POSCO ENERGY has been committed to making a brighter world by providing cleaner energy over the last 40 years. This commitment has us become the Korea’s first and biggest independent power producer, the world’s largest Fuel Cell maker and a top-tier renewable energy producer.

We are striving to increase our market presence under the POSCO Family slogan of Vision 2020 “Making better world with dreams and hope, materials and energy!”

We are the “Energy Creator” that is helping to shape the future for all mankind since the energy we produce through constant challenges and innovations is essential for our lives and environmental friendly.
Happiness is from daily life.
Greater convenience and prosperity enrich our lives and result in happiness.
Energy is essential in every part of our lives. The energy that POSCO ENERGY produces is a part of our daily routines and lives.
Generating and conserving essential energy for more than four decades

POSCO ENERGY is the Korea’s first and largest independent power producer. Our Incheon LNG Combined Cycle Power Plant has supplied electricity to the Seoul metropolitan area for over 40 years, and we work hard to remain competitive in the power generation business, supplying about 16.5% of the total power demand around the Seoul metropolitan area. We also conduct regular inspections to minimize the risk of a sudden shutdown while maximizing availability so that we can respond promptly to fluctuating electricity demand.

POSCO ENERGY has operated the first off-gas power plant fueled by a byproduct produced from steel making process in Gwangyang. A second off-gas power plant is now in operation in Pohang.

We are helping to make life more convenient and fulfilling by supplying cleaner energy to the Seoul metropolitan area in a stable manner and generating power from off-gas in an environmental friendly way.
Generation Capacity of Combined Cycle Power Plant

**LNG Combined Cycle Power Plant in Incheon (MW)**
- 1972: 324.8
- 2010: 1,800
- 2011: 3,052
- 2015: 3,412

**Off-gas Combined Cycle Power Plant in Gwangyang & Pohang (MW)**
- 2010: 284
- 2013: 429
- 2014: 574

Happiness is come from daily life. Greater convenience and prosperity enrich our lives and result in happiness. Energy is essential in every part of our lives. The energy that POSCO ENERGY produces is a part of our daily routines and lives.

We Create a Better Life

POSCO ENERGY

WE ARE ENERGY CREATOR
People work hard so that their lives can be better tomorrow. POSCO ENERGY is making the best efforts to keep our happiness and sustainability for tomorrow with continuous challenges and innovation.
Realizing a cleaner world by creating highly-efficient, eco-friendly Fuel Cell

Fuel Cell is clean and highly efficient energy that can be produced where demand generated and there is no power grid. This next-generation energy produces virtually no pollutants or noise. We have continued to invest in Fuel Cell technology development and production facility construction since 2007. We completed the world’s largest and Asia’s first Fuel Cell plant in 2008 and a Fuel Cell Manufacturing Facility in 2011. Currently, We are in a process of constructing a Stack manufacturing plant to be able to produce a critical component, Cell. We are also constructing and operating 21 fuel cell facilities in Nowon, Sangam, Incheon, Pohang and Hwaseong, which is the world’s largest fuel cell complex.

Fuel Cell expertise and know-how by POSCO ENERGY, which considers people, technology, and environment all together, is getting another step closer to a cleaner world.
People work hard so that their lives can be better tomorrow. POSCO ENERGY is making the best efforts to keep our happiness and sustainability for tomorrow with continuous challenges and innovation.

### Benefits of Fuel Cell

<table>
<thead>
<tr>
<th></th>
<th>Unit (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant Use</td>
<td></td>
</tr>
<tr>
<td>Wind Power</td>
<td>25</td>
</tr>
<tr>
<td>Solar Power</td>
<td>15</td>
</tr>
<tr>
<td>Fuel Cell</td>
<td>90</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area of Installation (per 1MW)</th>
<th>Unit (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wind Power</td>
<td>39,600</td>
</tr>
<tr>
<td>Solar Power</td>
<td>19,800</td>
</tr>
<tr>
<td>Fuel Cell</td>
<td>179</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CO₂ Emissions</th>
<th>Unit (g/kWh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas Turbine</td>
<td>223</td>
</tr>
<tr>
<td>Diesel</td>
<td>182</td>
</tr>
<tr>
<td>Gas Engine</td>
<td>171</td>
</tr>
<tr>
<td>Fuel Cell</td>
<td>111</td>
</tr>
</tbody>
</table>
Human life is a part of nature. If there is no clean environment, people, enterprises and even society cannot exist. POSCO ENERGY is dedicated to build sustainable future in harmony with nature by providing clean energy.
We Create

Clean & Green Energy

Leading the green energy revolution for greater human happiness and a sustainable future

POSCO ENERGY is an eco-friendly business leader, aggressively promoting solar, wind, and other renewable energy sources. We built and now operate a 7MW Solar Power (Photovoltaic) Plant at Shinan-gun, Jeollanam-do, and the capacity is scheduled to be increased to 14.5MW by 2014. We are also preparing for constructing Korea’s first commercial offshore wind farm, a 30MW complex in the waters off Jeju Island. Another large-scale Onshore/offshore wind farm is planned for Shinan-gun, Jeollanam-do.

