pilot projects to be executed in the field of heated discharge water utilization in cooperation with local governments



※ The energy generation efficiency in a coal thermal power plant is around 40%. Of the remaining energy, 55% is discharged as heated water, and the other 5% as the waste heat through the chimney. The utilization rate of heated discharge water in Korea is very small, only 0.48%. [Source: Korea Energy Agency]

DMA

Disclosure  
Management  
Approach

Ensuring Happy Sharing  
and Growth for All

EWP, as an energy company that supports the happiness of the clients through generation of environmentally-friendly energy, creates the energy of happiness in cooperation with our neighbors in need, the local community, and our partner companies based on our mission, "We make energy for happiness" and our catch phrase, 'Happiness energy Dream" which are our social responsibility brands. As there are more good jobs, more sound SMBs, it is possible that we laugh together as we create a happier world. EWP, as a public energy corporation, will lead the way to invigorate social contribution activities and job creation as we perform our fundamental roles. Also, we will establish transparent and fair business practices with our partners as we endeavor to share happiness and growth.



Achievements

2014



Area	Index	Target	Achievements	Key achievements	Basis of goal setting
Strategic Social responsibility	Social responsibility External satisfaction	87%	88%	• Social responsibility brand proliferation and customized activities for local communities to create a co-prosperity model with local communities	5% up from the previous year
	Social responsibility Integrated brand	Brand establishment	Happiness Energy Dream	• Mission-relevant social responsibility brand to be established to encourage participation	Reflecting opinions of independent experts
Creation of jobs	Creation of new jobs for	21,000 people	21,717 people	• Development of new business models, including utilization of the heated water discharge to increase the number of jobs created on a continuous basis	15% reduction from the previous year [Due to the completion of the construction of Ulsan No. 4 Compound Facility]
Transparent and fair transactions	Satisfaction of the partner companies	96%	96.1%	• Vitalization of the Clean Pay system and fair sub-contracting practices Commitment Statement Programs	1 point up from the previous year

Plan

2015

EWP, as an energy public corporation, will keep working on the local community-oriented social responsibility activities to spread our social responsibility brand, Happiness Energy Dream, and lead the way to create new energy business models to create profits and jobs in the private sector. We will analyze the appreciation level for each of the regulation items to provide quality public services and strengthen our cooperation with the SMBs as they expand to the world market, in an effort to create a co-prospering power generation industry ecosystem where the fruits of the growth can be shared.

Sustainable Management  
Key Issues

# Ensuring Happy Sharing and Growth for All

Awarding Ceremony in National Volunteers' Festival



Successful fund raising



Completion of Sharing Sunshine Power Plant  
(February 2014)

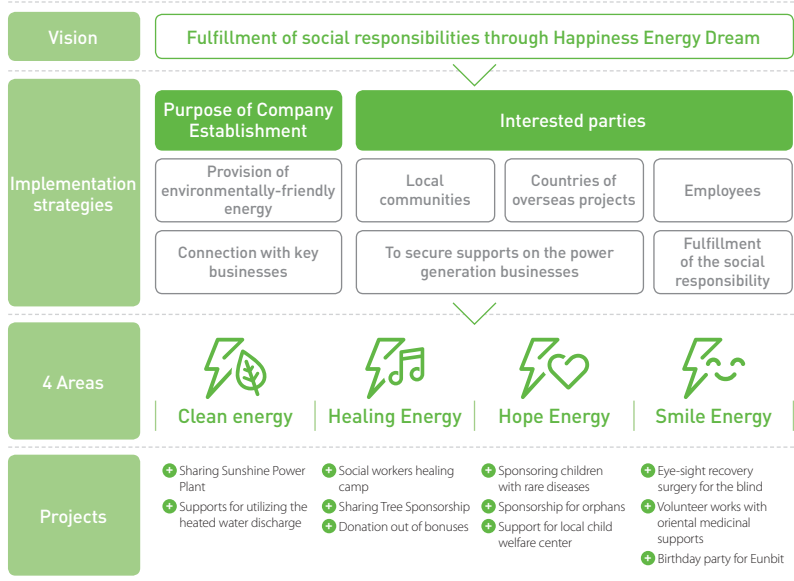


## To invigorate the strategic social responsibility works

### Social Responsibility Operations

EWP aims to be the leader of social responsibility management. With our mission statement, "We make energy for Happiness," and the slogan, "Happiness Energy Dream," we engage in four areas of Clean Energy Dream, which is aims to protect the local community and the environment, Healing Energy Dream, to ensure everyone enjoys the benefits of welfare, Hope Energy Dream, to provide supports to our children and young generations, and Smile Energy Dream, to realize the principle of filial duties for our senior citizens, as we pursue our social responsibilities in a systematic manner. In order to continue our efforts for social responsibilities, we launched EWP social work group in February 2004. As of 2014, we now have 103 teams composed of 2231 volunteers who participate in volunteer activities. Since 2012, we have been participating in joint volunteer groups and collaborative volunteer groups to work together with our partner companies and energy-related public agencies to fulfill our social responsibilities. With such volunteer group activities, we endeavor for the good of the community and create a partnership of co-existence where the power plants are recognized as partners.

### Social Responsibility value diagram

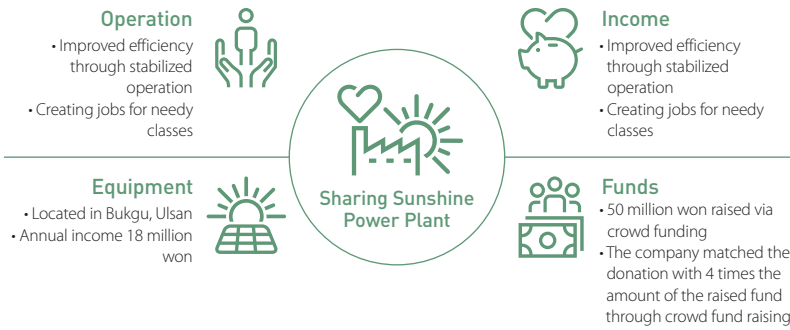


### Social responsibility activities with strategic considerations

In consideration of the purpose of the company's foundation and to carry out the relevant social responsibility works, the company established a social responsibility brand named "Happiness Energy Dream" in connection with the missions of the company in order to establish a systematic social contribution activity program. The company endeavors to internalize the DNA of sharing through proliferation of the brand and promotion of a sense of pride through various activities such as the Power Love Day event, which is themed on "Happiness Energy Dream", which is interconnected with the National Volunteers' Festival (in which the company won the Grand Prize) for the sake of promoting participation and encouraging supports for our activities. We also create shared-value type community co-prosperity models including development of agricultural complexes using the high temperature water discharge, and completion of the Shared Sunshine Power Generation plant which was built for the first time in Korea using Crowd Funding method to induce participation by citizens.

To Ensure Happy Sharing and Growth for All

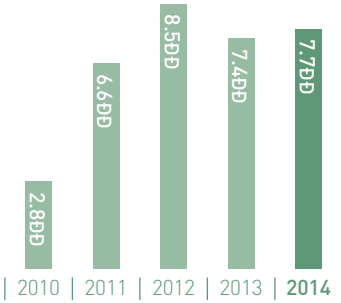
## Establishment of 'Public-sponsored Sharing Sunshine Power Plant' through crowd funding



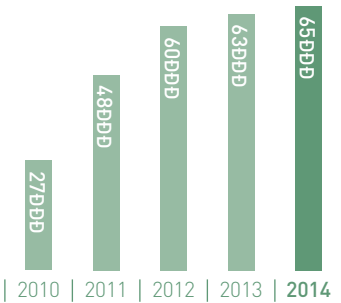
### Social responsibility activities relevant to the local community

EWP is operating 5 power plants in Korea. As a result, we decided to enhance the satisfaction level in the local community near our power plants through social responsibility programs that are relevant to the needs of the area. Especially, as the HQ is moved to Ulsan, we established Happy Ulsan 3 Year Project. With our Win-win strategy to pursue warm hearted communication and happiness of our employees and the citizens of the city alike, we are proceeding with the 'Happiness Together Ulsan Project.' Also, in order to vitalize the commercial districts around the power plant, we entered into One company, One market agreement with a traditional market. As a result of the agreement, our employees purchased a total of 770 million won worth of goods from the market in 2014 along via coupons. Currently, we regularly observe a market day, where our employees are encourage to shop in the traditional market. We also operate a produce market place in our company website to provide a sales channel for the local farmers, while our employees can purchase good agricultural produce in a good price.

## Annual amount of purchase via Onnuri Coupons



## Annual purchase amount from Dongseo Market



## Recruitment of the graduates from EWP Training Center



## Creation of jobs

### Creation of jobs in line with the core business of the company

In 2014, a total of 81 SMBs received supports from our company in 2014, amounting to a total of 83.6 billion won and creating 231 new jobs. The company hired 53 citizens of Ulsan as the administrative staffs of the HQ. Also, the operation and maintenance of the power plants which have either been completed or are under construction are outsourced to private companies to contribute to job creation. Also, the company provided vocational training opportunities to residents who wish to find a job through "Dongseo Training Center." The trainees in this employment support program were hired as the welders for the boiler installation works for Dangjin Thermal.

### Summary of Job Creation Performance

Year	Quarter	Type	Ordering investment businesses	Private Partnership	Outsourcing	Others (co-prosperity)	Total
2012	2,090	Regular employees	11	113	-	96	220
		Employees on contracts	5,950	1,794	-	2,376	10,120
		Sub-total	5,961	1,907	-	2,472	10,340
2013	2,201	Regular employees	11,882	644	138	3,739	16,403
		Employees on contracts	5,933	313	69	1,845	8,160
		Sub-total	17,815	957	207	5,584	24,563
2014	2,295	Regular employees	10,096	1,001	162	3,407	14,666
		Employees on contracts	4,973	489	54	1,535	7,051
		Sub-total	15,069	1,490	216	4,942	21,717

## Sustainable Management Key Issues

### Customized job provision

**3 Health Managers**  
Health management

**1 for in-company library management**  
Vitalization of reading management

**1 for welfare related works**  
Expansion of non-monetary welfare

**1 for general staff**  
As a replacement for employees on child-care leaves

### Recruitment of vulnerable community members

	2012	2013	2012
No. of employees	2,090	2,201	2,295
Current	2,070	2,200	2,240
Female	32	48	32
Disabled persons	9	10	9
Local talents (non Greater Seoul Area residents)	80	97	78
Newly hired as a full-time employee (Executives not included)			
High school graduates	39	48	37
Specialized high schools	39	44	36
Science and Engineering Major	141	188	113
Total	159	206	131

**Mitigation of the regulations for co-prosperity with SMBs**

**47 items are improved**

### Flexible working hours and job creation

The company analyzed the types of tasks and jobs in order to create flexible time jobs to allow co-existence between work and family. We analyzed the suitable types of works so that key demand classes may proactively apply for, while the works are of consistent nature and they can contribute to the enhancement of the productivity. As a result, we identified storage management, reading management, welfare officers, and general staffs as the suitable jobs and hired a total of 6 staffs under a flexible time arrange.

### Increased recruitment of vulnerable community members

In order to create jobs for the vulnerable members of the community, we analyzed the work performance records of the normal college degree recruits, handicapped people, patriotic recruits, and those with high school education. The results showed that the vulnerable members did not differ from ordinary recruits in terms of their job performances. Based on this, we hired more of such people than what was legally required for us to hire. With our employment-linked internships, we hired 25% of our new recruits among high school graduates (in excess of the government requirement by 20). Also, we applied bonus points for the vulnerable applicants, such as the handicapped or those with recruitment merits, resulting in exceeding the legal minimum of hiring them. Also, we introduced the local talent quota program, which gives bonus points to the applicants from the area to which the HQ moved to. As a result, we took the leading role of expanding open recruitment as a public corporation by hiring 78 local applicants who are not from the Greater Seoul Area in 2014 (while the government's recommended ratio is 30%).

## To strengthen transparent and fair trading

### To expand the opportunity for competition by lifting regulations

EWP endeavored to expand the opportunities for competition through reforms on regulations and corresponding to the government policy for lifting regulations. We reviewed the entire rules on contracting, as well as the opinions and suggestions from outside and the result of a study that was commissioned by the Ministry of Industry and Commerce. As a result, we identified new projects for deregulation in tendering and contracting. Over the period from 2013 to 2014, the CEO visited 63 SMBs, who are in partnerships with us, in person to listen to their difficulties. Their suggestions, as well as the results of a survey, were reflected in our 'improvement of system reforms for co-prosperity.' We formed procurement system improvement committee which included experts in auditing, procurement, and laws from outside. The committee reviewed 47 items for deregulation and improvements were made as a result.

**Diagnostic analysis**

- Total review of the related rules
- Analysis of feedback from outside
- Review of the result of the study commissioned by the Ministry of Industry and Commerce

**Regulatory reform in the field of co-prosperity**

**Widened the opportunities for SMBs to participate in our tenders [15 cases]**

- Mitigation of the past reference requirements (1 time → 1/3 times)
- Increased participation by SMBs in large scale construction projects

**Removal of irrational practices (13 cases)**

- Now the tender period in case of a re-announcement of a tender is mandatory.
- Improvement of the practices where unnecessary warranties were required, etc.

**Reduction of burdens for contractors [11 cases]**

- Clarification of the criteria for charging the liquidated damages, etc.

**Removal of inconvenience and enhancing transparency in contracting [8 cases]**

- Integration of the requirements for material suppliers for all power generation companies

**System Improvement Committee**

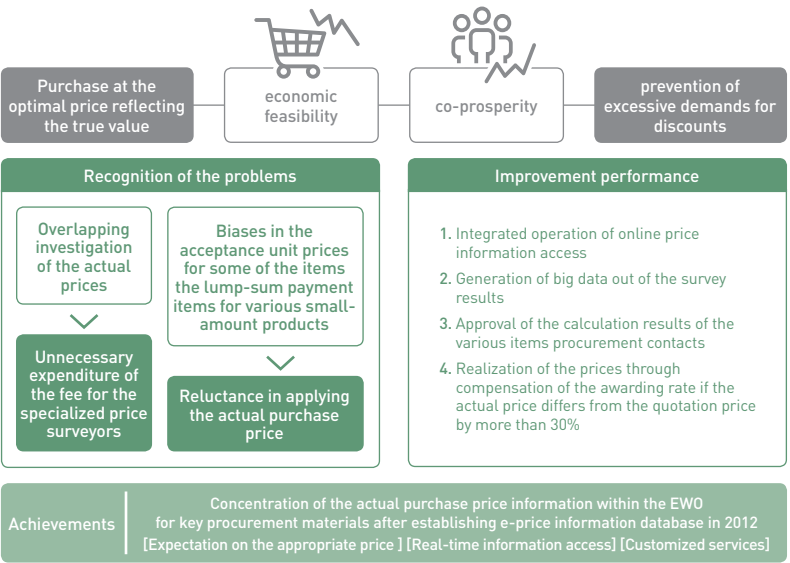
- The committee meeting to review the deregulation items, establish the Procurement System Improvement Committee, and introduce the operational criteria of the committee (Oct. 15).
- The members of committee were selected, including three experts from outside of the company for the fields of auditing, procurements, and the law.

To Ensure Happy Sharing and Growth for All

### Improved the fair trade system with the partners

To prevent unfair sub-contracting and demanding excessive discounts on prices, we created a data base of actual procurement costs to set reasonable procurement prices through e-price information system. In order to fortify our monitoring efforts on payment to the secondary and tertiary partners, we increased the number of banks with cooperative agreements to 10 to vitalize the Clean Pay system. Also, we introduced the Fair Sub-contracting Representation Program in order to eradicate unfair practices from our contractors and the sub-contractors (Oct. 2014).

### Fair Price Investigation Program



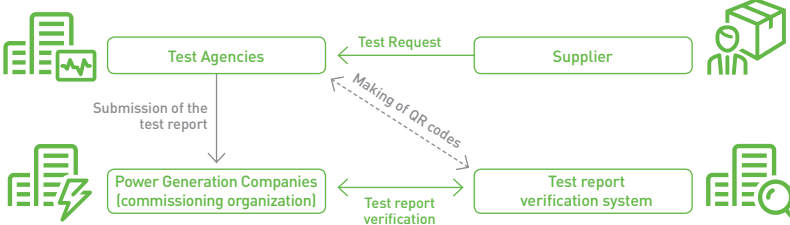
### Strengthened the quality control level for suppliers

#### Enhancement of the quality verification system

The application of the existing material test report verification system for power sector is now expanded (from 28 to 75 agencies). The subject items are also expanded from contracted materials and equipment to cover sub-contracted items, as well. Also, the scope of verification for quality has been extended from construction materials and equipment to construction + generator equipment. Also, the quality monitoring application was developed to increase user friendliness. Online (QR codes) systems now can be used to manage the reports, and the scope of utilization of the verification system is now expanded to increase the number of verification cases by 3.2 times, eradicating any potential of forgery.

The test report verification system was established to prevent any forgery of the reports, by managing the reports on-line (using QR codes and developing of a smart phone application). Also, in order to proliferate commitment to ethical behaviors, we introduced statements for ethical conducts for the partners and the quality inspectors.

### Test Report Verification system



### Prevention of unfair sub-contracting

**Vitalization of the Clean Pay system**  
strengthened the monitoring efforts on the secondary and tertiary partners  
Increased the number of banks in cooperative arrangements (4 to 10).  
Increased the monitoring efforts on payment to the sub-contractors (Apr.)

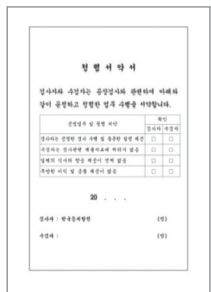
### Fair Sub-contracting Representation Program

To eradicate unfair practices between contractors and sub-contractors, the company introduced Fair Sub-contracting Representation Program (Oct.).

