

Sustainability Report 2015

Energy for a Better World





POSCO ENERGY has been publishing Annual Sustainability Reports since 2012 to ensure better communication with stakeholders. This report depicts a comprehensive snapshot of POSCO ENERGY's economic, social, and environmental performances in 2015 for transparent disclosure of sustainability management activities.



Energy for a better world



Contents

A circular arrangement of 24 colored bars, each with a unique color and length, radiating from a central point. The colors include various shades of blue, green, yellow, and brown. The bars are of varying lengths and are positioned at different angles, creating a starburst or sunburst effect.

CEO Message



Dear Stakeholders,

In 2015, POSCO ENERGY adopted four management directives: Upgrade, Simplification, Harmony, and Ethics. POSCO ENERGY has striven to upgrade the level of technology, processes, and human resources. We simplified work by eliminating inefficiencies, and ensured harmony and synergy through communication and collaboration. And finally, we put top priority on realizing ethical management. This report shows the economic value creation, social contribution, and environmental achievements in line with these four directives.

As the world is entering the "New Normal" era, the energy industry today faces a paradigm shift where power sources are shifting from large-scale and centralized to small-scale and decentralized, as well as from coal and nuclear to gas and new/renewable energies. We are witnessing the emergence of prosumers, and blurring borders among industries due to ICT-driven convergence and integration. The new energy business model is spread for responding to climate change after the COP 21 was held. Under these circumstances, POSCO ENERGY is fully committed to turn current challenges into opportunities for leaping forward through intensive innovation and competitive edge.

In Incheon, POSCO ENERGY has improved profitability by replacing units 1 and 2 to the latest technology (unit 7, 8, 9) and plans to upgrade Power Plant under the Smart Grid Paradigm, getting ready to enter the heating energy supplying service as well. In Samcheok, POSCO ENERGY is constructing a 2,100MW capacity Coal-fired Thermal Power Plant adopting the USC technology.

POSCO ENERGY started its commercial operation of Mong Duong II Coal-fired Thermal Power Plant (1,200MW) in Vietnam on April 2015. We secured business rights for power generation in Botswana, and signed an MOU with Iran for the construction of an Off-gas Combined Cycle Power Plant and desalination project. We will also begin construction of CHP-5 in Mongolia this year.

Branching out from LNG and coal power plants, POSCO ENERGY is diversifying into new and renewable energy businesses including Solar Power, Wind Power, and Solid Refuse Fuel.

Sustainability of an enterprise can be achieved only when its members are engaged in ceaseless "innovation and learning". POSCO ENERGY has achieved financial performance amounting to KRW 25.4 billion, and accomplished 20 cases of site improvements through the PWS in 2015. With the operation the CoP (Community of Practice), our executives and employees share key knowledge within the company.

While the concern about climate change is growing throughout the globe, POSCO ENERGY established a greenhouse gas (GHG) inventory system to systematically manage GHG emission, listing their amounts by source. We consistently improve our facilities and R&D activities to decrease CO₂ emissions. In 2015, POSCO ENERGY won the First Prize from the Ministry of Environment as an "Excellent Case Presentation of an Air Pollutant Emission-cap Management System" for the outstanding performance in cutting down NO_x emission by 27% or more compared to the previous year.

POSCO ENERGY shares energy and comfort with the underprivileged people throughout all the business sites. In Incheon, executives, employees, their families, university student volunteer corps, and local residents have worked together to paint murals to brighten villages, carried out insulation work to create warmer and safer homes, and replaced aged electrical facilities. We also prepared winter kits and enacted voluntary work to provide drought relief in Samcheok while donating solar power generators in Gwangyang.

POSCO ENERGY will strive to achieve mutual growth with all stakeholders as we grow into number one power and gas company in Asia leading new era of smart energy. I look forward to your continued support.

Thank you.

Dong-jun Yoon,
President & CEO

Letter from the Board

“POSCO ENERGY has set the overseas business strategy in consideration of the sluggish domestic electricity market and limited resources. Now countries in Asia and South Africa are very attractive, however changes in the market can quickly cause fluctuations. That is why we must review and scrutinize if profitability can be guaranteed before we enter a new market. If we want to succeed in overseas business development, we must recognize the gap between a region's formal institutions and market reality, and solve related problems. Through cooperation with experienced global Independent Power Producers, we will lead sustainable growth for POSCO ENERGY by expanding overseas business with minimized risk.”

**Chang-dong Shin, Senior Executive Vice President /
Head of Business Development Division**



“I take great pride in POSCO ENERGY as the company made Korea, which used to be a poor market for the new and renewable energy, becomes the center of the Cell industry. Year 2015 marks a monumental stride towards the complete localization of the Fuel Cell business, which started in 2007. This year, we will put top priority on the stable operation of Cell manufacturing facility and focus on securing operation quality and product performances. We will pursue substantial development by further reinforcing our strategic partnership with FCE in the U. S. which holds the original fuel cell technology. We will dedicate our utmost efforts to make sure that Fuel Cells accelerate POSCO ENERGY to create a sustainable future.”

**Sung-gyu Han, Executive Vice President /
Head of Fuel Cell Business Division**

“Financial stability is the essential factor for a company's sustainable management. This year, POSCO ENERGY will need to make cautious decisions to bring systematic improvements for sales, reduce fuel costs, and raise efficiency. It is time to review the business portfolio in line with global trends, including the Paris Climate Change Agreement how they will affect our management environment, particularly LNG combined cycle power plant and coal-fired thermal power plant businesses. POSCO ENERGY will secure a sustainable financial structure by fulfilling its capability as a leader in the Korean IPP business.”

**Tong-wook Shim, Executive Vice President /
Head of Planning & Supporting Division**



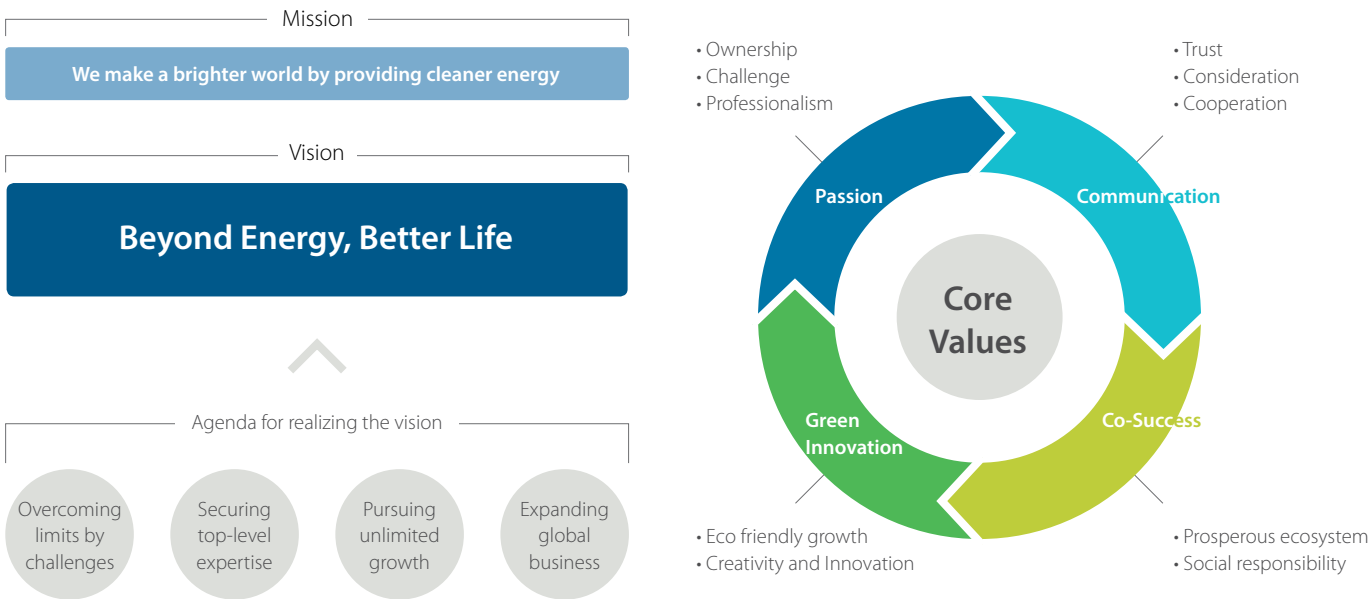
“In 2015, we suffered a setback from the lower operating ratio of LNG power plants which is our key business domain. This was caused by various factors, such as the high reserve margin and low oil prices. Since POSCO ENERGY is globally competitive in terms of both operation and technologies, we are confident that our LNG plants will resume their role as a key engine of growth once the market conditions improve. We also foresee that LNG plants will bring in more future businesses since they have been reevaluated as a power source with low GHG emissions. As the world places higher priority on environmental protection, we will make extra efforts to identify opportunities for new growth.”

**Jin-won Park, Senior Vice President /
Head of Power Plant Development Division**

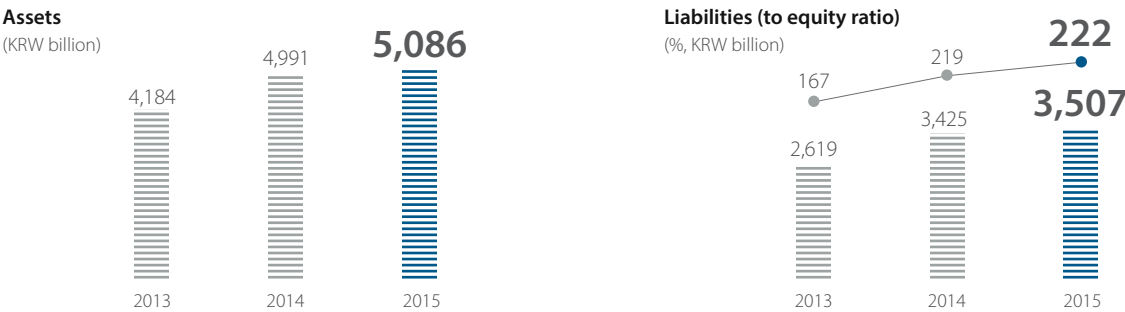
About POSCO ENERGY

POSCO ENERGY has been supplying electric power to metropolitan areas since 1969. POSCO ENERGY has grown into the Korea's largest IPP, operating a LNG combined cycle power plant, the off-gas combined cycle power plants and establishing a coal-fired thermal power plant. Starting from the off-gas combined cycle power plant in Indonesia and coal-fired thermal power plant in Vietnam, POSCO ENERGY is continuing to expand abroad. As widening its business scope to new and renewable businesses such as fuel cell, solar power, wind power and resource recycling projects, POSCO ENERGY will become a global energy company.

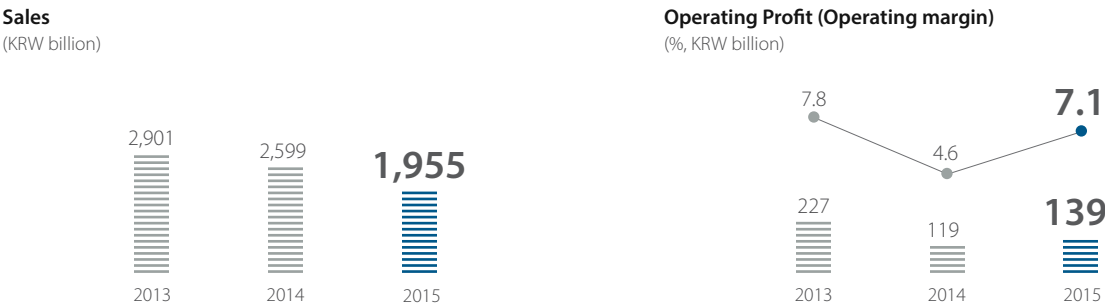
Vision and Core Values



Financial Performance



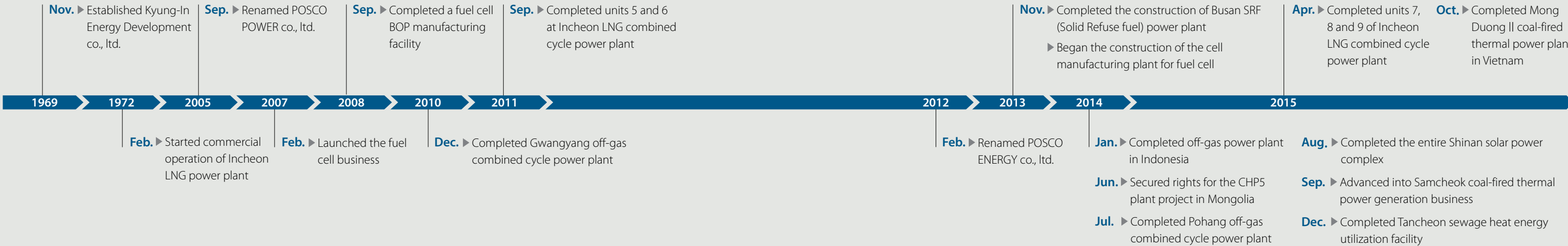
Profit and Loss



Name	POSCO ENERGY Co., Ltd.	Capacity	Total 4,025 MW (domestically operating)	
Date of Establishment	Nov. 1969		LNG combined cycle power plant: 3,412 MW	SRF power plant: 24.8 MW
Headquarters	440 Teheran-ro, Gangnam-gu, Seoul		Off-gas combined cycle power plant: 574 MW	Solar power complex: 14.5 MW
No. of Employees	1,099	Credit Rating	Corporate bond AA, Commercial paper A1	

As of Dec. 31, 2015

History



Performance Highlights

1

Completed Incheon LNG Power Plant Units 7, 8, 9

POSCO ENERGY held a completion ceremony for Incheon LNG Combined Cycle Power Plant Units 7, 8, 9 on April 30, 2015. The new power plant units have a total capacity of 1,260 MW, providing electricity to metropolitan areas with 6%p higher efficiency than average domestic LNG Combined Cycle Power Plants.

2

Completed Mong Duong II Power Plant in Vietnam

On October 26, 2015, POSCO ENERGY completed the construction of Mong Duong II Plant, the first IPP project of coal-fired thermal power plant in Vietnam. Located in Quang Ninh province, this power plant with a 1,200 MW (600 MW X 2 units) capacity will be jointly operated with AES (the U.S.) for the next 25 years.

3

Selected as a Preferred Bidder for Morupule B Project in Botswana

POSCO ENERGY has been selected as a preferred bidder for Morupule B Phase II Units 5 and 6 in the Republic of Botswana on November 29, 2015. The project, which is jointly cooperated with Marubeni (Japan), has a capacity of 300 MW (150 MW X 2 units) and will commence in the second half of 2016.

4

Concluded an MOU for Quynh Lap II Project in Vietnam

On February 21, 2016, POSCO ENERGY has concluded a memorandum of understanding (MOU) with the Nghệ An local government in Vietnam for implementing Quynh Lap II Coal-fired Thermal Power Plant with a capacity of 1,200 MW (600 MW X 2 units).

5

Concluded MOUs for Off-gas Power Plant and Desalination Project in Iran

On February 29, 2016, in collaboration with KEPCO, POSCO E&C and PKP (Iran), POSCO ENERGY signed a MOU to construct an Off-gas Combined Cycle Power Plant with a capacity of 500 MW. They will also establish and operate a desalination facility with daily capacity of 60,000 tons.

6

Won the Award for Excellent Air Pollution Management

POSCO ENERGY won the top prize, in 2015 Excellent Case Presentation of Air Pollutant Emission-cap Management held by the Ministry of Environment on November 10, 2015. The award was given in recognition of the company's efforts to reduce NOx emission by 27% from the year before and to establish a real-time emission monitoring system.

7

Held a Seminar on Major Foreign Anti-corruption Laws

POSCO ENERGY, together with external legal experts, and in an attempt to equip its officers and employees with knowledges needed to comply with major Anti-Corruption Laws of the World, held a Anti-Corruptions Laws seminar, on October 6, 2015, focusing on the current trend of enforcement and the strategies.

8

Won POSCO Quality Management Leap Award

POSCO ENERGY won the Quality Management Leap Award presented by POSCO on January 27, 2015. The award was given in recognition of the establishment of a customer-oriented work process and standardized management system.

9

Donated Solar Power Generators to Gwangyang Senior Welfare Center

POSCO ENERGY donated solar power generators with a capacity of 12 kW to a neighboring senior welfare center in Gwangyang on January 19, 2016. Since 2013, POSCO ENERGY has been donating solar power generators to welfare centers in local communities where the company operates.

Sustainability Performance Data

Category			Unit	2013	2014	2015
Economy	Power generation & transmission	Generation	MWh	16,032,516	15,442,298	15,810,302
		Transmission	MWh	15,628,532	15,399,328	15,560,261
	Government subsidy ¹		KRW billion	5.0	1.1	2.1
	R&D	Manpower ²	person	65	126	98
		Ordinary R&D expenses ³	KRW billion	11.4	16.2	17.8
Environ- ment	Fuel consumption	LNG	Nm ³	2,603,784,684	2,111,669,633	1,903,143,871
		BFG	Nm ³	5,091,653,614	7,269,361,117	7,369,677,830
		COG	Nm ³	58,652,766	76,044,310	63,126,908
		FOG	Nm ³	110,983,038	1,101,234,885	1,646,061,081
	Energy consumption		TJ	131,819	122,918	116,385
	GHG emission ⁴	Total	tCO ₂	9,836,025	11,973,006	12,439,923
		Scope 1	tCO ₂	9,823,620	11,934,181	12,397,510
		Scope 2	tCO ₂	12,405	38,825	42,413
	Water consumption		ton	2,079,558	2,906,563	2,680,227
	Effluent water discharged		ton	1,223,459	2,205,956	2,295,379
	Waste	Total	ton	1,202.1	1,597.1	2,271.1
		General waste	ton	1,172.7	1,422.5	1,185.9
Specified waste		ton	29.4	174.6	1,085.2	
Waste recycling rate		%	44.8	36.4	61.5	
Environmental investment		KRW billion	48.7	9.7	20.1	
Total number of employees		person	1,010	1,079	1,099	
Society	By region	Seoul	person	206	267	259
		Incheon	person	320	336	318
		Pohang	person	361	409	466
		Gwangyang	person	107	61	45
		Overseas	person	16	6	11
	By gender	Male	person	909	961	981
		Female	person	101	118	118
	By job category	General (total)	person	636	768	803
		General (male)	person	556	658	694
		General (female)	person	80	110	109
		Specialist (total)	person	312	279	266
		Specialist (male)	person	310	277	265
	By employment type	Specialist (female)	person	2	2	1
		Permanent	person	948	1,047	1,069
		Temporary	person	62	32	30
		Turnover rate	%	2.3	2.1	2.6
		Rate of job return after maternity leave		%	100	100
Total education & training hours		hr	82,648	67,342	88,253	
Total education & training cost (Indicate the sum of each division's training cost from 2015)		KRW 100 M	8.9	9.4	14.1	
Usage rate of flexible working system		%	25	23.6	18.3	
GWP(Great Work Place) Index		point	81.4	77	65	
Average volunteer hours		hr/person	28.9	24.9	24.9	
Contribution to mutual growth fund ⁵		KRW 100 M	1.9	2.1	10.1	
Labor union membership rate		%	57.7	65.9	69.2	

¹ Based on government subsidies for national projects. In 2013, the subsidy shows the total of new and renewable energy feed-in tariffs and costs for national projects.
² Manpower based on the R&D institutions. In 2014, the number of researchers changed due to a temporary expansion in the scope of duties (quality control/product development).
³ Ordinary R&D expenses calculated by excluding investment costs (accumulated) from R&D expenses.
⁴ The data for year 2013 and 2014 have changed according to the government's revised method to calculate GHG emissions from off-gas combined cycle power plants
⁵ Contribution to mutual growth fund: Total cost for benefit sharing system, private and public joint investment, and the Industry Innovation Movement 3.0)

Category		Unit	Within 5 years	Within 6~10 years
Employees scheduled to retire by job type	General	person	9	35
	Specialist	person	13	18

⚙ The data was collected from POSCO ENERGY's headquarters and the domestic business sites.

Business Overview

LNG Combined Cycle Power Plant

Established in 1969 as the first independent power producer in Korea, Incheon LNG Combined Cycle Power Plant boasts the largest facility capacity of 3,412 MW (total 7 units) in Korea. The plant is a reliable source of electricity, accounting for 11.3% of the total electricity supplied to metropolitan areas.



Classification	Capacity	Started commercial operation
Units 3 & 4	900MW	1999 (Unit 3), 2001 (Unit 4)
Units 5 & 6	1,252MW	Feb. 2011 (Unit 5), Jun. 2011 (Unit 6)
Units 7 to 9	1,260MW	Jul. 2014 (Unit 7), Oct. 2014 (Unit 8), Jan. 2015 (Unit 9)

Off-gas Combined Cycle Power Plant

Situated in Gwangyang and Pohang, POSCO ENERGY produces electricity not from fossil fuels but from off-gas (surplus boil-off gas). Instead of burning and wasting off-gas which is unavoidable during steel manufacturing, off-gas combined cycle power generation is an eco-friendly technology which can substitute the use of imported crude oil, thus reducing GHG emission.



Classification	Capacity	Started commercial operation
Gwangyang Units 1 & 2	284MW	Aug. 2010 (Unit 1), Dec. 2010 (Unit 2)
Pohang Units 1 & 2	290MW	Sep. 2013 (Unit 1), Mar. 2014 (Unit 2)

New and Renewable Energy

POSCO ENERGY is fully committed to pioneering low carbon green growth with solar power and wind power generation projects and actively implementing the Renewable Portfolio Standard (RPS). The company runs a solar power plant complex with a capacity of 14.5 MW in Shinan and takes the initiative in establishing onshore and offshore wind power plants with a capacity of 100 MW and 300 MW, respectively.

Classification	Capacity	Started commercial operation
Solar Power	14.5MW	2012 (Primary, 2MW), 2013 (Secondary, 5MW), 2014 (Tertiary, 7.5MW)
Onshore Wind Power	100MW	In progress
Offshore Wind Power	300MW	In progress

Waste to Energy

POSCO ENERGY runs a Solid Refuse Fuel (SRF) power plant in Busan and Tancheon district heat supply business utilizing sewage heat as a resource. These facilities enable us to recycle waste, converting it into useful resources. In solving the problem that waste presents, we are also replacing the use of fossil fuels in producing electricity, which also reduces GHG emissions.

Classification	Location	Expected outcomes
SRF power plant	Busan	LNG replacement: 75,000,000 Nm ³ /year, CO ₂ reduction: 160,000 tons/year
Used Water Heat Energy Utilization Business	Seoul	LNG replacement: 17,000,000 Nm ³ /year, CO ₂ reduction: 47,000 tons/year

Overseas Business

In pursuit of becoming a global total energy corporation, POSCO ENERGY took the first step by constructing an off-gas combined cycle power plant in Indonesia in 2014. We started building and operating Mong Duong II Coal-fired Thermal Power Plant in Vietnam in 2015. We also successfully secured business licenses for the Coal-fired CHP5 Plant in Mongolia and concluded the MOU for Quynh Lap II Coal-fired Thermal Power Plant Project in Vietnam.

Classification	Capacity	Started commercial operation
Off-gas Combined Cycle Power Plant in Indonesia	200MW	Mar. 2014 (Unit 1), Apr. 2014 (Unit 2)
Mong Duong II Coal-fired Thermal Power Plant in Vietnam	1,200MW	Mar. 2015 (Unit 1), Apr. 2015 (Unit 2)
Coal-fired CHP5 Plant in Mongolia	450MW	Started in 2016 and scheduled to be completed in 2020.
Quynh Lap II Coal-fired Thermal Power Plant in Vietnam	1,200MW	Concluded MOU
Off-gas Combined Cycle Power Plant and Desalination Project in Iran	500 MW/ 60,000 tons	Concluded MOU

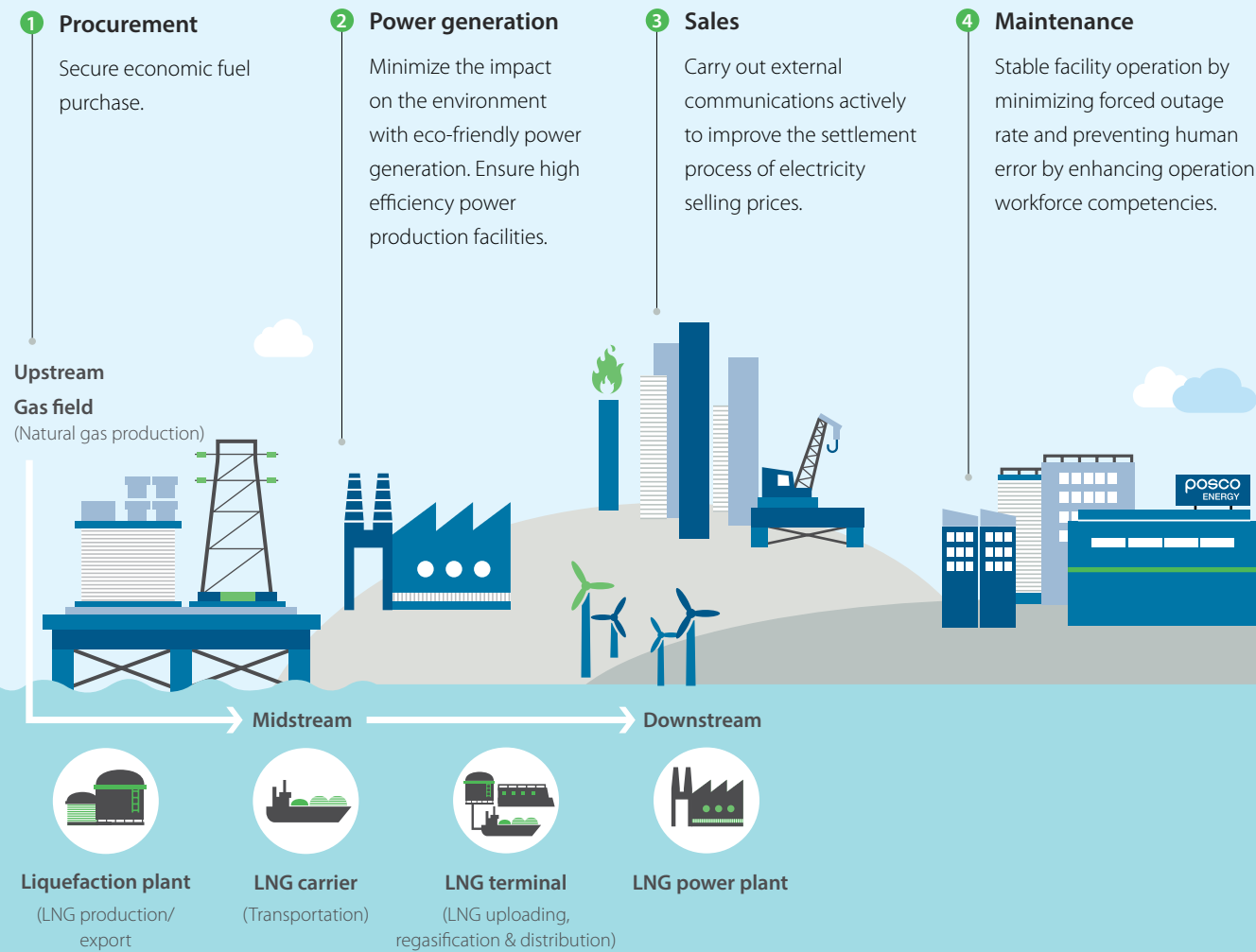
Fuel Cell Manufacturing

Generating electricity through the electrochemical reactions between hydrogen and oxygen, fuel cells are an eco-friendly distributed power source. Since fuel cells do not emit air pollutants such as NOx and SOx emissions, they can also be installed in small spaces. We will attain complete localization of fuel cells by 2016 through the establishment of the cell manufacturing facility, which will be the first in Asia and the largest in the world.