POSCO ENERGY is also turning waste and sewage heat into energy sources that can help to reduce our reliance on fossil fuels and reduce greenhouse gas emissions. Currently, we operate Korea’s first refuse-derived fuel processing facility and power plant in Busan, and a second RDF facility will be completed in Pohang in 2017.

In addition, we are building a facility at the Tancheon Water Reuse Center that will recover sewage heat and supply steam to residences and businesses in the local community.

Human life is a part of nature. If there is no clean environment, people, enterprises and even society cannot exist.

POSCO ENERGY is dedicated to build sustainable future in harmony with nature by providing clean energy.
Human life is a part of nature. If there is no clean environment, people, enterprises and even society cannot exist.

POSCO ENERGY is dedicated to build sustainable future in harmony with nature by providing clean energy.

Effectiveness of Eco-friendly Energy Projects

- **258,000 tCO2/year**
  - CO2 Reduction (Busan & Pohang Waste Treatment & Power Generation Facility)

- **244.5 MW**
  - Projected amount of renewable energy produced in 2020 (Solar Power plant at Shinan-gun, offshore and onshore wind farms in Jeollanam-do)

- **44,000 tCO2/year**
  - CO2 Reduction (Tancheon Water Reuse Center Using Sewage Heat)
POSCO ENERGY is going global, providing new energy sources for a hope-filled future. We will tap into the endless potential of the broader world and supply more people with ready access to energy that reflects all people’s needs and their quality of life.
POSCO ENERGY is going global, providing new energy sources for a hope-filled future. We will tap into the endless potential of the broader world and supply more people with ready access to energy that reflects all people's needs and their quality of life.

Growing as an integrate energy company on the world stage

POSCO ENERGY is moving beyond the domestic market. Competencies built up in Korea have provided the platform for overseas expansion: Coal-fired thermal power plant in Quang Ninh Province, Vietnam; Coal-fired cogeneration power plant in Ulaanbaatar, Mongolia; Off-gas power plant in Cilegon, Indonesia; Fuel Cell power plant in Jakarta, Indonesia; and Solar power plant in Nevada, USA.

A solid footing has been secured in several overseas markets with strong growth potential going forward. We will now build on this platform to grow into a world-class, comprehensive energy provider with annual sales of KRW12 trillion by 2020. Our goal is in step with the POSCO Family vision of "Making better world with dreams and hope, materials and energy!"
POSCO ENERGY is going global, providing new energy sources for a hope-filled future. We will tap into the endless potential of the broader world and supply more people with ready access to energy that reflects all people’s needs and their quality of life.

We Create More Wellness
CEO’s Message

“POSCO ENERGY has been taking on new challenges from the very beginning, and now are poised for a second round of rapid growth. We are now taking new strides forward in our quest provide clean energy for a brighter world.”

We were renamed POSCO ENERGY in 2010, and preparations began for us to enter into our second rapid growth stage, this time as a comprehensive energy company on the global stage. All POSCO Family are united under the slogan “Making better world with dreams and hope, materials and energy!” and we are collectively focusing our competencies to place POSCO among the world’s top 100 enterprises by 2020. POSCO ENERGY is one of the pillars for realizing this vision.

POSCO ENERGY started out as Korea’s first private power producer more than four decades ago, and we continued to grow as the nation’s largest independent power producer. Our 3,000MW Incheon LNG Combined Cycle Power Plant provides a stable supply of electricity to the Seoul metropolitan area, our 300MW Gwangyang Off-gas Combined Cycle Power Plant is the first off-gas power plant in Korea. In addition, we now operate a 145MW Off-gas Combined Cycle Power Plant at the Pohang that is unique because it is fueled by a combination of Off-gasses from the Blast Furnaces and Finex steel mill.