### Ethical Conduct Commitment Statement by the partners



### Ethical Conduct Commitment Statement by the Quality Inspectors



### Quality test monitoring system



### Test reports bearing QR codes



## Economic Achievements

22 Corporate Governance

55 Risk Management

56 Financial Soundness

57 R&D

58 Overseas Business



### Economic Achievements

## Corporate Governance

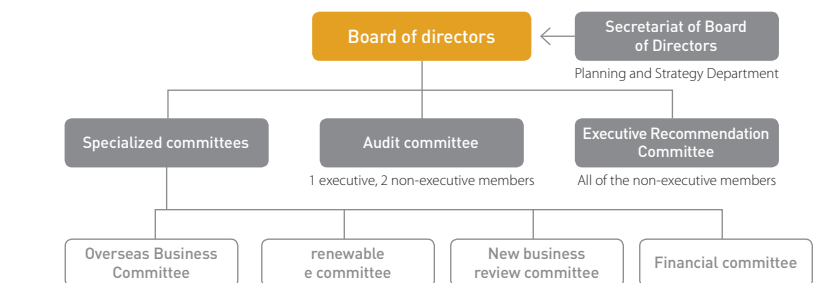
EWP strengthened the control of the company by the board of directors and vi-  
talized the participation of the non-executive members of the board to enhance  
transparency in decision making and control structure of the company.

### Composition of the board of directors

#### Composition of the board of directors

Chair Senior non- executive member	Executive members 4	Non-executive members 5
---	---------------------------	-------------------------------

Type	Name	Title
Executive members	Jook Chang	CEO
	Yoshik Kang	Full time monitors
	Hyuncheol Park	Head of Strategic Management Division
	Seokggg Lee	Head of Technical Safety Division
Non- executive members	Dongtak Jeong	Chair of Expert Board for Power Generation Business
	Kyoungmin Kim	Energy Policy Expert
	Ikman Kim	Energy expert
	Seungjeong Baek	Energy expert
	Sanggon Koh	Financial Expert



### Operational goals and operation system of the board of directors

The important issues of the company are reviewed through various committees and decision making bodies. Finial decisions for them are made by the board of directors, which is the highest decision making body of the company In order to ensure transparency in operation of the board of directors, and strengthening the control of the executive directors by non-executives, the company has introduced various programs such as the agenda review process, field assessment process, and overlapping assessment process. Also, the performance of the non-executive members of the board of directors is evaluated by quantified indexes such as the attendance, the ratio of agenda that go through preliminary reviews, and the proportion of speaking during the meetings.

Managerial environment	ettlement period for the market-oriented public corporation (with an emphasis on the aspect as a private company)	Management of the debts of public corporations, demands for strengthening the investment reviews	The need to rationalize the control structure of the company
Responsive strategy	strengthen the function of the board of directors and establish a control system that is centered on the board of directors		
Goals	Enhance the effectiveness and efficiency of the review process by the board of directors - To strengthen the preliminary review by the board - Vitalization of sub-committees	Vitalization of the board's managerial advisory function - To strengthen follow-ups - Increased provision of management information	Upgrading the evaluation system for the activities of the board of directors - Upgrading the multi-faceted evaluation of non-executive members - To strengthen the support on usually vulnerable areas
Performance indexes	Attendance rate 95% or higher	The number of managerial recommendations up by at least 70%	The work performance up by at least 10%
Monitoring and feedback	STEP ① Performance review Continuous monitoring system, report on the progress with the reporting of the agenda	STEP ② Performance evaluation Analysis of the work performance, analysis of the effects of the operation of the board of directors	STEP ③ Feedback and rolling Identification of items in need of improvement, reflected in future plans

## Economic Achievements

The board members visiting the site



Communication of the board of directors

	Sub-committees	Specialized committees	Audit committee
Composition		All of the non-executive members	Full time auditor (1) Non-executive members (2)
Frequency		Monthly, as necessary	Monthly, as necessary
Roles		Safety review, decision making, and advisory on the field of expertise	Proactive feedback to strengthen the supervisory authority of the board

managerial recommendations of the non-executive board members

Type	Contents of managerial recommendations
 Director Dongtak Jeong	To establish a model of co-prosperity by transferring the superb technology of EWP to SMBs → The program is in place as an extended version, which is the Shared Performance Program
 Director Seungjeong Baek	Advice on execution of renewable energy businesses → Recommendations for the construction process for Phase 2 of Daegiri Wind Power and Gyeongju Wind Power projects
 Director Kyoungmin Kim	Review of the budgetary plan for 2015 → Suggested a direction for resources allocation in connection with the government's policy and zero-base budget planning
 Director Sanggon Koh	Advice on Financial Risks Management Committee → Suggested a criteria for setting the hedging ratio in accordance with the fluctuation of the exchange rate

Activity process of the board of directors

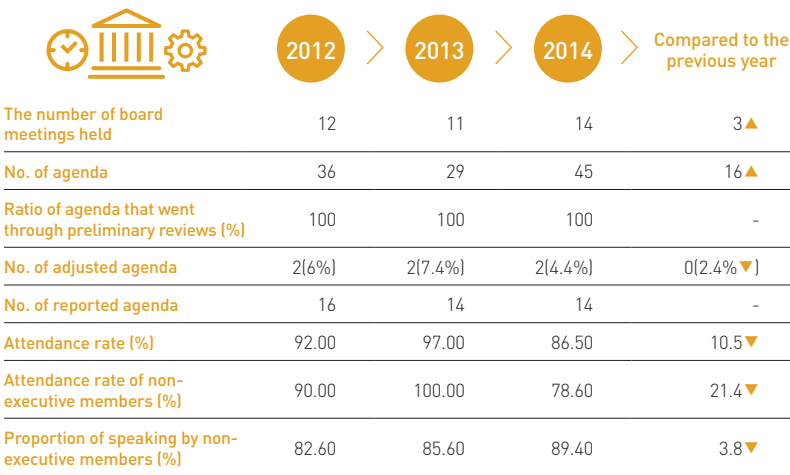


### Fortification of the roles of the board of directors and its transparent operation

EWP upgraded its operation system in order that the independence and expertise of the non-executive members can be used in decision making processes. We built a website for the board of directors to enhance the accessibility for the non-executive members to the management information. Also, in order to increase the level of understanding and to strengthen the check and balance function of the non-executive members, we introduced preliminary review processes. Also, the members of the board visit the site and holds explanatory meetings to ensure effective reviews of the agenda. At the same time, the company proactively reflects the advice of the non-executive members in the mid-long term core strategy and the managerial policies.

### Increased participation in the management of the company by the on-executive members of the board

We established a system of providing material information, supporting the field management activities, and following-up on the recommendations in our operation, to induce proactive participation by the non-executive board members. In order to strengthen objectivity and fairness in the assessment of the performance of the non-executive members, the proportion of the quantitative assessment was increased from 50% to 70%. Also, we introduced the 'Outside Director of the Year' award for non-executive board members with outstanding performances. With this, we succeeded in having 100% of the agenda go through preliminary reviews by non-executive board members.

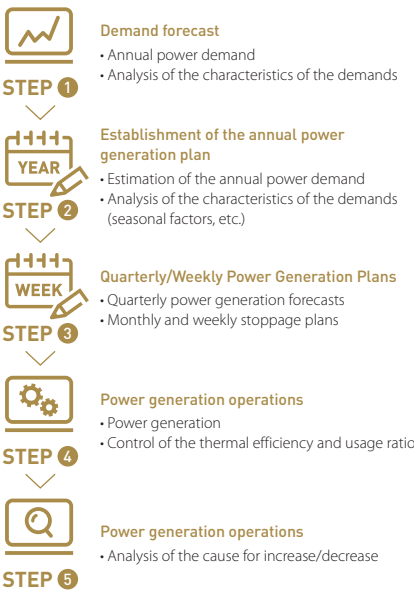


## Economic Achievements

# Risk Management

To address risks in domestic and international management environment due to uncertainties, the company introduced an RMS (risk management system) based on our ERP system, to manage the risks in each area of financial, power generation operation, and safety from disasters on a company-wide level.

Power generation operation process



Financial Risks Control System

Item	Risk control system
 <b>Debt Risk</b> <ul style="list-style-type: none"><li>+ Debt management</li><li>+ Liquidity management</li></ul>	• Emergency Response Committee • Special Committee for Debt Management • Investment Review Committee
 <b>Exchange rate risks</b> <ul style="list-style-type: none"><li>+ Foreign Exchange risks</li></ul>	• Exchange risks management committee • General management analysis
 <b>Interest rate risk management</b> <ul style="list-style-type: none"><li>+ Monitoring the financial market</li><li>+ Management of the credit ratings</li></ul>	• LMS • Bloomberg, Informax ----- • Annual meeting • IR
 <b>Fuel cost risks</b> <ul style="list-style-type: none"><li>+ Monitoring of the internal fuel cost trends</li></ul>	• Exchange risks management committee • General management analysis

## Power Generation Operation System

In order to realize the goal of the company's establishment, "Stable, economical, and environmentally-friendly power supply," the company has introduced and been operating the power operation management system for the entire processes from power generation planning, advance-maintenance of the equipment, to real-time process management to ensure stable power supply to the grid. Through the POMMS (Plant Operation Maintenance and Management System) is a system which systematically controls the preventive maintenance and minimizes the risks of stoppages through seamless integration of operation information, reliability management, predictive warning system, and diagnosis based risk levels.

## EDMS

EWP introduced the EDMS to prevent and proactively control disaster crises such as a fire, an explosion, and leakage of chemicals, etc., in connection with the disaster control system. With this system, the company now has a fast-paced disaster response system which is capable of automatically communicating the disaster situations to all business facilities. Also, we commission specialized disaster analysis agencies to identify disaster hazard factors such as a typhoon, a heavy rain, a heavy snow, or a tidal wave and establish counter measures for them. For this purpose, the company carries out natural disaster risk evaluations for the power generation facilities.

EWP Disaster Control System



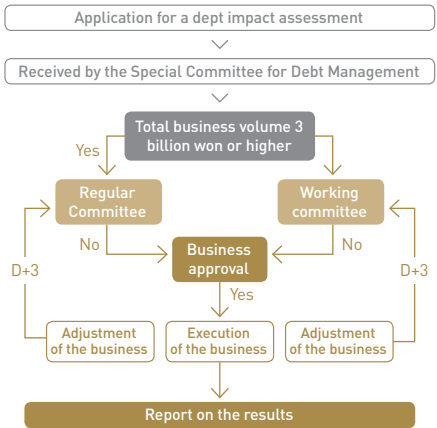
## Financial risks control system

To establish and maintain a sustainable and sound financial structure, the company established mid-long term financial plans and yearly budget plans based on them, which are founded on the managerial strategy of the company. For the sake of systematic financial management, the company uses its EWP-SAP and the LMS to monitor the key financial risks such as the debts, exchange rates, interest rates, and fuel costs.

Economic Achievements

Financial Soundness

Debts impact assessment process



Type	Debt Control Work Committee
Review criteria	Review decision for projects which result in a debt increase by 3 billion won or less
No. of cases reviewed	144
Results of the review	Business approval 131 Conditional approval 3 Not approved 10
Reduction of the budget	23.7 billion won (Budget review: 309.6 billion won)

Type	Regular Debt Control Committee Meeting
Review criteria	Review and approval of large projects of 3 billion won or higher
No. of cases reviewed	17 cases
Results of the review	Business approval 10 Conditional approval 6 Not approved 1
Reduction of the budget	33.1 billion won (Budget review: 233.5 billion won)

Multi-level investment review process in consideration of 'check and balance'



In consideration of the rapidly changing management environment, EWP ensures its sustained growth through comprehensive financial plans which are founded on the mid-long term management strategy. In order to reduce the amount of debts, normalize the public corporation, and strengthen the foundation of the non-deliverability, the company has established sound and sustainable financial planning management systems.

Mid-long term financial plans

The company set the fundamental direction of adhering to core power generation businesses and reduction of debts to ensure financial soundness in response to the public corporation normalization plan. Based on the these, EWP established plans for investments and funding. The core businesses are to be invested for continuously, while noncore businesses are to go through investment rationalization process, according to the principle of debt reduction. For this, the company established plans for establishing a system for future responsiveness, financial soundness, and efficient budget operation.

Plans to allocate the financial resources

Types of performance indexes	implementation plan	Monitoring
<b>Systematic responsiveness to the future</b> Sales, debt ratio	• Investment plans to be established with a focus on domestic power generation business • To secure capabilities to withstand the risks from financial liabilities • Re-evaluation of the domains of investment businesses and removal of underperforming businesses	• EWP-SAP system • Special Committee for Debt Management • Investment Review Committee
<b>Soundness in Financial Structure</b> Debt to EBITDA	• Minimization of the procurement cost • Establish a system to control the financial risks • Dual criteria for exchange risks hedging	• LMS • General management analysis • Exchange risks management committee
<b>Efficient budget operation</b> Operational budget saving ratio	• Optimized equipment operation and commercialization of intangible assets • Development of feasibility models and strengthening the review process • Assessment analysis and efficient operation to reduce the budget	• Monitor performance against plans • Budget performance analysis • Management performance report

The efforts to ensure financial soundness and their results

The company set the fundamental direction of adhering to core power generation businesses and reduction of debts to ensure financial soundness in response to the public corporation normalization plan. Based on the these, EWP established plans for investments and funding. The core businesses are to be invested for continuously, while noncore businesses are to go through investment rationalization process, according to the principle of debt reduction. For this, the company established plans for establishing a system for future responsiveness, financial soundness, and efficient budget operation. In order to ensure financial soundness, the trend of the past performances was analyzed in terms of stability and profitability. The results showed that while the stability was acceptable, the profitability needed improvement, which resulted in our efforts to improve it through enhancement of productivity, reduction of debts, and rational budget control. As a part of the target indexes for financial soundness, the company set the allowance limit for the debt ratio and performed the debt impact assessment in accordance with the relevant process. Also, the company endeavored to ensure reasonable budget planning through effective operation of the review board and strengthening the feasibility review of the budget plan. Our reasonable expenditure of the budget and efforts to save it through debt impact assessment process, the debt ratio was improved from 136% in 2014 to 132% (estimated) in 2017.

Economic Achievements

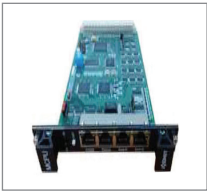
R&D

The company is engaged in efficient R&D projects through the 'strategic R&D' which is focused on the government programs and 'co-prosperity R&D' which is focused on SMBs. With continued investment to obtain original technologies as well as to commercialize them, the company has executed a total of 471 R&D projects.

Replacement of imported items with domestic alternatives

In order to reduce the risks originating from using imported parts and establish advanced beneficial circle of R&D items, the company pro-actively engage in R&D efforts to develop domestic alternatives for imported parts in accordance with the domestic replacement roadmap. In this system, EWP provides the test bed while the maintenance contractors provide core parts based on their recycling maintenance. As a result, the company succeeded in developing a domestic replacement for the rotor of the 1100C gas turbine. Currently, test runs with 1300C gas turbine rotors are in progress. With these efforts, the company achieved a domestic part ratio of 81% and won the Minister's Prize (Ministry of Industry and Commerce) for New Technology Commercialization Award (Nov. 2014)

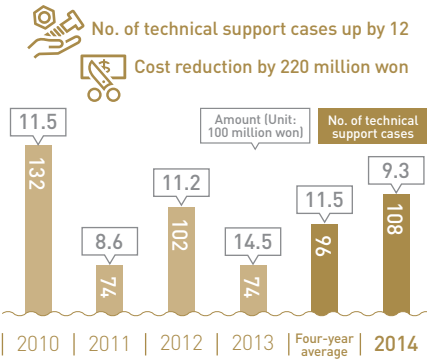
Development of domestic replacement for Infi-90 Control Card



Development of domestic replacement for 501D5 G/T Blade Level #1~3



Utilization of specialized personnel dispatched to the Power Research Institute in necessary fields



New Technology Commercialization Award



R&D road map and rolling for developing domestic replacements for imported parts

Type	STEP 1	STEP 2	STEP 3
	Establishment of the strategy to develop a domestic alternative	Development strategy rolling	Development strategy rolling
	2009	2012	2014
Period	2006.1~2005.12	2009.1~2011.12	2012.1~2013.12
Analysis targets	5 facilities, including Dangjin Thermal HQ		
No. of imported items (100 million won)	1,492 (999.5)	923 (513)	628 (366)
Selection of items for which a domestic replacement is to be developed	249	116	73

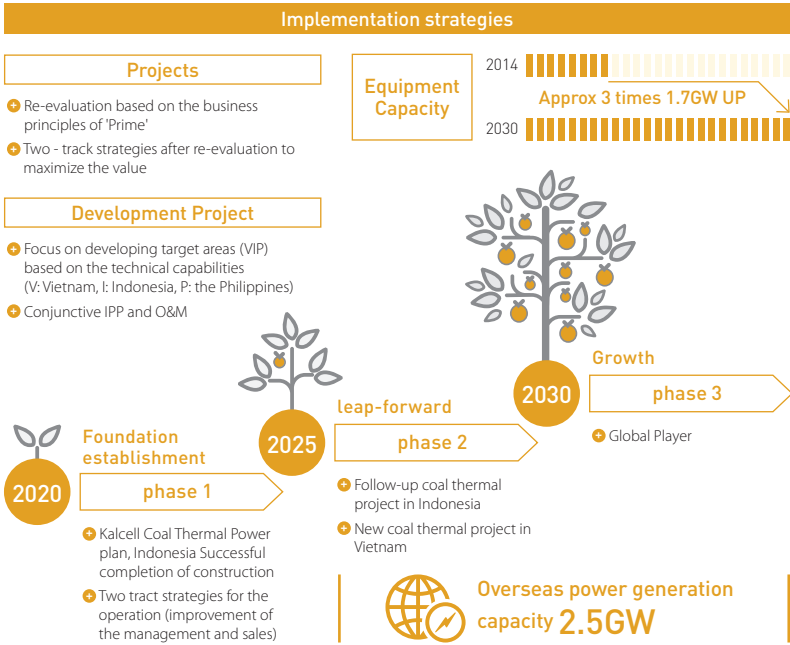
Establishment of the new cooperative scheme to obtain future technology

Through joint technical development between KEPCO and power generation companies, the level of R&D outputs was upgraded. And, for efficient R&D using the infrastructure between the power group companies, the company has established a new cooperative scheme and working passionately on the projects for co-prosperity and cooperation. The company also established technical roadmap for joint response to the current issues, such as developing renewable energies and reducing greenhouse gases, as it establishes the technical foundation for future high value-added technologies. Also, in order to preserve the power generation technology of the Power Research Institute, the specialized technicians of EWP are dispatched to the institute to learn the know-how. The dispatched technicians are utilized passionately in order to increase the number of technical support cases and reduce the amount of technical support costs.