Classification	Details	
Installation	More than 20 sites, 154.2 MW in total	
Key Products	300kW	Electricity Output: Covers 380 households (4 persons/household) Installation Area: 95 m² Applications: small-sized production facilities, middle-and-large buildings
	2.5MW	Electricity Output: Covers 3,200 households (4 persons/household) Installation Area: 500 m² Applications: power plants, large buildings, waste landfill sites

Value Chain

LNG Power Plant



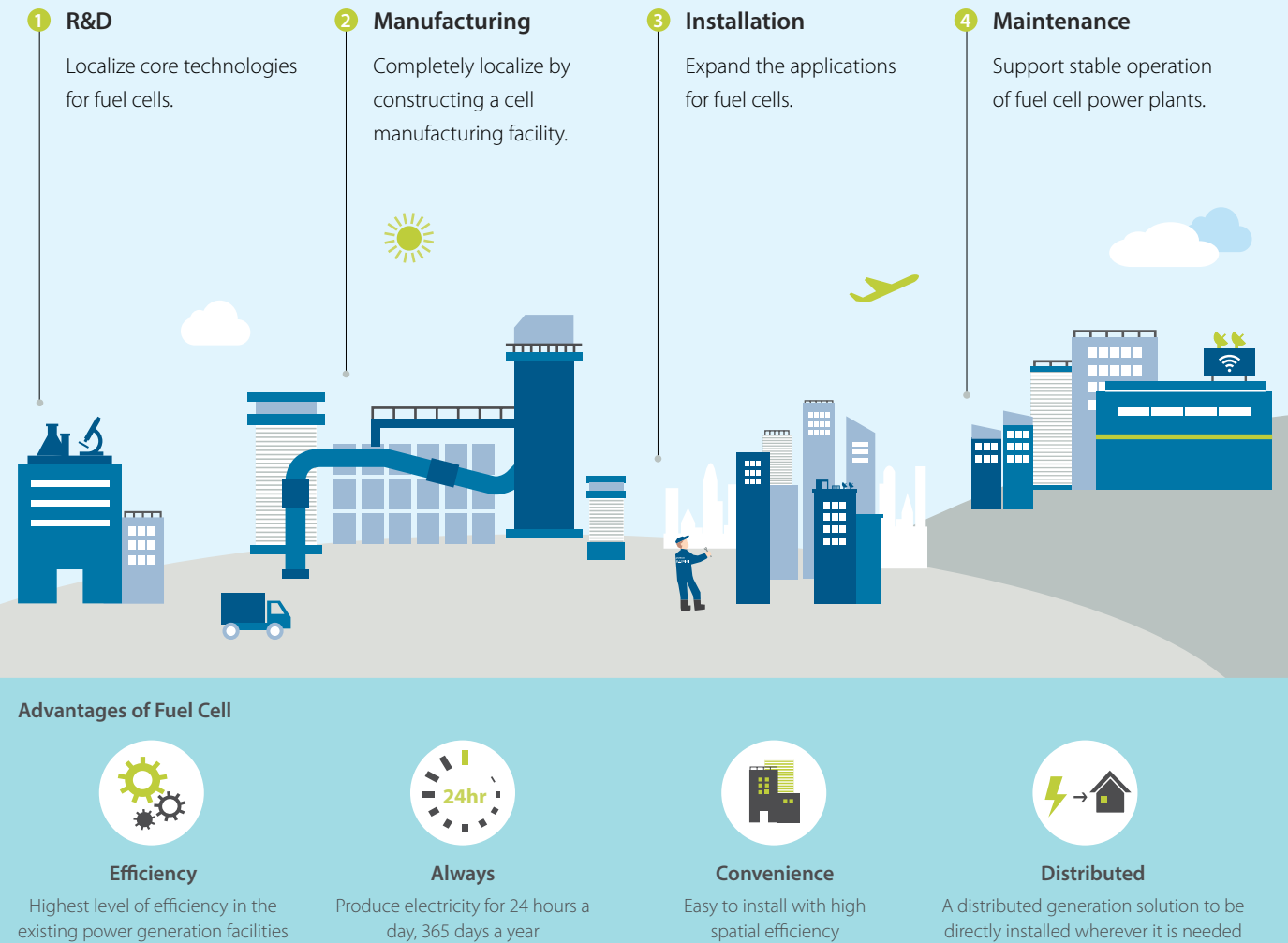
1 POSCO ENERGY plans to secure LNG at competitive prices in the international market firsthand and achieve higher cost competitiveness and greater profitability using Gwangyang LNG terminal owned by POSCO group. At the same time, we contribute to the development of the Korean natural gas industry and the stabilization of natural gas supply by participating in organizational activities in and out of Korea.

2 The construction of Units 7, 8 and 9 of the LNG Combined Cycle Power Plant was completed in April 2015, and we achieved the top level of generation efficiency, 55% in Korea. In addition, it is an eco-friendly power plant designed to realize co-prosperity with the local community, adopting a low NOx burner, De-NOx system, Yellow Plume Elimination System among other facilities.

3 In December 2015, the Ministry of Trade, Industry, and Energy announced its policies on electricity market system improvement to reduce GHG emission and to promote distributed type resources. The policies includes the restructuring of capacity payment that has not been changed since its inception in 2001 and the revision of relevant regulations to ensure sufficient compensation for generation costs. The Ministry planned to introduce a system to impose varying transmission fees as well. POSCO ENERGY is fully ready to preemptively respond to the new changes in power policies.

4 To increase the stability of LNG Combined Cycle Power Plants, POSCO ENERGY conducts regular check-ups, following the inspection checklist every maintenance cycle as well as the regular preventive maintenance plan. POSCO ENERGY also carry out systematic training programs by running maintenance workshops to improve the competencies of operation workforce. The training programs help increase our employees' ability to effectively respond to emergency situations.

Fuel Cell Manufacturing



1 As a distributed power source for cities, fuel cells are one of the three new and renewable energy sources, along with solar power and wind power that have been selected and developed by the Korean Government since 2009. Fuel cells were selected for the future growth engine flagship project by - Korean Government in 2015. In line with the support, POSCO ENERGY strives to improve fuel cell performance as it develops the next-generation fuel cells.

2 Starting with installation and maintenance service technologies in 2007, POSCO ENERGY has received Balance of Plant and stack manufacturing technologies from FCE, the U.S. that owns the original fuel cell technologies. In 2012, POSCO ENERGY made a contract with FCE regarding Cell technology transfer and launched a cell plant in 2013, which is the first case of vertical integration of all processes of the fuel cell business in Korea. This is a significant accomplishment since completely localizing whole fuel cell systems would definitely create new jobs and contribute to the national economy.

3 POSCO ENERGY is an active participant in national flagship projects focused on "block-based independent fuel cells", "urban-based independent fuel cells", and "multi-purpose fuel cells". We are continuing to conduct researches on broadening fuel cell applicability to vessels and air planes to leverage our advantages in special utilization.

4 To ensure the maximum performance of a fuel cell power plant, POSCO ENERGY offers a full package of services, including materials and manpower, to ensure stable operation and recover a system in case of breakdown through our Long Term Service Agreement (LTSA). We also hold regular sessions with customers to listen to their opinions. We have established a real-time data sharing system to better communicate with our customers, providing various plant-related information including the operation data and maintenance history.

Material Issues for Sustainability Management

Stakeholder Engagement

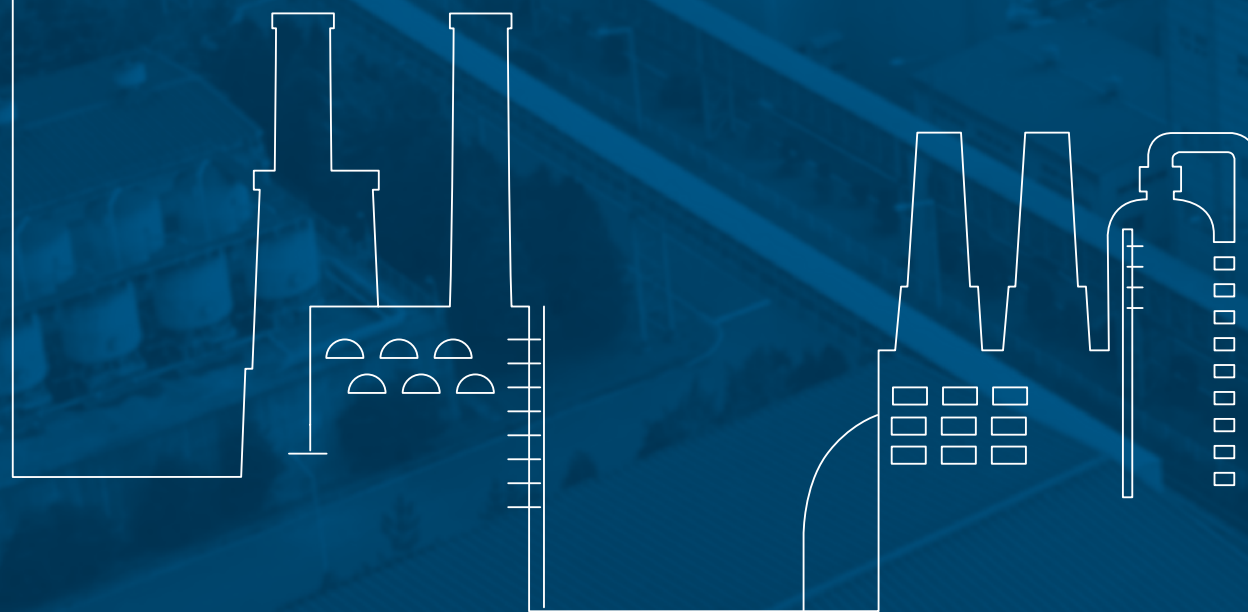
Materiality Analysis

Aspect 1. Stable Generation of Electricity

Aspect 2. Reinforcement of Competitiveness

Aspect 3. Response to Climate Change

Aspect 4. Contribution to Local Communities



Stakeholder Engagement

POSCO ENERGY has established a variety of channels to maintain smooth communication with stakeholders. The company has defined its key stakeholders into six groups—employees, partners, customers, shareholders and investors, environment, and society—and each channel is customized according to each group's characteristics. When selecting key issues to be addressed in the sustainability report, we carry out an online survey to effectively reflect the voices of stakeholders from various fields.

Key Stakeholders and Communication Channels



Materiality Analysis

POSCO ENERGY annually conducts materiality analysis to determine the issues and contents for the sustainability report in order to follow the GRI guidelines. The company carried out surveys and interviews with internal and external stakeholders to identify “relevance” and “impact”, and pinpoint material issues. The materiality analysis of this report was conducted on February 2016.

Materiality Analysis Process

1 Identifying Internal and External Issues

POSCO ENERGY examined internal and external sustainability management standards such as GRI G4 and ISO 26000. The company also reviewed the issues published by competitive companies in the same industry in their 2014 Sustainability Report, and conducted a media analysis of news articles about POSCO ENERGY throughout 2015.

In addition, the company identified 31 issue pools by reflecting important matters of management derived from BOD agendas, key strategic initiatives by divisions, business reports, and web magazines.

Global initiatives
GRI G4 guidelines, EUSD (Electric Utilities Sector Disclosures), ISO 26000, UNGC, DJSI (Dow Jones Sustainability Index)

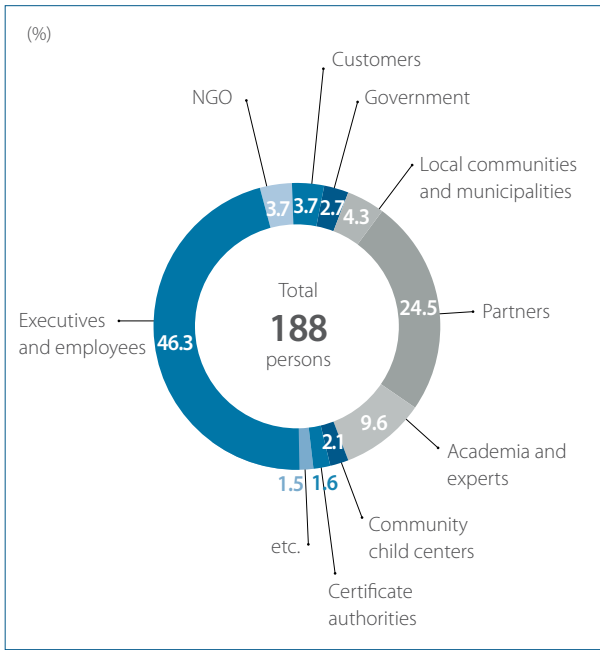
Issues in the industry
Issues in sustainability reports by domestic and overseas power generation companies and IPPs

Media keywords
10,852 news articles featured online/offline from January to December 2015

Business issues
BOD agendas, business reports, CEO’s message, key strategic initiatives (KPI) by divisions, articles on web magazines

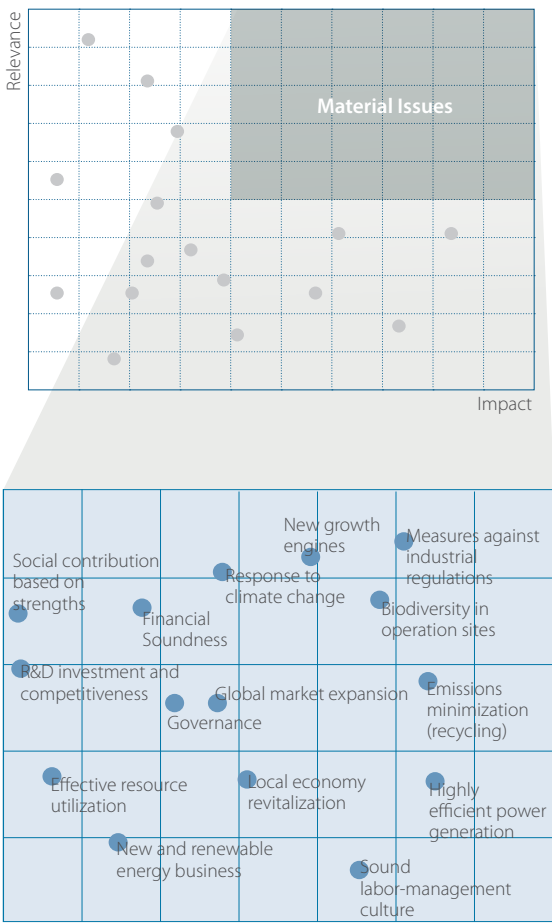
2 Measuring the Impact of Issues

The company examined the impact of 31 issues relevant to POSCO ENERGY by investigating stakeholders’ opinions and ideas. We prepared the questionnaires to study how much relevance and impact each issue had on POSCO ENERGY. Then, we carried out in-depth interviews (including surveys) with sustainability facilitators and an online-survey of the company’s executives, employees, and external stakeholders.



3 Creating the Materiality Matrix

To identify material issues, the company made a matrix based on each issue’s relevance and impact on POSCO ENERGY as evaluated by our stakeholders.



4 Selecting Issues to Report

The company divided the top 15 material issues derived from the materiality analysis into 4 aspects to be included in the report. Due to the rapid market changes in the power generation industry, the ranking of importance of financial performance such as “measures against industrial regulations”, “R&D investment and competitiveness”, and “Financial Soundness” were raised compared to the previous year. “Global market expansion” and “biodiversity in operation sites” were newly added to the 2015 issues for reporting.

Aspect	Issue	Page	Issues for 2014
Stable Generation of Electricity	Measures against regulations	26-27	-
	Highly efficient power generation	28-29	○
	New growth engines	33-36	○
Reinforcement of Competitiveness	Global market expansion	31	-
	R&D investment and competitiveness	32-33	-
	New and renewable energy biz.	35-36	○
Response to Climate Change	Response to climate change	38	○
	Emissions minimization	39-40	○
	Effective resource utilization	40	-
Contribution to Local Communities	Biodiversity in operation sites	40	-
	Efforts to revitalize local economy	44	-
	Contribution based on strengths	44-45	○
Management Report	Governance	47	○
	Sound labor-management culture	53	-
	Financial soundness	60	-

Interviews with Stakeholders



President of AES-VCM
David Stone

Please tell us about your experience with POSCO ENERGY as a partner company of Mong Duong II Coal-fired Thermal Power Plant and your thoughts on what POSCO ENERGY needs to become a global IPP.

The AES Corporation (NYSE: AES) is a Fortune 200 global power generation company. We provide affordable, sustainable energy to 17 countries through our diverse portfolio of distribution businesses as well as thermal and renewable generation facilities. AES has had a very positive and great partnership with the POSCO Group primarily POSCO E&C who successfully provided the EPC services on several large coal fired power plant projects in Chile (Ventanas, Campiche, Angamos). As AES sought a minority partner for Mong Duong II project, POSCO Energy emerged as an ideal partner to support the project and bring along the Korean ECA financing. Our Mong Duong II Project was successfully completed nearly six months earlier than our commitment to the Government of Vietnam. In addition to early completion, the project was completed under budget and with a stellar safety record.

We would appreciate if you could tell us about how POSCO ENERGY can make specific improvements to ensure the continued economic value as an IPP while fulfilling the environmental responsibility.

Korea Energy Agency is in charge of implementing the government’s energy and GHG related policies. We’ve been striving to raise energy efficiency through close cooperation with the industry. So far, Korea’s power generation industry has made admirable strides in lowering energy consumption and GHG emissions. This was achieved by improving facility efficiency and adopting advanced technologies. However, there is now an even stronger demand for reducing global GHG gas emissions. Today, the industry including POSCO ENERGY is on the verge of adopting agendas of energy efficiency and vastly decreased GHG emission to manage sustainability. POSCO ENERGY needs to conduct a painstaking review on the impact of the financial and non-financial risks of the emission trade scheme on the company and to prepare for new measures such as new and renewable energy generation business. It would be best for POSCO ENERGY to capitalize on making energy policies and regulations designed to protect the environment, recognizing eco-friendly efforts as a new growth engine that presents new opportunities.



Korea Energy Agency
Policy Committee
Dae-gyun Oh

Please share any advice you may have on how POSCO ENERGY can achieve a win-win relationship with local communities and realize sustained development.



Samcheok Meister
High School Principal
Moon-ok Jeong

Samcheok Meister High School, the only Meister High School for power generation industry in Korea, produced its first graduates on February 2016. I take pride in the school as a place of learning and training where talented people who are interested in the power generation industry can realize their dreams. The beginning of POSPOWER’s construction in 2016 presented us with great opportunities. Students could observe the process of power plant construction and engineers from POSPOWER would offer vocational training for students as industry-academic teachers. The completion of the power plant construction would lead to opportunities for school field trips and employment after graduation. Samcheok Meister High School will endeavor to serve as a successful role model in this industry-academic relationship with POSPOWER.

aspect



Stable Generation of Electricity



Materiality for Business

The independent power generation business inherently requires a tremendous amount of initial investment, and the market is also highly uncertain. To ensure reliable power supply, it is essential for power generation businesses to establish optimum facilities, secure additional facilities including power reserves and operate them efficiently. They have been facing severe competition ever since the national restructuring of the domestic power generation industry in 2001. The competition became worse by Korea’s oversupply of electricity, which is attributed to the construction of a large scale power plant after the 2011 rolling blackout. In order to achieve sustainable growth, power generation businesses need to be equipped with stable supply capability, realize zero outages of power plants and maintain the high efficiency in facilities.



Materiality for Environment and Society

The power generation industry is crucial to nation’s economic growth. A stable power supply needs to be available for the cutting-edge industries such as semi-conductors, shipping, steel, and automobile. As the economy enters the digital era, the importance of electric power grows even more. A blackout of any length of time may have enormous economic and social costs to society, affecting data centers, hospitals, online commerce, and so on. Since the society needs electric power to function and thrive, power generation companies have a social obligation to secure sufficient capacity for stable power supply.



Key Issues

To identify what is most important to our stakeholders, POSCO ENERGY carried out a materiality analysis and selected the issues below for its first aspect: Stable Generation and Supply of Electric Power.

- Measures against industrial regulations
- Highly efficient power generation

Stakeholders

Opinions



Executives and
Employees

“ We shall set up plans with short, mid and long term perspectives and make an unwavering commitment for implementation. ”



External
Stakeholders

“ Any business participating in the power generation industry shall strike the right balance between profit seeking (private realm) and energy supply (public realm) in its business objectives. ”



Key Performances and Objectives

- Supply power to metropolitan by completion of Incheon LNG Power Plant’s units 7 to 9 with the highest efficiency
- Strive to achieve the zero outage rate with the establishment of a smart power plant connected to IoT system

Measures against Industrial Regulations

Understanding the Power Generation Industry

Structure of the Power Generation Industry

In Korea, power producers own their power generators and generate electric power. KEPCO then transmits the power via its electricity transmission system to end users. At present, Korea's power producers are comprised of the six subsidiaries of KEPCO and independent power producers. KEPCO purchases electricity from Korea Power Exchange or IPPs.

System Marginal Price (SMP)

SMP refers to a real-time electricity price in the power generation market. The standard price is determined according to the electric power generator that has the highest variable costs among all power generators at the time. As fuel costs mainly account for the variable costs, the LNG Power Plants generally have higher material costs.

Vesting Contract (VC)

VC is a contract between a power producer and KEPCO to trade electric power at predetermined prices for a specific period of time. First of all, both parties make a deal at market prices. If there is the difference between actual market price and the contracted price, then the party that profited will compensate for the party who suffered a loss. POSCO ENERGY's off-gas combined cycle power plants in Gwangyang and Pohang are subject to VC.

Power Generation Industry Policies

Industry's Laws and Policy Framework

The laws that are relevant to Korean power producers include acts for energy, power generation business, the promotion of the development, use, and diffusion of new and renewable energy. Every five years, the Korean Government announces the master plan for national energy for the next twenty years in accordance with the Energy Act. The plan is a blueprint for the national energy industry, encompassing demand/supply control and forecasting, the composition of energy sources, the measures to improve energy utilization efficiency, and new/renewable energy policy. The Electricity Business Act specifies the basic provisions for the power generation industry, from power generation to sales. The Korea Power Exchange and Electricity Regulatory Commission have been established to manage the electric power generation market in accordance with the Electricity Business Act. Based on this Act, the Ministry of Trade, Industry and Energy announces the basic plan for long-term power demand/supply for the next fifteen years; the Ministry makes this announcement every two years. The 7th basic

plan for long-term power demand/supply released in 2015 addressed forecasting of power demand and demand control, power generation facility plans, plans to expand dispersed power source. The Act on the Promotion of the Development, Use and Diffusion of New and Renewable Energy specifies the Renewable Portfolio Standard (RPS) and emission allocation and trading scheme. Other laws that are relevant to POSCO ENERGY include the Energy Use Rationalization Act, which promotes effective energy use, and the Urban Gas Business Act, which is related to LNG supply.

Renewable Portfolio Standard (RPS)

RPS makes it compulsory for power producers whose facilities generate more than 500MW to provide a certain proportion of their total energy output as new and renewable energy. As seen in the table below, the annual percentages for the new and renewable energy supply requirement are fixed. For this year, the company is to produce 3.5% of its total energy output in 2015 as new and renewable energy. As POSCO ENERGY owns and operates solar energy and fuel cell facilities, it effectively meets the Renewable Portfolio Standard(RPS). In 2015, the company successfully accomplished its target of 3% of obligatory supply percentage, contributing to the further expansion of new and renewable energy in Korea.

Annual Obligatory Supply Target of RPS

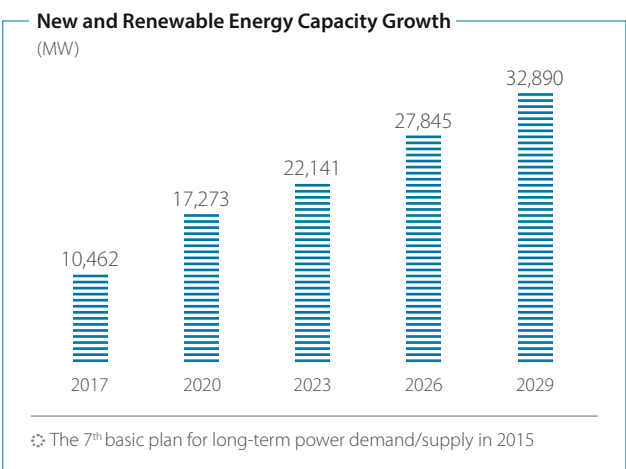
Year	'16	'17	'18	'19	'20	'21	'22	'23	'24
Obligatory percentage	3.5%	4.0%	4.5%	5.0%	6.0%	7.0%	8.0%	9.0%	10.0%

Energy & Industry Outlook

Prospects by Energy Source

According to the government's 7th basic plan for long-term power demand/supply announced in 2015, it is expected that the power capacity by energy source will be broken down to: 23% for nuclear, 27% for coal, 21% for LNG, and 20% for new and renewable energy. Nuclear power and coal would occupy stable portions due to their characteristics as base load sources that require lower power generation costs. The proportion of new and renewable energy would grow even larger due to the increased GHG reduction target. LNG power will become more attractive because of the GHG reduction target and construction costs for building transmission networks. The world's efforts to tackle the climate change issue will likely lead the decreased use of coal-fired power, which spews vast amounts of carbon dioxide, and an increase in new and renewable energy. It is still possible that some countries may not follow this global trend

by arranging a more diverse energy portfolio to meet their specific requirements and conditions. In the U.S., the proportion of gas power and shale gas production is increasing, but Asia and some European countries, which have a higher dependency on energy imports, are adopting as an alternative to coal. The recent increase in volatility seen in the global energy industry, such as highly precarious oil prices and the advancements in new and renewable energy technology, is prompting energy companies to establish long-term strategies.