We are focusing our competencies on the power generation business to realize our vision for 2020 to become a “World Best GREEN Energy Company.” To this end, we are intensively developing our Fuel Cell power generation and renewable energy business, which represent future growth engines.

POSCO ENERGY has been investing in Fuel Cell research and development since 2007, and we expect to have a completely localized version available in 2014. We currently have Fuel Cell power generation facilities at twenty-one locations around Korea. One of these, the Gyeonggi Fuel Cell Park at Hwaseong, is the world’s largest, and now in the final test operation stage.

As for our solar and wind power generation businesses, we built a solar(Photovoltaic) power plant of 7MW on closed salt farm at Shinan-gun, Jeollanam-do. Now we are preparing for constructing Korea’s first commercial offshore wind farm of 30MW in Jeju Island. We are also involved in resource recycling, operating Korea’s first 25MW facility that turns municipal solid waste into fuel and used it to generate electricity. We are constructing a district heating unit at Tancheon that utilizes sewage heat energy.

POSCO ENERGY is now expanding beyond Korea’s borders with a coal-fired thermal power generation in Vietnam, off-gas power generation in Indonesia, coal-fired cogeneration power generation in Mongolia, solar power generation in the US. Projects such as these are enabling us to rise rapidly as a comprehensive energy company in the global market.

As time passes, we strive to earn ever-greater trust and respect as a company that helps make the world a better place. Our commitment is to keep getting more people to concur with our efforts.

I ask for your continued interest in and support for POSCO ENERGY.

Chief Executive Officer
Chang Kwan Oh
Our History

POSCO ENERGY started out as Korea’s first independent power producer and has grown into the nation’s largest. Now we are moving abroad to become a comprehensive energy company in the global market.

1969 - 2000

1969.11 Established Kyung-in Energy Development (Hanwha Group and Union Oil joint venture)
1970.03 Renamed Kyung-In Energy Co., Ltd.
1972.02 Started commercial operation of LNG Combined Cycle Power Plant (Incheon: 325MW)
1999.12 Established Hanwha Energy Co., Ltd.
(Hanwha Corp. Energy Division spin-off)
2000.10 Renamed Korea General Energy Co., Ltd.

2001 - 2006

2000.01 Completed phased expansion of LNG Combined Cycle Power Plant (Incheon: 1,800MW)
2005.09 Renamed POSCO Power Co., Ltd.
2006.03 Acquisition of 100% POSCO Co., Ltd.

2007 - 2011

2007.02 Began Fuel Cell business (Transferred from POSCO Co., Ltd.)
2008.09 Completed Fuel Cell BOP Manufacturing facility (Pohang: 100MW equivalent/year)
2010.12 Began Solar Power Plant in Nevada, USA (300MW)
Completed Off-gas Combined Cycle Power Plant (Gangyang compound, 284MW)
2011.03 Completed Fuel Cell Stack Factory (Pohang: 100MW equivalent/year)
Founded POSCO ENERGY Women’s Table-tennis Team
2010.09 Completed LNG Combined Cycle Power Plant Units S & 6 (Incheon: 1,200MW)
Broke ground for Off-gas Power Plant in Indonesia (250MW)
Broke ground for coal-fired thermal power plants in Vietnam (1,200MW in total)

2012 - 2013

2012.02 Started 1st phase commercial operation of Shinan-gun Solar Power Complex (18MW)
Renamed POSCO ENERGY Co., Ltd.
Broke ground for Off-gas Combined Cycle Power Plant Pohang Compound (200MW)
Completed Korea’s first 100MW Fuel Cell power plant for building use
2012.07 Began coal-fired cogeneration power plant project in Mongolia (450MW)
2012.09 Broke ground for fuel cell power plant in Indonesia (300MW)
2012.11 Broke ground for fuel cell complex (Gyeonggi Green Energy Co.) at Hwaseong system
2012.11 Signed Fuel Cell manufacturing technology transfer agreement with Fuel Cell Energy of US
2012.12 Broke ground for 2nd phase of Shinan-gun Solar Power complex
2013.05 Began 2nd phase commercial operation of Shinan-gun Solar Power complex (18MW)
2013.09 Began commercial operation of Off-gas Combined Cycle Power plant Unit 1 at Pohang Works (145MW)
Mission & Vision

Based on the mission of making a brighter world by providing cleaner energy, POSCO ENERGY embraces the core values of Passion, Communication, Co-success, and Green Innovation as we work to achieve the stated goals of Vision 2020.