Economic Achievements

Overseas Business

EWP has been developing and operating overseas businesses under strategic goals of overseas expansion of the businesses with a view to increase the profits and co-prosperity with SMBs.



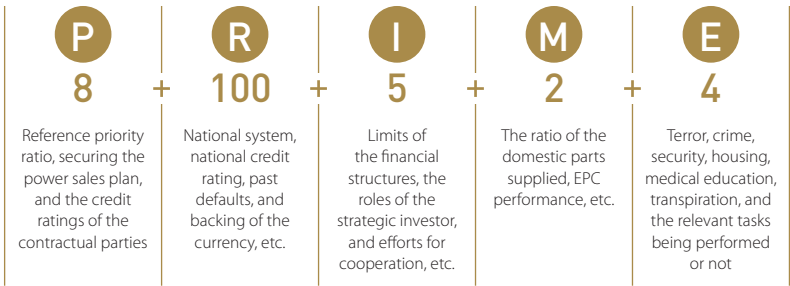
Overseas business development process

The overseas businesses are developed, with a view to ensure objectivity, through a series of reviews by the overseas business selection committee, the risks management committee, and the investment review committee, in this case, for the priority, etc.

Also, in order to ensure success of these projects, the company reviews the guidelines on the overseas projects to consider them on the basis of the 5 principles of priorities, risks, relevant to the strategy, co-prosperity and employee satisfaction (PRIME).

Also, the company operates the 'risk management system' which calculates the reference profit rate based on the quantitative risk assessment.

Details of PRIM (T19 items)



Overseas business development process



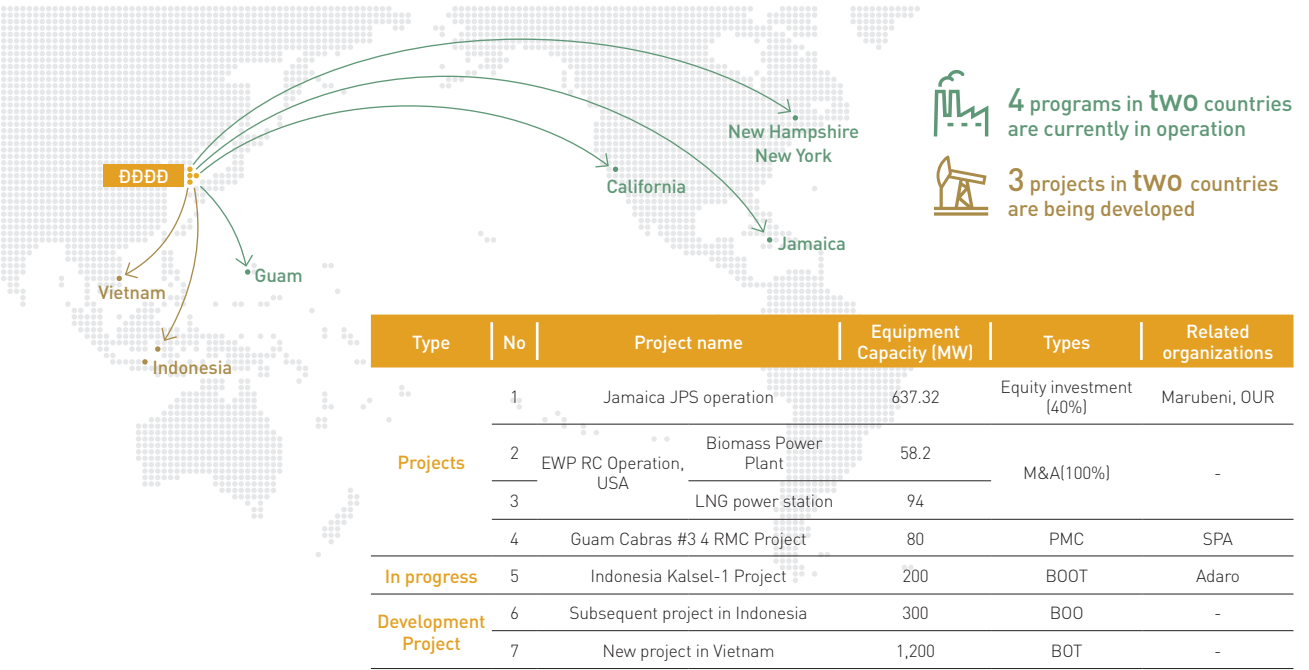
Status of overseas operations

EWP successfully completed the test run of Nueva Ventanas coal thermal power plant in Chile in 2008. Then, it completed many other overseas service projects such as the O&M of the floating layer power plant in Cebu, the Philippines in 2009, EWP RC Biomass and LNG power plant in the United States, 2010, and JPS Operation Project in Jamaica, 2011.

In order to manage the projects in a systematic manner, the company re-established the public-corporation type project implementation principles of PRIME. With this, it reviewed 119 items in the 5 areas of profitability, risks, strategic relevance, co-prosperity and employee satisfaction to rationalize project implementation.

Operation of the projects was based on two-track strategies through risk management. As a result, intense managerial improvement was performed on JPS operation (Jamaica) and EWP RC operation (USA) to increase profitability. Also, timely exit strategies were established for the E-power project in Haiti and the wind power project in the Philippines, so that the invested fund was withdrawn successfully.

As for the development projects, the company successfully entered in a contract for PPA with the Kalcel no. 1 project in Indonesia and its subsequent projects in Vietnam, with a purpose to create the driving force for future growth of the company.



Accompanying other Korean companies to overseas projects

EWP is a public corporation, which has certain public responsibilities. In order to fulfill such responsibilities, the company passionately seeks ways to accompany other Korean companies to such projects to help their exporting. During the initial phases of overseas projects, most of the activities were centered on procurements of consumable materials. As a result, the performance of co-prosperity support in 2010 was for only one project site (in Guam) for an amount of 800 million won, which was very small. However, as we diversified the scope of such cooperation to improvement works, planned maintenance works, and equipment purchase, now we are starting to see the fruits of such new efforts. In case of Kalcel power coal thermal power plant, for which a PPA was entered into in October 2014, more than 40 SMBs accompanied us to participate into the EPC project. It is expected that such an achievement would contribute to their export of materials and creation of jobs in Korea. Especially, after completion of the power plants, around 3 billion won worth of Korean SMB products are expected to be used for maintenance works for the power plant, which would further contribute to our efforts to help SMBs to expand into foreign markets. In addition, EWP exerts to become a global IPP operator, as it engages in Global CSR activities through the infrastructures around the sites of those overseas projects.

## Sustainable Management Achievements

# Environmental Achievements

- 61 Green Management
- 62 Reduction of Greenhouse Gases
- 64 Environmental Management of the Project Sites
- 68 Management of Chemicals
- 69 Protection of Bio-Diversity

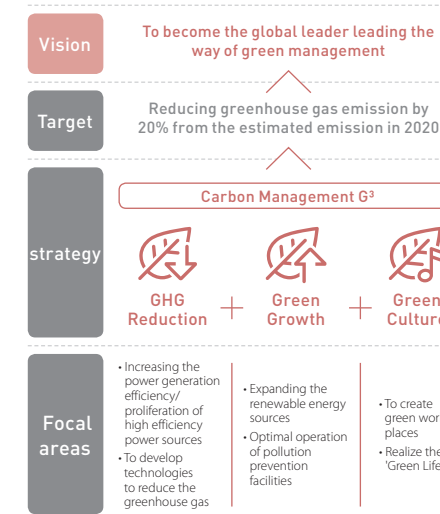


## Environmental Achievements

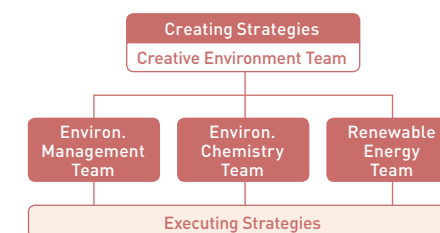
# Green Management

As a responsible member of the society, EWP seeks to save energy and resources in its operation. Also, using such resources efficiently, we recognize that minimizing the greenhouse gases and pollution is to fulfill our ethical responsibilities and ensure sustainability, as we engage in environmentally-friendly business activities.

### Green management scheme



### Dept. in charge of green management



### Performances of Environmental Management System

Type	ISO 9001/14001	Designation as a green company			
Business Unit	HQ and all business branches	Ulsan	Honam	Donghae	Ilisan
Initial designation (certification) date	'13.10	'04.07	'00.10	'01.11	'96.03
Secondary designation (certification) date	-	'12.12	'14.05	'14.12	'12.07
Validity until	'16.10	'15.12	'17.05	'17.12	'15.07
Designating (certifying) agencies	Korea Productivity Center (Certification Office)	Ministry of Environment	Ministry of Environment	Ministry of Environment	Ministry of Environment

## Vision of green

As a combination between the existing environmental management and sustainable management. As a result, the company has established its own green management system, which is currently in operation. Especially, in order to respond to the climate change in advance, the company set a green management target of reducing the greenhouse gas emission by 20% from the estimate for 2020, based management a master plan and endeavors to fulfill it. In order for systematic low-carbon gree on which the company has established management and implementation schemes EWP defines the green n ma a view to strengthen the execution capacity for the green management cycle.

## Green management performance indexes

To form a sense of consent among all employees and strengthen the execution capability for green management, the company adheres to environmental regulations and operates green management related performance improvement indexes and the evaluation systems for them Every year, the changes in internal and external environments are reflected to improve the indexes. Starting from 2014, the company is working on to develop the performance indexes to reflect the needs for reducing greenhouse gases and strengthening the responsive capabilities.

### Detailed internal performance indexes and items

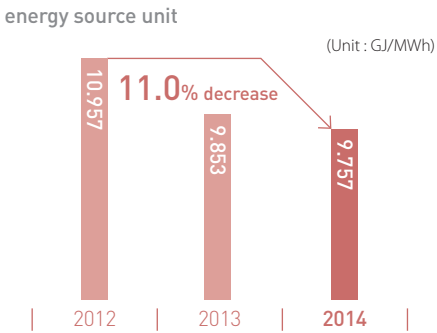
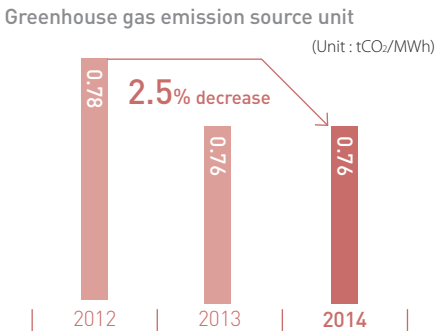


## Environmental management system

In order to proceed with green management with competitiveness and differentiation, the company acquired ISO 14001/9001 comprehensive certification. Also, it was recognized as a green company due to its efforts to reduce contaminants and waste material emission and save energy. Afterwards, the company proceeded with upgrading the environmental management system and improvement of the environment, while it maintained the 14001 and 9001 certification. Also, the company has been awarded for being an outstanding model in the field of environmental management

Environmental Achievements

Reduction of Greenhouse Gases



In accordance with the 'Basic Law on Low-carbon Green Growth' of 2010, the company has started to work to meet the original emission unit goals in accordance with the 'greenhouse gas energy goal management program' since 2012. Also, starting from 2015, when the 'emission right transaction program' starts to take effect, the company has assumed the role of the organizing company and preparing for proactive measures to perform the greenhouse gas reduction policies.

Successful performance of the greenhouse gas and energy goal management program

EWP's total greenhouse gas emission volume in 2014 was 38383000 ton/ Co<sub>2</sub>, and the amount of energy consumption is 489309 TJ. The original greenhouse gas emission unit per power sales is 0.765 ton CO<sub>2</sub>/MWh, which is well within the target (0.783 ton Co<sub>2</sub> / MWh). The company keeps working on increasing the number of low-carbon, high efficiency power sources, increasing the use of renewable energies, and bio fuels, with a view to reduce is greenhouse gas emission. As a result, the company not only met its emission original unit goals but also reduced the original energy units for three years in a row.

Performance records of the green house gas energy goal management program




\*The figure for 2012 and 2013 was changed due to change in calculation standards.

Year	Unit	Target	Performance
2012	CO <sub>2</sub> /MWh	0.836 ▼	0.805
2013	CO <sub>2</sub> /MWh	0.799 ▼	0.763
2014	CO <sub>2</sub> /MWh	0.782 ▼	0.765

The source units for 2012 are not included in the heat provision records in the power wattage.

Greenhouse gas emission status

\*The figure for 2012 and 2013 was changed due to change in calculation standards.

Type	Emission type	2012	2013	2014
 Emission volume (ton)	Scope 1	44,062,742	43,118,937	38,300,812
	Scope 2	71,573	87,145	82,635
	Scope 2 + 3	44,134,312	43,206,079	38,383,445
	Scope 3	-	-	9,262,519
 Emission source unit (Ton/MWh)		0.780	0.763	0.765
 Energy consumption (TJ)		601,527	550,933	489,309

\* Scope 1 : Direction emission (use of fuel and direction emission from the process)  
Scope 2 : Indirect emission (indirect emission due to use of power from external sources)  
Scope 3 : Indirect emission (emission from business trips, commuting and products sold or purchased)  
The greenhouse gas emission and energy consumption changed slightly after the verification by the government.

Increased the number of low-carbon, high efficiency power plants

EWP aims to reduce the amount of greenhouse gas emission by increasing the efficiency of the power plants. In addition to enhancement of power generation efficiency in existing facilities, the company increases new low-carbon high-efficiency generators to upgrade the efficiency of the entire power generation facilities to reduce the source units of emission. The company started operation of the largest biomass power plant in Korea (30MW) in 2013, followed by Ulsan No. 4 Compound power plant (efficiency 55%) which was completed in July 2014 and now in operation. In addition, the company is currently constructing, for the first time in Korea, a 1,000 MW capacity high efficiency USC Shindangjin No. 9 and No. 10 (1,000MW x 2) coal thermal power plants.

Ulsan No. 4 Compound Low-carbon High-efficiency operation ①



Equipment capacity 950MW  
Construction cost 999.4 billion won  
Construction Period 2012.05~2014.07  
Type Compound power generation  
Fuel LNG  
Area 41,000M<sup>2</sup>

Donghae Biomass Power Station - Largest capacity in Korea [30MW] ②



Equipment capacity 30MW x 1 unit (first in Korea)  
Investment 141.5 billion won  
Construction Period 2011.12~2013.07 (20 months)  
Manufacturer Andritz(Austria)  
Type CFBC  
Fuel Wood biomass (182000 tons/year)  
Location Inside Donghae Thermal Power Plant  
Area 9,628m2(2,900 PY)

Dangjin Unit No. 9 and No. 10 - First 1000MW high-efficiency USC Power plant under construction ③



Equipment capacity 2GW (1GW x 2 units)  
Construction cost 2.64 trillion won  
Construction Period 2011.06~2016.06  
Type USD  
Fuel Flaming coal  
Coal yard Indoors type






① Ulsan No. 4 Compound is a high-efficiency, low-carbon power generation facility. The greenhouse gas emission of the facility is reduced by 62% compared to standard coal thermal power plants and 22% compared to existing compound power plants.

② The dedicated biomass power plant in Donghae is based on the carbon neutral power technology, with the greenhouse gas emission reduced by 200000 tons per year (as per 80% usage rate).

③ Dangjin No. 9 and No. 10 are high efficiency coal thermal power plants, of which the greenhouse gas emission is reduced by 9.7% compared to standard coal thermal power plants.

Increased ratio of mixed combustion using biomass in thermal power generation

As a short-term measure to reduce greenhouse gas emission, EWP aims to increase the ratio of biomass mixture for the fuel used in coal thermal power generation. Organic solid fuel, wood chips, wood pellets, PKS, and other types of biomass materials were successfully tested to be mixed with coal for combustion. After completing stepwise mixture ratio increase tests (3 → 5 → 7%), they are being used in the mixture fuel with stability. Also, for heavy oil power generation, bio heavy oil is used as a replacement for Bunker-C oil.