New Energy Industry

This year, the Korean Government proclaimed that it will concentrate on fostering new business in the energy sector. The new energy industry is a new form of business group that converges new technologies such as ICTs with the energy industry for commercialization. The leading businesses in the power generation industry include the generation and sales of new and renewable energy, Energy Storage System (ESS) business, and energy prosumers. If this new industry does emerge, the power generation market will transform from a one-way market into two-way market. Customers will be able to produce and sell electric power from their own batteries, and new/renewable energy generators. In addition, more and more producers such as large ESS and electric vehicles, and small-scale dispersed power generation businesses will become engaged in this new energy market.

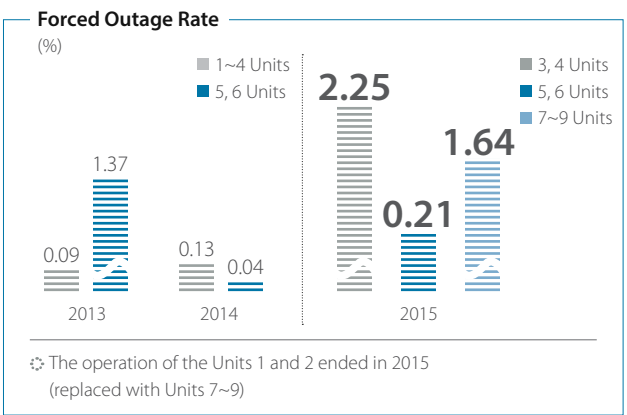
Securing Stable Facility Operation

Stable Supplies of Basic Raw Materials

As the costs of raw materials account for most of the power generation costs, a stable supply of raw materials is essential for facility operation and profitability. Through a long-term supply agreement with KOGAS, POSCO ENERGY secured stable supply for the raw materials for the Incheon LNG Power Plant. We are also continuing to review possibilities for the end user-direct import to increase profit. The coal-fired thermal power plant in Samcheok will procure economical and stable raw materials through various means, including the global network of the affiliates, POSCO DAEWOO.

Zero Outage

To prevent the occurrence of breakdowns and maintain optimum conditions in facilities, POSCO ENERGY manages the forced outage rates with facility monitoring and close checkups through QSS+(Quick Six Sigma Plus, innovative movement to reduce quality defects, obstacles to work, and safety problems) and My Machine (functional recovery of facility) activities. In addition, the regular preventive maintenance plan, Vibration Monitoring System (VMS) and online diagnose system for high pressure electric motors help in reducing power generation costs by eliminating redundancy and preventing abrupt shutdowns. In the future, POSCO ENERGY will continue to realize 0% forced outage, beyond the top level in Korea by utilizing smart power plants connected to IoT systems.



Reinforcement of Operation Competencies

Since the purpose of the LNG Combined Cycle Power Plant is to promptly deal with the sudden increase in power demand, a high level of operational skills are necessary to frequently stop and suspend operation. Without skilled engineers, we cannot promptly

respond to the abrupt surges in the power demand. Based on 46 years of experience in power plant operation, POSCO ENERGY secures the best manpower and accumulated knowledge in the area of operation and maintenance, and improves the soundness of the facilities through seamless cooperation among the power-generation operation, technology, and maintenance divisions. We have organized training programs to achieve our mid to long term objectives of nurturing skillful engineers at the global leader level. We also offer technical training and sessions for short service employees to help them build up their capabilities early in tailor-made maintenance workshops.



Engineers
Foster performance-oriented engineers



Technical Experts
Run a training system to nurture field O&M experts



Education Infrastructure
Offer systematic technical training

Competency Training Status

Classification	2014	2015
Completion rate	22.7%	33.5%
No. of courses	32	34
No. of lectures	38	83
Total trainees	287	896
Average number of trainees	7.6	10.8



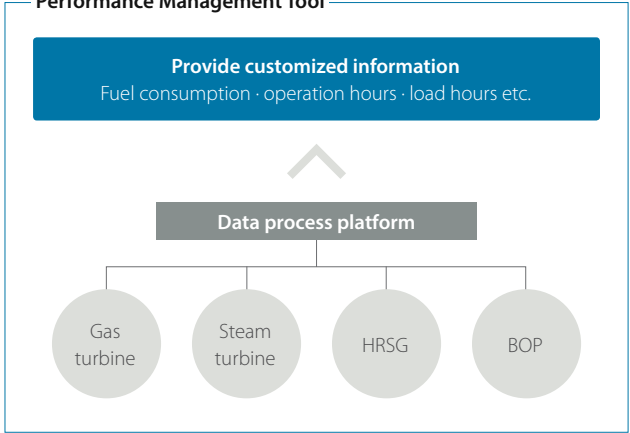
Maintenance Workshop

Highly Efficient Power Generation

Efforts to Improve Generation Efficiency

To find ways to improve efficiency through systematic performance management, POSCO ENERGY employs big data in the operation of power plants. Our performance management tools capitalize on 65,000 data items per second collected through the Plant Information System. We provide all engineers with data mining training sessions, so that all divisions related to plant operation can use the most of big data in their actual jobs. This enables us to detect and take action against any incidents leading to shutdown. Previously, taking preventive measures was possible by the high level skillful engineers only. Thanks to the management tools, all the engineers are able to participate in developing preventive measures for their operation. We also hold regular consultation meetings with generator facility manufacturers and other IPPs to exchange information and technologies that help us run facilities more effectively.

Performance Management Tool

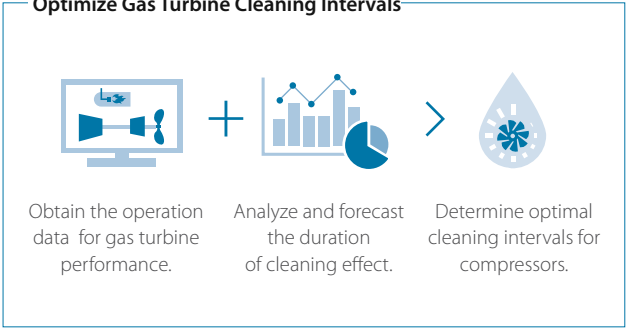


Improvement in Power Generation Efficiency

POSCO ENERGY is committed to delivering the best possible performance and engages in efforts to improve existing facilities to ensure optimal operation. We have adopted big data to manage operational status and generation efficiency on a real-time basis. If a drop in efficiency is detected at a plant, our data management tools help us take immediate measures to maintain optimum generation efficiency. We can instantly respond to a variety of complicated external environmental factors that can affect operation efficiency including air and the temperature of seawater. We have also enhanced our generation facilities by: applying high efficiency filters to gas turbines to minimize drops in efficiency due to dust

from the air inflow, recycling the heat from HRSG(Heat Recovery Steam Generator), and maximizing the power of steam that drives turbines from the pressure difference by raising the vacuum rates of the condensers installed in steam turbines. POSCO ENERGY's performance management tool enables us to determine and carry out economically optimum cleaning at regular intervals by checking the real-time contamination rates of gas turbine compressors and considering the overall situation of the power generation market.

Optimize Gas Turbine Cleaning Intervals



Off-gas Combined Cycle Power Plant

Located in Gwangyang and Pohang, our Off-gas Combined Cycle Power Plants produce electric power with gas generated from neighboring iron works. Gwangyang Power Plant was completed in 2010 as the first off-gas combined cycle power plant in Korea and generates 284MW per hour, while Pohang Power Plant that was completed in 2014 and generates 290MW per hour.



Reinforcement of Competitiveness



Materiality for Business

Despite the global economic downturn, power demand continues to grow throughout the world. Korea's domestic power consumption is also expected to rise gradually. However, the growth of the Korean power generation industry remains sluggish due to oversupply caused by the increase in large-scale power plants. The situation is especially severe for IPPs that only generate LNG power with high raw costs; they require relatively higher generation costs and suffer from poor profitability owing to low operation rates. In order to overcome these market limitations, power generation companies need to penetrate overseas markets—especially those in developing countries—to achieve sustainable growth. Further investments should be made on the R&D activities for new and renewable energy, and fuel cells to tackle the climate change issue.



Materiality for Environment and Society

Exploring new growth engines via R&D investments and proactively entering into foreign markets will reinforce companies' competitiveness as well as benefit local communities. During the process of developing and commercializing new energy sources, it is expected to enhance the competitiveness of the entire supply chain, heightening partners' technological capabilities and developing specialized expertise. The active exploration of overseas markets will certainly increase the company's profits, and contribute to the development of the host country by raising the electrification rate and creating jobs. Investment on R&D activities for new and renewable energy is also critical: environmentally safe energy is not only expected to bring profits, but it is also important for the future of mankind.



Key Issues

To identify what is most important to our stakeholders, POSCO ENERGY carried out a materiality analysis and selected the issues below for its second aspect: Reinforcement of Future Competitiveness.

- New growth engines
- Global market expansion
- R&D investment and competitiveness
- New and renewable energy business

Stakeholders

Opinions



“ Now is the time for expanding our global business to offset the stagnant growth in the domestic power generation market. We need to explore new growth engines by developing foreign niche markets. ”



“ It appears that a strong R&D policy should be the starting point for sustainable management. We hope that POSCO ENERGY would enact innovative development in new and renewable energy through continued investment and close cooperation with government agencies. ”



Key Performances and Objectives

- Completed Mong Duong II Coal-fired Thermal Power Plant in Vietnam
- Concluded an MOU for Quynh Lap II Coal-fired Thermal Power Plant Project in Vietnam
- Started the construction work for Jeonnam Onshore Wind Farms, scheduled to be completed in 2018
- Promoted to build Jeonnam Offshore Wind Farms

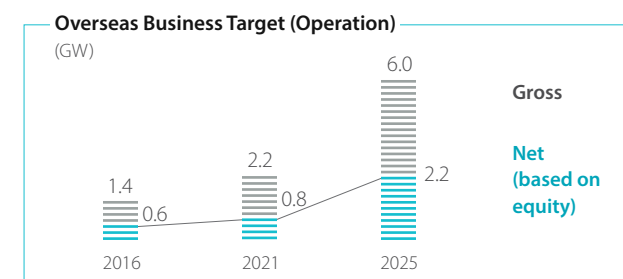
Global Market Expansion

POSCO ENERGY is expanding into overseas markets in pursuit of becoming a global total energy company. Based on 46 years of accumulated knowledge, the company conducts power generation business, focusing on developing countries. Our participation in overseas IPP business is also advantageous to the host countries: when we build power plants in energy-deprived countries, we improve the lives of the local residents and create new job opportunities. At present, POSCO ENERGY's main targets include Indonesia, Vietnam, and South Africa, and we are planning to review and select target regions, ensuring profitability through timely responses to the rapidly changing global management environment. We will maintain new and flexible approaches to select businesses and seek opportunities in traditional energy businesses as well as new businesses that have been created from the convergence with other fields including information technology.

Implementation Strategies

To minimize risks, POSCO ENERGY divides its strategies for overseas IPP business into two steps. In the first step, we will undertake joint projects with market leaders, minimize risks that may arise from institutional and cultural differences, and build a dependable track record and acquire knowledge. In the second step, once the IPP business becomes stable and develops synergy with group partners, we will develop businesses independently to grow into a top-tier IPP in Asia.

Leap into a global total energy company	
Build an optimum business portfolio	Create a balanced portfolio among domestic and overseas IPPs, coal and LNG plants
Promote the future growth engine flagship project	Build fuel cell businesses that are eco-friendly and highly efficient
Set up new and renewable energy as growing business	Prepare "New and renewable + ESS + Smart Grid" convergence model and technology development
Reinforce group synergy	Concentrate POSCO group's capabilities on sharpening the competitiveness



Implementation Status

The Second Coal-fired Thermal Power Plant in Vietnam

Following the construction of Mong Duong II Coal-fired Thermal Power Plant in Vietnam, POSCO ENERGY is working to establish the second coal-fired thermal power plant in Vietnam. We will carry out Quynh Lap II Coal-fired Thermal Power Plant project that will construct a coal-fired thermal power plant with a capacity of 1,200MW in the Southeast Special Economic Zone in Nghê An Province, situated 270km south from Hanoi. POSCO ENERGY has sealed the MOU to build Quynh Lap II Coal-fired Thermal Power Plant with the local government in February 2016, consolidating our status in the market in Vietnam.

Entered the Botswana IPP Market

POSCO ENERGY has been selected as the preferred bidder for Morupule B Phase II Units 5 and 6 Project (300MW) in the Republic of Botswana, South Africa through a competitive international auction in November 2015. The project is planned to be completed by 2020 and will implement Pollutant Emissions Minimization including NOx and SOx by applying eco-friendly Circuiting Fluidized Bed Combustion (CFBC). Morupule B Project will serve as a foothold in the South African power generation market for POSCO ENERGY.

Mong Duong II Coal-fired Thermal Power Plant in Vietnam

POSCO ENERGY has built and operates a coal-fired thermal power plant with a 1,200MW capacity in Quang Ninh province, North Vietnam. It is Vietnam's first IPP in the coal-fired power plant field, and the plant will be jointly operated by POSCO POWER and AES (the U.S.) for 25 years before transferring its operation rights to the Vietnamese Government. The plant was completed in April 2015. It is the first coal-fired thermal power plant that POSCO ENERGY has built outside Korea, and it accounts for 4.2% of Vietnam's total electric power capacity.

Off-gas Combined Cycle Power Plant in Indonesia

POSCO ENERGY successfully completed the first overseas plant project by establishing an off-gas combined cycle power plant with a capacity of 200MW (100MW X 2 units) in Cilegon, Indonesia in January 2014. As the first off-gas combined cycle power plant for an integrated steel mill in Southeast Asia, it will use off-gas generated from POSCO's integrated steel mill as fuel to produce 200,000kW/h (amount for approx. 600,000 households annually) of electricity. This project is a great example of "POSCO Family's joint expansion to overseas markets".

R&D Investment and Competitiveness

Increase in R&D Workforce and Investment

Starting from the establishment of the Fuel Cell Research Institute, POSCO ENERGY continues to increase R&D workforce and investments. We are highly committed to R&D activities and have established the Green Energy Technology Institute and the Technology Strategy Center under the supervision of our Chief Technology Officer (CTO). To commercialize the R&D outcomes, POSCO ENERGY is applying eco-friendly generation technologies to current businesses.



R&D Workforce and Investment

Classification	2013	2014	2015
R&D workforce (person)	65	126	98
Ordinary R&D expenses (KRW billion)	11	16	18
Ratio to Sales (%)	0.39	0.62	0.89

⚙️ The number of personnel changed as the works related to quality control and product development were temporarily undertaken by the R&D division in 2014.

Development Directions for Key Technology

As described in the following, POSCO ENERGY has set up key business fields and the directions to which key technology shall be developed, and we have plans and R&D objectives to secure the relevant technologies.

Business	Development Directions	Core Technologies
 Gas	<ul style="list-style-type: none">Secure generation efficiency boosting technology to strengthen the profitability.Obtain waste heat energy-utilizing technology for creating new profit source.	<ul style="list-style-type: none">Power plant simulationHigh-grade heat recovery technologyFault predictive diagnostics technology
 Fuel cell	<ul style="list-style-type: none">Reinforce competitiveness and realize technological independence by improving and diversifying product lines.	<ul style="list-style-type: none">Part compatibility improvementIndependent development of core materials and partsHigh value-added convergence process

 Coal-fired	<ul style="list-style-type: none">Internalize operation technology to stabilize coal-fired thermal power plant in early stage.	<ul style="list-style-type: none">Fuel assessment and selectionGeneration process optimizationBoiler operation optimization
 New and renewable Distributed generation	<ul style="list-style-type: none">Enhance generation efficiency and profitability by supporting current businesses with site upgrades.Preemptively respond to future new and renewable generation technologies including the development of the VPP platform.	<ul style="list-style-type: none">Examination for new and renewable power complexDesign and integrated operation of the VPP platformNew and renewable hybrid system

R&D tasks to ensure growth under the drastic environment changes due to the expanding new energy industry

The Paris Agreement has brought about new GHG emission reduction policies to tackle climate change. These changes will cause a transformation in the business environment: we expect further development of new and renewable energy and low carbon generation, the emergence and growth of energy prosumers, more electric vehicles, and the opening of power generation market. To secure capability for sustained growth, POSCO ENERGY analyzes mega trends, identifies and conducts essential R&D tasks.

Key R&D Performances

POSCO ENERGY has achieved the following key performances by commercializing the technologies, which are developed through the R&D process, within a short period of time.

Technologies for Solid Refuse Fuel Power

- Entered the waste heat market through the reaction steam turbine technology (sold and commercially operated products with a capacity of 200/500 kW).
- Developed and demonstrated waste-to-gas technology (verified and demonstrated fuel diversification performances).

Technologies for Upgrading MCFC

- Demonstrated module type MCFC with a capacity of 100kW (Improved generation efficiency by 3.4% compared to that of all-in-one type).
- Developed a higher version, 2.5MW EBOP PCU (Improved cooling efficiency and greater control reliability).

New Growth Engines

Coal-fired Thermal Power Plant

POSCO ENERGY is building a portfolio with a balanced mix of domestic and overseas businesses including LNG plants, new and renewable energy, and coal-fired plants. As the recent challenges from the oversupply of electricity caused a significant drop in the operation rate of LNG plants as peak load stations, the importance of coal-fired plants that are base load stations has been brought into the fore. In 2014, POSCO ENERGY launched POSPOWER to proceed with the operation of the Samcheok Coal-fired Thermal Power Plant. We submitted an environmental impact assessment report as well as a power source development plan in 2015. Scheduled to be completed in 2021, the coal-fired thermal power plant will be built in Samcheok with an area of 2,300,000m² and have a total capacity of 2,100MW (1,050MW X 2 units).

Fuel Cell

POSCO ENERGY sees fuel cells as the next generation energy source since they are eco-friendly as a distributed power source. In 2003, the company selected fuel cells as the group's future growth engine and committed concerted efforts for technology development and facility localization. With the construction of the world's largest fuel cell power plant in Hwaseong, Gyeonggi-do in 2013, POSCO ENERGY installed and supplied fuel cells with a capacity of 154.2MW at a total of 20 sites in Korea by the end of 2015. We now have 90% or more of the market share in the domestic fuel cell power generation market. Fuel cells are very attractive since they only require a relatively narrow area for installation and do not generate the air pollutants emitted by conventional power plants. Their wide applicability means that they can be even installed in urban centers with higher land costs. Fuel cells can produce electricity 24 hours a day, 365 days a year, regardless of external environmental changes. As distributed power source, the applicable range of fuel cells is broadening and now includes residential areas, industrial complexes, and corporations.

Technologies for Upgrading Gas Generation Efficiency

- Supported the plants currently in operation by developing process simulation models (Power plants in Incheon/Gwangyang/Pohang).
- Developed the waste heat recovery technology to improve profitability of heat supply businesses.

Overview for Solid Refuse Fuel Technology

Eco-friendly Waste-to-gas Processing Unit Waste-to-gas generation refers to a method that supplies syngas produced from processing solid waste fuel such as sewage sludge, SRF, and biomass to a gas engine/turbine to generate high value-added power.

Waste-to-gas generation is more eco-friendly since it produces less pollutant emissions including GHG gas emission, while ensuring high generation efficiency. POSCO ENERGY's waste-to-gas processing units have been further improved after adopting a dual internal circulating fluidized bed, which enables them to produce high heat capacity syngas without the supply of pure oxygen.

POSCO ENERGY plans to promote the waste-to-gas business in Korea, while pursuing waste-to-gas business with organizations using agricultural residues and biomasses overseas.

World's First Disk-type Reaction Steam Turbine A reaction steam turbine is a system that takes advantage of the repulsion force of steam released from a heat exchanger to spin a turbine. When the turbine spins, it expands the steam within the turbine, and then the system converts heat energy from the expanded steam into electric energy. POSCO ENERGY has developed a steam turbine for waste heat generation with HK Turbine.

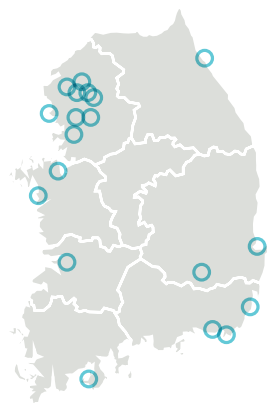
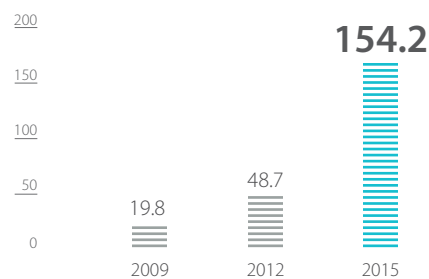
The turbine is designed to employ a disk method, the first time in the world, and equips with a steam spraying nozzle that allows steam within the turbine sprayed outside the turbine. Compared to existing systems, it costs less to produce and it is easy to repair. It can efficiently produce electricity at a small capacity of 1MW or at 160°C or lower.

Power Generation Principles of Fuel Cell

Fuel cells produce electricity and heat energy by means of electrochemical reactions between hydrogen and oxygen. Electrons separate from hydrogen and then move to oxygen through electrolyte, generating electricity, water and heat. Unlike other power generators, fuel cells directly produce electricity without requiring an energy conversion process. Fuel cells offer higher generation efficiency, and they are an eco-friendly energy source for the next generation.

Fuel Cell Supply in Korea

Accumulated Capacity (MW)



Total (20 Stations)

154.2MW

Fuel cell systems are already applied to a variety of areas including industrial complexes and national infrastructure. They are expected to be adopted for a wider range of uses in the future.

Complete Localization for the First Time in Korea

The construction of the world's largest fuel cell manufacturing facility in Pohang enabled POSCO ENERGY to retain the exceptional competitive position. Starting with construction and maintenance technologies in 2007, POSCO ENERGY has received technologies of Balance of Plant (BOP, a device providing fuel for fuel cells plus another device converting electricity from the fuel cells) and stacking (piling up the "Cell" unit, a core component for fuel cells) from FCE, the U.S. company that owns the original fuel cell technologies in 2008. We then laid the foundation for localization by building our BOP facility as well as a Stack manufacturing facility. POSCO ENERGY proved that we will realize technology independence by making a contract with FCE for Cell technology transfer in 2012. With the completion of the Pohang Fuel Cell hub in Pohang in 2016, we achieved the vertical integration of all areas of fuel cell business including design, manufacturing, installation, and maintenance. The completion of this cell manufacturing facility will enable POSCO ENERGY to cut down the unit costs of fuel cell production. We are now the first fuel cell manufacturing company in Asia to be equipped to handle the entire fuel cell production process.

World's Largest Fuel Cell Manufacturing Factory in Pohang



Location	Yeongil-man, Honghae-eup, Buk-gu, Pohang-si, Gyeongbuk
Production capacity	100MW/year
Site area	210,000m ²
Complex details	Research institute, service center, experiment building, manufacturing factory

Investment for the Clean Future

The Korean Government established "a National Vision of the Hydrogen Economy and Action Plan" in 2005 to promote a hydrogen power economy in Korea. The Government selected and promoted solar power, wind power, and fuel cells as new and renewable energy sources in 2009, and especially selected fuel cells as the "Future Growth Engine Flagship Project" in 2015. Working together with the Government, POSCO ENERGY has continued to invest into R&D and workforce to improve product performance and upgrade services. We also established a supply chain that includes a number of small and medium sized companies in Korea for mutual cooperation.

Expected Outcome of a 2.5MW Fuel Cell

Equivalent to the planting of 450,000 trees



Equivalent to cutting down the NOx emission from 1,500 vehicles



environmental impacts on the surrounding areas. Completed in 2014 by POSCO ENERGY, Shinan Solar Power Plant now produces 20,000MWh electricity a year, enough power for about 5,300 households, and effect of CO₂ emissions reduction by about 9,000 tons a year. The company will look into building another eco-friendly solar power plant to respond to the Renewable Portfolio Standard (RPS) while continuing to secure stable profits.



Shinan Solar Power Complex

Wind Power

POSCO ENERGY plans to construct large-scale onshore and offshore wind farms in Shinan-gun, Jeollanam-do. The onshore wind farm will be completed in three stages. The construction started with a capacity of 100MW in Jaeun-island, Shinan-gun, Jeollanam-do from February 2015 and is expected to be completed in 2016. For the offshore wind farm, POSCO ENERGY selected the site and will commission feasibility study before the fully-fledged launch of the business. We will continue to contribute to the growth of the domestic wind power generation business and take the lead in reducing GHG emissions in Korea.



Jeonnam Offshore Wind Farm

New and Renewable Energy Business

POSCO ENERGY is diversifying the business portfolio which used to rely on LNG power to encompass eco-friendly energy business. As we establish a Total Value Chain for new energy business, we are enacting changes and taking on challenges. New and renewable energy is our sub-core business, and we plan to develop off-gas, solar energy, wind power, and resource recycling.

Solar Power

POSCO ENERGY utilized deserted salt farms to build solar power plants that now generate electric power with a total capacity of 14.5MW in Shinan-gun. After the construction of the plants, transforming this abandoned area, with abundant sunlight, it produces highly efficient, eco-friendly energy while minimizing the adverse

Solid Refuse Fuel (SRF) Power Plant

Since 2013, POSCO ENERGY has been operating a Solid Refuse Fuel (SRF) Power Plant in Busan to generate energy as well as dispose waste, which is inevitably produced from our daily activities. As the first and largest Korean SRF Power Plant, it turns 900 tons of waste from Busan city per day into 25MW of electricity, which is enough to cover 50,000 households. It would take 75 million Nm³ of LNG for a year to produce the same amount of electricity, which means the SRF Power Plant reduces 160,000 tons of GHG emissions every year. Municipal solid waste has been treated by incineration or landfill disposal causing various environmental pollutions. The SRF Power Plant selects combustible waste, and then utilizes it as a fuel to produce electricity. The heat from the energy generation process can be applied to various demands, such as district heating systems and industrial facilities. POSCO ENERGY also takes stringent measures to treat key air pollutants(including dioxin, NOx, SOx, HCl and dust) under the level of legal standards.