Mission

We make a brighter world by providing cleaner energy

Vision

World Best GREEN Energy Company

Core Value

Passion
- Ownership
- Challenge
- Professionalism

Communication
- Trust
- Consideration
- Cooperation

Green Innovation
- Eco-friendly growth
- Creativity and innovation

Co-Success
- Prosperous eco-system
- Social responsibility

Parenting Core Value

Passion
- We are proud members of the POSCO ENERGY and take the lead in everything we do.
- We seek out new challenges with a sense of pride.
- We grow with our work, develop our professionalism, and become the very best at what we do.

Communication
- We trust one another with an open mind, and communicate freely and unreservedly.
- We recognize our diversity and take care of one another with sincerity.
- We transcend regional and organizational barriers to work together and achieve shared goals.

Green Innovation
- We are pioneering future energy through eco-friendly growth.
- We apply creativity and innovation to secure new business opportunities.

Co-Success
- We grow with all stakeholders, and we help to advance the ecosystem to which we belong.
- We fulfill our responsibilities as a global corporate citizen.

Financial Highlights

POSCO ENERGY is solidly established as a member of the POSCO Family. We have a firm financial structure, and our growth engines run continuously.

Credit Rating

AA+

Shareholder Status

POSCO: 77.6%
SkyLake: 14.3%
STIC: 8.1%

Debt to Equity Ratio:
- 2003: 4.4
- 2004: 3.8
- 2005: 3.0
- 2006: 2.3
- 2007: 2.0
- 2008: 1.7
- 2009: 1.4

Total Assets:
- 2010: 25,463
- 2011: 29,827
- 2012: 33,849

Total Stockholders' Equity:
- 2010: 8,411
- 2011: 8,732
- 2012: 12,401

Total Liabilities:
- 2010: 17,052
- 2011: 21,095
- 2012: 21,448

EBITDA
- 2010: 2,023
- 2011: 1,903
- 2012: 1,819

Net Income
- 2010: 425
- 2011: 461
- 2012: 1,819

Operating Income
- 2010: 1,406
- 2011: 2,732
- 2012: 4,462

Sales
- 2010: 8,817
- 2011: 790
- 2012: 1,604
For more than forty years, POSCO ENERGY has taken on challenges to overcome limitations and employed the power of business execution to become firmly established as Korea’s first and foremost independent power producer.

We are now leveraging our involvement in domestic and overseas power generation, Fuel Cell manufacturing, and renewable energy to achieve a new round of rapid growth as a comprehensive energy company on the global stage.

Our achievements to date provide the platform for us to take on new challenges and continue innovating. In the process, POSCO ENERGY is writing yet another success story.
LNG Combined Cycle Power Plant

Incheon LNG Combined Cycle Power Plant has provided a stable supply of electricity to the Seoul metropolitan area for over forty years. POSCO ENERGY is truly Korea’s first and biggest independent power producer.

Configuration

The Incheon LNG Combined Cycle Power Plant complex currently operates six combined cycle power generation units. Units 1 through 4 each have three gas turbines, one steam turbine, and three heat recovery steam generators, while Units 5 and 6 each consist of two gas turbines, one steam turbine and two heat recovery steam generators.

Generation Capacity

Units 1-4 at the Incheon LNG Combined Cycle Power Plant complex each have a combined 1,800MW capacity, while Units 5 and 6, which were commissioned in 2011, can generate 1,252MW, bringing the total generation capacity to 3,052MW. Units 7-9 are now under construction and scheduled for completion in January 2015. These three units will have a combined capacity of 1,260MW. They are more efficient than earlier models and will replace Units 1 and 2, furthering supply stability.

Incheon LNG Combined Cycle Power Plant has provided a stable supply of electricity to the Seoul metropolitan area for over forty years. POSCO ENERGY is truly Korea’s first and biggest independent power producer.

Power Generation of Incheon LNG Combined Cycle Power Plant

<table>
<thead>
<tr>
<th>Units</th>
<th>Capacity (MW)</th>
<th>Commercial Operation Start</th>
<th>Composition</th>
<th>Power Trading Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>900</td>
<td>1997</td>
<td>G/T 6 Units (600) S/T 2 Units (300)</td>
<td>PPA (Power Purchase Agreement)</td>
</tr>
<tr>
<td>3-4</td>
<td>900</td>
<td>1999, 2001</td>
<td>G/T 6 Units (600) S/T 2 Units (300)</td>
<td></td>
</tr>
<tr>
<td>5-6</td>
<td>1,252</td>
<td>2011</td>
<td>G/T 4 Units (812) S/T 2 Units (440)</td>
<td>CBP (Cost Based Pool)</td>
</tr>
<tr>
<td>7-9</td>
<td>1,260</td>
<td>2015</td>
<td>G/T 3 Units (813) S/T 3 Units (435)</td>
<td></td>
</tr>
</tbody>
</table>

Operation Principles for the LNG Combined Cycle Power Plant

The turbines fueled with LNG generate electricity in the initial cycle, and the waste heat from this operation is recovered by the HRSG and used to produce steam at high temperature and pressure that is used to drive the steam turbines.