Item	Wood			Organic solid fuel	Bio heavy oil
	Wood chips	Pellet	PKS		
Appearance					
Characteristic	Forest byproducts, waste wood material	Dried and formed wood material	Coconut husks, seeds, etc.	Dried sewage sludge	Animal of
Caloric value [Kcal/kg]	2,500~3,500	3,500~4,500	4,000	3,000~3,500	9,000~10,000
Usage	Donghae Biomass	Dangjin thermal	Donghae Thermal	Dangjin thermal	Ulsan Thermal
Consumption [Ton, Kl]	200,588	69,405	33,542	9,449	8,017

Environmental Achievements

Environmental Management of the Project Sites

Emission statistics of the power plants

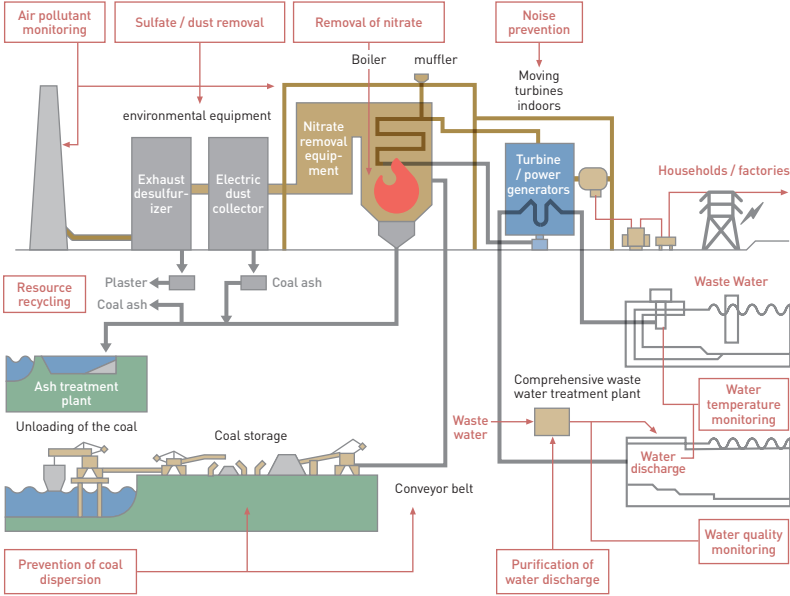
Power generation (renewable energy not included)	Power generation	GWh	50,699
	Coal	10,000 tons	1,542
Fuel for power generation	Oil	1,000 KL	628
	LNG	10,000 tons	131
	Water for power generation		12,055
Lime stone	1,000 ton	284	
Magnesium hydroxide	1,000 ton	52	
Chemical	1,000 ton	11	
Air emission	SOX	Ton	13,755
	NOX	Ton	24,799
	Dust	Ton	687
	CO <sub>2</sub>	1,000 ton	38,383
Discharge into the water system	COD	Ton	31
	SS	Ton	19
	Total nitrogen	Ton	52
	Total phosphorus	Ton	1
Power generation byproducts	Coal ash	Ton	1,871
	Desulfurized plaster	Ton	467

Atmospheric Emissions

	2012	2013	2014	
	Emission source unit (Ton/MWh)			
	SOx	16,813	16,629	13,755
	NOx	32,040	31,994	24,799
	DD	687	723	687
Source unit (ton/GWh)				
SOx	0.292	0.294	0.271	
NOx	0.556	0.566	0.489	
DD	0.012	0.013	0.014	

The power plants use fuels like flaming coal, anthracite, heavy oil, or LNG to generate power. As these fuels are used, it is unavoidable the environmental pollutants are emitted. However, the company aims to minimize such emission by introducing reduction equipment and recycling wastes, in order to contribute to the sustainable growth of Korea.

Environmental Pollutant Treatment Process



Controlling air pollutants

Air pollutants emitted from a power plant include sulfuric oxides, nitric oxides, and dusts. EWP endeavors to minimize them using desulfurization, denitration, or dust collecting equipment, as well as other advanced air pollutant prevention equipment, as it applies a stricter limit on these substances to reduce air pollutants.

Status of air pollution reduction equipment

Power Plant	Exhaust desulfurizer (reduction of sulfuric oxides)		Denitrification equipment (reduction of nitric oxides)		Dust collector (reduction of dust)	
	No. of units installed	Equipment type	No. of units installed	Equipment type	No. of units installed	Equipment type
Dangjin thermal	8	Wet type	8	SCR	8	Electric dust collector
		Plaster type				
Ulsan Thermal	3	Wet type	3	SCR	6	Electric dust collector
		Plaster type		SNCR		
Honam thermal	2	Hydroxide	2	SCR	2	Electric dust collector
		Magnesium type		SNCR		
Donghae Thermal	2	Desulfurization within the furnace	-	-	2	Electric dust collector

Air pollutant emission limits and emission density

Power Plant	SOx		NOx		Dust	
	Emission limit (PPM)	Emission density (PPM)	Emission limit (PPM)	Emission density (PPM)	Emission limit (mg/Sm3)	Emission density (mg/Sm3)
Dangjin	100	23	150	76	30	5
Ulsan Thermal	150	78	150	138	30	6
Ulsan Compound	-	-	100	36	-	-
Honam	100	64	150	124	40	5
Donghae	150	84	150	55	40	4
Donghae Bio	-	-	70	32	20	2
Ilsan	-	-	100	39	-	-

Waster consumption and management of the water quality

The water used in the facility is being supplied from the nearby dams or river. The water is used in the boiler or as cooling water for equipment, as well as in the desulfurization process. All power plants have their own comprehensive water treatment plants installed within the complex. The processed water is reused in the process or discharged into the sea. The final water discharge is in compliance with the water quality standard for the discharged water. In 2013, 36% of the total waste water, 1288000 tons, was reused in the plants.

Water consumption and recycled waste water

Business Unit	Water		Waste Water		
	Consumption (1,000 tons)	Source unit (ton/GWh)	Volume (1,000 ton)	Recycled volume (1,000 ton)	Recycling ratio (%)
2012	14,044	244	3,087	1,222	40
2013	13,761	242	3,598	1,288	36
2014	12,055	237	3,161	1,285	41

Water pollutant discharge limits and emission density (Unit: mg/l)

Power Plant	Area (Type)	cod		SS		Total nitrogen		Total phosphorus	
		Regulatory limits	Discharged	Regulatory limits	Discharged	Regulatory limits	Discharged	Regulatory limits	Discharged
Dangjin	Power generation	90	1~15	80	1~3	60	30 or less	8	1 or less
	Desulfurization		15~30		20~50		50 or less		
Ulsan	B (Type 1)	90	4~10	80	2~5	60	20 or less		
Honam	Power generation	40	3~5	30	1~3	60	10 or less	8	2 or less
	Desulfurization		10~15		3~6		40 or less		
Donghae	Special (Type 3)	130	3~5	120	1~2	60	10 or less	8	1 or less
Ilsan	B (Type 1)	40	3~8	10	1~3	60	40 or less		

Environmental Achievements

Management of wastes and by products

A power plant typically emits 30 different kinds of waste materials. Of these, coal ash, plaster, or waste oil is reused or used for income generation. The ones that cannot be reused are processed through outsourced contractors. Also, the company endeavors to reduce the cost for processing and increase reuse rates for these waste materials by diversifying the demands, continued R&D efforts, and seeking for new applications.

Status of waste materials and reuse

Type	Unit	2012	2013	2014
Power generation volume	GWh	57,653	56,826	51,004
Amount	1,000 ton	2,144	1,839	1,906
Source Unit Amount	ton/GWh	37	32	37
Reused amount	1,000 ton	1,637	1,857	1,851
Reuse rate	%	76	101	97

Reuse of coal ash and desulfurized plaster

Type	Unit	2012	2013	2014
Plaster	Reused amount	1,000 ton	502	557
	Reuse rate	%	96	98
	Application	Plaster boards, raw material for cement, etc.		
Coal ash	Reused amount	1,000 ton	1,696	1,829
	Reuse rate	%	80	101
	Application	Concrete mixture, raw material for cement, filler, etc.		

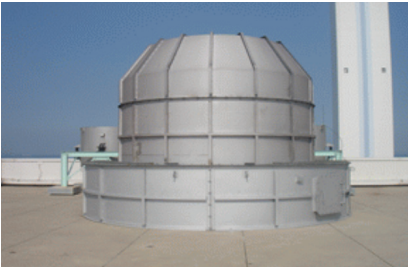
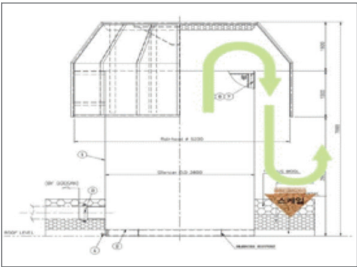
Noise and soil management

A power plant typically emits 30 different kinds of waste materials. Of these, coal ash, plaster, or waste oil is reused or used for income generation. The ones that cannot be reused Also, the company endeavors to reduce the cost for processing and increase reuse rates for these waste materials by diversifying the demands, continued R&D efforts, and seeking for new applications. In order to reduce the noise generated from the power plants, the company brings in various equipment indoors. Also, we install noise barriers or take other measures to maintain the noise level below the regulatory limits. Also, to prevent soil pollution due to leakage of oils, the company regularly monitors the soil conditions around the oil storage area.

Installation of noise barriers



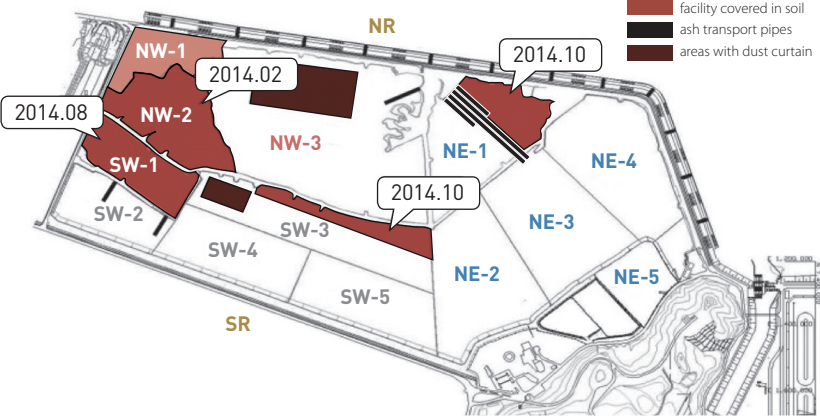
Installation of mufflers



Control of dust dispersion

The situation of the unloading operation at the docks or the coal storage is monitored via CCTVs in real time. The information from these monitoring activities is provided to the relevant department in charge and the management in order to prevent environmental accidents from happening. Especially, in order to prevent dusts from dispersing into the air, surface hardener is sprayed on the surface to minimize the amount of dust dispersion. Shindangjin Unit No. 9 and 10, which are being constructed, adopted indoors coal storage facility and closed coal transportation system for the first time in Korea, preventing dispersion of coal dust at its source. The ash treatment facility is also compartmentalized to prevent dispersion of the dust as each of the compartments are equipped with dust curtains. And, the facility is covered in soil again in order to prevent dispersion in a stepwise manner.

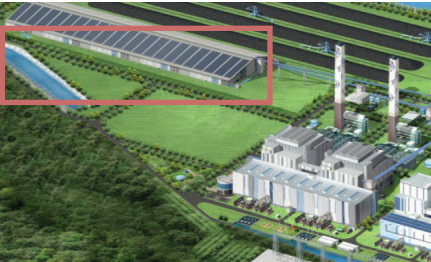
Covering up the ash treatment facility



Areas covered up



Ash dumping pipe



Areas with dust curtain



Management of the surrounding environment

The company minimizes the impact on the surrounding environment by environmentally-friendly management practices. In order to leave a clean environment to our next generation, the company is taking a leading role in preserving the natural environment around the facilities

Environment activities by the company

	Partnership	No. of activities	Man power	Grants
2013	13 subsidiaries	90 sessions	1,218	23 million won
2014	13 subsidiaries	95 sessions	1,355	26 million won

## Environmental Achievements

# Management of Chemicals

## Applications of the harmful chemicals

Name of the substance	Application
Hydrochloric acid	controlling Ph, recycling of resin
Caustic soda	controlling Ph, recycling of resin
Ammonia water	To maintain the pH values for the system water
Anhydrous ammonia	Denitration
Methanol	To remove total nitrogen
Hydrazine	To remove oxygen from the system water
Chlorine dioxide	To be added to the drinking water

## Chemicals Management System



Preemptive notification of the responsive procedures to the residents of the surrounding area in case of a leakage of hydrochloric acid



The power plants use 6 types of harmful chemicals and 24 types of normal chemicals, totaling to more than 30 different types of chemicals to prevent corrosion of the power generation equipment, water purification for the boilers, and treatment of waste water, etc. The harmful chemicals include caustic soda, hydrochloric acid, ammonia, chlorine dioxide, hydrazine, and methanol, etc. In 2014, the company used some 10,762 tons of such chemicals (0.211 ton/GWh). In accordance with the Law on Management of Harmful Chemicals, we ensure none of such harmful substances leak into the environment.

### Usage of harmful chemicals

Type	Unit	2012	2013	2014
Power generation volume	GWh	57,653	51,682	50,888
Consumption	Ton	15,405	15,424	10,762
Source unit consumption	Ton/GWh	0.267	0.298	0.211

## Management of chemicals in the facility

EWP has introduced chemicals safety management system in order to prevent chemical leakages, which are becoming an issue recently, and provide a safer living environment to the community and other interested parties. With this system, the company performs safety diagnostics of the hazardous materials, self-check on the handling equipment, running statistics of the chemicals handled, modeling of atmospheric dispersion in case of an accident, and establishment of emergency response plans, as a part of our systematic management and preventive operations. In addition, we make further efforts to minimize the use of harmful chemicals by introducing no-hydrazine-injection system, normal chemicals in replacement for harmful substances, and replacing high density ammonia with low density ammonia (28%  $\rightarrow$  9%).

## Response to chemicals or oil leakages

EWP endeavors to prevent environmental accidents from happening by establishing responsive procedures for each type of accidents. Also, in order for prompt responses in case of an accident, the company conducts annual drills for possible leakages of chemicals or oils. Also, the company has commissioned Maritime Environment Management Corporation to establish a control line in preparation for an accident. Up till now, the company has not experienced any leakage incidents of oil, waste material, or harmful substances.

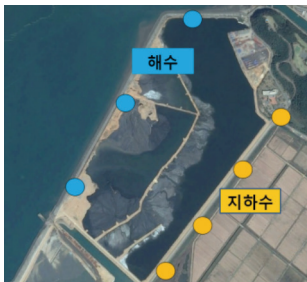
### Response training for possible leakages of chemicals



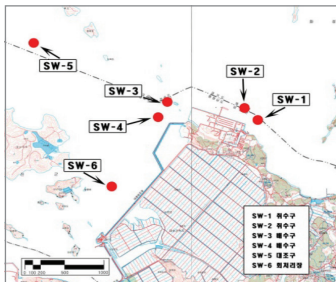
## Environmental Achievements

# Protection of Bio-Diversity

## Test of the sea water quality and the ground water near the ash treatment facility



### Sea water test in the surrounding waters of the power plants



## Ecological assessment of the central sector Woemok Port



Cage seam



EWP conducts thorough environmental impact assessment before and after constructing a power plant in the surrounding area to minimize the impact on the ecosystem and continuously works to improve the environment in the surrounding areas.

## Ecological protection and environmental impact assessment

EWP analyzes the environmental impacts in the surrounding areas through land and sea ecological survey and regular environmental impact assessment for the construction of new power plants beforehand. Based on the findings, the company seeks for methods to minimize the impacts on the surrounding area. And, if any protected species are found the company promptly established a plan to manage such a species. Also, not only during the construction phase, but also after the completion of the plant, the company monitors the surrounding environments and continues its efforts to protect the surrounding environment and ecosystem.

Inset a post environmental impact assessment table here.

Type	Period of assessment	Items of assessment
Dangjin thermal No. 1 ~ 8	1996-2017	Dispersion of heated water discharge, air pollution, noise, soil, sea water quality, maritime ecosystem, crops, land plants, environmentally-friendly recycling of resources
Dangjin thermal No. 9 ~ 10	2009-2021	
Maritime environment of Dangjin Thermal	2010-2015	
Donghae Biomass Power Station	2011-2018	
Ulsan No. 4 Compound Thermal	2012-2019	

## Preservation of the natural environment

EWP endeavors to preserve the changes in the surrounding ecosystems and the nature. To practice the love of the environment, the company engages in regular environmental protection activities, including one-company-one-beach program, natural purification activities, and feeding the wild animal programs.

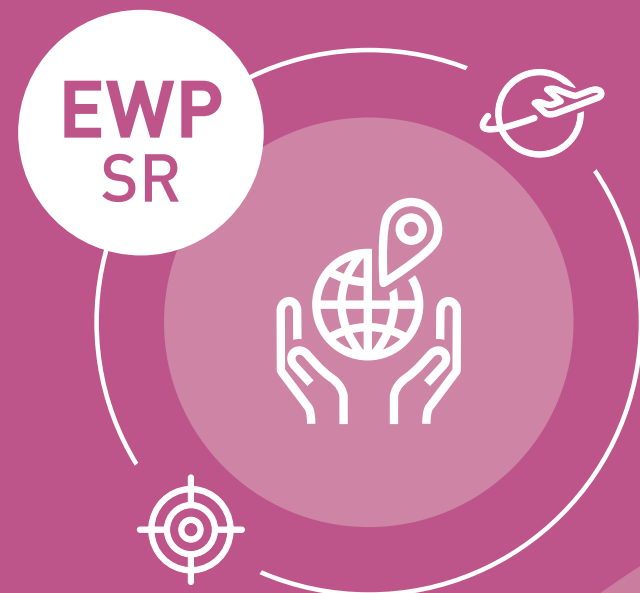
Development of cage sea farms using the heated water discharge from the power plant for the first time among the power plants

Dangin Thermal succeeded in pilot caged sea farming of abalones using the heated water discharge from the power plant. As a result, the power plant delivered 4500 abalones it successfully grew through this pilot project to Gyro Fishery Community of Fisher Cooperatives in 2014. Starting from 2012, the company worked together with Jeonnam University on this pilot farming project. Unlike the existing method in which the sea water and the heated discharge are mixed and used on in-land farming facilities, the new method installs cage farms in the heated discharge water, which is more economical in terms of the investment amount and increased the value of the heated water discharge. Also, the survival rate of the abalones was 75%, which is significantly higher than 30 to 40% in other farming sites in Korea. In the future, the company plans to expand the abalone release programs, in order to help boost the incomes of the local fishers.