SRF Power Generation Flow



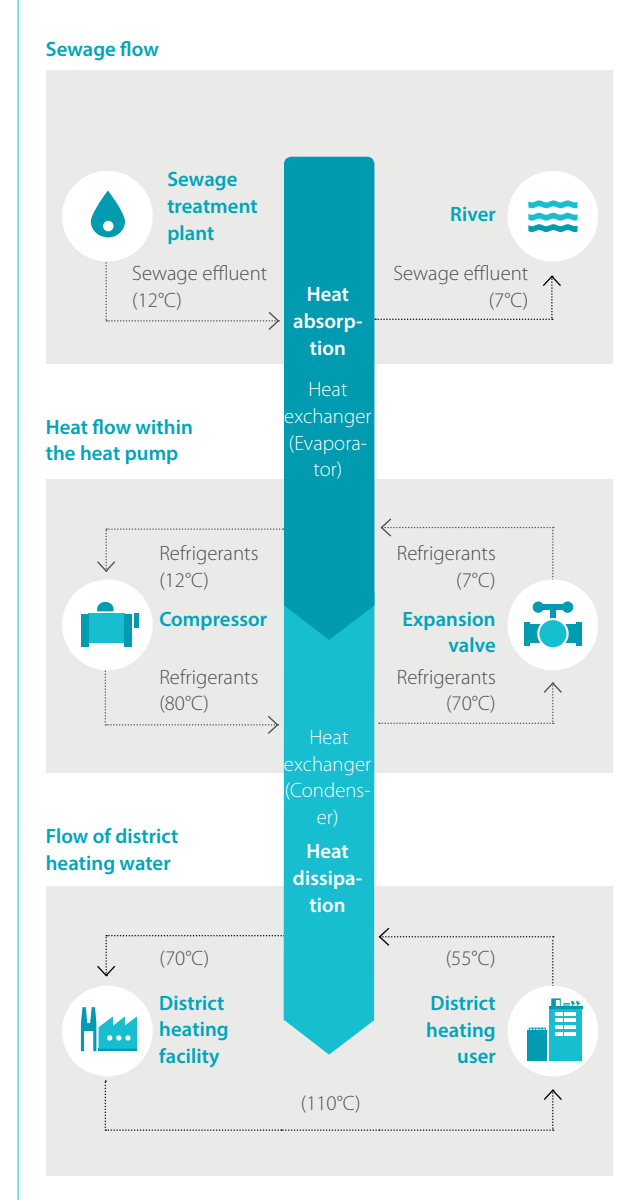
Sewage Heat Energy Utilization

Tancheon Sewage Treatment Center located in Seoul processes and discharges 1.1million tons of sewage into the Han River every day, which maintains a temperature of 12°C, even in the winter time. POSCO ENERGY collects and recovers the heat energy generated from sewage water through heat pumps, and then supplies

heating energy to nearby local district heating corporations.

This facility produces 200,000 Gcal of heat energy, enough to cover 20,000 households a year. This also replaces the use of 17 million Nm³ of LNG on an annual basis, reducing GHG emissions by 47,000 tons.

Process of Sewage Heat Energy Utilization



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3

Response to Climate Change



Materiality for Business

The world is striving to reduce GHG emissions significantly as we can see in the outcomes of the 21st Conference of the Parties held in Paris in 2015. To meet this global trend, Korea introduced the Emissions Trading Scheme in 2015. Beginning this year, the Korean Government imposes fines on a company if its emissions exceed the permitted allowance. Since the fine is three times higher than the market prices, it can be a burden for business management, especially for power generation companies that generate a large proportion of GHG emissions. However, POSCO ENERGY takes this as an opportunity to sharpen our competitiveness and we are operating a system to continually monitor environmental management activities and preemptively respond to laws and regulations.



Materiality for Environment and Society

According to the Intergovernmental Panel on Climate Change (IPCC), if GHG emissions continue as they are, the average temperature of the earth is expected to increase by approximately 4°C and the sea level will rise by 60cm in the late 21st century. There is a global movement to minimize GHG emissions in generating electric power, and the Korean Government also implemented various policies to prevent future climate change and engage in the international carbon market. POSCO ENERGY thoroughly plans various corporate activities that can influence society and the environment limiting negative environmental impacts from the construction and operation of new power plants.



Key Issues

To identify what is most important to our stakeholders, POSCO ENERGY carried out a materiality analysis and selected the issues below for its third aspect: Response to Climate Change.

- Response to climate change
- Emissions minimization
- Effective resource utilization
- Biodiversity in operation sites

Stakeholders

Opinions



Executives and Employees

“ We need to reevaluate the contribution of LNG power plant to keep up with the changing business environment to reduce CO2 emissions as seen in the possible legislation of a carbon tax imposed on the power generation industry. ”



External Stakeholders

“ POSCO ENERGY should become a market leader. To do that, it would be required to make proactive investments in the related areas and also make decisions promptly. ”



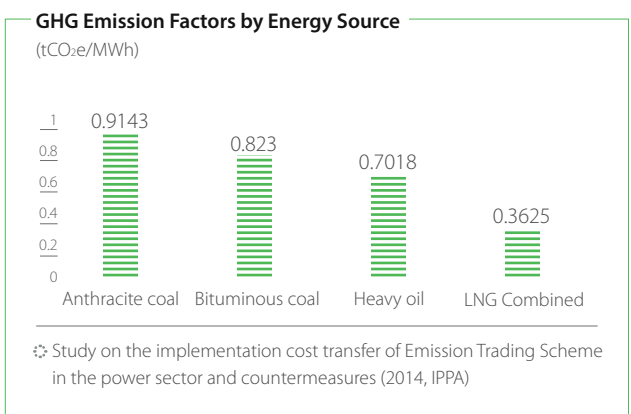
Key Performances and Objectives

- Established the pollutant management process for the plants in Incheon, Pohang and Gwangyang
- Minimized the ecological damage on the construction sites in Samcheock Plant

Response to Climate Change

Policies and Regulations

In accordance with the Framework Act on Low Carbon, Green Growth and the Act on the Allocation and Trading of Greenhouse Gas Emissions, power generation businesses are subject to GHG allowances and shall release GHG emissions within their allowances. If there is any allowance left over, they can sell their emission permits. They may also buy emission allowances from other companies if they need more GHG allowances. Compared to other energy sources, LNG combined cycle power plants are relatively more competitive as they yield less greenhouse gas per unit of power than coal-fired or oil plants.



Implementation Strategies

According to the allowances by business type announced by the Ministry of Environment this year, the allowance for the energy sector including POSCO ENERGY is 24,528KAU. We need highly strategic management to restrict our GHG emissions. We are taking various measures to respond to climate change: improve the efficiency of power generation facilities, establish the greenhouse gas inventory that lists emission amounts by source, and continue expanding new and renewable energy.

Activities Responding to Climate Change

The LNG combined cycle power plants operated by POSCO ENERGY are highly efficient generation facilities that retrieve heat from gas turbines to run steam turbines. Our off-gas combined cycle power plants in Pohang and Gwangyang utilize off-gas generated from steel works to generate electric power. Since these plants do not require fossil fuel during in the generation process, they do not produce CO₂, and reduce GHG emissions. A snapshot of POSCO ENERGY's emission status in 2015 is as follows: energy consumption

(116,386 TJ), GHG emission (12,439,921 tCO₂), GHG emission intensity (0.79 tCO₂/MWh), and direct emission by fuel combustion (99.7%).

Improvement of Energy Efficiency

POSCO ENERGY is undertaking various activities to improve facility performance for conserving energy. In the Incheon LNG Combined Cycle Power Plant, we replaced aging Units 1 and 2 that suffered from lower efficiency with Units 7 to 9 that are highly efficient in 2015. Updating our technology at the plant has increased energy efficiency by approx. 15%, thereby improving the GHG emission intensity.

Enhancement of the GHG Management System

POSCO ENERGY has established a systematic air environment management system to monitor and manage our air pollutant emissions. With the GHG Inventory System that we established, we estimate and report the amounts of GHG emissions from our headquarters and business premises based on the "Guidelines on GHG/Energy Target Management Operation and Others." We also run an Enterprise Resource Planning(ERP) system to manage the implementation status of our GHG emissions and the Renewable Portfolio Standards(RPS). The management can access major information through the Enterprise Information System(EIS) to make decisions regarding GHG issues.

Classification	Energy Reduction (MWh)	GHG Reduction (tCO ₂)
Improved seawater pump operation	5,413	2,524
Improved gas cooling water pump operation	265	124

Introduction of GHG Reduction Technologies

POSCO ENERGY endeavors to acquire technologies to lower GHG emissions to help achieve the National GHG Reduction Target and respond to the Emission Trading Scheme. The company intends to carry out a GHG reduction business and introduce GHG mitigation technologies in the long run. We are currently reviewing a number of GHG mitigation technologies including the Carbon Capture and Storage (CCS) technology. CCS technology extracts CO₂ generated from fossil fuels before it is released into the air, and then converts it to a liquid state for storage.

Expansion of New and Renewable Energy Supply

POSCO ENERGY are developing a variety of new and renewable energy sources including solar power, onshore and offshore wind power, and fuel cells. We strictly comply with the Renewable Portfolio Standard (RPS) and strive to minimize GHG emissions.

Environmental Impact Minimization

Environmental Management System

POSCO ENERGY designs environmental management strategies consistent with corporate visions and missions. We are pushing forward with the implementation of our Green System, Green Operation, Green Business, and Green Communication. Each business site including Incheon, Gwangyang, and Pohang has an organization dedicated to environmental issues, and our headquarters run the Power & Environment Policy Group that presides over company-wide environmental management. This group takes measures against the legislation and revisions of the relevant laws, revises and adopts the implementation plans of each business site. It is also in charge of disclosing the relevant information to respond to the internal/external environment examinations and communicate with stakeholders. POSCO ENERGY won the first prize in "2015 Excellent Case Presentation of Air Pollutant Emission-Cap Management System" for our efforts to reduce environment pollution and to keep consistent communication with stakeholders.

Environmental Management Policy

As a world-renowned energy company, POSCO ENERGY understands the environment as the key element for management strategy. We will secure sound environment management based on the development of technologies and communications. We will also practice the following commitments to lead low carbon green growth.

- Secure global leadership by setting up an environmental management system based on ISO14001 and pursue sustainability management.
- Comply with environmental laws and regulations and improve the environment continually throughout the entire production process.
- Strive to reduce environmental pollutants by applying clean production processes and optimum prevention technologies.
- Run a monitoring system to regularly evaluate environmental performance.
- Reduce GHG emissions by using clean energy and employing green technologies to lead low carbon green growth.
- Ensure management transparency by disclosing the environmental management performance and fulfill social responsibilities.

Environmental Management Strategies



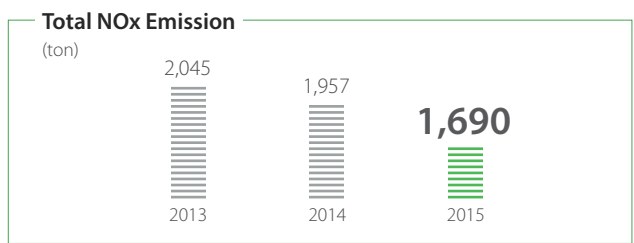
Maintenance of the Environmental Management System

To ensure systematic environmental management, POSCO ENERGY established an Environmental Management System based on the international standard, ISO14001 in 2011. We continually improve our environmental performance by identifying areas to be improved through internal assessment and external experts' post-assessment. We also participate in the environmental examination for

partners' business premises to manage group-wide risks. As part of these efforts, we carry out an environmental impact assessment by business characteristics, and a theme-based inspection based on key issues with high risks. The results are reported to the POSCO Environmental Management Committee and reflected in the fields immediately if any resolution measures are required.

Air Quality Control

POSCO ENERGY has established a Tele-Monitoring System (TMS) to automatically measure air pollutant emissions, and manage the emission of air pollutants including nitrogen oxide (NOx) and sulfur oxides (SOx) under our standards that are stricter than the Legal Standard. To minimize air pollution, we installed various air pollution control equipment including low NOx burners, Selective Catalytic Reduction (SCR), and electric precipitators. We also strive to maintain good air quality around our business sites: the company uses an air quality monitoring system (CleanSYS) to monitor air pollutants in the air 24 hours a day, and delivers the relevant data to the Korea Environment Corporation on a real-time basis.



Water Quality Control

POSCO ENERGY fully recognizes the global concern over water scarcity, and we strive to reduce the risk of water shortage by reusing water. The company uses water in the steam production and facility operation: POSCO ENERGY consistently engages in the reuse and recycling of water to reduce water consumption. We have adopted a water control standard stricter than the legal mandatory for water pollutants discharged from business site. We also carry out regular check-up to measure the amount of pollutants and find any abnormalities in discharge/pollutant prevention systems on a real-time basis. At our off-gas combined cycle power plant, discharged water is transferred to the wastewater treatment facility of a local steel mill and then collectively treated with wastewater from the steel mill. The fuel cell plant in Pohang does not produce any wastewater.

Water Consumption

Classification (ton)	2013	2014	2015
Incheon LNG Power Plant	1,357,955	1,179,050	831,193
Gwangyang Off-gas Power Plant	689,913	753,686	742,159
Pohang Off-gas Power Plant	-	936,178	1,042,641
Pohang Fuel Cell Plant	31,690	37,649	64,234
Total	2,079,558	2,906,563	2,680,227

Waste Control

There are several types of waste generated in power plants: general waste such as sludge from wastewater, waste synthetic resins, and waste adsorbents, as well as designated wastes including liquid waste oil and solid waste oil. POSCO ENERGY introduced the "Allbaro System" operated by Korea Environment Corporation to transparently manage the entire waste treatment process from generation, storage, transfer to final disposal of waste. We strictly limit our waste generation by saving resources and promoting recycling activities.

Amount of Waste Generation

Classification (ton)	2013	2014	2015
Amount of Waste Generation	1,202	1,597	2,271

Chemical Substance Control

POSCO ENERGY is fully aware that chemical substances may harm the environment and local communities, and maintain thorough control over chemicals and associated risks with safety departments at each business site. At our power plants, we use chemical substances to produce purified water for our facilities and to control air and water pollutants. The company manages chemicals in compliance with all relevant laws and regulations including the Chemicals Control Act, and Occupational Safety and Health Act. POSCO ENERGY also strives to prevent any chemical incidents from occurring. We also regularly conduct training sessions for occupational safety and the prevention of environmental pollution, making sure that our workers are fully capable of handling toxic chemical leaks in a safe way.

Biodiversity Conservation

POSCO ENERGY's ethical standards dictate our biodiversity policy. To limit detrimental effects on the environment in neighboring areas, we rigorously conduct environmental impact assessments before and after construction to preserve the ecosystem in the vicinity and improve the surrounding environment. The company completed an environmental impact assessment before starting construction of the coal-fired thermal power plant in Samcheok and took necessary measures to restrict the impact on nearby land and marine ecosystem. For small animals living around the plant site, we plan to make an ecological path through which they can migrate to less disturbed areas. To protect marine ecosystem, we will adjust the intensity of construction work. POSCO ENERGY will continue assessing environmental impact for future construction works and plant operations to protect the ecosystem.

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Contribution to Local Communities



Materiality for Business

Technological standardization and the era of information technology have brought about drastic change in today's management, accelerating the harsh competition among companies. Nowadays consumers pay attention to a product's quality as well as the reliability and ethical management of the manufacturer. More and more companies are therefore establishing teams for social contribution activities. They are also promoting volunteering activities as the part of their routine work and increasing their donations. Conducting social contribution activities based on a company's expertise is growing more important in corporate management: companies can improve their public image, increase sales and attract talents while helping the local communities.



Materiality for Environment and Society

Companies' business activities definitely influence the local communities. Since the power generation industry needs large-scale power plants, it is inevitable to exert huge impact on local communities. That is why power generation companies must forge and maintain an amicable relationship with local residents. External stakeholders are also interested in how the company gets along with the public, showing greater support to solve social problems in addition to creating economic value. POSCO ENERGY understands the environmental burden such as GHG emissions of business activities and enacts efforts to mitigate any negative environmental influence. POSCO ENERGY also commits to help the local communities in various ways: revitalize local economies by creating jobs and purchasing local specialty goods, develop local talents, and run mutual-growth programs.



Key Issues

To identify what is most important to our stakeholders, POSCO ENERGY carried out a materiality analysis and selected the issues below for its forth aspect: Contribution to Local Communities.

- Local economy revitalization
- Social contribution based on strengths

Stakeholders

Opinions



Executives and Employees

“ We should keep helping local communities with volunteering activities and make contributions. We also need to publicize our activities to external stakeholders in order to improve our public image. ”



External Stakeholders

“ It is desirable for POSCO ENERGY to conduct social contribution activities with its own expertise. It is important to continue various programs to improve the welfare of the underprivileged. ”



Key Performances and Objectives

- Outcomes of Energy Dream Project:
 - Economic Outcomes: Reduced energy costs by KRW 23,434,000 per year
 - Environmental Outcomes: Lowered CO₂ emissions by 89,512kg per year (equivalent to planting 15,983 trees)

Implementation Strategies

Capitalizing on our expertise, we decided on “Energy for a Better World” as our social contribution motto. This expresses our drive to bring light and energy to places in the world that need energy. Our on-going social contribution activities are set along on two axes: representative programs for neighbors that need energy and the volunteer work carried out by executives and employees.

Social Contribution Motto



Implementation Strategies

Motto

Energy for a Better World

Representative Programs

Energy Dream

- Improve energy efficiency for aged houses and install solar power generators.
- Provide electric safety inspections and draw energy murals.

Community Child Center that Brightens the World

- Dispatching university student volunteer corps. for study mentoring
- Improving the environment of community child centers

Volunteer Work by Executives and Employees

BEST Activities

Basic	Entertaining	Strategic	Together
Sharing Saturday	Family Volunteer Work	Energy Volunteer Work	POSCO Group Volunteer Work
Volunteer work on Sharing Saturday by division	Volunteer work with family	Volunteer work related to the energy industry	United volunteer work by POSCO group

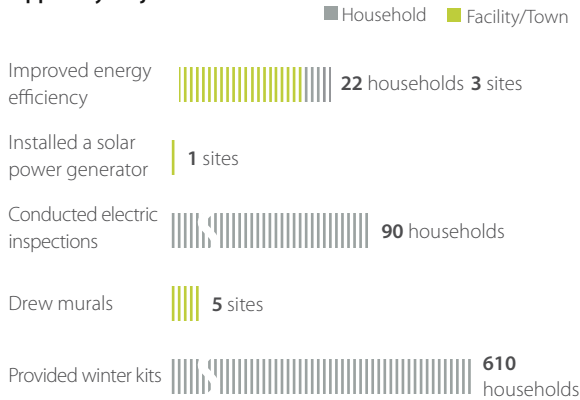
1% Sharing

Raise social contribution fund through donation of 1% of salary, and the company’s matching grants

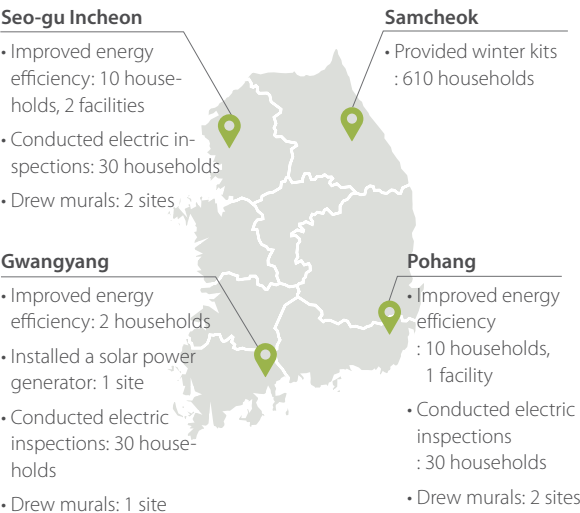
Key Performances

Energy Dream

Support by Project

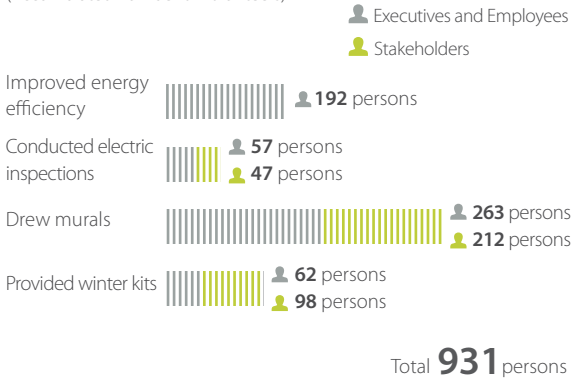


Support by Region

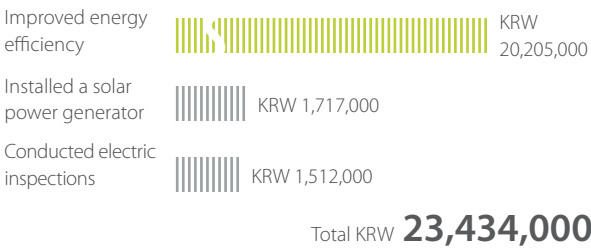


Volunteer Participation

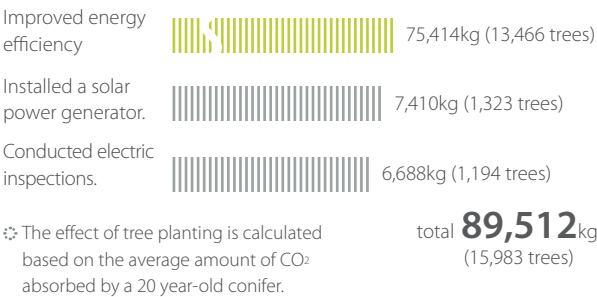
(Accumulated number of volunteers)



Energy Cost Saving



CO₂ Reduction and Effect of Tree Planting

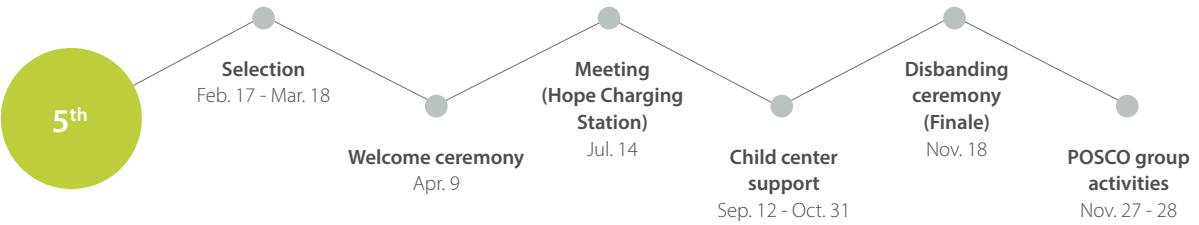


Community Child Center that Brightens the World

Outcomes

	Applied Centers	No. of Children	“Energy of Hope”Volunteers	Completion Rate	Service Hours
5 th	10 Community Child Center	254 persons	50 persons	88%	2,583 hours

Project Schedule 2015



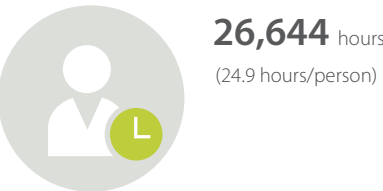
Implementation process



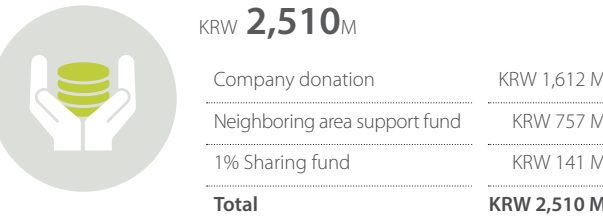
Volunteer Work by Executives & Employees

1% Sharing Fund

Volunteering hours



Social contribution



Efforts to Revitalize Local Economy

POSCO ENERGY believes that a company's growth should bring better quality of life to local residents and activate their economy. Throughout our business sites in Incheon, Gwangyang, Pohang, Samcheok, and overseas, we offer new job opportunities and convenient facilities, and foster local talents through scholarships and industry-academic cooperation.

Cheongna Culture Center in Incheon

In January 2016, the company built a cultural complex where local residents can relish cultural, art, and physical activities around the Incheon LNG Combined Cycle Power Plant. With one underground level and two above ground floors, Cheongna Culture Center house physical activity facilities including a swimming pool, fitness centers, and aerobic rooms. It also has cultural spaces such as a theater, exhibition halls, and classrooms. Since the rapidly expanding Cheongna International City is experiencing a sudden influx of population, it requires places for cultural, artistic and physical activities. POSCO ENERGY donated Cheongna Culture Center to communicate with the local community.

Youth Table Tennis Club

In addition to the management of its female table tennis team, POSCO ENERGY established the first youth table tennis club in Korea in May 2015 to discover promising players in Incheon. The youth table tennis club will nurture future talents to lead table tennis in Korea, and elementary school students living near Incheon are eligible to join. We also offer free table tennis classes to the local residents and supporters by its female table tennis team.

Hiring Graduates from Samcheok High School

On September 2014, POSCO ENERGY concluded industry-academic cooperation MOU with Samcheok Meister High School, which was designated as a specialized technical high school in 2013, and recruited the first graduates from the school for POSCO ENERGY in 2016. Newly hired employees will be assigned jobs after completing their military service. POSCO ENERGY also carried out a range of activities to support the areas where the company operates in 2015; executives and employees of POSCO ENERGY purchased local specialties in Samcheok, engaged in volunteer works to provide drought relief, donated winter clothes for the underprivileged teenagers, and gave scholarships and textbooks to middle and high schools near the coal-fired thermal power plant in Samcheok.

Social Contribution Activities

Energy Dream

Since 2012, POSCO ENERGY has been conducting the "Energy Dream" project. With our expertise, we implement energy welfare for the households whose energy purchase cost is more than 10 percent of their income in Korea, estimated to be about 1,500,000 households. The name of "Energy Dream" shows our commitment to improve the welfare of local communities: we ultimately empower our neighbors to pursue their "Dreams" by giving them "Energy" associated with light, warmth, and safety.