Fuel: LNG (Liquefied Natural Gas)
### Off-gas Combined Cycle Power Plant

The Combined Cycle Power Plants onsite at the Gwangyang Works and Pohang Works are fueled by the off-gas that is a byproduct of iron- and steelmaking processes. They are good for the environment because they reduce the volume of airborne emissions while providing electrical power.

### Gwangyang Off-gas Combined Cycle Power Plant

**Summary**
- **Location:** Inside the Gwangyang Steelworks at 640 Geumho-dong, Gwangyang, Jeollanam-do
- **Completion:** December 2010
- **Generation Capacity:** 284MW (Units 1-2)
- **Site Area:** 32,177m²
- **Fuel:** BFG (Blast Furnace Gas) + COG (Coke Oven Gas)

### Pohang Off-gas Combined Cycle Power Plant

**Summary**
- **Location:** Inside the Pohang Steelworks, 5 Dongchon-dong, Pohang, Gyeongsangbuk-do
- **Expected Completion:** May 2014
- **Generation Capacity:** 290MW (Units 1-2)
- **Site Area:** 45,000m²
- **Fuel:** BFG (Blast Furnace Gas) + COG (Coke Oven Gas) + FOG (Finex Off Gas)

### Generation Capacity of the Gwangyang & Pohang Off-gas Combined Cycle Power Plants

<table>
<thead>
<tr>
<th>Units</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generation Capacity (MW)</td>
<td>284</td>
<td>467,206</td>
<td>2,106,832</td>
</tr>
</tbody>
</table>

### Power Generation of the Gwangyang & Pohang Off-gas Combined Cycle Power Plants

- **2010:** 284 MW
- **2011:** 467,206 MW
- **2012:** 2,106,832 MW
- **2013:** 2,138,844 MW

The off-gas combined-cycle power plant at the Gwangyang Works is the first facility of its kind in Korea. It was completed in December 2010 and has a generation capacity of 284MW. The fuel is gas produced during iron- and steel making processes, lowering annual crude oil import costs by some KRW57 billion and reducing greenhouse gas emissions by around 180,000 tons per year. The plant currently belongs to the "Renewable Energy," which means the output can be sold in unlimited quantities on the Korea Power Exchange.

### Operation Principles for the Off-gas Combined Cycle Power Plant

- **Gas Turbine**
- **Steam Turbine**
- **Demineralized Water System**
- **Water intake channel**
- **Effluent channel**

The Off-gas Combined Cycle Power Plant at the Pohang Works is the first ever to run on a mixture of Blast Furnace Gas and Finex Off Gas. Unit 1 started commercial operation in September 2013, and Unit 2 is scheduled to be ready for startup in February 2014. The facility is equipped with a selective catalytic reduction (SCR) system to reduce nitrogen oxide compounds emissions. The permissible NOₓ level set internally is 30 parts per million, which is stricter than the 50ppm legal limit. As such POSCO ENERGY is setting a precedent for others to follow in minimizing environmental impact.
Fuel Cell

Fuel Cell is highly efficient and eco-friendly. As such POSCO ENERGY has selected this field as a future growth engine and is working to localize Fuel Cell manufacturing 100%.

Fuel Cell Benefits

Conventional power generation is an energy conversion process, which is typically powered by the combustion of fuel. Fuel Cell operates on a different principle whereby the chemical energy of hydrogen and oxygen is converted directly into electricity. Thus, energy loss is low while generation efficiency is high. Importantly, environmental pollution is minimized.