## Sustainable Management Achievements

# Social Achievements

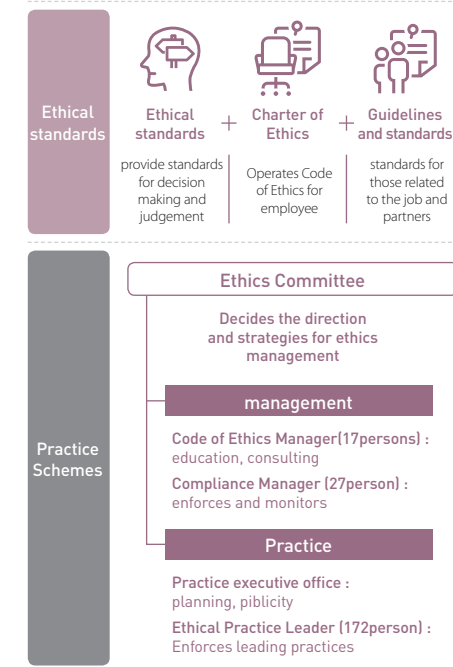
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## Social Achievements

# Ethics Management

Ethical standards and organization for ethics management



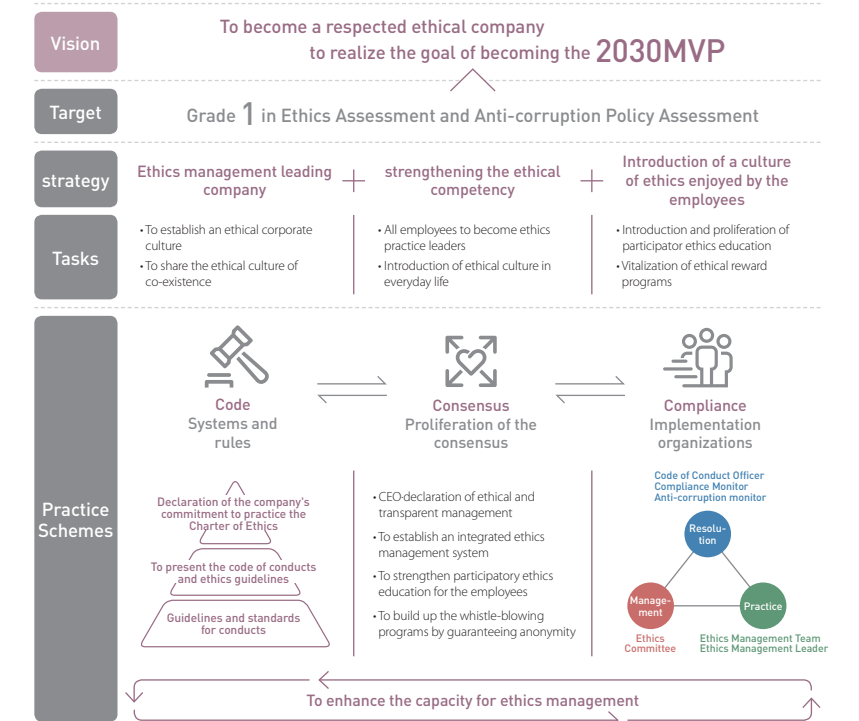
company and introduced code of conducts for all managerial activities and work performances, with a view to internalize a rational corporate culture through various practical activities on a continuous basis.

## Ethics management and implementation schemes

### Ethics vision and implementation schemes

In order to realize the ethics vision of the company, the company set a goal of achieving grade 1 in Ethics Assessment and Anti-corruption Policy Assessment. The company also introduced codes of conducts that are relevant to the current social expectations and implemented internal and external organizations establishing the ethical culture which all employees can participate in and appreciate.

### Ethics management and implementation schemes



### Ethical standards and implementation organization

In 2014, the company revised its codes of conduct to strengthen its ethical practices and anti-corruption competitiveness. As a result, detailed schemes such as avoidance of conflicts of interests, ethical standards for retired employees, financial penalties on corrupt behaviors, and limitations on appointments of individuals with corrupt behavior were introduced in order to reform the HR policies of the company. To establish the strategy for efficient ethics management and its implementation, the company established a dedicated organization for ethical matters. In 2014, the company also strengthened the dedicated external organization for enhancing the auditing procedure and proliferation the culture of anti-corruption, which resulted in an ethical audit agreement. In addition, the company formed a cooperative body with private and public organizations to continue its activities.

## Social Achievements

### Ethics management and implementation schemes



### Practice of ethical culture in everyday life

To establish an everyday-life environment committed to ethical management.

EWP established a dedicated website to deliver the CEO's messages on ethics to proliferate the culture of ethical conducts ("Ethical Technician Yoon") and uses it as a channel for communication. Also, the company introduced everyday-life type ethics system to establish a system of rewards and punishment and everyday-life environment which is dedicated to ethical management. The system covers 24 hours in each day of our employees from the moment they show up to their offices until after they retire for home, with a view to proliferate the culture of ethics which is beneficial to observe.

Proliferate the culture that ethics management is something they can enjoy

EWP aimed to strengthen internal communication with its employees and had employees stage role-plays, talk-shows, or ethical song singing events on the foundation day of the company. In this Ethics Concert, participants are to internalize the principles of ethics management as they practice for the stage, while non-participants learn about the principles of ethics management as they enjoy the performances. In addition to this Ethics Concert, the company held an event called 'Open Ethics Court' in which the CEO himself participated in the event to honor the humble underlings as the head judge, with a view to establish a clear standard on vague situations, with a view increase the awareness and attention to the ethics rules.



대한민국 정부 (14.2)



### Ethics management monitoring

The company developed its own EMDEX (EMP Ethics Management Index) and uses it to investigate and analyze the level of ethical behaviors. With this, the company identifies the level of needs and appreciation in the sub-elements of the ethics management for the employees. The company established the ethics management implementation system and practices ethics management through proliferation of consensus on ethical issues. As a result, the company achieved grade 1 in Anti-corruption assessment conducted by National Rights Committee three years in a row since 2012 and won the Prime Minister's Prize for Ethical management in 2014. The self-diagnosis results based on EMDEX also shows that the company is not at its 'Maintaining Reputation' (90 -100 points) level, indicating a high level of prevalence of ethics culture in the company. In spite of the fact that the ethics score is getting better and better, we will still work on to make Grade 1

## Social Achievements

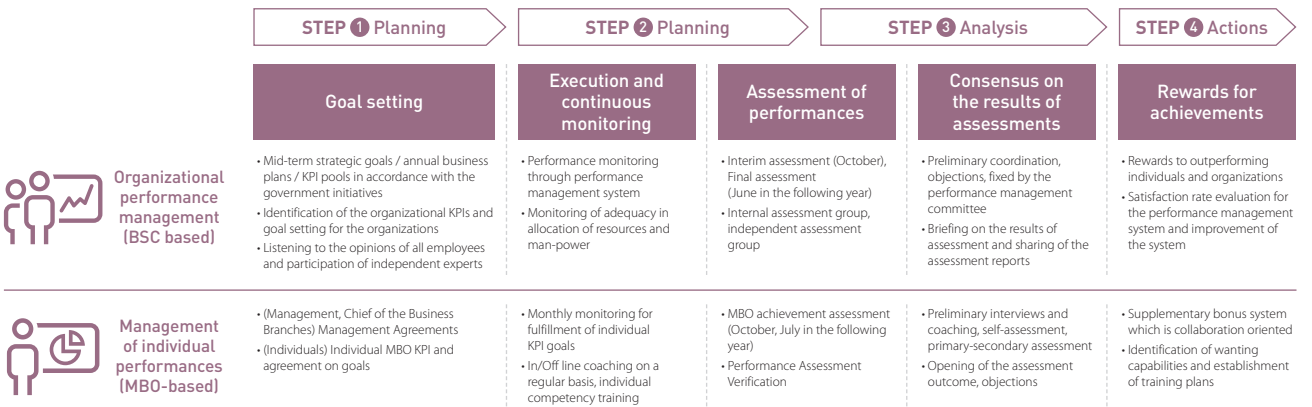
# Assessment and Rewards

EWP established a fair and transparent employee assessment system for individual and organizational performances to ensure the employees and organizations in the company serve the company with their full capabilities.

### Assessment procedure for organizational performances

In order to enhance the execution capability for its strategy, EWP operates a performance assessment procedure that is based on the PDCA cycle. Also, in order to manage the fulfillment of the goals for the employees, the company developed BSC-based organizational assessment programs and individual assessment programs based on MBO and established an integrated performance management system in connection with the management strategy. The execution plans are developed based on the annual business plans. Once the goals are set, the performance management committee follows the performance monitoring process and inspection procedures to regularly check the core performances, quantitative performances, and the goals and execution of key businesses. Especially, for underperforming tasks, the company has established a specialized feedback and supplementation system..

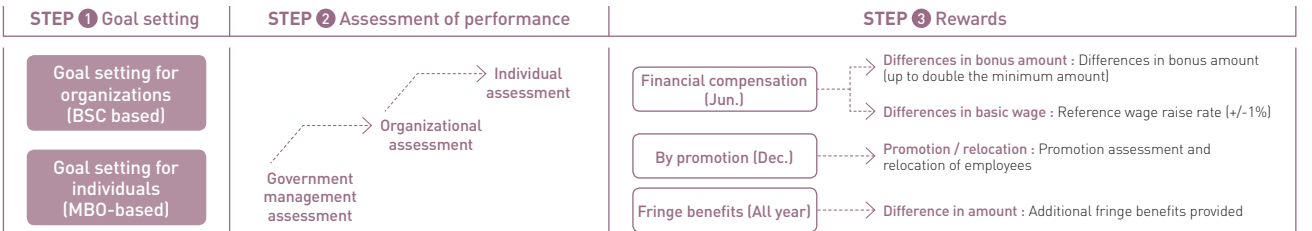
#### Competency and Process Performance Management



### Reward process

In order to maximize managerial efficiency, the company aims to reward the employees fairly for their endeavors. For this, the company introduced a process of goal setting, assessment, and reward. For fair compensation and rewards, the assessment of performances is divided into the Government management assessment, which is an assessment procedure led by the Ministry of Planning and Finance for public corporation, organizational assessment, which evaluates the fulfillment of the goals of teams and departments, and individual assessment, which looks at the fulfillment of the individual goals and individual competency. Based on the results of the assessments, the employees are rewarded financially, by promotion, or by fringe benefits. In order to establish a compensation system that is based on merits and competency, the company introduced performance - based annual wage system. And, depending on the results of the assessment, the amount of bonus, fringe benefits, and rewards are decided.

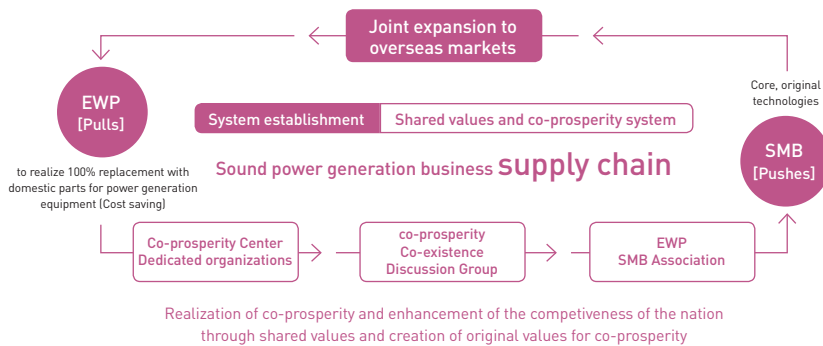
#### Reward Process



Social Achievements

# Co-Prosperity with Partners

In order to ensure co-prosperity with our partners, the company established a foundation for cultivating small but powerful companies through sharing of the visions, mid-long term support philosophies, and customized support programs for each year. Especially, the company has established support programs for jointly developed product's validation and protection of technologies to help strengthen the competitiveness of parties. In addition, EWP helps its partners to expand to new markets by EWP World Class 10 programs and 30 hidden champions program.



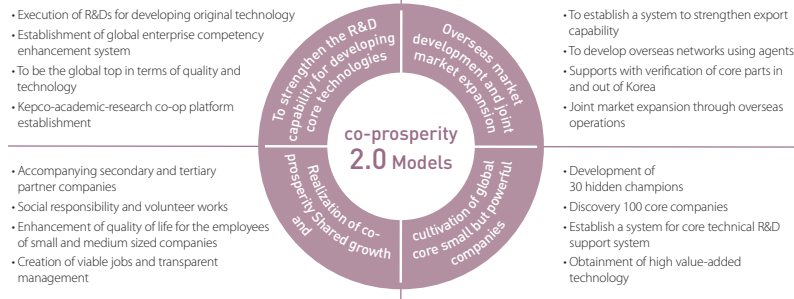
## Establish co-prosperity 2.0 model and implementation of 16 programs

The company announced an upgraded set of policies called 'EWP co-prosperity 2.0' aimed to fulfill the new needs of the partners and overcome the limits of the domestic market. This new model has been expanded and in operation in order to be established as a representative co-prosperity model for Korea. This 'EWP co-prosperity 2.0 Model' is the only mode of its kind introduced by a public corporation aimed at co-prosperity with SMBs. The goal of this model is to develop SMBs which gained self-sustainability and entered the growth phase as a result of EWP's existing 'co-prosperity leadership model' into small but powerful companies of the world class. To be specific, the program is composed of 16 projects such as development-type R&Ds, establishment of a system to help build up export capabilities, and cultivating Donghae Hidden Champions in cooperation with secondary and tertiary partners. As a result of these endeavors, the company has won the Presidential Citation for co-prosperity in July 2014.

### Identification of new co-prosperity model and implementation by the CEO

#### Establish Co-prosperity 2.0 Model and selection of the 16 programs

In order to complete the development of the co-prosperity model, the company holds regular workshops with 133 member SMBs of EWP SMB committee and discussion rounds in which all employees are to participate.



### Awards in the field of co-prosperity



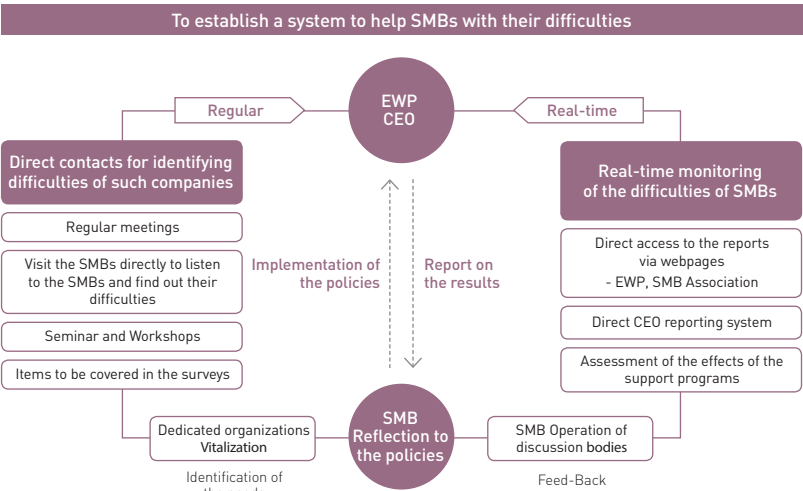
### Establishment of co-prosperity model 2.0



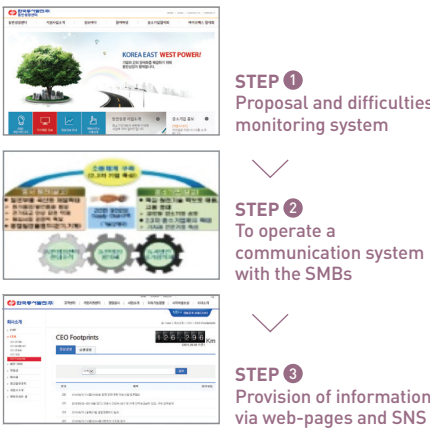
## Communication management with partners

With partner companies, the company runs online VOC hearing channels such as the 'Unfair Practice Report Center,' 'Transparency Implementation Cafe,' 'Tender Information System,' 'Partners' Suggestion Bulletin' and offline channels such as the 'Partner Company Advisory Committee,' 'Improvement of Procurement Difficulties,' 'supporting domestic and international customer development system,' 'Open Power Plant', and the 'SMB council', etc.