Key Programs

Classification	Details	Project Areas
Warmer	Improve energy efficiency	Replace double pane windows and aged boilers, provide insulation work and floor work
Cleaner	Install solar power generators	Install solar power generators
Safer	Conduct electric inspections	Replace LED lights and aged electrical facilities, inspect electric safety
Brighter	Draw murals	Create murals with the theme of "Light" in schools and towns
More hopeful	Provide winter kits	Prepare useful items and provide winter kits

Key Performances in 2015

- **Strengthened participation of executives and employees through Energy Dream Week:** Executives and employees participated in voluntary work of representative projects to understand local communities and practice genuine sharing.
- **Increased stakeholders' participation:** Employees' families, local residents, and executives and employees from relevant organizations participated in volunteer works in representative projects. Approx. 38% was stakeholders out of all participants.
- **Published outcome report:** The company has published and distributed an outcome report featuring the performance of the Energy Dream project, and shares the opinions of participating organizations and volunteers. This report can also be found on the POSCO ENERGY homepage.



Drew murals



Provided winter kits

Community Child Center

Since 2013, POSCO ENERGY has been continually offering support for ten community children centers with various activities.

Key activities

Classification	Details
Mentoring of "Energy of Hope", University Student's Volunteer Corp.	Provide regular lecture and extracurricular activities once a week.
Vocation experience	Prepare vocation experience to encourage children to dream about their future.
Safety awareness education	Organize fire safety training and excursion to disaster experience center for safety awareness.
Energy camp	Provide one-day Energy Camp and Campus Tours with Yonsei University International Campus located at Song-do, Incheon.
Improved the environment of child centers	Support heating and cooling costs, education materials and equipment, furniture made by the executives and employees.

Key Performances in 2015

- **Extend the period of university student volunteer corp**
We extended the period of the students' volunteer corp. from five to eight months since 2015. It helped to boost the effects of mentoring since mentors developed better rapport with the children (completion rate: 88%).

Volunteer Activities

POSCO ENERGY contributes to local communities in four different types. Our year-long volunteer service, which we call "BEST Volunteer Activities" are composed of: Sharing Saturday (Basic), company-wide monthly volunteer activities conducted by small-groups in conjunction with volunteer organizations. Themed volunteer activities (Entertaining) where employees' families and university students participate. Energy volunteer activities (Strategic) realize energy welfare and family volunteer activities (Together) carried out with POSCO Family. Through these programs, POSCO ENERGY's executives and employees engaged in an average of 24.9 hours of volunteer activities in 2015.

1% Sharing

The 1% Sharing Fund is raised by the 1% Sharing Campaign, first initiated by POSCO ENERGY executives in 2011, and is further expanding due to the growing participation of POSCO ENERGY employees. The company also donates a matching grant equivalent to the employees' subscriptions to the 1% Sharing Fund at the end of the year, and it has created a corporate culture of sharing. In the hope of creating a healthier, brighter, and unified world, the fund will be used to help pay for the medical fees for children suffering from incurable diseases, mural paintings in business premises, and partner institutions joining the Sharing Saturday program. All projects that use funds from the 1% Sharing shall be reviewed and transparently spent by the Workers' Council.



Healthier World: Medical expense support for a child suffering from incurable disease



Unified World: Donation made to a partner institution on Sharing Saturday

Management Report

Governance
Business Ethics
Sustainable Management
Innovation
Employee
Safety and Health
Suppliers
Customers
Risk Management



Governance

POSCO ENERGY practices responsible and substantial management to meet stakeholders' expectations. Based on this principle, the Board of Directors (BOD) determines key issues while supervising the performance of the management. It is also fully committed to increasing the values and benefits for stakeholders.

Composition of the BOD

As the highest decision-making authority, the Board of Directors (BOD) consists of three internal directors, three non-executive directors, and one auditor. Internal directors and non-executive directors who have the expertise in overall business management are appointed at the BOD meeting while a financial expert is appointed as the auditor through a BOD resolution. The appointed directors are in charge of making major decisions regarding company management, and the auditor supervises the performance the directors. The members of the BOD shall be evaluated and remunerated according to the internal policy and merit-based compensation system.

Composition of the BOD

Classification	Name	Position
Internal Director	Dong-jun Yoon	CEO
	Chang-dong Shin	Head of Business Development Division
	Tong-wook Shim	Head of Planning & Supporting Division
Non-executive directors	Jin-il Kim	President of POSCO
	Gi-seop Jeong	Head of Domestic Business Management Division of POSCO
	Gyung-chul Gu	Vice President of STIC Investment
Standing Auditor	Seung-hwan Cho	Head of Corporate Audit Division

Operation of the BOD

The BOD is operated through general and extraordinary meetings, and the CEO appointed by the BOD is responsible as the chairperson for the meetings. BOD meetings can be called by the chairperson, and the resolution can be made by having more than half of the BOD members in attendance and a majority vote. Any BOD members who have a special stake in the company cannot exercise their voting rights at the relevant meetings. Key issues for the BOD in 2015 include the market expansion of the generation business in and out of Korea, the company's social responsibilities, and risk management. The BOD of POSCO ENERGY will fully reflect and

strike an appropriate balance among various opinions from stakeholders.

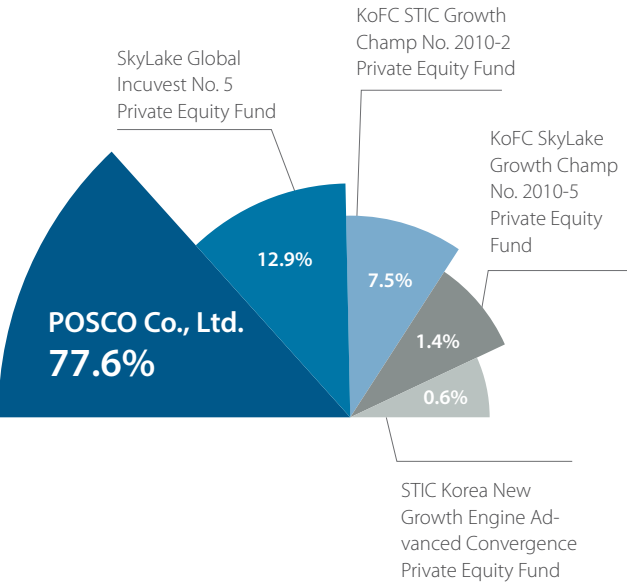
Activities of the BOD

Meetings held	11 times
Agendas approved	20 cases
Attendance	94%

Major Agendas of the BOD

Date	Agenda
Jan. 30	Approve the 16 th financial report
	Contribute welfare fund
Feb. 26	Call for the shareholders' annual meeting and approve issues presented
Mar. 16	Grant positions to internal director
	Issue the 21 st public offering of unguaranteed bonds
	Contribute charitable donations in 2015
May. 22	Approve capital increase for PSC Energy Global
	Approve Morupule B Phase II Units 5 and 6, Coal-fired Thermal Power Plant project in Botswana
	Appoint the Fair Trade Compliance Officer
Jun. 9	Approve Sumsel-10 Coal-fired Thermal Power Plant project in Indonesia
	Invest equity in POSCO Vietnam Holdings
	Issue the 22 nd public offering of unguaranteed bonds (for conversion)
Jul. 16	Call for the extraordinary shareholders' meeting and approve issues presented
Jul. 20	Appoint CEO
Jul. 28	Increase the investment for the fuel cell plant
	Extend the construction period for Sub-MW conditioning facility
Sep. 30	Open the Mongolian Office of POSCO ENERGY
Dec.11	Conclude the stock purchase agreement for Tamra Offshore Wind Farm
Dec. 24	Approve 2016 management plans
	Contribute charitable donations in 2016

Shareholder Status



Transparent Disclosure

In accordance with the Act on External Audit of Stock Companies, Capital Markets Act, and Fair Trade Act, POSCO ENERGY made a total of 29 disclosures in 2015 through the Data Analysis, Retrieval, and Transfer System (DART) of the Financial Supervisory Service (FSS). By earnestly fulfilling the disclosure obligation on key issues, POSCO ENERGY has expanded communication with the stakeholders. There have been no warnings or issues related to insincere disclosures for the last three years from 2013 to 2015.

Business Ethics

POSCO ENERGY regards business ethics as the obligation that must be fulfilled at any cost. The company provides executives and employees with various activities on ethics and fair trade so as to internalize the ethical management that places the ultimate importance on the principles. The Audit Division is under the immediate control of the CEO, while the Ethical Management Team handles duties related to ethical management and fair trade. All executives and employees fully comply with the “One Strike Out” system, group-level initiatives to eradicate four unethical behaviors; bribery, embezzlement, sexual harassment, and information fabrication. Furthermore, we have selected “Top 10 Ethical Risks” to fundamentally improve daily processes and systems that are more vulnerable to ethical risks. In an effort to implement the ethical management in the organization, the executives also run a company-wide “Ethical Conduct Practice Program” throughout the year.

Implementation Status

2007 ~ 2009	Introduce ethical management	<ul style="list-style-type: none">• Declare the principle of ethical management• Establish the code of ethics• Adopt a program on corporate ethics compliance• Introduce the holiday gift return system
2010 ~ 2012	Raise awareness on ethical management	<ul style="list-style-type: none">• Operate a group-wide ethical conduct practice program• Establish and operate FCPA guidelines• Offer on-site ethics training by standing auditor
2013 ~ present	Internalize ethical management	<ul style="list-style-type: none">• Revise the code of ethics including social responsibility• Establish the sexual harassment prevention committee• Improve the ethical conduct practice program• Operate the Clean POSCO system

Ethical Practice Program

Operated since 2009, the Ethical Conduct Practice Program is a participatory program offered to all employees to identify ethical risks within the company and propose ideas to tackle risks. For more efficient execution, the initiative of the program was taken by the executives since 2015. The program is accompanied by ethics training in which all executives and employees participate. It covers a wide range of ethics education sessions according to their positions and duties, peripatetic ethics session for each division, and other sessions customized for various position candidates. The commitment to ethical business practices expands further into the partners as we offer ethics training in connection with mutual growth activities.

Clean POSCO System

The Clean POSCO system builds a corporate culture free from the practice of solicitation. It records and manages all requests including special favors made, as well as all executives and employees associated with the request. This includes those who received recommendation or requests and who delivered such requests. The person in charge shall register the details of the issue to the Clean POSCO system within 24 hours. Anyone who fails to register will be subject to personal disadvantages within the company including disciplinary actions.

Sexual Harassment Prevention Committee

POSCO ENERGY held two meetings for the Sexual Harassment Prevention Committee on March and September 2015, the executives and representatives of employees attended the committee meetings. The company promotes and expands an organizational culture that promotes good workplace etiquette with various programs including quarterly committee meetings, training sessions by business sites, and relevant activities by committees. We also appointed applicable officers in each business site to improve the counselling process so that victims can report and receive advice more efficiently. POSCO Energy provided each executive and employee with 2.5 hours of online/offline training on sexual harassment prevention.

Fair Trade

POSCO ENERGY runs internal policies and programs to build a culture to voluntarily uphold fair trade. We promote fair and free competition to achieve sound economic growth and improve the market’s functions.

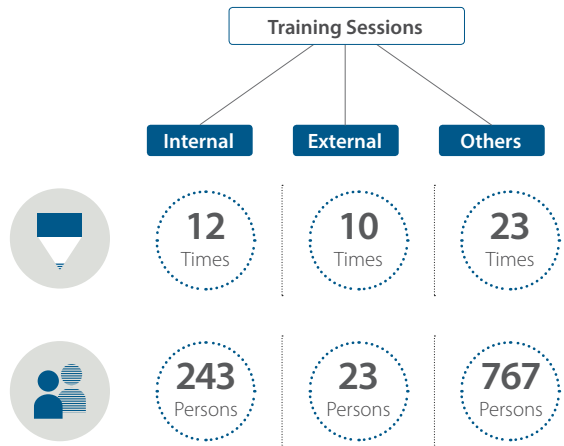
Fair Trade Compliance Program (CP)

POSCO ENERGY has implemented the Fair Trade Compliance Program since 2009 and executed the seven factors recommended by the Fair Trade Commission. The company has stipulated operating guidelines in writing and been providing executives and employees with a variety of training sessions to improve their awareness about fair trade. We also assist the relevant divisions with various internal and external training sessions. POSCO ENERGY publishes a series titled “Quick and Easy Fair Trade” on the company’s bulletin board for all employees, and distributes Compliance Program manuals for reference, while appointing the Standing Auditor of the BOD as CP Manager. We also hold company-wide fair trade compliance meetings on a quarterly basis to share important internal and external issues on fair trade. Thanks to the efforts and activities, we have been rewarded with “A” for CP grade evaluation from the Fair Trade Commission in 2013 and 2015.

7 Factors

- 1 The management’s declaration of the commitment to compliance
- 2 Designation of CP officers
- 3 Publication and distribution of CP manuals
- 4 Operation of training programs
- 5 Implementation of the monitoring system
- 6 Disciplinary actions on offenders of fair trade laws
- 7 Establishment of the document management system

2015 Fair Trade Training Status





1_2_Fair Trade Compliance Committee, 3_ Employee Training on Fair Trade 4_Excellent Employee Award on Fair Trade

Performance and Plan

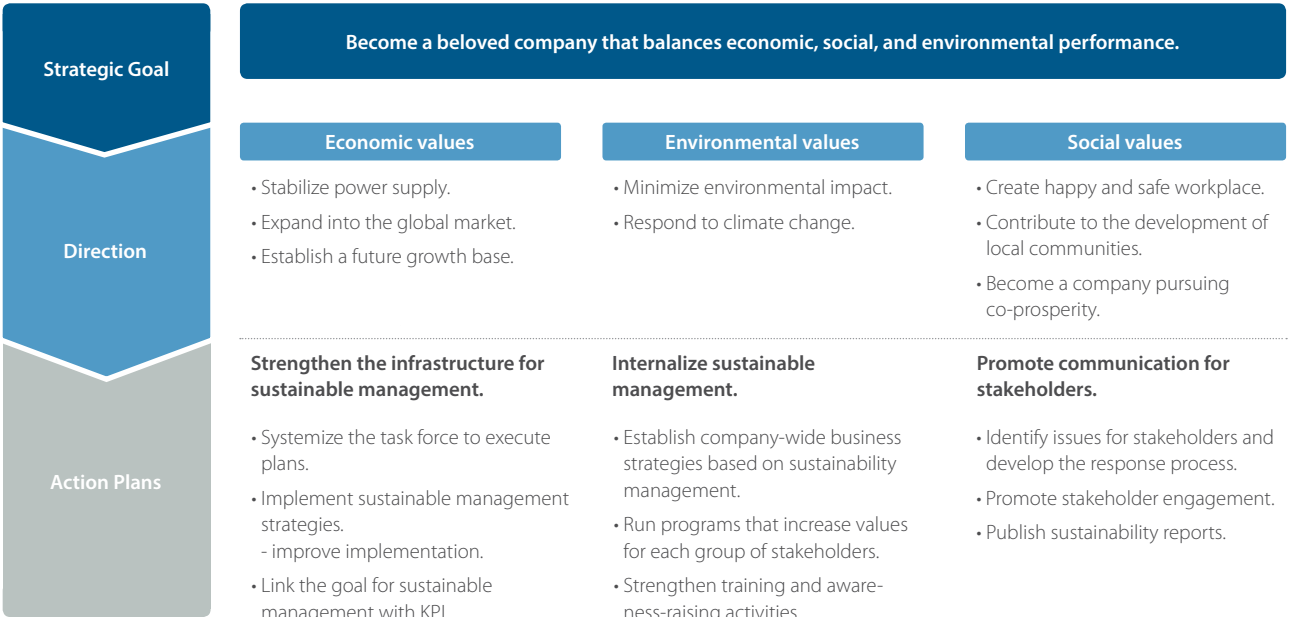
Classification	Performance and Plan
Support from top management	<ul style="list-style-type: none">• Proclaim CEO's commitment in company-wide meetings.• Report the CP operation plan to the BOD meetings.• Complete the company-wide commitment on fair trade compliance.
Introduction of CP and operational principles	<ul style="list-style-type: none">• Post on EP about duties and roles of CP officers.• Organize CP officers and operate the CP Committee.
CP manuals	<ul style="list-style-type: none">• Update the CP manual and distribute it to divisions with high risks of legal violation.
Prior-monitoring system	<ul style="list-style-type: none">• Identify risk factors with CP checklists.• Hold briefing sessions about online/offline reporting system and continue monitoring activities.• Prepare internal audit policies for protecting whistleblowers and improve the reporting system.
Training program	<ul style="list-style-type: none">• Carry out training sessions for executives including POSCO group-level meetings.• Offer online training for all employees.• Invite a guest lecturer to give training to divisions with high risk of legal violation.• Offer external training for employees whose duties are related to fair trade (Corporate Disclosure System, Fair Subcontract Transactions Act, Fair Trade Act, etc.).• Participate in CP seminars and fair trade compliance forums.• Run professional training programs in cooperation with lawyers specialized in the Fair Trade Act.
Incentive and discipline system	<ul style="list-style-type: none">• Offer prizes for model employees who practice excellent activities.• Adopt regular monitoring on legal violations and discipline any violators accordingly.
Evaluation and improvement of CP's effectiveness	<ul style="list-style-type: none">• Assess employees' satisfaction and understanding of offline training.• Analyze problems and causes through surveys designed to evaluate all employees' understanding of CP.• Prepare a CP practice examination report.• Report CP results to executives' meetings or to the BOD.

Sustainable Management

Sustainability Management Strategies

In line with the CEO's strong commitment to sustainable management, POSCO ENERGY set the goal to "become a beloved company that balances economic, social, and environmental performance", and established sustainability management strategies and action

plans in 2011. The company has founded a division to exclusively deal with internalizing sustainable management and engages in a range of activities. Through continuous communication and interchanges with stakeholders, POSCO ENERGY will continue to grow as a sustainable company.



Sustainability Management Organization

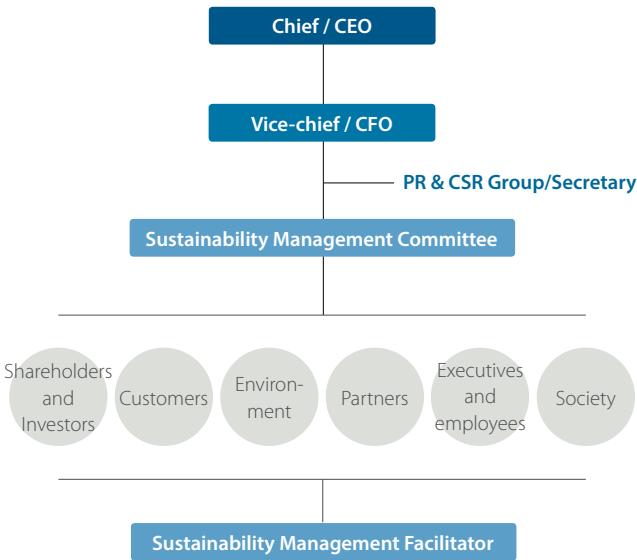
Sustainability Management Committee

POSCO ENERGY runs the Sustainability Management Committee, the highest decision-making body in sustainable management, under the direct control of the CEO. The company defines key stakeholders as investors, customers, environment, partners, employees, and society and formed the Committee with pertinent executives. It holds meetings for regular reporting and supervises sustainable management issues.

Sustainability Management Facilitators

The company has implemented facilitators consisting of senior employees in charge of key sustainability management issues. Facilitators assume the role of gathering the stakeholders' opinions, and conducting tasks. Thanks to facilitators' activities, POSCO ENERGY is able to improve the work efficiency related to sustainability management, ensure great execution, and raise awareness internally. The company invites external

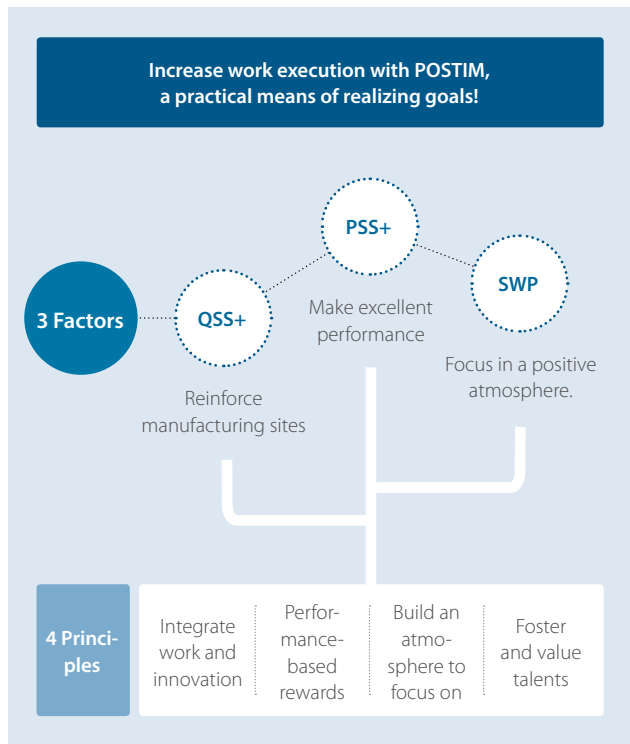
experts to provide facilitators with quarterly training so that they can develop their capabilities and improve operation.



Innovation

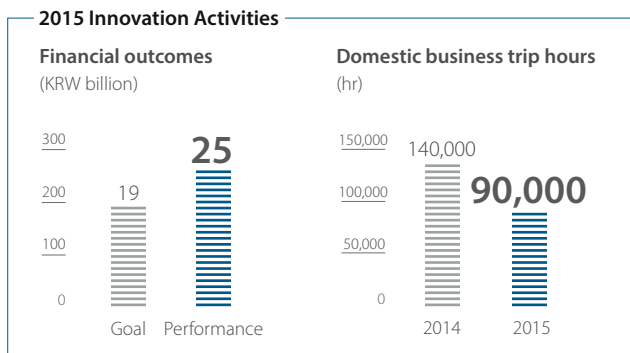
Performance-creating and Innovative Culture

In response to the falling System Marginal Price (SMP), POSCO ENERGY enforced the vigorous POSTIM (POSCO Total Innovation Methodology) to realize company-wide innovation. POSTIM is POSCO group's own innovation model and is composed of PSS+ (POSCO Six Sigma Plus), QSS+ (Quality Safety Stability Plus), and SWP (Smart Work Place). POSCO ENERGY also carried out Work Diet activities to help employees focus on the work.



KRW 25.4 billion generated by PSS+

Based on Six Sigma, PSS+ was developed with an eclectic integration of innovation methodologies such as VE (Value Engineering), TESAL (Target, Explore, Spark, Accelerate, Launch) and Big Data. POSCO ENERGY preemptively introduced PSS+ to take the lead among companies in work process innovations. In 2015, the company explored 21 projects from the perspective of realized gains, differentiated method, and cross-functional approach. POSCO ENERGY mobilized 22 project leaders and 130 team members, which accounted for 10% of the total employees, to achieve these goals. The company mastered methodologies to effectively conduct projects and engaged in discussion, idea search, committee sessions, and a final briefing session, thereby resulting in financial outcomes worth KRW 25.4 billion.



QSS+ Activities to Improve Performance and Safety

QSS+ activities refer to the maintenance and improvement of facilities and equipment. POSCO ENERGY trained 36 leaders in 2015 and improved around 20 operation sites. We have reinforced the company-wide QSS+ activities, while the management visits the frontline employees for the project to build maintenance workshops with recycled waste facility.

Enhancement of Focus through Work Diet

POSCO ENERGY introduced the Work Diet initiative that helps employees to focus on valuable tasks by discarding unnecessary work. The company saved 8,000 hours for a year by abolishing or simplifying official events, and decreased unnecessary business trips by 31%. By using video conferences instead of meetings in person, it also helped to cut down CO₂ emissions. Progress was achieved in various fronts including inefficient directions, reporting, and gathering. Formore promising results The company improve the process of directions, reporting and gathering and establishes and practices Work Diet 10.

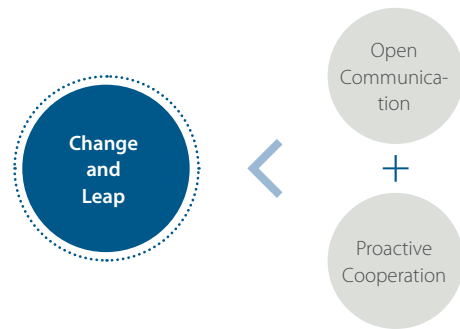
IP Festival for Innovation

We held the IP (Innovation POSCO) Festival and rewarded best practices in order to emphasize the commitment to innovation. We will proactively cope with external changes through innovation and grow to become a global integrated energy company.

Employee

C&C Activities

To realize the vision, it is essential to create a working environment where all executives and employees are able to enjoy their work. Open communication and proactive cooperation are the keys to transform a company into a Great Work Place (GWP) with its long-term competitiveness. POSCO ENERGY opts for C&C (Communication& Collaboration) activities as a core strategy to embed smooth communication and cooperation into the organizational culture and accordingly runs a range of programs.



Talk Concert with CEO

The company provides all employees with an opportunity to communicate with the CEO. Once a year, POSCO ENERGY holds "Talk Concert with CEO" where the CEO meets employees in all business premises to share the corporate visions and management situations. This talk is then followed by Q&A sessions.

Satisfaction Enhancement

Since 2011, POSCO ENERGY has measured the GWP index for all executives and employees. We conduct surveys and interviews for all employees to gauge their GWP(Great Work Place) Index in accordance with a variety of criteria. The results will serve to improve systems, make a pleasant workplace and set the direction for management based on happiness. POSCO ENERGY believes that the happiness and job satisfaction of employees are the pillars of the competitiveness. Therefore, we are committed to "solidifying trust in organization and management", "instilling pride in the job and company" and "mutual respect and understanding among employees."

Thanks Sharing Campaign

Designed to "share the Warmth, Be thankful, and Love together", the "Happy Energy, Thanks Sharing Campaign" has been organized to spread a positive mindset throughout the company. Since 2013, we have participated in producing a daily broadcasting service on

thanks sharing. The company also designates "Thanks Sharing Leaders" by division to encourage employees' thanks sharing facilitators. The monthly Thanks Newsletter is also published to strengthen mutual understanding and trust.