Fuel Cell System Configuration

- MBOP (Fuel Supplier) refers to any mechanical device that supplies hydrogen and oxygen.
- Stack refers to the layers of Cells consisting of electrodes, electrolytes, and separators, and produces electricity through the electrochemical reaction between hydrogen and oxygen.
- EBOP (Power Converter) converts the direct current produced by Stack into alternating current and takes charge of the system control (ex. inverter, converter).
POSCO ENERGY entered into a strategic technology-sharing arrangement with Fuel Cell Energy (FCE) of the US and proceeded to localize the production of the mechanical balance of plant (MBOP) and electrical balance of plant (EBOP) components of Fuel Cell systems. In the process, many best practices were established concerning win-win cooperation. Our completion of the Stack Manufacturing Plant in 2011 enabled us to produce the complete Fuel Cell system in Korea. It is also in the process of constructing a plant for the in-house production of the Cell, another key component.

Establishment of Independent Business Infrastructure

2007
- A technology-sharing agreement is signed with FCE in the US, and Fuel Cell is selected as a future growth engine for POSCO ENERGY.

2008
- An-MFCC BOP Factory is completed, and mass production of BOP components is begun in Korea.

2011
- The Stack Factory is completed, and ISO 9001 certification is acquired.

| POSCO ENERGY BUSINESS FIELD | | |
|-----------------------------|-----------------------------|

- **Products**
  - Fuel Cell is well suited for diverse applications, including homes, industrial complexes and large ships.
  - **Consumption Area:**
    - 100kW: Electricity for 130 households, installation area: 15m², applications: small buildings, hospitals
    - 300kW: Electricity for 380 households, installation area: 50m², applications: small production facilities, petrochemical plants
    - 2.8kW: Electricity for 3,500 households, installation area: 500m², applications: Fuel Cell Power Plants, very large buildings, municipal waste dumps
  - **Commercialization of next-generation Solid Oxide Fuel Cell (SOFC)**
    - Fuel Cell is being applied to the auxiliary power and propulsion systems on large ships.
    - A 10kW version is under development and scheduled for commercial availability in June 2014.

- **Products under Development**
  - Molten Carbonate Fuel Cell for ships (MCFC)
  - Commercialization of next-generation Solid Oxide Fuel Cell (SOFC)

| Establishment of Independent Business Infrastructure | | |
|------------------------------------------------------|-----------------------------|
| Import and sale of finished FCE products | Localization of BOP | Localization of STACK | Localization of CELL |
| STAGE | MBOP | EBOP | STAGE | MBOP | EBOP | STAGE | MBOP | EBOP | STAGE | MBOP | EBOP |
| POSCO ENERGY | FCE | POSCO ENERGY | FCE | POSCO ENERGY | FCE | POSCO ENERGY | FCE | POSCO ENERGY | FCE | POSCO ENERGY | FCE |

<table>
<thead>
<tr>
<th>Investments by Period</th>
<th>Unit (KRW 100 million)</th>
<th>755</th>
<th>1,224</th>
<th>1,203</th>
<th>1,725</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Manpower</th>
<th>Unit (person)</th>
<th>46</th>
<th>133</th>
<th>297</th>
<th>623</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Number of SMEs for Win-Win Cooperation</th>
<th>20</th>
<th>20</th>
<th>96</th>
<th>128</th>
</tr>
</thead>
</table>
Renewable Energy

POSCO ENERGY, an eco-friendly business pioneer, is aggressively pursuing renewable energy to help usher in low-carbon green growth.

Solar Power

Summary
Location: Palgeum-myeon, Shinan-gun, Jeollanam-do
Capacity: Planned Total 14.5MW
Phase 1 (2MW)
Phase 2 (5MW)
Commercial Operation: May 2013
The complex will be expanded to 14.5MW capacity by 2014.

Wind Power

Summary
• Tamra Offshore Wind Farm
  Location: Public water near the northwestern part of Jeju island
  Total Capacity: 30MW
• Jeonnam Onshore Wind Farm
  Location: Shinan-gun, Jeollanam-do
  Capacity: Onshore 100MW
  (Additionally Planned: onshore 100MW and offshore 300MW)

Renewable Energy Business Development Plan

<table>
<thead>
<tr>
<th>Year</th>
<th>MW</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>114.5</td>
</tr>
<tr>
<td>2018</td>
<td>174.5</td>
</tr>
<tr>
<td>2020</td>
<td>244.5</td>
</tr>
</tbody>
</table>

Shinan Solar Power Plant: An eco-friendly facility built on closed salt farm
The Shinan Solar Power Plant, located in Palgeum-myeon, Shinan-gun, Jeollanam-do, currently operates a 7MW solar power plant self-developed by POSCO ENERGY. The facility was built on salt farm that have not been used for many years, thereby minimizing environmental impact. An eco-friendly synergy has been created with the local community. Another 7.5MW solar power plant will be built in 2014, which will have a combined generation capacity of 14.5MW.