### To establish a communication support system designed for SMBs



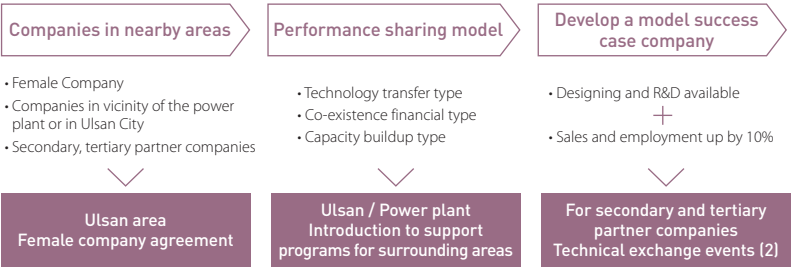
### On-Off Line support establishment cases



## Joint technology development and proliferation of the shared achievement programs

EWP has been trying to proliferate the performance sharing program, in which the fruits of the join R&D and other cooperative efforts for the sake of sales boot and development of new markets, as well as raising the domestic replacement ratio of the imported parts. And, the company's continued efforts to discover new joint commercialization R&D projects sponsored by SMBA, EWP has ranked top among all public corporations for the past seven years. Also, the company developed a support system for each phase of growth to invigorate the performance sharing programs. As a result, the company developed a three-phased customization strategy (Company in vicinity → successful model company → small but powerful company) to share achievements with the secondary, tertiary patterns and female companies. The shared amount of achievements is deposited so that they can later be donated to a social corporation. (51 million won in 2013, 99 million won in 2014)

### Cases of customized performance sharing invigoration program for marginal companies



### Performance sharing proliferation workshop



Social Achievements

Respect of Diversity

EWP recognizes the diversity among employees and upholds human rights and introduced systematic programs to prevent discriminations in the work places so that anyone may enjoy equal opportunities to realize their potential. Based on the rules of employment and the HR guidelines, all employees are guaranteed to have fair assessment and opportunities. All male and female employees of the same grade are to enjoy the same amount of wage and fringe benefits regardless of their gender.

Open employment, social equality employm

Type	2012	2013	2014
Female	31	48	32
Disabled persons	9	10	9
Local talents (non Greater Seoul Area residents)	80	97	78
High school graduates	39	48	37
Specialized high schools	39	44	36
Science and Engineering Major	141	188	113
All recruits	159	206	131

Open employment, social equality employment

	Male	Female
2012	1,886 90.7%	194 9.3%
2013	1,991 89.2%	240 10.8%
2014	2,029 88.4%	267 11.6%

Openly hiring experts from outside of the company

EWP aims to strengthen the competitiveness of the organization in the face of internal and external changes of environment. For this, the company analyzed the man-power structure of the company and selected four 'open domains' in which the number of in-company experts is not sufficient. These positions were filled by hiring external experts. Also, as the company operated this open hiring program, the program was linked with the part-time recruitment of career severance women, in support of the government's job creation policy.

Area	Accounting	Health management	Welfare	Reading Management
Weakness	Insufficient inside experts to verify the organization's performance	Insufficient inside experts to strengthen health management	Insufficient number of dedicated personnel to expand non-monetary benefits	Insufficient number of inside experts to establish a book-loving culture
Employments	An applicant with at least 5 years of experience as a CPA was hired (1 person).	Applicants with at least two years of experience as a nurse were hired (3 persons).	An applicant with experience in corporate welfare was hired (1 person).	An applicant with a librarian license and work experience was hired (1 person).

Open employment, social equality employment

In the recruiting process, the company abolished reflection of the specifications of the applicants which are irrelevant to the functions they will be performing. And, the company has introduced NCS-based recruiting process, in which the work capacity testing process is used to recruit our newcomers. Also, bonus points are endowed to the handicapped or veterans. As a result, a total of 111 employees have been employees for this social equality recruitment program since 2001. The ratio of the handicapped recruits exceeds the legal minimum of 3%. And, these handicapped employees are treated equality without discrimination. And, all employees are educated once a year to improve their views on the handicaps. Also, the veterans or other vulnerable employment classes take up 9.7% of the entire employees, as the company passionately pursue social quality recruitment program.

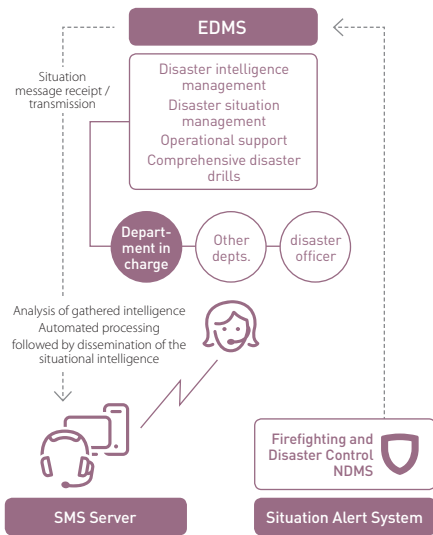
Gender equality

The ratio of the female workers in the company is 11.6%, totaling to 267 workers. In 2014, 6 career severance women were hired, which was 24% of the total new recruits (32). EWP does not discriminate the women in terms of recruitment, promotion, and wages, and applies a fair standard. In order to realize gender equality, the company has set the female recruitment goal (15%) to expand the opportunities for women to join our company. Also, the company has established female board of directors, which tries to discover and identify discriminatory factors in the company, as a part of our continued efforts.

Social Achievements

Enhanced Disaster Response

Disaster safety system



Disaster response training



Selected as the Best Organization in Disaster Korea Drill



EWP conducted an overall safety inspection after the incident of Sewol and carried out the follow-up measures immediately based on the findings. The company engages in preemptive prevention and systematic energy safety management for the safety of the people. At the same time, EWP has established an integrated disaster management system, which integrated and simplified the safety management programs.

Strengthening responsive capabilities for each type of disasters

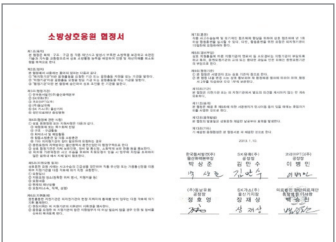
The company revised the field response manual for each type of disasters. And, the response flow for a disaster was summarized into a simple, 1 page flow chart, so that early-phase actions can be taken promptly in case of a disaster. Also, in order to ensure that all personnel can take prompt actions in the face of various disasters, the disaster situations were simulated, with which the employees were trained in emergency drills and simulated drills.

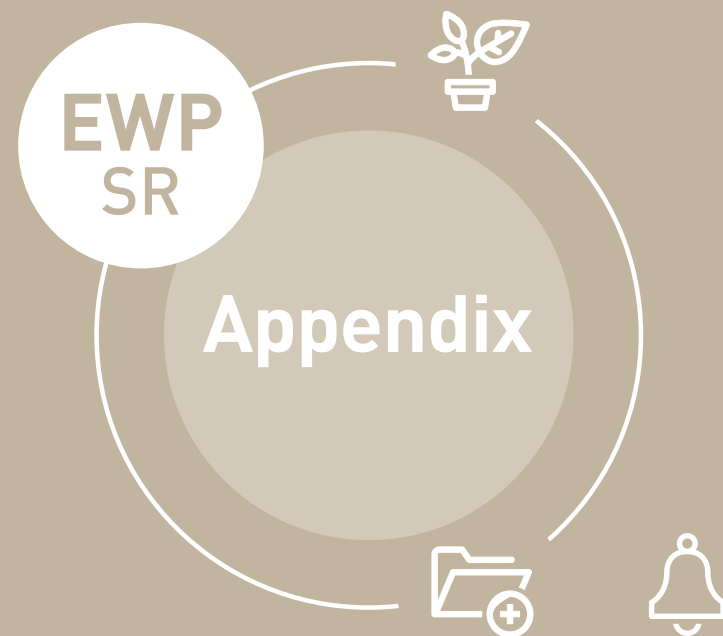
Disaster response training

In order to enhance the capacity to respond to disasters, the company conducts life-like trainings in all of its power plants. This is to ensure that all personnel and departments are aware of what to do and how to do it and get accustomed to do it through repeated trainings, so that they can be prepared for all kinds of disasters before they happen. Especially, in the Disaster Korea Drill, a drill conducted in order to establish an all-out disaster response system of a nationwide scale, the company ranked the highest grade for three years in a row in 2013, 2014, and 2015, which is the first time ever among all 15 disaster management responsibility organizations under the supervision of the Ministry of Industry and Commerce.

Established a cooperative structure with related agencies

It is not possible to cope with a disaster in a power plant by the capability of the power plant alone. Therefore, the central government, fire stations, military units, and other related agencies, as well as civilian organizations, should cooperate with one another to cope with the situation. As the influence on the national economy is significant, it is the most important to establish a system of cooperation among the fire station, the military units, the hospitals, and other related organizations in order to ensure prompt response to the disasters in a power plant, which has a significant influence on the national economy. Therefore, in order to ensure effective response, the company has established and been operating cooperative systems with related organizations at all time. Especially, as the power plants are key national infrastructures, the company has entered into security agreements with the police stations and military units. Also, in case of power plants located in an industrial complex, the company responds through support agreements with nearby companies in the surrounding area and conducts regular disaster response trainings to strengthen our cooperative response system.





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## Appendix

# Financial Performance

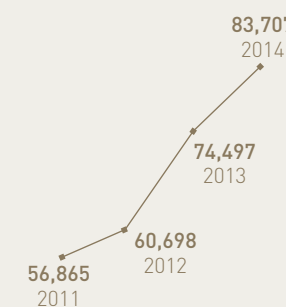
Seperated the financial statement

As for the financial performance of the company the construction of Shindangjin No. 9 and No. 10 and Ulsan No. 4 facilities from 2013 to 2014 resulted in an acquisition of 1.4832 trillion won and 440.3 billion won in depreciation, cancellation 21.1 billion won. As a result, the total value of asset increased by 921 billion won. Due to the issuance of corporate bonds for the construction of the above mentioned units, the total of the corporate bond issued is 1.3496 trillion won, while the amount of liability also increased by 790.8 billion won.

Unit: 100 million won

Type	2012	2013	2014
Current asset	8,981	8,677	8,279
Noncurrent assets	51,717	65,820	75,428
Total Assets	60,698	74,497	83,707
Current liability	5,926	11,544	6,322
Noncurrent liability	20,010	28,601	41,731
Total Liabilities	25,936	40,145	48,053
Paid-in capital	21,381	21,381	21,381
Earned Surplus	14,266	13,794	15,324
Total Capital	34,762	34,352	35,654

Trend of the Asset value



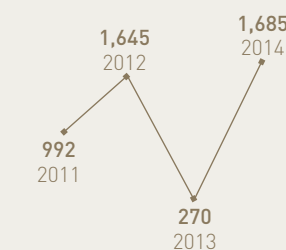
## Summary Financial Positions

decreased. Joined by the cancellation of No. 1 Ulsan Power Plant, the amount of power transaction decreased and the settlement unit price also plunged. As a result, the gains from power transaction were down by 887.8 billion won. However, due to the decrease in the unit material cost for flaming coal and high sulfur oil reduced the material cost by 1.0677 trillion won, the operating profit was up by 178.6 billion won (The gains from power transaction down by 16.9%, but the reduction in material cost was 23.8%).

Units: %

Type	2012	2013	2014
Sales amount	59,507	53,683	45,070
Sales Cost	56,458	52,067	41,710
Gross Margin	3,049	1,616	3,360
Sales /Administrations Cost	632	578	536
Operation Profit	2,417	1,038	2,824
Other profits	100	125	93
Misc. Cost	21	10	34
Other gains (losses)	[9]	(59)	(220)
Financial gains	785	218	565
Financial Cost	1,122	706	987
Net profit (loss) before corporate tax	2,151	314	2,104
Corporate tax cost	506	44	419
Net Profit	1,645	270	1,685

Summarized income statement

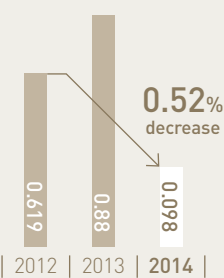


# Sustainable Management Performance Indexes

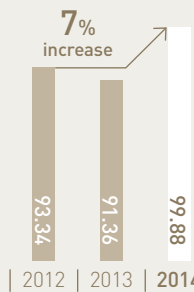
## 1. Economic Data

Category	Unit	Item		2012	2013	2014
Facility capacity	MW			8819	9343	9138
Power generation output	GWh	Thermal Power	Coal	40,244	39,661	38,781
			Gas	10,970	10,114	9,225
			Oil	6,368	6,836	2,693
			Total	57,582	56,611	50,699
		Renewable Energy	ÐÐ	70	153	305
			ÐÐ	57,652	56,764	51,004
Power transmit output	GWh			54,857	54,069	48,549
Unit cost of sales	Ð/kWh			106.38	98.04	93.44
Forced outage rate	%			0.619	0.88	0.098
Non-plan loss rate	%			1.155	1.083	0.384
Power generation capacity utilization rate	%			93.34	91.36	99.88
plant availability factor	%			74.45	71.4	65.06
Thermal efficiency	%			39.27	38.96	39.65
Service power rate	%			5.03	5.13	5.19
Partner companies	KRW 100 mil	Products and services purchased during business activities		54,286	50,105	40,231
Employees	KRW 100 mil	Wages, retirement pay, welfare benets, etc.		2,172	1,962	1,479
Shareholders	KRW 100 mil	Dividends		822	81	253
Investors	KRW 100 mil	interests		604	316	371
Government	KRW 100 mil	Corporate tax, etc.		263	53	543
Local communities	KRW 100 mil	Social contribution cost and donations, etc.		36	38	42
Re-investment	KRW 100 mil	"Retained earnings excluded from paying dividends for the purpose of securing nancial resources for re-investment"		840	259	1,502

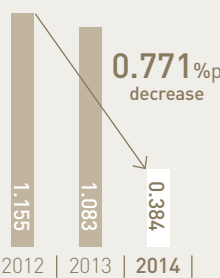
Forced outage rate



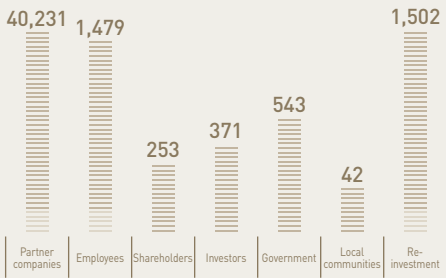
Power generation capacity utilization rate



Non-plan loss rate



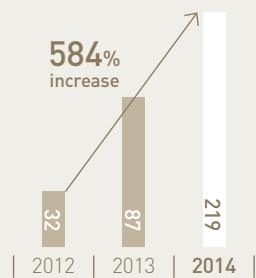
Distribution of economic value (2014)



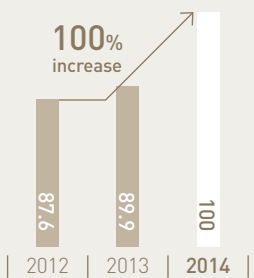
## 2. Environmental Data

Category	Unit	Item	2012	2013	2014
Greenhouse gas emissions	1,000 ton CO <sub>2</sub> -eq	Greenhouse gas emissions by year	44,134	43,206	38,383
	CO <sub>2</sub> -eq/kWh	Greenhouse gas emissions relative to power intensity	0.780	0.763	0.765
Energy consumption	TJ	Energy consumption	601,527	550,933	489,309
	GJ/MWh	Energy consumption relative to power intensity	10.957	9.853	9.757
Fuel consumption	10,000 ton	Coal	1,641	1,603	1,542
	1,000 kilo-liter	Oil	1,517	1,616	628
	10,000 ton	LNG	168	161	131
	ton	Sox	16,813	16,629	13,755
Air pollutant emissions	ton	Nox	32,040	31,994	24,799
	ton	Dust	687	723	687
	g/GWh	Sox	0.292	0.294	0.271
Air pollutant emissions relative to basic unit	g/GWh	Nox	0.556	0.565	0.489
	g/GWh	Dust	0.012	0.013	0.014
Water pollutant emissions	Ð		31	33	30
Wataer pollutant emissions relative to basic unit	kg	COD	7	11	22
	kg	SS	42	62	52
	kg	T-N	0.4	1	1
	kg	T-P	0.54	0.58	0.62
	g/GWh	COD	0.18	0.26	0.38
Water consumption by supply source [power plant]	g/GWh	SS	0.99	1.49	1.03
	g/GWh	T-N	0.01	0.02	0.02
	g/GWh	T-P	14,044	13,761	12,055
Wastewater discharge amount	1,000 ton		3,087	3,598	3,161
Wastewater reuse amount	1,000 ton		1,222	1,288	1,285
Wastewater reuse rate	%		40	36	41
Waste generation amount	ton		2,144	1,839	1,906
Waste recycling amount	ton		1,637	1,857	1,851
Plaster generation amount	1,000 ton		520	571	467
Plaster recycling rate	1,000 ton		504	557	459
Coal ash generation amount	1,000 ton		2,112	1,807	1,871
Coal ash recycling amount	1,000 ton		1,696	1,829	1,844

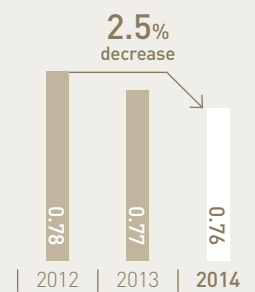
Facility capacity of renewable energy



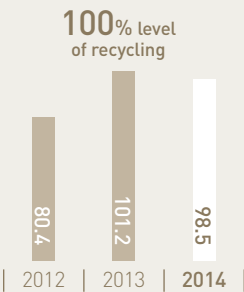
RPS achievement



Greenhouse gas emissions relative topower intensity

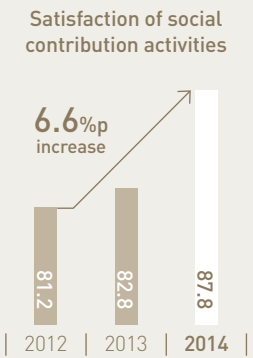
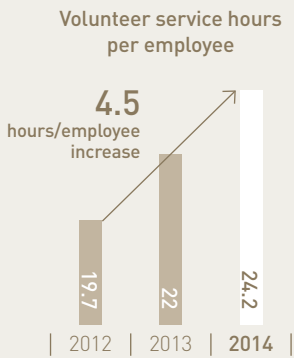


By-product recycling rate



3. Social Data

Category	Unit	Item	2012	2013	2014
Employee status	Number of person	Permanent employees	total	2070	2200
			male	1876	1991
			femail	194	240
minority group membership	%	Disabled person ratio	3.4	3.4	3.4
	%	Female ratio	8.9	10.5	11.5
	Number of person	Female managers	16	18	22
		Female managers ratio	2.8	3.2	3.7
Employment stability	Year	Average years of service	15.8	15.1	16.0
	%	Turnover rate	0.67	0.74	0.93
Employment stability	Number of person	Number of new recruits	159	206	131
	Number of person	Talent from non-metropolitan areas	80	97	78
	Number of person	Person of national merit	10	10	11
	Number of person	High-school graduate	39	48	37
	Number of person	Disabled person	9	10	9
	Number of person	Female	32	48	32
Status of employment with social equity	Number of person	User of childcare leave	10	9	12
	%	Reinstatement rate after childcare leave	80	100	100
Satisfaction degree of employee		GWP index		3.77	4.41
Human Resources Development	Hour	Average education time per employee	96	109	124
	KRW 1,000 won	Annual education cost per employee	3,369	3,512	2,680
	KRW 100 mil	Annual education cost	70.4	77.3	58.2
Social Contribution Activities	KRW 100 mil	donations	7	8	6
	Hour	Volunteer service hours	39,335	47,644	55,588
	Hour	Volunteer service hours per employee	20	22	24
Evaluation of integrity level		Evaluation Result by Anti-Corruption & Civil Rights Commission	2nd grade	2nd grade	2nd grade
Evaluation of anti-corruption policy		Evaluation Result by Anti-Corruption & Civil Rights Commission	1st grade	1st grade	1st grade
Employee safety	%	Occupational accident rate	0.16	0.12	0.09
Win-win groth	KRW 100 mil	Supporting amount for SMEs' R&D	118	93	164
	KRW 100 mil	Purchase amount of SMEs' products	150	194	158



Appendix

Third party Review

It is my great pleasure to submit my expert review on this report. And, I would like to take the privilege to congratulate the publication of the 9th volume of the Sustainable Management Report of Korea East and West Power.