Thanks Newsletter

Good Labor-Management Relationship

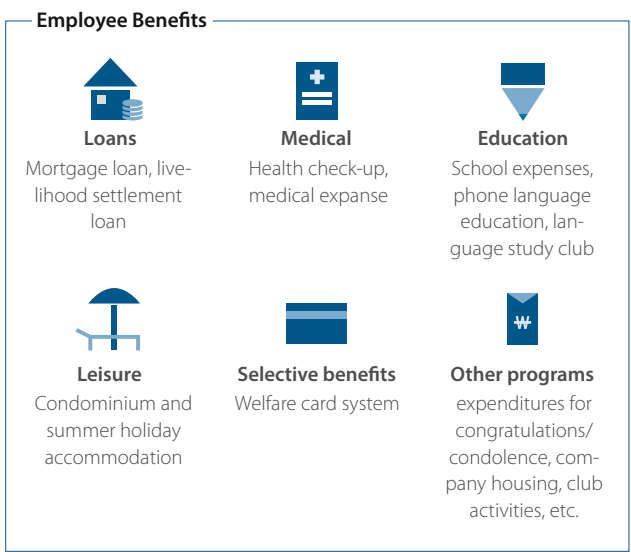
POSCO ENERGY periodically conducts collective bargaining with the labor union to reflect their opinions in decision-making over important business decisions or issues that may directly affect employees' working conditions. The company also holds separate monthly meetings to review grievances and concerns to ensure smooth communication. The Labor-Management Council and the Grievance Resolution Committee allow to discuss all issues requiring labor-management cooperation including employee grievances, and the improvement of salary system and working environments. The Grievance Resolution Committee makes sure that any grievance reports, complaints, and suggestions are kept strictly confidential.



Workshop for Labor-Management Council

Welfare of Executives and Employees

The company has received the “Best Family-Friendly Management Certificate” by the Ministry of Gender Equality and Family on December 2015. POSCO ENERGY is the only company among IPPs in Korea that has been recognized for its excellent family-friendly practice through this certification, and this is the second certificate it earned since 2012. The company runs a flexible working time scheme to support employees’ self-development, child-care and education. The company also designated as “Family Day”, the day all employees leave the office one hour earlier than usual so that they can spend time with families. The company also supports employees with various policies including maternity and childcare leave, paid paternity leave, and in-house child-care center. POSCO ENERGY support the employees to find the right balance between work and family by offering a “psychotherapy center” and “family counseling program”. Aside from these programs, POSCO ENERGY also provide employees with a variety of benefits such as holiday accommodation, school expenses, medical expenses, and partner’s health check-up support.



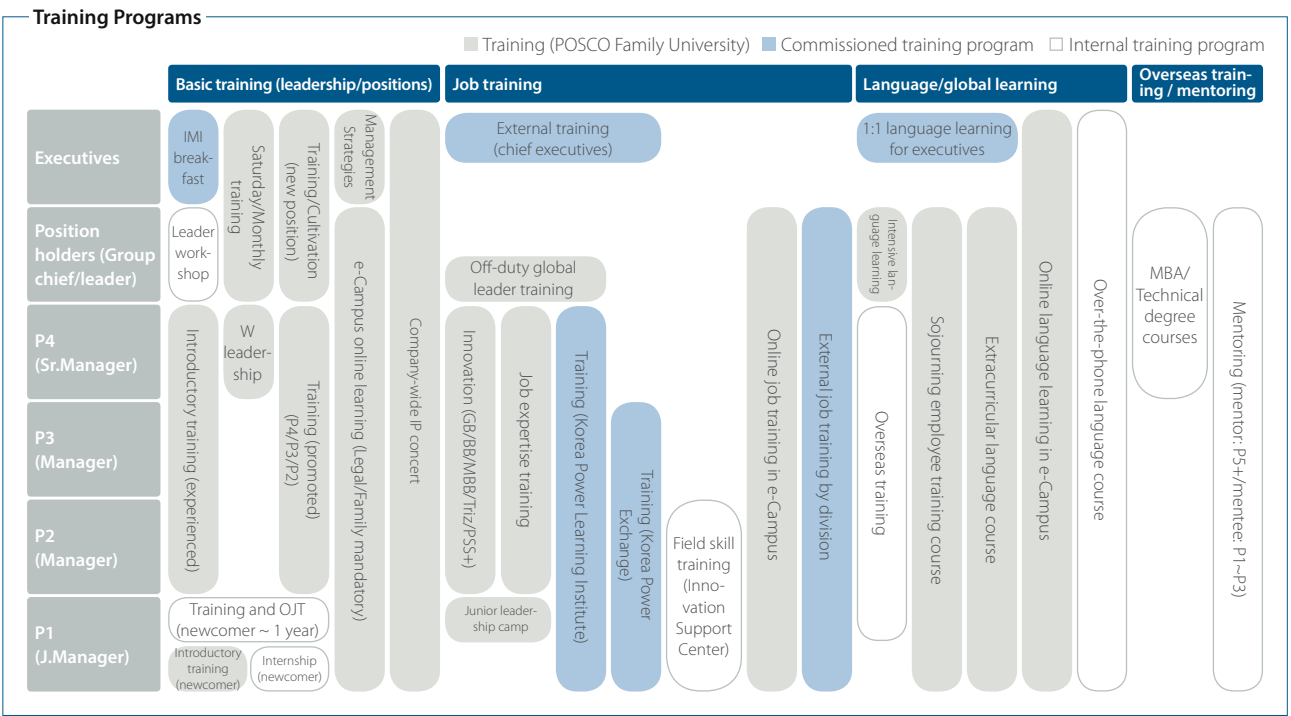
Business and Human Rights

In accordance with POSCO Family’s Code of Ethics, POSCO ENERGY respects and advocates the globally recognized international standards on human rights including the Universal Declaration of Human Rights, United Nations Guiding Principles on Business and Human Rights, the 10 Principles of the United Nations Global Compact, and the OECD Guidelines for Multinational Enterprises. We also prescribe that no human rights shall be violated in the business

activities. We aim to achieve an organizational culture free from any discrimination. To ensure human rights compliance, the company relies on the grievance resolution system to promptly respond to any risk factors, while documenting human rights protection cases related to the business activities in local communities. POSCO ENERGY educates employees through the e-learning courses on the prevention of sexual harassment while making the “Always Respect Others” campaign to emphasize on mutual respect among employees and executives. We also operate the SINMUNGO (Reporting) system to solve any grievance issues over ethical management, mutual growth, and purchase-related issues.

Recruitment and Improvement of Competence

POSCO ENERGY implements a nondiscriminatory open recruitment to ensure equal opportunity based on competency. The company runs various programs to cultivate “world-best experts”, “trusted talent”, and “ethical talents” such as basic training programs customized to different positions and leadership training to understand the common values of the POSCO Family, job competency programs to learn problem solving skills, and language learning and overseas study programs. The company also started the one-on-one mentoring program to foster experts, develop career, and help newcomers adapt to the company. It has been expanded to accommodate employees with short length of service employees and offered a platform to develop their career and share distress.

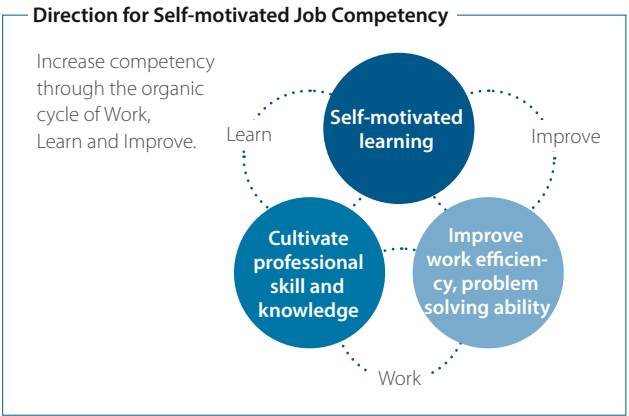


Overseas Training Program

POSCO ENERGY selects 40 excellent employees for overseas training twice a year in countries where the company already has branches like Vietnam.

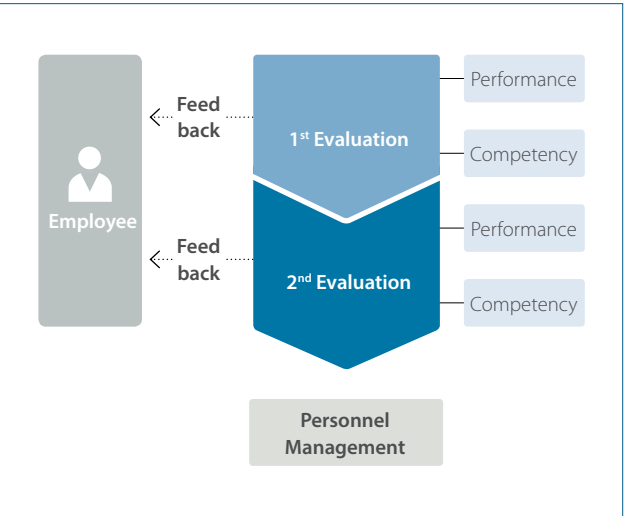
Company-wide Learning CoP

POSCO ENERGY runs the company-wide learning CoP, a group activity to share the management strategies and core knowledge necessary to achieve goals. The objectives of Learning CoP are to increase work efficiency through hierarchical learning teams, and establish a system in which all employees motivate themselves to improve technical capability and problem solving ability.



Fair Evaluation and Compensation

We offer fair evaluations and compensation to help employees attain their full potential. Regardless of their gender, employees will be treated equally through independent and objective evaluations and fair compensation. We annually select excellent employees who contributed to the company’s development in line with the vision and core values, and present the POSCO ENERGY Award for Model Employee.



Safety and Health

POSCO ENERGY carried out preventive activities against industrial accidents and built a safety and health system in order to create a safe working environment. We made a mid and long term plan to acquire KOSHA18001 certification for all business premises and gain higher PSM levels. In 2015, we reinforced safety measures on facilities by the ILS* and realized the zero-accident rate company-widely. At the plant in Pohang, the management and the labor discovered potential danger and took preventive actions, and the plant was selected as an excellent business premise for safety by Korea Occupational Safety & Health Agency. Thanks to the excellent activities, we are granted 3 years of grace period for safety and health supervision by the Korean Government.

* ILS (Isolation Locking System): this prevents equipment or machinery from malfunctioning or shutting down due to negligence.

Safety and Health System

Safety and Health Committees

To raise the level of awareness on safety and health in all workplaces, POSCO ENERGY operates a quarterly Occupational Safety and Health Committee to deal with the related issues and progress. The Autonomous Safety Committee is also held each month and attended by the heads of business sites and position holders to put safety and health measures into practice on a daily basis.

Process Safety Management (PSM)

We operate the Process Safety Management (PSM) system in accordance with the Occupational Safety and Health Act in order to prevent serious industrial accidents. To strengthen process safety management, we carry out special training for 12 major tasks from the process safety management for all employees and solidified the internal safety audits by adopting the cross-audit program for safety managers. The Incheon plant earned the P level, the top level in the area of safety, for the second consecutive year in 2015.

Safety Management of Partners

POSCO ENERGY has been selected as an excellent business premise for the Win-Win Occupational Safety and Health Cooperation Program, which is organized by the Ministry of Employment and Labor. We ensure that the partners maintain the same level of safety as that of POSCO ENERGY for works carried out in the business sties. As for other works performed separately, the company assists them with risk assessment and technology support.

Health Management for Employees

POSCO ENERGY runs a program that encourages all employees to

exercise and stretch once a day, and invites experts to prevent musculoskeletal disorders. The company also applies the Material Safety Data Sheet (MSDS) for managing chemical substances and strives to ensure employment safety and health through various activities including mandatory use of personal protection equipment and training.

Pre-emptive Risk Management

Safety and Health Audit and Training Programs

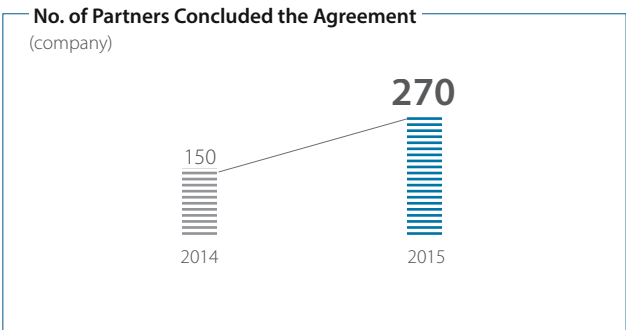
We newly founded the Occupational Safety Team in July 2014. We have carried out safety and health inspections at the business sites since 2015. In addition to compliance with the relevant laws and regulations, the team is in charge of various actions: uncovering and correcting any latent vulnerability in a facility or equipment, managing safe process operations, and improving the KOSHA 18001 system. The team carries out systematic and customized training for relevant business sites including mandatory training, internal training, fire drills, as well as special safety training and workshops. POSCO ENERGY also endeavors to prevent potential accidents during commercial operation of new business sites. We also conduct safety checkups and special safety training during the major maintenance period for power plants to achieve the zero-accident rate.

Suppliers

Shared Growth Model based on Trust

Fair Trade and Mutual Growth Agreement

Although POSCO ENERGY is not subject to the win-win index, we take the lead in promoting shared growth. We voluntarily signed the “Executing Fair Trade and shared Growth Agreement between large cooperation and SMEs” with more than 270 primary partners and expanded it to secondary partners.



Support for Financial, Education and Human Resources

POSCO ENERGY helps partners to borrow loans at a lower interest rate than the market rate by utilizing the POSCO group shared Growth Fund. We also offer the partners opportunities to build competence for their employees including patent training, management doctor system, etc.

Technology Support and Protection

We actively promote the Technology Escrow System and Trade Secret Certification System, support relevant costs to protect partners' technology, and encourage them to file a joint-patent application with POSCO ENERGY.

Support for the Secondary Partners

POSCO ENERGY's engagement in shared growth is not limited to the primary partners: the executives responsible for procurement directly visit secondary partners to find what is required in the field and jointly seek an appropriate means of support with the primary partners.

Fair Trade Compliance

To fulfill fair trade obligation related to subcontract transaction, the company introduced a subcontract agreement and adopted four guidelines for fair subcontract transactions that cover contract conclusion, the selection and application of partners, etc. In this way, we can prevent possible unfair practices and protect partner firms.

4 Guidelines for Fair Trade



Guidelines on the concluding contracts



Guidelines on the selecting and management of partners



Guidelines on the Management of Subcontracting supervision committee



Guidelines on the issue of documentation and filing

Sustainability of Partners

Transparent Transaction

POSCO ENERGY adopts a transparent procedure from selecting, contracting and paying on purchase, to assessing partners to create a fair and transparent transaction culture.

100% Cash Payment on Purchase

To facilitate smooth financial flows for SMEs, POSCO ENERGY pays for the purchases from SMEs in cash, and these payments are made twice a week. The payment is completed no later than five days after the products are received.

Fair Selection and Evaluation of Partners

POSCO ENERGY abides by the selection and evaluation standards in accordance with the work standards. We secure fairness in evaluation and assessments through POSCO Family Supplier Relationship Management (SRM). The company expanded its SRM to partners by encouraging them to fulfill their social responsibilities on environment, safety, etc., during the registration and assessment of partners. Any partners that voluntarily comply with the SRM are rewarded with incentives.

Transparent Contracting

POSCO ENERGY ensures transparency in our agreement procedure through the e-Procurement system. The company strives to ensure that every agreement is sealed in a transparent and fair manner by holding the Subcontracting Evaluation Committee. This committee allows prior review on whether the Subcontractor Act was observed at least once a month under the supervision of a procurement executive.

Customers

Synergy in Win-Win Cooperation

Various Support Programs for Partners

As a member of the POSCO family, POSCO ENERGY runs win-win growth programs in a variety of areas, contributing to the POSCO Family's mutual growth ecosystem.

Benefit Sharing System

In cooperation with SMEs, POSCO ENERGY operates the Benefit Sharing system, which allows the company to cooperate with SMEs to conduct joint projects and to share the financial benefits we've created. In conjunction with the Ministry of Trade, Industry and Energy, we donate the investment funds for mutual growth, which will be paid in the form of compensation for the test products or cash rewards.

Win-Win Support Team

POSCO ENERGY leverages the abundant experience and the know-how of its executives by organizing a Win-Win Growth Support Team to help partners complete the projects in which they are engaged. Under the leadership of the responsible executive in charge, we offer substantial and practical support for partners to achieve office productivity innovation, field improvement and ethical training.

Support for Industry Innovation Campaign 3.0

POSCO ENERGY donates KRW 100 million to the funds for "Industry Innovation Campaign 3.0" organized by the Ministry of Trade, Industry and Energy each year by 2017. As the funds will be used in supporting the secondary or lower partners for management consulting and equipment purchases, it would contribute to improving their competitiveness and industrial ecosystem.

Greater Response at Customer Contact Points

Fuel Cell Real-time Information Sharing System (RIS)

POSCO ENERGY has established the Fuel cell Real-time Information Sharing System (RIS), a communication channel that enhances service reliability, customer satisfaction, and convenience. RIS enables customers to check the real-time operation status by facility, operation data, and various reports, as well as the status of acceptance and process of customer requests. The system helped POSCO ENERGY to obtain a high score of 94 points in the customer satisfaction survey for 2015. POSCO ENERGY is always carrying out efforts to respond to customers' requests and further improve their satisfaction. The company also operates the RIS system, which incorporates a data protection function that keeps customers' facility data confidential.



Real-time Information sharing system

Technology Seminars Customized to Customers

In line with customers' demand for a greater variety of training, POSCO ENERGY has been expanding the customized technology seminars for our customers. These seminars enable us to provide customers with much-needed technical knowledge, such as the operation and control of fuel cell systems, fuel cell market for power generation, policies and R&D trends, etc.

The company has offered a total of 16 training sessions to the customers in 2015 and plan to further improve education quality by developing more training programs.



Fuel cell technology seminar

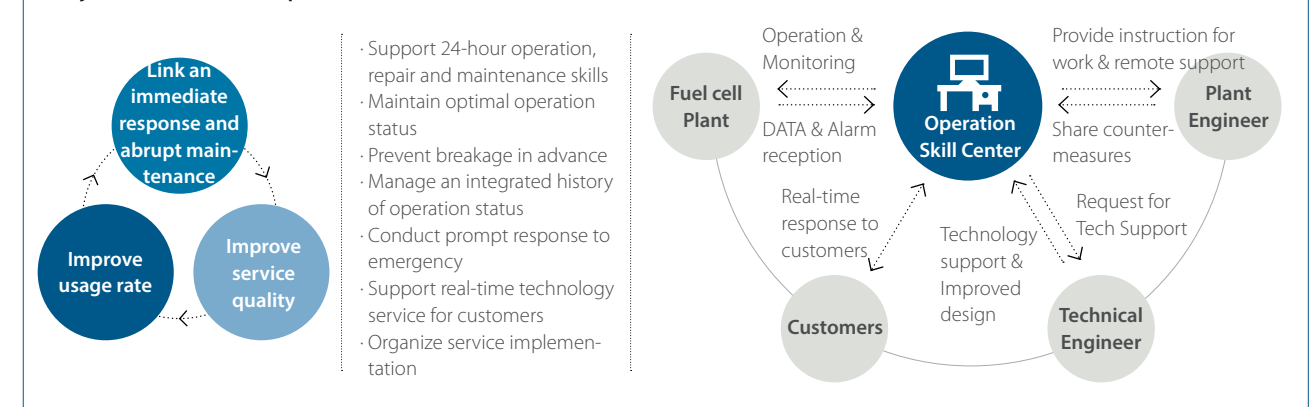
Growing Importance of Service Organization

Real-time Technical Support for Customers

POSCO ENERGY has founded the 24/7 Korea Technical Assistance Center (KTAC) within the Pohang Fuel Cell Manufacturing Plant and trained technical experts specializing in operation skills in cooperation with the program developer. To enhance customer technol-

ogy support, the company founded an Operation Skill Center by integrating the existing Technical Assistance Center and commissioning operation engineers. The operation skill center will advance the company's endeavors to sustain optimal fuel cell operation and maximize customer satisfaction by sharing facility operation and supporting technologies.

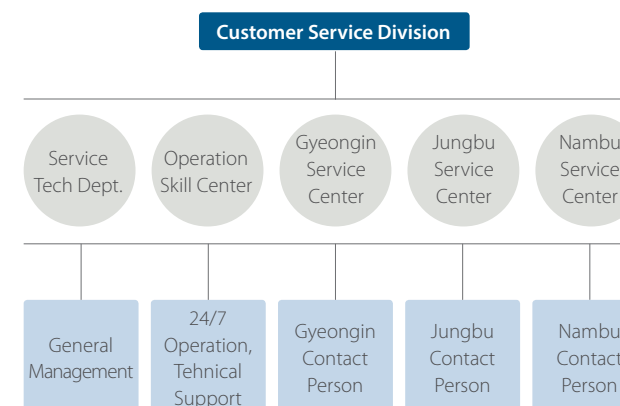
Objectives and Roles of Operation Skill Center



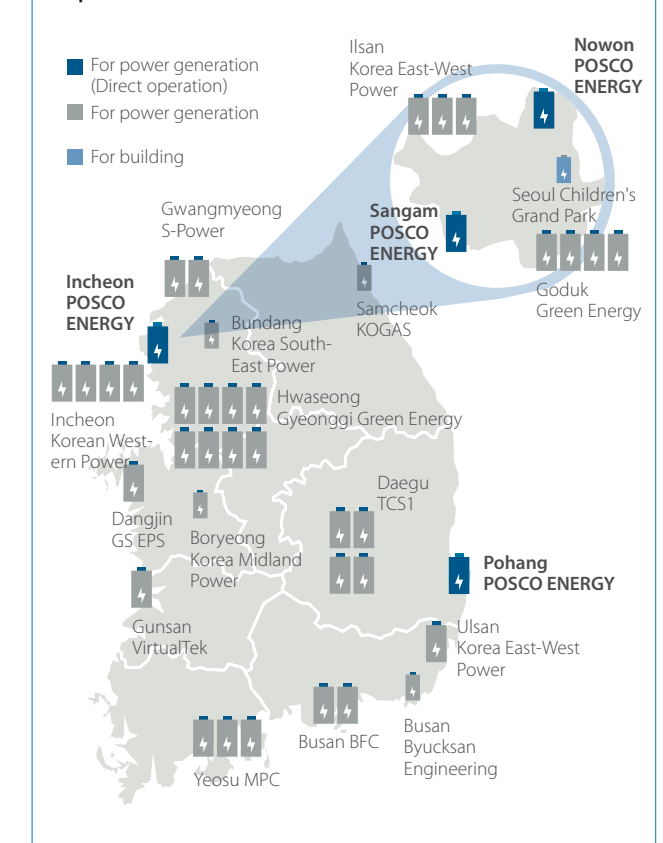
Customer Service Centers for Fuel Cell

To increase customer satisfaction, POSCO ENERGY operates customer service centers in three districts; Gyeongin, Jungbu, and Nambu regions, to respond to customers quickly. This district-based service system allows us to focus on stable fuel cell operation and improvement on operation rate, while promptly answering customers' requests. We will continue to reinforce the quality of the customer service in order to earn customers' trust.

Customer Service Organization



Operation Status of Fuel Cells in Korea



Risk Management

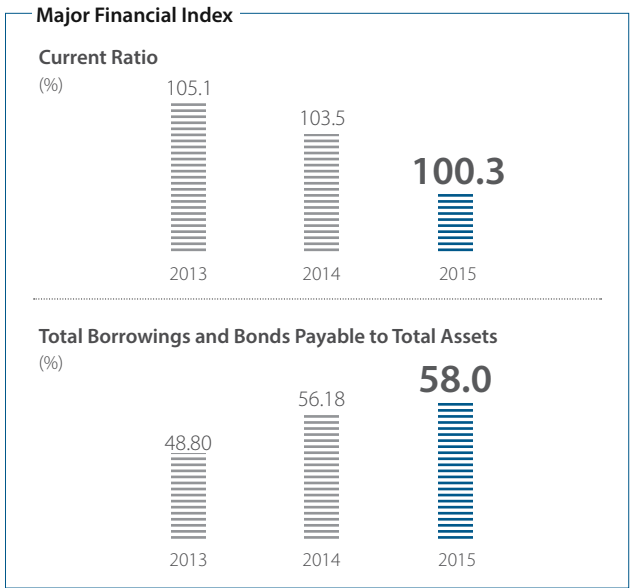
Established in 1969 as the first IPP in Korea, POSCO ENERGY has risk management manuals according to different types, based on the accumulated operation techniques and expertise. If any accident occurs, the division in charge promptly handles the accident according to the applicable procedures.

Financial Status

The year 2015 witnessed slowdown in economic activities and growing uncertainty over the global economy including the end of quantitative easing in the United States, a stronger volatility of international financial markets, falling oil prices, and China's sluggish economic growth. The domestic economy was no exception: Korea's growth rate for the year was as low as the two percent level because slower global economic growth and the lack of new growth engines, which resulted in dwindling exports and facility investment, and an increased unemployment rate.

The power generation market maintained a high electric power reserve rate of 20% or more with the continued supply of new generators and lethargic power demand. The unit power cost has plunged in line with falling prices for all energy sources, driven by plummeting oil prices. Due to the poor power generation market conditions, POSCO ENERGY's sales was declined to KRW 1,954.8 billion down compared to the previous year. However, the operating profits increased by KRW 20.3 billion to KRW 139.0 billion compared to the previous year, thanks to the stable power supply and efforts for improvement.

Based on the consolidated financial statement, the total assets and liabilities edged up to KRW 5,086.2 billion and KRW 3,507.1 billion respectively. The debt to equity ratio has increased by 3%p to 222% by the end of 2015. The company maintained a similar level of assets and debts as the previous year.



Financial Risk Management

POSCO ENERGY operates a risk management system covering accounting, tax, and treasury to ensure effective risk management. In regard to foreign currency borrowings, we minimize volatilities associated with exchange rates and interest rates by using hedge transactions through derivatives agreements such as Swap and Forwards.

Hedge by Currency

Currency	Amount	Hedge	Percentage
USD (1,000)	168,986	168,986	100%
EUR (1,000)	186,403	106,672	57%
JPY (1 M)	21,222	6,747	32%
Conversion to USD, Total	548,657	336,893	62%

⇄ 16% in variable rates, 84% in fixed rates in total foreign currency borrowings
(After hedging foreign currency borrowing, the variable rate converted to fixed rate has been reflected as fixed rate.)

Credit Ratings

In late 2015, the domestic rating agencies downgraded POSCO ENERGY's credit rating to AA (Stable) in consideration of the following reasons: expected profitability drop in LNG generation for a certain, prolonged period of time and increase in financial burden by debt service for expanded investment. The rating agencies, however, still gave higher appraisal for the company than its competitors by accounting for POSCO ENERGY's prestige in the Korean power generation market and its stable earning structure.