Tamra Offshore Wind Farm: Korea’s first commercial offshore wind farm
Jeonnam Onshore Wind Farm: Revitalizing the local economy by using turbines produced in the region
POSCO ENERGY is working with other domestic companies to build Korea’s first commercial offshore wind farm, with a total generation capacity of 30MW, on the public water near the northwestern part of Jeju island. In addition, a large-scale onshore/offshore wind farm is being constructed at Shinan-gun, Jeollanam-do. In the first stage, a wind farm with a 100MW capacity is being developed at Shinan-gun. Another 100MW onshore and 300MW offshore wind farm are also planned. Thus, POSCO ENERGY will continue to contribute to the advance of Korea’s wind power industry and effectively respond to the RPS (Renewable Portfolio Standard).
Waste to Energy

POSCO ENERGY is reducing greenhouse gas emissions by converting waste and sewage heat into energy sources to replace fossil energy. We believe that "saving the earth" is no different from its mission, "Make a brighter world by providing cleaner energy."

Effect of Waste to Energy Business

<table>
<thead>
<tr>
<th>LNG Replacement Effect</th>
<th>CO₂ Reduction Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>123,000,000 Nm³/year</td>
<td>302,000 tCO₂/year</td>
</tr>
</tbody>
</table>

Creating Energy and Reducing Environmental Pollution

Household waste used to be incinerated or buried, and this often caused environmental pollution since inflammable waste and nonflammable waste were not separated in the process. POSCO ENERGY is currently promoting the RDF development project as part of its new and renewable energy business. Upon the successful implementation of the project, household waste will be separated and selected, and only the inflammable waste will be used as fuel to produce electricity at designated boilers. The heat generated through this process will be supplied to district heating substations and various industrial facilities.

RDF Development Project

Summary

* Pohang Waste Treatment & Power Generation Facility
  - Location: Ho-dong, Nam-gu, Pohang, Gyeongsangbuk-do
  - Status: Selected as a priority cooperation project in March 2011, completion set for 2017
  - RDF Capacity: 500t/day
  - Generation Capacity: 12MW
  - LNG Replacement Effect: 34,000,000 Nm³/year
  - CO₂ Reduction Effect: 84,000 tCO₂/year

* Busan Waste Treatment & Power Generation Facility
  - Location: Heung-dong, Nam-gu, Pohang, Gyeongsangbuk-do
  - Status: Selected as a priority cooperation project in March 2011, completion set for 2017
  - RDF Capacity: 500t/day
  - Generation Capacity: 12MW
  - LNG Replacement Effect: 34,000,000 Nm³/year
  - CO₂ Reduction Effect: 84,000 tCO₂/year

Operation Principles of RDF-fired Power Plant

- Maximize Energy Efficiency / Economic
- Create Fossil Fuel Alternatives
- Reduce Waste Disposal Costs
- Promote a Resource Recirculating Society

Utilizing Sewage Heat for District Heating

The domestic sewage discharged from the southeast of the metropolitan area is treated at the Tancheon Water Reuse Center before being discharged into the Han River through Tancheon. The amount of daily discharge after treatment stands at 1.1 million Nm³ at the average temperature during winter of 12 ℃. POSCO ENERGY recuperates such wasted heat energy by using a heat pump for district heating, which has the same effect as substituting 19 million Nm³ of LNG, per year. The use of wasted energy instead of fossil fuel can contribute to reducing the annual GHG emissions by 44,000 tons.

Utilization of Sewage Heat for District Heating

- Domestic sewage
- Heat pump
- Combined Heat & Power Plant
- Waste heat recovery system
- Refuse-Derived Fuel Production
- Gasification / Pyrolysis
- Electrolysis / Hydrogen production
- Landfill
- Food Waste
- PVC Residue
- Ferrous Metal
- Substances cause/ causing dioxin
- Non-combustibles
- Reduction in Airborne Pollutants
- Refuse-Derived Fuel
- Creation of Energy
- Reduction of Environmental Pollution
- Generation of Fossil Fuel Alternatives
- Promotion of a Resource Recirculating Society

Summary

* Tanchon Sewage Heat Energy utilization Facility
  - Location: Tanchon Water Treatment Center, Gangnam-gu, Seoul
  - Scheduled Completion: Sept. 2014
  - Capacity: 200,000 Gcal/year
  - LNG Replacement Effect: 1,900,000 Nm³/year
  - CO₂ Reduction Effect: 44,000 tCO₂/year

Effect of Sewage Heat Utilization Facility

<table>
<thead>
<tr>
<th>LNG Replacement Effect</th>
<th>CO₂ Reduction Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,900,000 Nm³/year</td>
<td>44,000 tCO₂/year</td>
</tr>
</tbody>
</table>
Global Business

We have established a presence in the US, Indonesian, Vietnamese and Mongolian markets and are now rising fast as a global energy company.