I highly appreciate the fact that EWP, based on its mission of 'Making Happiness Energy', discloses its achievements in sustainable management in terms of economic, social, and environmental performances to the interested parties and that they have been doing this for quite some time. It was possible for me to witness the efforts for sustainable management and its achievements, as the company thrives to realize co-prosperity with the interested parties as the country's energy public corporation. Based on the information provided in the 2015 edition of the Sustainable Management Report, I hereby submit my review with regard to future publication of subsequent reports and improvement of the level of sustainable management.

First, it would be desirable if the feedbacks and the implementation plan on the demands from the interested parties delivered through various channels, while the company expands its channels of communication with such interested parties, in more details and a more systematic manner. I believe it is necessary for the company to provide the information the interested parties would like to now, instead of the information the company wishes the interested parties to know. For this, the company should pay more attention to developing a communication channel that goes both ways.

It is remarkable, however, that the company classified its interested parties into internal and external clients, who are again classified into participatory, cooperative, co-existent, and co-prosperity types based on the factors of threats and cooperation, as the company specified and defined the relationships, responsibilities, expectations, and value creation and created a channel with these interested parties. With this, it was evident that the company understands the importance of the participation by these interested parties and endeavors to communicate with them as the company proceeds with its sustainable management. However, in the future, the company would be better off if it could report the requirements of these interested parties in more details and how they are reflected in the managerial activities, so that the level of interest and understanding of the interested parties can be upgraded.

Second, the company should disclose the process of its ongoing sustainable management practices in order for the authenticity of all these achievements and activities for sustainable activities can be recognizable. This means, for each of the key domains of sustainable management, the goals and the practices are to be emphasized and disclosed more proactively.

This sustainable management report is prepared the new Guideline (GRI G4), which is actually required to be applied starting from the next year. However, the company still decided to apply it ahead of schedule. In accordance with the G4 guideline, it appeared, the company decided on the key

aspects to be covered in the report, which also provided the evaluation and plans for them. However, future improvements are warranted, as these contents contain areas and issues for which there is no method of performance measurement or any core performance indexes. I hope that the company will prepare the reports in a way that the interested parties can actually trust what the company says about its sustainable management, according to its sustainable strategy. It is also necessary that more substantial contents should be provided on the tasks, goals and expectations, and future plans to fulfill those goals, as well as what the company actually did to meet those goals.

Third, the company needs to find a way to improve the quality of the data and information and prevent any omissions or errors in important information.

If the company wishes to do so, it would have to re-establish the data calculation and reporting criteria through improving the process, while it regularly collect and review such data and information. Also, I recommend that company to enhance the impartiality of the contents of the report to prevent omission of the information that is not advantageous to the company and the way the company handles such information that makes it look bad. I also expect that the company would establish a well-organized monitoring system for the social and environment data to strengthen the management on the non-financial risks.

Fourth, I recommend that the company make their report more readable and accessible to various interested parties, so that they can better understand the sustainable activities of the company more easily and clearly. The company would have to spend more time to include plots, info-graphics, and images in order to deliver the information included in this report more effectively and make the contents more readable by employing effective and various designs. It would also be a good idea if the company would disclose where to find more detailed information on the contents of this report.

A company is a member of its society. It simply cannot expect to grow on without the cooperation and trust from various interested parties that surrounds it. Therefore, it is very important to actively disclose the achievements of the company in terms of economy, society, and environment in the course of the company's management, through sustainable management reports, such as this one, or other means. Therefore, I hope the company will carry on with its communication with the interested parties, as it attempts to do with this report, and, as a result, grow into a public corporation that is even loved by the interested parties.

September 15, 2015

Institute of Sustainable Management

Jaesung Roh, Researcher / Chief



Appendix

GRI G4 GRI G4 Guidelines(Comprehensive) & ISO26000 Index

1 General Standard Disclosures			ISO26000	Page	Remarks		
a. Strategy and Analysis	G4-1	Statement from the most senior decision maker of the organization about the relevance of sustainability to the organization and its strategy.	4.7, 6.2, 7.4.2	2, 3, 15			
	G4-2	Description of key impacts, risks, and opportunities		18, 19			
	G4-3	Name of the organization		8			
	G4-4	Primary brands, products, and/or services		8			
	G4-5	Location of organization's headquarters.		8			
	G4-6	Number of countries where the organization operates, and names of countries with either major operations or that are specifically relevant to the sustainability issues covered in the report		8-13			
	G4-7	Nature of ownership and legal form		9			
	G4-8	Markets served (including geographic breakdown, sectors served, and types of customers/beneficiaries).		10-13			
	G4-9	Scale of the reporting organization, including: Number of employees; Net sales or net revenues; Total capitalization; and Quantity of products or services provided		9			
	b. Organizational Profile	G4-10		a. To total number of employees by employment contract and gender. b. To total number of permanent employees by employment type and gender. c. The total workforce by employees and supervised workers and by gender. d. The 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 other than employees or supervised workers, including employees and supervised employees of contractors. f. Any significant variations in employment numbers (such as seasonal variations in employment)	6.3.10, 6.4.1-6.4.5, 6.8.5, 7.8	8, 50, 76, 82	
		G4-11		The percentage of total employees covered by collective bargaining agreements		-	
G4-12		The organization's supply chain	8				
G4-13		Any significant changes during the reporting period regarding the organization's size, structure, ownership, or its supply chain	11-13, 80				
G4-14		Explanation of whether and how the precautionary approach or principle is addressed by the organization	55				
G4-15		Externally developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes or which it endorses	84-89				
G4-16		Memberships of associations	91				
c. Identified Material Aspects and Boundaries		G4-17	a. All entities included in the organization's consolidated financial statements or equivalent documents b. Explanation of whether any entity included in the organization's consolidated financial statements or equivalent documents is not covered by the report.	5.2, 7.3.2-7.3.4		79, 91	
		G4-18	a. Process for defining the report content and the Aspect Boundaries b. How the organization has implemented the Reporting Principles for Defining Report Content			16-19	
	G4-19	All the material Aspects identified in the process for defining report content	19				
	G4-20	The Aspect Boundary within the organization for each material Aspect	16-19				
	G4-21	The Aspect Boundary outside the organization for each material Aspect	16-19				
	G4-22	The effect of any restatements of information provided in previous reports, and the reasons for such restatements.	-				
	G4-23	Significant changes from previous reporting periods	62				
d. Stakeholder Engagement	G4-24	A list of stakeholder groups engaged by the organization	5.3	16, 17			
	G4-25	The basis for identification and selection of stakeholders with whom to engage		16-18			
	G4-26	The organization's approach to stakeholder engagement, including frequency of engagement by type and by stakeholder group, and an indication of whether any of the engagement was undertaken		16-19			
	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. (Key topics and concerns by stakeholder)		17-19			
e. Report Profile	G4-28	Reporting period	7.5.3, 7.6.2	1			
	G4-29	Date of most recent previous report (if any)		-			
	G4-30	Reporting cycle		1			
	G4-31	The contact point for questions regarding the report or its contents the contact point for questions regarding the report or its contents		1			

G4-32	GRI Content Index a. The 'in accordance' option the organization has chosen (core or comprehensive) b. The GRI Content Index for the chosen option c. The reference to the External Assurance Report, if the report has been externally assured	83-88		
G4-33	a. The organization's policy and current practice with regard to seeking external assurance for the report b. The scope and basis of any external assurance provided c. The relationship between the organization and the assurance providers. d. Whether the highest governance body or senior executives are involved in seeking assurance for the organization's sustainability report	-		
f. Governance	G4-34	The governance structure of the organization, including committees of the highest governance body; Any committees responsible for decision-making on economic, environmental and social impacts.	6.2, 7.4.3	53, 54
	G4-35	The process for delegating authority for economic, environmental and social topics from the highest governance body to senior executives and other employees		53
	G4-36	Explanation of whether the organization has appointed an executive-level position or positions with responsibility for economic, environmental and social topics, and whether post holders report directly to the highest governance body		53
	G4-37	Processes for consultation between stakeholders and the highest governance body on economic, environmental and social topics		53
	G4-38	The composition of the highest governance body and its committees		53, 54
	G4-39	Report whether the Chair of the highest governance body is also an executive office		53
	G4-40	The nomination and selection processes for the highest governance body and its committees		53
	G4-41	Processes for the highest governance body to ensure con%icts of interest are avoided and managed. - Cross-board membership    - Cross-shareholding with suppliers and other stakeholders - Existence of controlling shareholder    - Related party disclosures		53, 54
	G4-42	The highest governance body's and senior executives'roles in the development, approval, and updating of the organization's purpose, value or mission statements, strategies, policies, and goals related to economic, environmental and social impacts		53, 54
	G4-43	The measures taken to develop and enhance the highest governance body's collective knowledge of economic, environmental and social topics.		53, 54
	G4-44	a. The processes for evaluation of the highest governance body's performance with respect to governance of economic, environmental and social topic b. actions taken in response to evaluation of the highest governance body's performance		53, 54
	G4-45	a.The highest governance body's role in the identi-cation and management of economic, environmental and social impacts, risks, and opportunities. (The highest governance body's role in the implementation of due diligence processes included) b.Explanation of whether stakeholder consultation is used to support the highest governance body's identi-cation and management of economic, environmental and social impacts, risks, and opportunities.		53, 54
	G4-46	The highest governance body's role in reviewing the effectiveness of the organization's risk management processes for economic, environmental and social topics		53, 54
	G4-47	The frequency of the highest governance body's review of economic, environmental and social impacts, risks, and opportunities		54
	G4-48	The highest committee or position that formally reviews and approves the organization's sustainability report and ensures that all material Aspects are covered		14, 15
	G4-49	The process for communicating critical concerns to the highest governance body		54
	G4-50	The nature and total number of critical concerns that were communicated to the highest governance body and the mechanism(s) used to address and resolve them		54
	G4-51	a. The remuneration policies for the highest governance body and senior executives b. Explanation of how performance criteria in the remuneration policy relate to the highest governance body's and senior executives' economic, environmental and social objectives		-
	G4-52	The process for determining remuneration (whether remuneration consultants are involved and whether they are independent of management; any other relationships which the remuneration consultants have with the organization)		-
	G4-53	Explanation of how stakeholders'views are sought and taken into account regarding remuneration, including the results of votes on remuneration policies and proposals)		-
g. Ethics and Integrity	G4-54	The ratio of the annual total compensation for the organization's highest-paid individual in each country of significant operations to the median annual total compensation for all employees	7.7.5, 4.4, 6.6.3	-
	G4-55	The ratio of percentage increase in annual total compensation for the organization's highest- paid individual in each country of significant operations to the median percentage increase in annual total compensation for all employees in the same country		-
	G4-56	The organization's values, principles, standards and norms of behavior such as codes of conduct and codes of ethics		71
	G4-57	The internal and external mechanisms for seeking advice on ethical and lawful behavior, and matters related to organizational integrity, such as helplines or advice lines		71
	G4-58	The internal and external mechanisms for reporting concerns about unethical or unlawful behavior, and matters related to organizational integrity, such as escalation through line management,		71

2. Specific Standard Disclosures			ISO26000	Page	Remarks
a. Disclosures on Management Approach (DMA)	G4-DMA	a. Explanation of why the Aspect is material and the impacts that make this Aspect material	6, 7.3.1, 7.4.3,	16~19, 22,	
		b. Explanation of how the organization manages the material Aspect or its impacts	7.7.3, 7.7.5	23, 28, 29,	
		c. The evaluation of the management approach		34, 35, 40,	
b. ØØØ ØØ				41, 46, 47	
Economic					
Economic Performance	G4-EC1	Direct economic value generated and distributed	6.8.1-6.8.3, 6.8.7, 6.8.9	80	
	G4-EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change	6.5.5	42, 62	
	G4-EC3	Coverage of the organization's defined benefit plan obligations	6.8.7	-	
	G4-EC4	Financial assistance received from government	-	-	
Market Presence	G4-EC5	Ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation	6.3.7, 6.3.10, 6.4.3-6.4.4, 6.8.1-6.8.2	-	
	G4-EC6	Proportion of senior management hired from the local community	6.4.3, 6.8.1-6.8.2, 6.8.5, 6.8.7	-	
Indirect Economic Impact	G4-EC7	Infrastructure investments and services supported	6.3.9, 6.8.1-6.8.2, 6.8.7, 6.8.9	48, 49, 50, 74, 75	
	G4-EC8	Significant indirect economic impacts	6.3.9, 6.6.6-6.6.7, 6.7.8, 6.8.1-6.8.2, 6.8.5, 6.8.7, 6.8.9	49, 50, 75	
Procurement Practices	G4-EC9	Proportion of spending on local supplier (To be reported to include neglected businesses including small businesses, minority and women-owned businesses to facilitate their participation in economic activities)	6.4.3, 6.6.6, 6.8.1-6.8.2, 6.8.7	48, 49	
Environmental					
Materials	G4-EN1	Materials used by weight or volume	6.5.4	64	
	G4-EN2	Percentage of materials used that are recycled input materials	6.5.4	65, 66	
	G4-EN3	Energy consumption within the organization	6.5.4	62	
Energy	G4-EN4	Energy consumption within the organization	6.5.4	-	
	G4-EN5	Energy intensity	6.5.4	62	
	G4-EN6	Reduction of energy consumption	6.5.4-5	62	
	G4-EN7	Reductions in energy requirements of products and services	6.5.4-5	62	
Water	G4-EN8	Total water withdrawal by source	6.5.4	65	
	G4-EN9	Water sources significantly affected by withdrawal of water	6.5.4	65	
	G4-EN10	Percentage and total volume of water recycled and reused	6.5.4	65	
Biodiversity	G4-EN11	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	6.5.6	69	
	G4-EN12	Description of significant impacts of activities products and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas	6.5.6	69	
	G4-EN13	Habitats protected or restored		69	
	G4-EN14	Total number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk	6.5.6	-	
Emissions	G4-EN15	Direct greenhouse gas (GHG) emissions	6.5.5	62	
	G4-EN16	Indirect greenhouse gas (GHG) emissions	6.5.5	62	
	G4-EN17	Other indirect greenhouse gas (GHG) emissions	6.5.5	62	
	G4-EN18	Greenhouse gas (GHG) emissions intensity	6.5.5	62	
	G4-EN19	Reduction of greenhouse gas (GHG) emissions	6.5.5	62	
	G4-EN20	Emissions of ozone-depleting substances	6.5.3, 6.5.5	64	
	G4-EN21	NOX,SOX and other significant air emissions	6.5.3	65	
Effluents and Waste	G4-EN22	Total water discharge by quality and destination	6.5.3-4	65	
	G4-EN23	Total weight of waste by type and disposal method	6.5.3	66	
	G4-EN24	Total number and volume of significant spills	6.5.3	68	