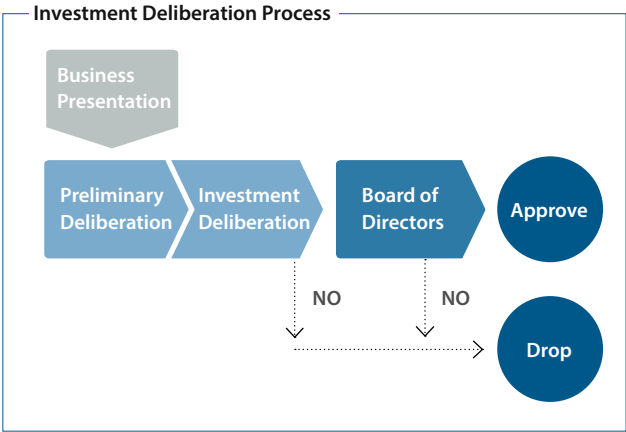
Classification		2013	2014	2015
Korea Investors Service Inc	Corporate bond	AA+(Stable)	AA+(Stable)	AA(Stable)
	Commercial paper	A1	A1	A1
Korea Ratings Corporation	Corporate bond	AA+(Stable)	AA+(Stable)	AA(Stable)
	Commercial paper	A1	A1	A1
NICE Information Service Co., Ltd.	Corporate bond	AA+(Stable)	AA+(Stable)	AA(Stable)
	Commercial paper	A1	A1	A1

⇄ As of December 31, 2015

Investment Risk Management

To discover new growth engines, POSCO ENERGY is investing in domestic and overseas power business, new and renewable energy business, as well as other businesses. The company establishes and implements an investment deliberation process to thoroughly diagnose and analyze any associated risks in advance and evaluate investment feasibility. To determine the impact of the investment over the entire POSCO group's financial soundness, synergy and strategic consistency, POSCO ENERGY conducts discussions and consultations with the mother company, POSCO. The division in charge of the investment proposal shares information about the proposal with relevant divisions through a business presentation session to modify and complement the business plan. At each deliberation stage, top in-house experts in technology, laws and regulations, accounting, finance, etc. identify and assess any potential risk elements before reaching a conclusion on the decision to invest. Even if a proposal is authorized by the deliberations, the department must establish a counter-measurement plan against newly identified risks and report the results. The Investment Management Division conducts regular monitoring of all these proceedings to minimize investment risks.

In 2015, POSCO ENERGY completed most of our major investment projects, including Units 7 to 9 for Incheon LNG Combined Cycle Power Plant and Mong Duong II Coal-fired Thermal Power Plant. We intend to mobilize our capabilities to realize business profitability improvement based on optimal facility operation and continued cost reduction. The company also plans to reform debt service and financial structure through more rigorous investment deliberation procedures.



Tax Risk Minimization

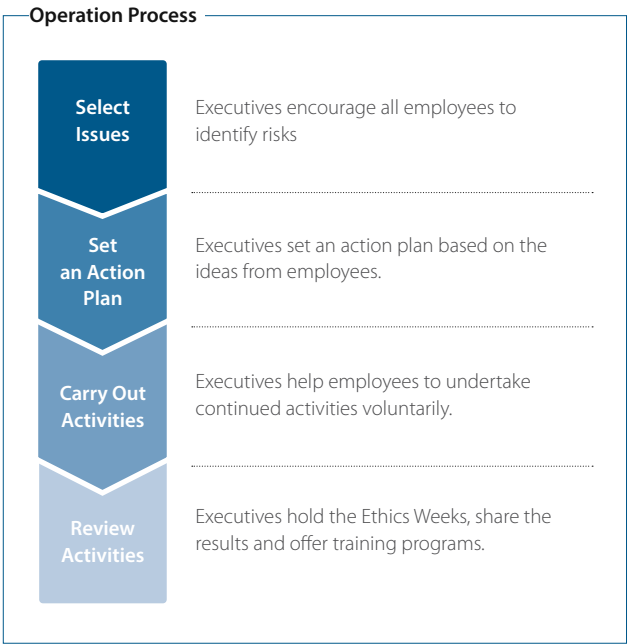
POSCO ENERGY is an earnest taxpayer that observes the tax policies of countries where we operate including Korea, Vietnam and Indo-

nesia. The company regularly communicates with taxation authorities in the places of operation, and provides fact-based documents of proof upon request. To pay taxes sincerely and protect the stockholders' interests, POSCO ENERGY has established internal regulations on taxation guidelines, rules and manuals on tax payment, and set out the principles to prevent any possible risks. We also strengthened training programs on taxation for the employees and partners.

Non-financial Risk Management

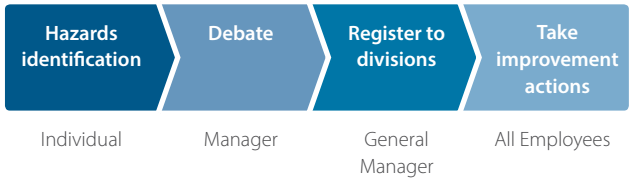
To uphold ethical management, POSCO ENERGY provides a cyber reporting system (SINMUNGO) in its homepage through which employees and stakeholders can raise complaints and opinions confidentially. Then, the Corporate Audit Division informs the sender about the progress or result.

Through the Corporate Audit Division's initiative, POSCO ENERGY has identified non-financial risks that might occur in the process of ordinary work in different divisions. Implemented by the relevant division's executives, the "Ethical Practice Program" encourages all employees to identify potential risks and the best ways to eliminate them since 2015.



Risk Top 10 System

We introduced the Risk Top 10 System and selected ten tasks by assessing potential risks in facilities. Thanks to this system, we can eliminate hazards in advance to prevent accidents. Best practices are spread throughout the company as they are presented by the monthly-held safety committee.



Emergency Response System

POSCO ENERGY has implemented an emergency response system by premise and periodically carries out emergency drills by scenario. All employees carry a card that describes individual duties during an emergency situation. The operation of the Visual Planning Board helps employees to respond to any emergency situation. In 2015, we newly introduced a company-wide emergency reporting and response system to further enhance the capability.

ISMS Certification

The Information Security Management System (ISMS) certified by the Ministry of Science, ICT, and Future Planning helps to monitor the compatibility of the systems to protect core intellectual properties from threats and hacking attempts. Although this certification is mandatory for ICT service providers and financial companies only, POSCO ENERGY voluntarily acquired ISMS in 2015. We believe that the data regarding power plants and fuel cell industry is critical since they are fundamental to the nation.

To obtain the certification, the company organized a task force team for five months from January 2015 to conduct self-checkups for 104 items and assessment criteria, and improved vulnerable areas. The company also revised the internal data protection guidelines according to the relevant laws and regulations. Owing to the ISMS certification, we were able to reinforce security awareness of POSCO ENERGY and partners on security issues, and take the measures to protect intellectual properties.



ISMS Certificate

Information Protection Campaign

To raise the employees' awareness on data protection, the company set the 25th day of the month as Data Protection Day, keeps employees updated with key issues in the newsletters. POSCO ENERGY promptly shares any cases or precedents regarding data protection with employees to avoid any incidents.

Mandatory Guidelines for Data Projection

5 Dos and 5 Don'ts

- Do

1. Observe the laws, policies, and provisions concerning data protection.

2. Install essential security solutions in PCs.

3. Inform all visitors to follow the entrance security procedures.

4. Use complicated and difficult passwords (8 digits + a mix of Korean & English/special characters).

5. Complete the data and privacy protection training programs.
- Don't

1. Keep printouts to a minimum and do not bring or carry them outside.

2. Do not open an e-mail from unknown source.

3. Do not access websites (harmful websites) irrelevant to work.

4. Do not use personal IT devices (laptop, USB, storage device).

5. Do not download private information on a PC in the workplace.

Mandatory Guidelines for Personal Information Protection

1. For tasks dealing with personal data, refer to the Privacy Policy and consult with the Infra Innovation Group.

2. Transfer personal data stored in a PC to ECM.

3. If impossible to transfer personal data to ECM, completely delete it after use.

4. Do not view personal data in ECM unless necessary.

5. Do not store customer data or important business data in your personal cloud or similar storage.

6. Always keep important business documents and agreements in a cabinet and check if it is locked.

7. Install all essential programs including anti-virus software and do not use P2P or downloading sites.

8. Do not install illegal software. If necessary, consult with the Infra Innovation Group.

9. Do not transmit or expose important business data (personal data) via FTP or SNS.

Appendix

- Financial Statements
- GRI G4 & ISO26000 Index
- Independent Assurance Report
- UN Global Compact
- Memberships in Association
- Participants

Financial Statements

Consolidated Statement of Financial Position (KRW)
POSCO ENERGY Co., Ltd., and its subsidiaries

17th (current) For the period that ended on December 31, 2015
16th (previous) For the period that ended on December 31, 2014

Classification		17 th (current)	16 th (previous)
Assets	I. Current assets	771,726,815,088	627,161,833,115
	1. Cash and cash equivalents	161,514,293,975	223,201,451,559
	2. Trade and notes receivable, net	163,514,156,561	173,770,175,542
	3. Other financial assets, net	32,345,779,774	57,019,956,608
	4. Inventories	244,178,256,696	117,646,452,086
	5. Other current assets	79,222,755,537	53,922,738,720
	6. Current income tax assets	141,453,350	1,601,058,600
	7. Assets held for sale	90,810,119,195	-
	II. Non-current assets	4,314,484,849,950	4,363,752,137,488
	1. Long-term trade receivables	305,213,733,365	318,960,575,673
	2. Other financial assets	46,743,619,629	69,103,586,645
	3. Investments in associates	170,849,448,882	95,361,220,509
	4. Property, plant and equipment, net	3,032,439,857,165	3,125,812,500,143
	5. Intangible assets	616,338,095,925	597,666,158,618
	6. Other non-curent assets	41,500,076,180	73,720,528,976
	7. Deferred tax assets	101,400,018,804	83,127,566,924
	Total assets	5,086,211,665,038	4,990,913,970,603
Liabilities	I. Current liabilities	769,199,471,836	605,695,430,205
	1. Accounts and notes payable	134,324,289,555	215,777,321,931
	2. Current portion of long-term bonds and long-term borrowing	427,067,704,771	210,958,108,843
	3. Convertible bonds	1,167,972,607	-
	4. Current portion of other liability	111,034,908,413	156,059,734,157
	5. Current income tax liability	1,820,746,182	5,116,323,369
	6. Current portion of provisions	21,923,332,652	8,988,975,611
	7. Other current liabilities	7,765,066,182	8,794,966,294
	8. Liabilities of disposal group held for sale	64,095,451,474	-
	II. Non-current liabilities	2,737,865,244,987	2,818,917,100,754
	1. Long-term borrowings	1,032,959,560,017	1,126,693,232,060
	2. Convertible bond	-	1,056,169,431
	3. Bonds	1,486,531,578,382	1,466,117,576,090
	4. Non-current portion of other liabilities	6,221,708,894	3,240,298,815
	5. Other financial liabilities	31,226,430,076	51,810,967,543
	6. Net defined benefit liabilities	4,432,755,947	4,600,230,598
	7. Long-term provisions	41,638,477,824	33,177,021,418
	8. Deferred tax liabilities	134,854,733,847	132,221,604,799
	Total liabilities	3,507,064,716,823	3,424,612,530,959
Equities	I. Equity attributable to owners of the controlling company	1,552,016,664,623	1,526,455,632,922
	1. Share capital	225,974,030,000	225,974,030,000
	2. Hybrid bonds	498,468,200,000	498,468,200,000
	3. Capital surplus	368,039,198,437	364,942,405,688
	4. Capital adjustments	(5,322,133,824)	(5,198,776,050)
	5. Accumulated other comprehensive loss	(19,149,843,916)	(15,361,148,192)

Classification		17 th (current)	16 th (previous)
Equities	6. Retained earnings	484,007,213,926	457,630,921,476
	II. Non-controlling interests	27,130,283,592	39,845,806,722
	Total equities	1,579,146,948,215	1,566,301,439,644
Total liabilities and equity		5,086,211,665,038	4,990,913,970,603

Consolidated Statement of Comprehensive Income (KRW)
POSCO ENERGY Co., Ltd., and its subsidiaries

17th (current) From January 1, 2015 to December 31, 2015
16th (previous) From January 1, 2014 to December 31, 2014

Classification		17 th (current)	16 th (previous)
I. Revenue		1,954,753,354,983	2,598,558,396,867
II. Cost of sales		1,707,059,630,581	2,364,099,705,256
III. Gross profit		247,693,724,402	234,458,691,611
IV. Selling, general, and administrative expenses		108,719,059,316	115,806,767,302
V. Operating profit		138,974,665,086	118,651,924,309
VI. Gain (loss) from equity method in associates		26,083,954,167	(4,983,108,810)
1. Gain from equity method in associates		26,614,061,101	4,241,004
2. Loss from equity method in associates		530,106,934	4,987,349,814
VII. Financial income (expense)		(128,922,920,582)	(63,475,618,745)
1. Financial income		43,592,754,700	62,341,345,610
2. Financial costs		172,515,675,282	125,816,964,355
VIII. Other non-operating income (expense)		8,266,619,176	(42,663,109,597)
1. Other non-operating income		28,020,046,332	16,778,188,521
2. Other non-operating expenses		19,753,427,156	59,441,298,118
IX. Profit before income taxes		44,402,317,847	7,530,087,157
X. Income tax benefit		(4,665,424,049)	(14,766,133,601)
XI. Profit for the period		49,067,741,896	22,296,220,758
XII. Other comprehensive income (loss)		(3,209,970,303)	(16,599,812,953)
1. Item that will not be reclassified subsequently to profit or loss		(142,499,408)	(2,702,442,007)
- Remeasurement of net defined benefit liabilities		(142,499,408)	(2,702,442,007)
2. Item that may be reclassified subsequently to profit or loss		(3,067,470,895)	(13,897,370,946)
- Net changes in fair value of available-for-sale financial assets		(16,575,871,981)	4,782,146,560
- Share of other comprehensive income(loss of associate)		6,803,896,709	(22,984,269,341)
- Foreign currency translation differences		6,704,504,377	4,304,751,835
XIII. Total comprehensive income for the period		45,857,771,593	5,696,407,805
XIV. Profit for the period		49,067,741,896	22,296,220,758
1. Owners of the controlling company		49,259,412,248	21,234,358,133
2. Non-controlling interests		(191,670,352)	1,061,862,625
XV. Total comprehensive income attributable		45,857,771,593	5,696,407,805
1. Owners of the controlling company		45,325,440,754	4,216,819,848
2. Non-controlling interests		532,330,839	1,479,587,957
XVI. Earnings per share			
1. Basic earnings per share		684	64
2. Diluted earnings per share		684	64

Consolidated Statement of Changes in Equity (KRW)
POSCO ENERGY Co., Ltd., and its subsidiaries

17th (current) From January 1, 2015 to December 31, 2015
16th (previous) From January 1, 2014 to December 31, 2014

Classificaiton	Equity Attributable to Owners of the Parent							Non-contolling interests	Total equity
	Share capital	Hybrid bonds	Capital surplus	Capital ad-justments	Accumulated other compre-hensive loss	Retained earnings	Total		
(beginning, previous period)	225,974,030,000	498,468,200,000	364,458,516,956	(4,436,356,138)	(1,040,797,628)	462,528,162,225	1,545,951,755,415	18,217,485,870	1,564,169,241,285
Comprehensive income									
Profit for the period	-	-	-	-	-	21,234,358,133	21,234,358,133	1,061,862,625	22,296,220,758
Remeasurement of net defined benefit liabilities	-	-	-	-	-	(2,697,187,721)	(2,697,187,721)	(5,254,286)	(2,702,442,007)
Net changes in fair value of available-for-sale financial assets	-	-	-	-	4,782,146,560	-	4,782,146,560	-	4,782,146,560
Share of other comprehensive loss of associates	-	-	-	-	(22,984,269,341)	-	(22,984,269,341)	-	(22,984,269,341)
Foreign currency translation difference	-	-	-	-	3,881,772,217	-	3,881,772,217	422,979,618	4,304,751,835
Total Comprehensive income	-	-	-	-	(14,320,350,564)	18,537,170,412	4,216,819,848	1,479,587,957	5,696,407,805
Transactions with shareholders:									
Hybrid bond dividends	-	-	-	-	-	(24,186,999,992)	(24,186,999,992)	-	(24,186,999,992)
Consolidated new/change of scope	-	-	298,009,608	(626,445,283)	-	752,588,831	424,153,156	15,162,374,576	15,586,527,732
Others	-	-	185,879,124	(135,974,629)	-	-	49,904,495	4,986,358,319	5,036,262,814
Dec. 31, 2014 (end, previous period)	225,974,030,000	498,468,200,000	364,942,405,688	(5,198,776,050)	(15,361,148,192)	457,630,921,476	1,526,455,632,922	39,845,806,722	1,566,301,439,644
Jan. 1, 2015 (beginning, current period)	225,974,030,000	498,468,200,000	364,942,405,688	(5,198,776,050)	(15,361,148,192)	457,630,921,476	1,526,455,632,922	39,845,806,722	1,566,301,439,644
Total comprehensive income (expense):									
Net profit	-	-	-	-	-	49,259,412,248	49,259,412,248	(191,670,352)	49,067,741,896
Remeasurement of defined benefit plans	-	-	-	-	-	(145,275,770)	(145,275,770)	2,776,362	(142,499,408)
Gain (loss) on valuation of available-for-sale securities	-	-	-	-	(16,575,871,981)	-	(16,575,871,981)	-	(16,575,871,981)
Unrealized gain on equity securities under equity method	-	-	-	-	6,803,896,709	-	6,803,896,709	-	6,803,896,709
Gain (loss) on overseas operations translation	-	-	-	-	5,983,279,548	-	5,983,279,548	721,224,829	6,704,504,377
Total comprehensive income (expense)	-	-	-	-	(3,788,695,724)	49,114,136,478	45,325,440,754	532,330,839	45,857,771,593
Transactions with shareholders:									
Hybrid bond dividends	-	-	-	-	-	(24,186,999,992)	(24,186,999,992)	-	(24,186,999,992)
Consolidated new/change of scope	-	-	-	-	-	1,452,387,865	1,452,387,865	(13,247,853,969)	(11,795,466,104)
Others	-	-	3,096,792,749	(123,357,774)	-	(3,231,901)	2,970,203,074	-	2,970,203,074
Dec. 31, 2015 (end, current period)	225,974,030,000	498,468,200,000	368,039,198,437	(5,322,133,824)	(19,149,843,916)	484,007,213,926	1,552,016,664,623	27,130,283,592	1,579,146,948,215

Consolidated Cash Flow Statement (KRW)
POSCO ENERGY Co., Ltd., and its subsidiaries

17th (current) From January 1, 2015 to December 31, 2015
16th (previous) From January 1, 2014 to December 31, 2014

Classification	17 th (current)	16 th (previous)
I. Cash flows from operating activities	58,307,248,654	351,635,876,168
1. Cash flows from operating activities	154,207,016,461	449,601,961,685
A. Profit for the period	49,067,741,896	22,296,220,758
B. Adjustment for:	307,942,052,967	290,257,513,472
- Depreciation	168,056,813,781	135,780,669,283
- Intangible asset amortization	7,670,572,681	4,954,993,785
- Provisions related profit and loss	18,804,091,379	25,160,729,094
- Bad debt expense	2,494,082,190	18,817,376,294
- Loss from valuation of inventories	3,688,076,665	3,084,382,668
- Loss from disposition of inventories	-	15,269,141,815
- Retirement allowance	9,597,807,708	6,434,020,642
- Interest expense	95,502,912,518	84,538,713,691
- Financial charge	6,774,976,937	-
- Loss on foreign currency translation	24,791,938,786	11,224,069,909
- Loss on derivative valuation	10,025,888,512	24,779,736,162
- Loss on derivative transactions	7,580,175,112	602,121,601
- Loss on disposition of stocks subject to equity method	123,878,531	-
- Impairment loss on available-for-sale securities	16,657,232,731	-
- Loss on disposition of tangible assets	2,045,553,969	2,008,538,438
- Impairment loss on tangible assets	-	18,917,139,278
- Loss on disposition of intangible assets	1,842,194	1,000
- Impairment loss on intangible assets	7,339,985,009	7,402,436,424
- Income tax expenses (benefit)	(4,665,424,049)	(14,766,133,601)
- Interest income	(3,818,609,704)	(4,148,600,310)
- Dividend income	(24,414,790)	(21,132,578)
- Gains on foreign currency translation	(11,228,823,369)	(45,281,545,466)
- Gains on derivative valuations	(16,854,938,772)	(9,599,147,926)
- Gains on derivative transactions	(4,187,345,329)	(252,965,397)
- Gain on disposition of tangible assets	(4,268,125,771)	(2,164,772)
- Gain on disposition of intangible assets	(2,136,363)	(7,675,174)
- Gain on disposition of investment in associates	(2,643,295,000)	-
- Loss on disposition of receivables	163,534,323	362,786,519
- Other amortization expenses	399,757,255	5,854,420
- Loss from equity method in associates	530,106,934	4,987,349,814
- Gains from equity method in associates	(26,614,061,101)	(4,241,004)
- Others	-	11,058,863
C. Changes in assets and liabilities resulting from operations	(202,802,778,402)	137,048,227,455
2. Interest received	3,940,553,174	4,040,883,534
3. Dividend received	24,414,790	21,132,578
4. Interest paid	(95,967,147,988)	(83,904,160,411)
5. Income taxes paid	(3,897,587,783)	(18,123,941,218)
II. Cash flows from investing activities	(177,178,108,196)	(1,072,879,411,115)

Classification	17 th (current)		16 th (previous)
1. Disposition of short-term financial instruments	58,356,079,236	55,046,791,904	
2. Decrease in long-term financial instruments	-	2,000,000	
3. Decrease in deposits for rent	590,799,508	406,088,989	
4. Disposition of land	24,863,800	-	
5. Disposition of buildings	72,459,910	-	
6. Disposition of structures	13,165,250	-	
7. Disposition of machinery and equipment	5,024,816,378	7,460,000	
8. Disposition of vehicles	22,899,092	772,000	
9. Disposition of office equipment	-	1,743,932	
10. Disposition of other intangible assets	63,636,363	243,959,328	
11. Net cash outflows from the acquisition of subsidiaries	(3,292,809,432)	(437,549,799,032)	
12. Increase in short term financial instruments	(45,652,049,788)	(67,919,427,617)	
13. Increase in long-term financial instruments	(9,177,947,686)	(5,358,787,102)	
14. Increase in available-for-sale financial assets	-	(21,362,500)	
15. Increase in investment in associates	(27,229,987,841)	(39,174,179,156)	
16. Increase in guarantee deposits	(874,930,960)	(5,017,578,525)	
17. Acquisition of land	(91,547,432)	(5,382,997,950)	
18. Acquisition of buildings	-	(37,914,520)	
19. Acquisition of structures	(4,800,000)	(42,252,450)	
20. Acquisition of machinery and equipment	(12,635,197,960)	(21,647,322,939)	
21. Acquisition of vehicles	(303,194,191)	(306,487,878)	
22. Acquisition of office equipment	(807,874,596)	(3,047,666,085)	
23. Acquisition of tools and devices	(1,439,924,219)	(524,480,735)	
24. Increase in construction in-progress	(139,186,355,332)	(508,944,611,746)	
25. Acquisition of software	(260,632,449)	(800,000)	
26. Acquisition of other intangible assets	(389,575,847)	(33,612,559,033)	
III. Cash flows from financing activities	56,088,558,153	748,578,377,305	
1. Increase in short-term borrowings	150,000,000,000	270,699,217,057	
2. Increase in bond payable	299,062,342,621	548,448,378,684	
3. Increase in long-term borrowings	2,989,404,421	422,159,211,877	
4. Paid-in capital increase of subsidiaries	-	7,883,351,880	
5. Increase in current portion of long-term liabilities	15,300,000,000	-	
6. Repayment of short-term borrowings	(150,000,000,000)	(270,699,217,057)	
7. Repayment of current portion of long-term liabilities	(195,361,225,373)	(182,774,884,547)	
8. Payment of hybrid bond dividends	(24,124,613,690)	(24,124,613,691)	
9. Repayment of long-term borrowings	(18,289,693,788)	(12,000,000,000)	
10. Repayment of capital lease liabilities	-	(3,080,000,000)	
11. Acquisition and settlement of derivatives	(23,487,656,038)	(7,933,066,898)	
IV. Effect of exchange rate changes on cash hold	1,095,143,805	372,627,719	
V. Net increase (decrease) in cash and cash equivalents	(61,687,157,584)	27,707,470,077	
VI. Cash and cash equivalents at the beginning of year	223,201,451,559	195,493,981,482	
VII. Cash and cash equivalents at the end of year	161,514,293,975	223,201,451,559	