	G4-EN25	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention 2 Annex I, II, III, and VII and percentage of transported waste shipped internationally	6.5.3	-	
	G4-EN26	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the organization's discharge of water and runoff	6.5.3	-	
Products and Services	G4-EN27	Extent of impact mitigation of environmental impacts of products and services	6.5.3, 6.5.4, 6.5.5, 6.7.5	62~68	
	G4-EN28	Percentage of products sold and their packaging materials that are reclaimed by category	6.5.3, 6.5.4, 6.7.5	-	
Compliance	G4-EN29	Monetary value of significant fines and total number of non-monetary sanctions for non- compliance with environmental laws and regulations	4.6	-	
Transport	G4-EN30	Significant environmental impacts of transporting products and other goods and materials for the organizations'operations and transporting members of the workplace	6.5.4, 6.6.6	68	
Overall	G4-EN31	Total environmental protection expenditures and investments by type	6.5.1-6.5.2	-	
Supplier Environmental Assessment	G4-EN32	Percentage of new suppliers that were screened using environmental criteria	6.3.5, 6.6.6, 7.3.1	-	
	G4-EN33	Significant actual and potential negative environmental impacts in the supply chain and actions taken	6.3.5, 6.6.6, 7.3.1	-	
Environmental Grievance Mechanisms	G4-EN34	Number of grievances about environmental impacts field, addressed and resolved through formal grievance mechanisms	6.3.6	-	
Social					
Labor Practices and Decent Work					
Employment	G4-LA1	Total number and rates of new employee hires and employee turnover	6.4.3	49, 50, 81	
	G4-LA2	Benefits provided only to full-time employees	6.4.4, 6.8.7	-	
	G4-LA3	Return to work and retention rates after parental leave by gender	6.4.4	82	
Labor- Management Relations	G4-LA4	Minimum notice periods regarding operational changes	6.4.3, 6.4.5	-	
	G4-LA5	Percentage of total workforce represented in formal	6.4.6	-	
Occupational Health and Safety	G4-LA6	joint management-worker health and safety committees that help monitor and advise on occupational health and safety	6.4.6	82	
	G4-LA7	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	6.4.6, 6.8.8	-	
	G4-LA8	Workers with high incidence or high risk of diseases related to their occupation	6.4.6, 6.8.8	30	
Training and Education	G4-LA9	Health and safety topics covered in formal agreements with trade unions	6.4.6	82	
	G4-LA10	Average hours of training per year per employee by gender, and by employee category	6.4.7	38, 39	
	G4-LA11	Programs for skills management and lifelong learning that support continued employability of employees and assist them in managing career endings	6.4.7, 6.8.5	-	
Diversity and Equal Opportunity	G4-LA12	Percentage of employees receiving regular performance and career development reviews by gender and by employee category	6.4.7	76	
Equal Remuneration for Women and Men	G4-LA13	Composition of governance bodies and breakdown of employees by employee category according to gender, age group, minority group membership, and other indicators of diversity	6.2.3, 6.3.7, 6.3.10, 6.4.3	-	
Supplier Assessment for Labor Practices	G4-LA14	Ratio of basic salary and remuneration of women to men by employee category	6.3.7, 6.3.10, 6.4.3, 6.4.4	-	
	G4-LA15	Percentage of new suppliers that were screened using labor practice criteria	6.3.5, 6.4.3, 6.6.6, 7.3.1	-	
LaborPractices Grievance Mechanisms	G4-LA16	Significant actual and potential negative impacts for labor practices in the supply chain actions taken	6.3.5, 6.4.3, 6.6.6, 7.3.1	50	
Human Rights					
Investment	G4-HR1	Total number and percentage of significant investment agreements and contracts that include human rights clauses or underwent human rights screening	6.3.3, 6.3.5, 6.6.6	-	
	G4-HR2	Total hours of employee training on human rights policies or procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained	6.3.5	-	
Non- discrimination	G4-HR3	Total number of incidents of discrimination and corrective actions taken	6.3.6, 6.3.7, 6.3.10, 6.4.3	-	
Freedom of Association and Collective Bargaining	G4-HR4	Operations and suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk and measures taken to support these rights	6.3.3, 6.3.4, 6.3.5, 6.3.8,	-	

Child Labor	G4-HR5	Operations and suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor	6.3.10, 6.4.5, 6.6.6	-	
Forced or Compulsory Labor	G4-HR6	Operations and suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures taken to contribute to the elimination of all forms of forced or compulsory labor	6.3.3, 6.3.4, 6.3.5, 6.3.7,	-	
Security Practices	G4-HR7	Percentage of security personnel trained in the organization's human rights policies or procedures that are relevant to operations	6.3.10, 6.6.6, 6.8.4	-	
Indigenous Rights	G4-HR8	Total number of incidents of violations involving rights of indigenous people and actions taken	6.3.3, 6.3.4, 6.3.5,	-	
Assessment	G4-HR9	Total number and percentage of operations that have been subject to human rights reviews or impact assessments	6.3.10, 6.6.6	-	
Supplier Human Rights Assessment	G4-HR10	Percentage of new suppliers that were screened using human rights criteria	6.3.4, 6.3.5, 6.6.6	-	
	G4-HR11	Significant actual or potential negative human rights impacts in the supply chain and actions taken	6.3.4, 6.3.6, 6.3.7, 6.3.8,	-	
Human Rights Grievance Mechanisms	G4-HR12	Number of grievances about human rights filed, addresses, and resolved through formal grievance mechanisms	6.6.7, 6.8.3	-	
Society					
Local Communities	G4-S01	Percentage of operations with implemented local community engagement, impact assessments, and development programs	6.3.9, 6.5.1-6.5.3, 6.8	48, 49	
	G4-S02	Operations with significant actual and potential negative impacts on local communities	6.3.9, 6.5.3, 6.8	48, 49	
Anti- corruption	G4-S03	Total number and percentage of operations assessed for risks related to corruption and the significant risks identified	6.6.1-6.6.3	-	
	G4-S04	Communication and training on anti-corruption policies and procedures	6.6.1-6.6.3, 6.6.6	71	
	G4-S05	Confirmed incidents of corruption and actions taken	6.6.1-6.6.3	-	
	G4-S06	Total value of political contributions by country and recipient/ beneficiary	6.6.1-6.6.2, 6.6.4	-	
Anti- competitive Behavior	G4-S07	Total number of legal actions for anti-competitive behavior, anti-trust and monopoly practices and their outcomes	6.6.1-6.6.2, 6.6.5, 6.6.7	50, 51	
Compliance	DD	Monetary value of significant fines and total number of non-monetary sanctions for non- compliance with laws and regulations	4.6	-	
Supplier Assessment on Impacts on Society	G4-S09	Percentage of new suppliers that were screened using criteria for impacts on society	6.3.5, 6.6.1-6.6.2, 6.6.6, 6.8.1-6.8.2, 7.3.1	-	
	G4-S010	Significant actual and potential negative impacts on society in the supply chain and actions taken	6.3.5, 6.6.1-6.6.2, 6.6.6, 6.8.1-6.8.2, 7.3.1	-	
Grievance Mechanisms forImpactson Society	G4-S011	Number of grievances about impacts on society filed, addresses, and resolved through formal grievance mechanisms	6.3.6, 6.6.1-6.6.2, 6.8.1-6.8.2	50	
Product Responsibility					
Customer Health and Safety	G4-PR1	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement	6.7.1-6.7.2, 6.7.4-6.7.5, 6.8.8	-	
	G4-PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services during their life cycle by type of outcomes	4.6, 6.7.1-6.7.2-6.7.4-6.7.5, 6.8.8	82	
Product and Service Labeling	G4-PR3	Type of product and service information required by the organization's procedures for product and service information and labeling, and percentage of significant product and service categories subject to such information requirements	6.7.1-6.7.5, 6.7.9	-	
	G4-PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes	4.6, 6.7.1-6.7.5, 6.7.9	-	
	G4-PR5	Results of surveys measuring customer satisfaction	3.7.1-6.7.2, 6.7.6	50, 51, 82	
Marketing Communication	G4-PR6	Sale of banned or disputed products	-	-	
	G4-PR7	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship, by type of outcomes	4.6, 6.7.1-6.7.3	-	
Customer Privacy	G4-PR8	Total number of substantiated complaints received concerning breaches of customer privacy and losses of customer data	6.7.1-6.7.2, 6.7.7	-	
Compliance	G4-PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	4.6, 6.7.1-6.7.2, 6.7.6	-	

Appendix

UN Global Compact

EWP became a signatory to the UN Global Compact in August 2006 as part of its mission to ensure transparent management and to fulfill its social responsibilities. The company discloses its compliance with the Global Compact through the following ten principles in four major areas.

Classification	Principles	Reference
Human Rights	Businesses should support and respect the protection of internationally proclaimed human rights; and	Collective Agreement Charter of Ethics Code of Conduct, Article 27
	Make sure that they are not complicit in human rights abuses	Collective Agreement Charter of Ethics Code of Conduct, Article 27
Labor	Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;	Collective Agreement
	Businesses should eliminate all forms of forced and compulsory labor;	Collective Agreement
	Businesses should eliminate child labor; and	Collective Agreement
	Businesses should eliminate discrimination in respect to employment and occupation.	Collective Agreement Charter of Ethics Code of Conduct, Article 7
Environment	Businesses should support a precautionary approach to environmental challenges	Environmental Vision Environmental Policies ISO 14000 Certification Charter of Ethics
	Businesses should support a precautionary approach to environmental challenges	Environmental Policie
	Businesses should encourage the development and diffusion of environmentally friendly technology.	Environmental Vision Environmental Policies Charter of Ethics
Anti-Corruption	Businesses should work against corruption in all its forms, including extortion and bribery.	Code of Conduct, Chapter 3

Electric Utilities Sector Supplements (EUSS)

Index Number	Disclosure	Page	Remarks
EU1	Installed capacity, broken down by primary energy source and by regulatory regime	10	
EU2	Net energy output broken down by primary energy source and by regulatory regime	64, 80	
EU3	Number of residential, industrial, institutional and commercial customer accounts		N/A
EU4	Length of above and underground transmission and distribution lines by regulatory regime		N/A
EU5	Allocation of CO <sub>2</sub> emissions allowances or equivalent, broken down by carbon trading framework		N/A
EU6	Management approach to ensure short and long-term electricity availability and reliability	24-27, 36	
EU7	Demand-side management programs including residential, commercial, institutional and industrial programs	26	
EU8	Research and development activity and expenditure aimed at providing reliable electricity and promoting sustainable development	37-39, 80	
EU9	Provisions for decommissioning of nuclear power sites		N/A
EU10	Planned capacity against projected electricity demand over the long term, broken down by energy source and regulatory regime	36, 37	
EU11	Average generation elciency of thermal plants by energy source and by regulatory regime	82	
EU12	Transmission and distribution losses as a percentage of total energy		N/A
EU13	Biodiversity of o"set habitats compared to the biodiversity of the a"ected areas	69	
EU14	Programs and processes to ensure the availability of a skilled workforce	38, 39	
EU15	Percentage of employees eligible to retire in the next 5 and 10 years broken down by job category and by region	-	
EU16	Policies and requirements regarding health and safety of employees and employees of contractors and subcontractors	30, 77	
EU17	Days worked by contractor and subcontractor employees involved in construction, operation & maintenance activities	-	
EU18	Percentage of contractor and subcontractor employees that have undergone relevant health and safety training	-	
EU19	Stakeholder participation in the decision making process related to energy planning and infrastructure development	16-18	
EU20	Approach to managing the impacts of displacement		N/A
EU21	Contingency planning measures, disaster/emergency management plan and training programs, and recovery/restoration plans	77	
EU22	Number of people physically or economically displaced and compensation, broken down by type of project		N/A
EU23	Programs, including those in partnership with government, to improve or maintain access to electricity and customer support services	24-26	
EU24	Practices to address language, cultural, low literacy and disability related barriers to accessing and safely using electricity and customer support services	48, 49	
EU25	Number of injuries and fatalities to the public involving company assets, including legal judgments, settlements and pending legal cases of diseases		N/A
EU26	Percentage of population unserved in licensed distribution or service areas		N/A
EU27	Number of residential disconnections for non-payment, broken down by duration of disconnection and by regulatory regime		N/A
EU28	Power outage frequency	25, 80	
EU29	Average power outage duration	25, 80	
EU30	Average plant availability factor by energy source and by regulatory regime	80	

Appendix

Awards in 2014

EWP has made a lot of achievements inside and outside of the company through a variety of activities for its sustainable growth. These achievements include BestHRD organization in the public sector, Excellent Book Reading Work Place Certification in 2014, and the Best Organization in Anti-corruption policies for three years in a row. Through environmentally-friendly, green management, the company stayed in the top position in the power generation sector of the Climate Change Competitiveness Index for four years in a row and won the Special Prize for Carbon Management. Also, with its efforts in disaster safety management, the company was named as the best performing organization in Disaster Korea Drill. The company operated in-company colleges for the employees to enhance their capacities and established happiness-based Great Work Place, which increases the happiness index of the employees.

	Grand Prize for Economic Leader of Korea, Co-Prosperity (2014. 10)		Presidential Citation for SMB Development (2014. 7)
	Certification Plaque for Ranking NO. 1 in the Power Generation Sector in Climate Change		Minister's Prize, Ministry of Planning and Finance (2014. 10)
	Minister's Prize, Ministry of Health and Welfare (2014. 10)		Best Organization Prize, Disaster Korea Drill (2014. 10)
	2014 Special Prize for CDP (2014. 10)		BestHRD Award for Public Sector, 2014 (2014. 11)
	Citation, Idea Management Award (two years in a row) (2014. 12)		Citation, Organization of High Quality Competitiveness Award (for five consecutive years)(2014. 11)
	Citation, Safety Award (2014.11)		Grand Prize, Information Protection Award for Infrastructure, 2014 (2014. 12)

Appendix

Membership

Organization	Purpose	Date
Korean Association of Small Business Studies.	To support policy making process and exchange academic knowledge	2011.07
Korea Electric Association	To promote development of electric industry standards and of new codes	2002.09
Korea Energy Foundation	To coordinate energy welfare programs and scholarship programs	2002.05
World Energy Congress	To establish a network to exchange human and technology	2007.01
Korean Association of Enterprise Architecture Studies	To collect latest information on enterprise architecture	2013.03
Korea Accounting Information Association	To share information and ideas regarding K-IFRS, and to nurture accounting managers'competencies	2001.05
Korea International Trade Association	To access trade-related information	2002.05
Korea Electric Association (KEPIC)	To catch up with KEPIC development trends and to secure finance	2003.01
Korean Standards Association	To introduce advanced quality control techniques and spread quality management mind throughout the company	2007.05
Korea Suggestion System Association	To acquire information for the promotion of suggestions and small group activities in the company	2006.01
The Electric Utility Cost Group (EUCG)	To acquire overseas information on electricity.	2008.11
Business Institute for Sustainable Development	To promote sustainable development of the company.	2010.09
Koreas CCS Association	To exchange information on CO <sub>2</sub> capture/storage technology and business	2012.07
Korea Smart Grid Association	To exchange information on smart grind, and stay informed of market status quo	2006.06
UN Global Compact (UNGC)	To enhance the status as a global company.	2012.03
Korea Green Business Association	To support GHG mentoring projects	2002.08
Korean Society of Mechanical Engineers	To grasp the domestic and overseas trend of machinery industry by participating in academic meetings and lectures.	2002.06
The Korean Institute of Electrical Engineers	To exchange the latest academic and technological information in related industries.	2010.07
Korean Association of Power Generation Studies	To encourage power industry and discover themes for joint research tasks	2008.03
Korea Project Management Association	To enhance the capabilities for project execution.	2012.07
Korea Engineering & Consulting Association	To get certificates on engineering projects, and thus to promote new businesses (design and technical support, etc.)	2003.01
Korea New & Renewable Energy Association	To exchange information in the area of new & renewable energy.	2004.03
The Edison Electric Institute (EEI)	To acquire information on the electricity industry of the U.S. and establish cooperative relationship.	2011.02
Association of the Electricity Supply Industry of East Asia and the Western Pacific (AESIEAP)	To acquire information for opening and extending overseas business	2008.03
Korea Electric Engineers Association	To promote research and development of electric technology and electric engineer's training	2013.05
Korea Maritime Rescue & Salvage Association	To prevent marine disaster and accident and to strengthen publicprivate partnership	2013.05

Controlling structure of the related companies

Item	Category	Related companies	Share(%)
Related companies	Domestics	Gyeongju Wind Power	70%
		GS Donghae Power	34%
		Dangjin Eco Power	40%
		Green Biomass Energy	34%
		Seongmin Energy	34%
		Honam Wind Power	29%
		Busan Shinho Solar Power	25%
		Korea Offshore Wind Power	13%
		Chunchen Energy	30%
		Yeonggwang Backsu Wind Power	15%
	Overseas	EWP America, Inc.	100%
		EWP (Barbados) 1 SRL	100%
		PT. EWP Indonesia	100%

# Questionnaire

EWP intends to disclose it managerial information as much as possible on sustainable management through this report.

We would like to listen to your opinions on future improvement of our sustainability reports.

Please fill out this form and send the questionnaire back to us, either via e-mail, fax, or post. Your opinion is important to us.

1. Which of the following groups do you belong to?

- ☐ Customer
- ☐ Employees
- ☐ Government employee
- ☐ Local resident
- ☐ Business Partner
- ☐ NGO and Civil Organization Member
- ☐ Member of academic community or specialized organizations
- ☐ Others ( )

2. Where did you find out about this report?

- ☐ Website
- ☐ Brochure
- ☐ Internet search
- ☐ From the company's staffs
- ☐ Others ( )

3. For what purpose do you use this report? (select as many answers as relevant)

- ☐ To get information on the public corporations
- ☐ To learn about the sustainable management of public corporations
- ☐ To compare and analyze the characteristics of the business in which the public corporation is engaged.
- ☐ For research or educational purpose.
- ☐ Others ( )

4. Please select the topic in this report that interested you most. (Select as many as relevant)

- ☐ Company Introduction and Sustainable Strategy
- ☐ Sustainable Management Key Issues
- ☐ Economic performance
- ☐ Environmental performance
- ☐ Social achievements

5. Which of the following elements of this report do you find in need of improvement? (select as many as relevant)

- ☐ Company Introduction and Sustainable Strategy
- ☐ Sustainable Management Key Issues
- ☐ Economic performance
- ☐ Environmental performance
- ☐ Social achievements

6. How would you rate this report?

	Very Good	Good	Normal	Poor	Very Poor
Level of comprehension	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Accuracy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Information volume	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Design and layout	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Thank you very much

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7. Please fill in with any comment or opinion on the operation of EWP or the overall composition and contents of this report as you would like.