GRI 4.0 & ISO 26000 Index

● Reported Partially reported ○ Not reported N/A Not applicable

GRI G4			ISO 26000	Report Level	Page/Remarks
1. General Index					
a. Strategy & Analysis	G4-1	Statement from the most senior decision-maker of the organization (such as CEO, chair, or equivalent senior position) about the relevance of sustainability to the organization and the organization's strategy for addressing sustainability	4.7, 6.2, 7.4.2	●	51
	G4-2	Key impacts, risks, and opportunities		●	18-19, 22-23, 25, 30, 37, 41
	G4-3	Name of the organization		●	9
	G4-4	Primary brand, products, and services		●	12-17
	G4-5	Location of the organization's headquarters		●	9, 58
	G4-6	Number of countries where the organization operates, and names of countries where either the organization has significant operations or that are specifically relevant to the sustainability topics covered in the report		●	12-17
	G4-7	Nature of ownership and legal form		●	9
	G4-8	Markets served (including geographic breakdown, sectors served, and types of customers and beneficiaries)		●	12-17
	G4-9	Scale of the organization	6.3.10, 6.4.1-6.4.5, 6.8.5, 7.8	●	9, 11, 64-68
	G4-10	Size of the manpower		●	9, 11
	G4-11	Percentage of total employees covered by collective bargaining agreements		●	All employees
	G4-12	Supply chain		●	57-58
	G4-13	Any significant changes during the reporting period regarding the organization's size, structure, ownership, or its supply chain		●	47-48, 64-68
	G4-14	Whether and how the precautionary approach or principle is addressed by the organization		●	37-40, 56, 60-62
	G4-15	List of externally developed economic, environmental and social charters, principles, or other initiatives to which the organization subscribes or which it endorses		●	77
	G4-16	Memberships of associations (industry associations), and national or international advocacy organizations		●	77
b. Organization Profile	EU1	Installed capacity, broken down by primary energy source and by regulatory regime		●	9, 12-17
	EU2	Net energy output broken down by primary energy source and by regulatory regime		●	9, 12-17
	EU3	Number of residential, industrial, institutional and commercial customer accounts		N/A	No direct sales to end users
	EU4	Length of above and underground transmission and distribution lines by regulatory regime		●	11
	EU5	Allocation of CO2 emissions allowances or equivalent, broken down by carbon trading framework		●	38
	G4-17	All entities included in the organization's consolidated financial statements or equivalent documents Any entity included in the consolidated financial statements or equivalent documents that is not covered by the report		●	11
	G4-18	The process for defining report content and aspect boundaries. How the organization has implemented the reporting principles for defining report content		●	22-23
	G4-19	List of all the material aspects identified in the process for defining report content		●	22-23
	G4-20	Aspect boundary within the organization by material aspect Any limitation regarding the aspect boundary within the organization	5.2, 7.3.2-7.3.4	●	About This Report
	G4-21	Aspect boundary outside the organization by material aspect Any limitation regarding the aspect boundary outside of the organization		●	About This Report
	G4-22	Effect of any restatements of information provided in previous reports, and the reasons for such restatements		●	11
	G4-23	Significant changes from previous reporting periods in the scope and aspect boundaries		●	11
	G4-24	List of stakeholder groups engaged by the organization		●	21-24
	G4-25	Basis for identification and selection of stakeholders with whom to engage		●	21-24
	G4-26	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 specifically as part of the report preparation process	5.3	●	21-24
	G4-27	Key topics and concerns that have been raised through stakeholder engagement, including the publication of the report, and how the organization has responded (key issues by stakeholders)		●	21-24
c. Material Aspects and Boundaries	G4-28	Reporting period (fiscal or calendar year) for information provided		●	About This Report
	G4-29	Date of most recent previous report (if any)		●	About This Report
	G4-30	Reporting cycle (annual, biennial, etc.)		●	About This Report
	G4-31	Contact point for questions regarding the report or its contents	7.5.3, 7.6.2	●	About This Report
	G4-32	GRI Index and the "in accordance" option the organization has chosen		●	69-73
d. Stakeholders Engagement	G4-33	External assurance for the report		●	74-75
	G4-34	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	●	47-48
	G4-35	Process for delegating authority for economic, environmental, and social topics from the highest governance body to senior executives and other employees		●	47-48, 51
e. Report Profile					
f. Governance					

● Reported ● Partially reported ○ Not reported N/A Not applicable

GRI G4		ISO 26000	Report Level	Page/Remarks
f. Governance	G4-36	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	●	47-48, 51
	G4-37	Process for consultation between stakeholders and the highest governance body on economic, environmental, and social topics	●	47-48, 51
	G4-38	Composition of the highest governance body and its committees	●	47-48
	G4-39	Whether the chair of the highest governance body is also an executive officer	●	47-48
	G4-40	Nomination and selection processes for the highest governance body and its committees, and the selection criteria	●	
	G4-41	Process for the highest governance body to ensure conflicts of interest are avoided and managed	○	
	G4-42	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	●	47-48, 51
	G4-43	Measures taken to develop and enhance the highest governance body's collective knowledge of economic, environmental, and social topics	●	47-48, 51
	G4-44	Processes and actions taken for evaluation of the highest governance body's performance with respect to governance of economic, environmental, and social topics	●	47-48, 51
	G4-45	Highest governance body's role in the identification and management of economic, environmental and social impacts, risks, and opportunities Whether stakeholder consultation is used to support the highest governance body's identification and management of economic, environmental, and social impacts, risks, and opportunities	●	47-48, 51
	G4-46	Highest governance body's role and influence in reviewing the effectiveness of the organization's risk management processes for economic, environmental, and social topics	●	47-48, 51
	G4-47	Frequency of the highest governance body's review of economic, environmental, and social impacts, risks, and opportunities	●	47-48, 51
	G4-48	Highest position that formally reviews and approves the organization's sustainability report and ensures that all material aspects are covered	●	51
	G4-49	Process for communicating critical concerns to the highest governance body	●	47-48, 51
	G4-50	Nature, total number, and frequency of concerns that were communicated to the highest governance body and the grievance mechanism(s) used to address and resolve them	●	47-48, 51
	G4-51	a. Remuneration policies for the highest governance body, senior managers and senior executives b. Performance criteria in the remuneration policy related to the highest governance body's and senior executives' economic, environmental, and social objectives	●	47-48
	G4-52	Process for determining remuneration	●	47-48
	G4-53	How stakeholders' views are sought and taken into account regarding remuneration, including the results of votes on remuneration policies and proposals	●	47-48
	G4-56	Values, principles, standards and norms of behavior such as codes of conduct and codes of ethics	●	48-50
	G4-57	Internal and external mechanisms for seeking advice on ethical and lawful behavior, and matters related to organizational integrity, such as helplines or advice lines	●	48-50
	G4-58	Internal and external mechanisms for reporting concerns about unethical or unlawful behavior, and matters related to organizational integrity	●	48-50
2. Specific Index				
Economic				
Economic performance - Aspect 2		DMA (Disclosures on Management Approach)	●	25
	G4-EC1	Direct economic value generated and distributed	●	67
	G4-EC2	Financial implications, and other risks and opportunities for the organization's activities due to climate change	●	37-38
	G4-EC3	Coverage of the organization's defined benefit plan obligations	●	DB plan subscription rate: 99.8%
	G4-EC4	Financial assistance received from government	●	11
Market Presence	G4-EC5	Ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation	○	
	G4-EC6	Proportion of senior management hired from the local community at significant locations of operation (overseas: Indonesia corporation)	○	
Indirect Economic Effects	G4-EC7	Development and impact of infrastructure investment and service supported	●	41-45
	G4-EC8	Significant indirect economic impacts, including the extent of impacts	●	31, 33-36
Procurement Practices	G4-EC9	Proportion of spending on local suppliers at significant locations of operation	○	
Availability and Reliability - Aspect 1		DMA (Disclosures on Management Approach)	●	26-27
	EU10	Planned capacity against projected electricity demand over the long term, broken down by energy source and regulatory regime	●	26-27
Demand-side Management - Aspect 1		DMA (Disclosures on Management Approach)	●	26-27

Overview			Material Issues for Sustainability Management		Management Report	Appendix
GRI G4			ISO 26000	Report Level	Page/Remarks	
R&D - Aspect 2	DMA (Disclosures on Management Approach)			●	32	
	EU8	Research and development activity and expenditure aimed at providing reliable power and promoting sustainable development		●	32-33	
Power Plant Decommissioning	DMA (Disclosures on Management Approach)			●	38	
System Efficiency - Aspect 1	DMA (Disclosures on Management Approach)			●	27-29	
	EU11	Average generation efficiency of thermal plants by energy source and by regulatory regime		●	18-19, 27-29	
	EU12	Transmission and distribution losses as a percentage of total energy		●	11	
Environmental						
Materials	G4-EN1	Materials used by weight or volume	6.5.4	●	38	
	G4-EN2	Percentage of materials used that are recycled input materials	6.5.4	●	11, 40	
Energy - Aspect 3	DMA (Disclosures on Management Approach)			●	38	
	G4-EN3	Energy consumption within the organization	6.5.4	●	11	
	G4-EN4	Energy consumption outside the organization	6.5.4	●	11	
	G4-EN5	Energy intensity	6.5.4	●	38	
	G4-EN6	Reduction of energy consumption	6.5.4-5	●	38	
	G4-EN7	Reductions in energy requirements of products and services		●	38	
	DMA (Disclosures on Management Approach)			●	39-40	
Water - Aspect 3	G4-EN8	Total water withdrawal by source	6.5.4	●	40	
	G4-EN9	Water sources significantly affected by withdrawal of water	6.5.4	●	40	
	G4-EN10	Percentage and total volume of water recycled and reused	6.5.4	●	40	
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	●	40	
	G4-EN12	Significant impact of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas	6.5.6	●	40	
	G4-EN13	Habitats protected or restored	6.5.6	●	40	
	G4-EN14	Total number of IUCN Red List species and national conservation list species with habitats in areas affected by operations by regions, and by level of extinction risk	6.5.6	○		
	EU13	Biodiversity of offset habitats compared to the biodiversity of the affected areas		○		
Emissions - Aspect 3	DMA (Disclosures on Management Approach)			●	37	
	G4-EN15	Direct GHG emissions	6.5.5	●	38	
	G4-EN16	Indirect GHG emissions	6.5.5	●	38	
	G4-EN17	Other Indirect GHG emissions	6.5.5	○		
	G4-EN18	GHG emissions intensity	6.5.5	●	38	
	G4-EN19	Reduction of GHG emissions	6.5.5	●	38	
	G4-EN20	Emissions of ozone-depleting substances	6.5.3, 6.5.5	○		
	G4-EN21	NOx, Sox and other significant air emissions	6.5.3	●	39-40	
Effluents and Waste - Aspect 3	DMA (Disclosures on Management Approach)			●	37	
	G4-EN22	Total water discharge by quality and destination	6.5.3-4	●	39-40	
	G4-EN23	Total weight of waste by type and disposal method	6.5.3	●	39-40	
	G4-EN24	Total number and volumes of significant spills	6.5.3	N/A		
	G4-EN25	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex and percentage of transported waste shipped internationally	6.5.3	N/A	Not relevant to the leak or transport of any significant hazardous substances	
	G4-EN26	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the organization's discharge of wastewater	6.5.3	N/A		
Product and Service - Aspect 3	DMA (Disclosures on Management Approach)			●	30	
	G4-EN27	Extent of impact mitigation of environmental impacts of products and services	6.5.3-6.5.5, 6.7.5	●	32-36	
	G4-EN28	Percentage of products sold and their packaging materials that are reclaimed	6.5.3-6.5.4, 6.7.5	N/A		
Compliance	G4-EN29	Monetary values of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations	4.6	●	No case of fines for non-compliance	
Transport	G4-EN30	Significant environmental impacts of transporting products and other goods and materials for the organization's operations, and transporting members of the workforce	6.5.4, 6.6.6	○		
Overall	G4-EN31	Total environment protection expenditures and investments by type	6.5.1-6.5.2	●	11	
Supplier Environmental Assessment	G4-EN32	Percentage of new suppliers that were screened using environmental criteria	6.3.5, 6.6.6, 7.3.1	●	Reflected environmental performance in screening and evaluation process for the existing or new suppliers	
	G4-EN33	Percentage of suppliers identified as having actual and potential negative environmental impacts and actions taken	6.3.5, 6.6.6, 7.3.1	○		
Environmental Grievance Mechanism	G4-EN34	Number of grievances about environmental impacts filed, addressed and resolved through formal grievance mechanisms	6.3.6	●	No case of official complaints/measures	

● Reported ● Partially reported ○ Not reported N/A Not applicable

GRI G4			ISO 26000	Report Level	Page/Remarks
Social					
Workforce	EU15	Percentage of employees eligible to retire in the next 5 and 10 years broken down by job category and by region		●	11
	G4-LA1	Total number and rates of new employee hires and employee turnover	6.4.3	●	11
	G4-LA2	Benefits provided to full-time employees only	6.4.4, 6.8.7	●	54
	G4-LA3	Return to work rates after parental leave by gender	6.4.4	●	11
	EU17	Days worked by contractor and subcontractor employees involved in construction, operation and maintenance activities		○	
	EU18	Percentage of contractor and subcontractor employees that have undergone relevant health and safety training		●	56
Labor Management	G4-LA4	Minimum notice periods regarding operational change	6.4.3, 6.4.5	●	53-55
Occupational Health and Safety	G4-LA5	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs	6.4.6	●	53
	G4-LA6	Rates of injury, occupational diseases, and absenteeism, and total number of work-related fatalities, by region and by gender	6.4.6, 6.8.8	●	No injuries, occupational diseases, and fatalities
Human Rights					
Occupational Health and Safety	G4-LA7	Workers with high incidence or high risk of diseases related to their occupation	6.4.6, 6.8.8	●	56
	G4-LA8	Health and safety topics covered in formal agreement with trade unions	6.4.6	●	56
	G4-LA9	Average hours of training per year per employee by gender, and by employee category	6.4.7	●	54-55
Training and Education	G4-LA10	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings	6.4.7, 6.8.5	●	54-55
	G4-LA11	Percentage of employees receiving regular performance and career development reviews, by gender, and by employee category)	6.4.7	●	54-55
Diversity and Non-discrimination	G4-LA12	Composition of governance bodies and breakdown of employees per 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	●	11
Equal Remuneration	G4-LA13	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	●	No discrimination by gender
Supplier Assessment for Labor Practice	G4-LA14	Percentage of new suppliers that were screened using labor practices criteria	6.3.5, 6.4.3, 6.6.6, 7.3.1	●	57 (100%)
	G4-LA15	Percentage of suppliers identified as having significant actual and potential negative impacts for labor practices and actions taken	6.3.5, 6.4.3, 6.6.6, 7.3.1	○	
Labor Practice Grievance Mechanism	G4-LA16	Number of grievances about labor practices filed, addressed, and resolved through formal grievance mechanisms	6.3.6	○	
Investment	G4-HR1	Percentage of significant investment agreements that include human rights clauses or that underwent human rights screening	6.3.3, 6.3.5, 6.6.6	●	57 (100%)
	G4-HR2	Total hours of employee training on human rights polices or procedures concerning aspects of human rights that are relevant to operation including the percentage of employees trained	6.3.5	●	49
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	●	No issues raised on discrimination and actions taken
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	6.3.3-6.3.5, 6.3.8, 6.3.10, 6.4.5, 6.6.6	●	53
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	6.3.3-6.3.5, 6.3.7, 6.3.10, 6.6.6, 6.8.4	●	53
Forced or Compulsory Labor	G4-HR6	Operations and suppliers identified as having significant risk for incidents of forced labor, and measures taken to contribute to the elimination of all forms	6.3.3-6.3.5, 6.3.10, 6.6.6	●	53
Security Practice	G4-HR7	Percentage of security personnel trained in the organizations human rights policies or procedures that are relevant to operations	6.3.4, 6.3.5, 6.6.6	○	
Indigenous Rights	G4-HR8	Total number of incidents of violations involving rights of indigenous people and actions taken	6.3.4, 6.3.6-6.3.8, 6.6.7, 6.8.3	●	40, 44
Assessment	G4-HR9	Total number and percentage of operations that have been subject to human rights reviews or impact assessments	6.3.3-6.3.5	●	Completed human right reviews in the headquarters and all domestic operations
Supplier Human Rights Assessment	G4-HR10	Percentage of new suppliers that were screened using human rights criteria		●	57 (100%)
	G4-HR11	Significant actual and potential negative human rights impacts in the supply chain and actions taken	6.3.3-6.3.6	○	
Human Rights Grievance Mechanism	G4-HR12	Number of grievances about human rights impacts, filed, addressed and resolved through formal grievance mechanisms	6.3.6	○	

GRI G4			ISO 26000	Report Level	Page/Remarks
Society					
Local Communities - Aspect 4	DMA (Disclosures on Management Approach)			●	41
	G4-SO1	Percentage of operations with implemented local community engagement, impact assessment, and development programs	6.3.9, 6.5.1-6.5.3, 6.8	●	41-45
	G4-SO2	Operations with significant actual and potential negative impacts on local communities	6.3.9, 6.5.3, 6.8	●	41-45
	EU22	Number of people physically or economically displaced and compensation broken down by type of project		●	41-45
	G4-SO3	Total number and percentage of operations assessed for risks related to corruption and the significant risks identified	6.6.1-6.6.3	●	Completed the review on anti-corruption risks in the headquarters and all domestic operations
	G4-SO4	Communication and training on anti-corruption policies and procedures	6.6.1-6.6.3, 6.6.6	●	48-50
Anti-corruption	G4-SO5	Confirmed incidents of corruption and actions taken	6.6.1-6.6.3	●	48-50
	G4-SO6	Total value of political contributions by country and recipient/beneficiary	6.6.1-6.6.2, 6.6.4	●	Added a policy preventing employees from involving in politics to the service regulation
Anti-competitive Behavior	G4-SO7	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	●	No legal actions taken
	G4-SO8	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with laws and regulations	4.6	●	No fines and non-monetary sanctions
Supplier Assessment for Impacts on Society	G4-SO9	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	●	57-58
	G4-SO10	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 Mechanism for Impacts on Society	G4-SO11	Number of grievances about impacts on society field, addressed, and resolved through formal grievance mechanisms	6.3.6, 6.6.1-6.6.2, 6.8.1-6.8.2	○	
Product Responsibility					
Customer Health 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	●	56
	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	●	No incidents of non-compliance
	EU25	Number of injuries and fatalities to the public involving company, assets, including legal judgements, settlements and pending legal cases of diseases		●	No injuries and fatalities of a financial investing company
Product and Service Labelling	G4-PR3	Type of product and service information required by the organization's procedures for product and service information and labelling, and percentage of significant product and service categories subject to such information requirements	6.7.1-6.7.5, 6.7.9	●	9
	G4-PR4	Total number of incidents or non-compliance with regulations and voluntary codes concerning product and service information and labelling, by type of outcomes	4.6, 6.7.1-6.7.5, 6.7.9	●	No incidents of non-compliance
	G4-PR5	Results of survey measuring customer satisfaction	3.7.1-6.7.2, 6.7.6	●	58-59
Marketing Communications	G4-PR6	Sale of banned or disputed products	-	N/A	Conducted energy business in accordance with government's 'Energy Master Plan'
Customer Privacy	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	N/A	No complaints raised regarding customer privacy
	G4-PR8	Total number of substantiated complaints regarding beaches of customer privacy and losses of customer data	6.7.1-6.7.2, 6.7.7	●	No fines imposed for non-compliance
Compliance	G4-PR9	Monetary values 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	●	
Access - Aspect 11	DMA (Disclosures on Management Approach)			●	25
	EU26	Percentage of population unserved in licensed distribution or service areas		N/A	No direct power sale to end users
	EU27	number of residential disconnections for non-payment, broken down by duration of disconnection and by regulatory regime		N/A	
	EU28	Power outage frequency		●	27-29
	EU29	Average power outage duration		●	27-29
	EU30	average plant availability factor by energy source and by regulatory regime		●	27-29

Independent Assurance Report

To the Stakeholders of POSCO ENERGY

The Korea Productivity Center (“KPC” or “the Assurance Provider” hereafter) has been engaged by POSCO ENERGY to perform a third-party assurance of its 2015 Sustainability Report (“the Report” hereafter), and therefore presents the findings as follows.

Responsibility and Independence

The responsibility for the information and statements included in the Report lies solely with POSCO ENERGY. The Assurance Provider is responsible for the assurance findings generated in the Report. As an independent assurance provider, the Assurance Provider was not engaged in the preparation of the Report in any other way and does not have any interest in POSCO ENERGY in a way that may hamper its independence.

Assurance Standards

The Assurance Provider performed a Type 1 moderate level assurance in accordance with AA1000AS (2008)¹. Following these assurance standards, the Assurance Provider verified the Report against such principles as inclusivity, materiality, and responsiveness in accordance with AA1000APS (2008)². In addition, the Assurance Provider verified that the Report complied with the GRI G4 Guidelines.

Limitations

This assurance covers POSCO ENERGY’s 2015 performance in accordance with the assurance standards stated above. The Assurance Provider verified the financial data through financial statements and publicly announced materials. The Assurance Provider also verified the environmental and social performance data by performing a Type 1 and sample-based moderate level assurance. On-site inspections were limited to POSCO ENERGY’s corporate headquarters in Seoul, Korea, and it should be noted that the results may change if additional verification processes are carried out in the future.

Methodology

The Assurance Provider adopted the following methods in assuring this Report.

- Verify that the Report met the requirements of the Comprehensive Option of the GRI G4 Guidelines.
- Verify that the Report abided by the principles that concern the content and quality of the Report in accordance with the GRI G4 Guidelines and Electric Utilities Sector Disclosures.
- Review that major issues were selected and described appropriately in the Report through media research and benchmarking analysis.
- Verify the appropriateness of the report content, and any errors regarding the representation of such content, through comparative analyses made with other sources.
- Conduct on-site inspections of the Seoul headquarters to verify the evidence of major data and information as well as internal process and systems.

Conclusion

The Assurance Provider believes that the Report is a sincere and fair representation of POSCO ENERGY’s sustainability management initiatives and achievements. We verified that the Report satisfies the requirements of the Comprehensive Option of the GRI G4 Guidelines.

We also verified that the Comprehensive Option’s requirements were met in the case of General Standard Disclosures. As for Specific Standard Disclosures, we examined the DMA (Disclosure on Management Approach) and Indicators regarding the Material Issues that were derived from the following report item decision process.

¹ AA1000 Assurance Standard (2008): A global assurance standard developed by Accountability that provides methods for reporting on an organization’s management of sustainability issues beyond financial indicators, including its adherence to the Accountability Principles Standard and the reliability of its sustainability performance information

² AA1000 AccountAbility Principles Standard (2008): A global assurance principles developed by Accountability that provides a framework for the AA1000 standards

Material Issues	DMA & Indicators	Material Issues	DMA & Indicators
aspect 1. Stable Generation of Electricity	DMA - Demand-side Management DMA - Availability and Reliability, EU10 DMA - System Efficiency, EU11~EU12 DMA - Access, EU26~EU30	aspect 3. Response to Climate Change	DMA - Energy, EN3~EN7 DMA - Water, EN8~EN10 DMA - Emissions, EN15~EN21 DMA - Effluents and Waste, EN22~EN26 DMA - Products and Services, EN27~EN29
aspect 2. Reinforcement of Competitiveness	DMA - Economic Performance, EC1~EC4 DMA - Research and Development	aspect 4. Contribution to Local Communities	DMA - Local Communities, SO1~SO2, EU22

Inclusivity: Stakeholder Engagement POSCO ENERGY categorizes its stakeholders into six groups: partners, customers, shareholders and investors, employees, local communities, and Relevant government agencies and NGO, in compliance with the Principles of Inclusivity. The Assurance Provider verified that POSCO ENERGY gathers the opinions of key stakeholders through opinion collection activities such as surveys and interviews.

Materiality: Selection and Reporting of Key Issues Based on the issues of the previous report, POSCO ENERGY has settled on 31 sustainable management issues by investigating the domestic and foreign energy industry issues, media analyses, and international standards in sustainable management such as the GRI G4 Guidelines, GRI electric industry supplementary indicators, ISO26000, and UNGC. It was also confirmed that POSCO ENERGY drew 15 key issues through the materiality test that was carried out based on the “Correlation” and “Influence” on the internal and external stakeholders, and their responses were reflected in a balanced manner in each page of the Report.

Responsiveness: Organizational Response to Issues The Assurance Provider verified that the Report properly demonstrates POSCO ENERGY’s awareness of the key issues that would impact stakeholder judgment of its performance and that it undertook measures to resolve such issues. Through the Report, POSCO ENERGY is faithfully disclosing the actions and performance of their responses to key issues in sustainable management.

Recommendations

The Assurance Provider highly values the range of endeavors and achievements made by POSCO ENERGY to advance its sustainability and presents the following recommendations.

- The needs to complement the disclosed sustainability strategy system have been raised due to the changes in the global management environment and invigorated participation of stakeholders. We recommend that POSCO ENERGY shall reconfirm its internal structure against new sustainability environment, while implementing new tasks for improvement and Key Performance Indicators (KPI), excluding the already obtained performances, so as to link them with actual management activities.
- As some reporting scopes have been broadened to incorporate the domestic subsidiaries and overseas corporations, it becomes more and more important to appropriately manage data. We recommend that POSCO ENERGY enact fundamental improvement in terms of data reliability: by demarcating—especially for key issues—areas of responsibilities and rights over data aggregation, management and preparation, and by adopting a data management cycle from a quarterly or a half-yearly basis.



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April 2016
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The Sustainability Management Center of the Korea Productivity Center is a fully qualified independent assurance agency. It is officially certified by AccountAbility that established AA1000, the international standard for stakeholder engagement and assurance . It has the Assurance Committee with experienced experts who are qualified for the consultation and assurance of sustainability practice.

UN Global Compact

Classification	Principles	GRI	Page
Human Rights	1 Businesses should support and respect the protection of internationally proclaimed human rights; and rights;	G4-HR2, G4-HR7,G4-HR8, G4-HR9, G4-HR12, G4-SO1, G4-SO2	54
	2 make sure that they are not complicit in human rights abuses.	G4-HR1, G4-HR10, G4-HR11	48, 54
Rule of Labor	3 Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;	G4-11, G4-HR4, G4-LA4	53
	4 the elimination of all forms of forced and compulsory labour;	G4-HR6	53, 54
	5 the effective abolition of child labour; and	G4-HR5	53, 54
	6 the elimination of discrimination in respect of employment and occupation.	G4-10, G4-EC5, G4-EC6, G4-LA1, G4-LA3, G4-LA9, G4-LA11, G4-LA12, G4-LA13, G4-HR3	54, 55
Environment	7 Businesses should support a precautionary approach to environmental challenges;	G4-E2, G4-EN1, G4-EN3, G4-EN8, G4-EN15, G4-EN16, G4-EN17, G4-EN20, G4-EN21, G4-EN27, G4-EN31	39
	8 undertake initiatives to promote greater environmental responsibility; and	G4-EN1, G4-EN2, G4-EN3, G4-EN4, G4-EN5, G4-EN6, G4-EN7, G4-EN8, G4-EN9, G4-EN10, G4-EN11, G4-EN12, G4-EN13, G4-EN14, G4-EN15, G4-EN16, G4-EN17, G4-EN18, G4-EN19, G4-EN20, G4-EN21, G4-EN22, G4-EN23, G4-EN24, G4-EN24, G4-EN25, G4-EN26, G4-EN27, G4-EN28	39
	9 encourage the development and diffusion of environmentally friendly technologies.	G4-EN29, G4-EN30, G4-EN31, G4-EN32, G4-EN33, G4-EN34	32, 39
Anti-Corruption	10 Businesses should work against corruption in all its forms, including extortion and bribery	G4-EN6, G4-EN7, G4-EN19, G4-EN27, G4-EN31	48

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