01 / Solar Power Plant
Nevada, USA

Summary
Location: Boulder, Nevada, USA
Generation Capacity: 300MW
Features: POSCO ENERGY’s first renewable energy venture overseas
Scheduled Completion: Commercial operation is set for 2016

02 / Coal-fired Cogeneration Power Plant
Ulaanbaatar, Mongolia

Summary
Location: Ulaanbaatar, Mongolia
Generation Capacity: 400MW
Features: Multilateral financial agencies are participating in this, Mongolia’s largest IPP project
Scheduled completion: 2018

03 / Coal-fired Thermal Power Plant
Quang Ninh Province, Vietnam

Summary
Location: Northern Quang Ninh State, Vietnam
Generation Capacity: 1,200MW
Features: Vietnam’s first coal-fired power plant by an IPP
Scheduled completion: July 2015

04 / Fuel Cell Power Generation Plant
Jakarta, Indonesia

Summary
Location: Jakarta, Indonesia
Generation Capacity: 450MW
Features: Multilateral financial agencies are participating in this, Mongolia’s largest IPP project
Scheduled completion: 2018

05 / Off-gas Power Plant
Cilegon, Indonesia

Summary
Location: At the POSCO integrated steel mill in Cilegon, Indonesia
Generation Capacity: 200MW
Features: Joint project for POSCO Family companies
Scheduled completion: March 2014

R&D

Our world-class energy R&D system has strengthened our technology development capabilities regarding innovative, highly efficient, environmentally-friendly energy.

Status of Technology Development

<table>
<thead>
<tr>
<th>Areas</th>
<th>Development Direction</th>
<th>Major Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Generation</td>
<td>Strengthen power generation technologies (increase power generation efficiency by recycling waste heat)</td>
<td>Develop technologies for using low/medium-temperature waste heat (low-temperature steam turbines, low-temperature heat recovery systems)</td>
</tr>
<tr>
<td>Fuel Cell</td>
<td>Develop applicable technologies that bolster the product portfolio (for buildings, with diesel fuel)</td>
<td>Diversify the MFC product line (for buildings, with diesel fuel)</td>
</tr>
<tr>
<td>Energy Storage</td>
<td>Develop medium/large-capacity energy storage systems (for buildings, with diesel fuel)</td>
<td>Develop technologies for sodium modules and systems</td>
</tr>
<tr>
<td>Renewable Energy</td>
<td>Reduce fuel cost by diversifying fuels (for buildings, with diesel fuel)</td>
<td>Develop gasification technologies for Municipal solid waste (diversify fuel for power generation form UHG to SNG, produced by MSW)</td>
</tr>
</tbody>
</table>

Investment Outlay (KRW 100 million)

<table>
<thead>
<tr>
<th>No. of Researchers</th>
<th>R&amp;D Human Resource &amp; Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2015</td>
<td>9853</td>
</tr>
<tr>
<td>2014</td>
<td>8929</td>
</tr>
<tr>
<td>2013</td>
<td>6918</td>
</tr>
<tr>
<td>2012</td>
<td>5019</td>
</tr>
<tr>
<td>2011</td>
<td>3156</td>
</tr>
<tr>
<td>2010</td>
<td>2246</td>
</tr>
</tbody>
</table>

Green Energy R&D Center

Summary
Establishment: July 2011
Location: Future Eergy Campus, Seo-gu, Incheon
Research areas: Secure new growth capacity through proprietary technologies related to resource and energy recirculation, Energy Storage System and power generation

Fuel Cell R&D Center

Summary
Establishment: June 2009
Location: Fuel Cell Operations Division, Pohang, Gyeongsangbuk-do
Purpose: Acquire and localize the development of technologies for commercializing various products that maximize Fuel Cell performance

H2 O2

POSCO ENERGY BUSINESS FIELD
POSCO ENERGY is committed to maintaining communication with all stakeholders, to include employees, customers, suppliers and local communities. Moreover, we share value in order to earn greater respect as a company what thrives with society.

Our environmental management, contributions to local communities, business ethics that adhere to fundamentals and principles, and partnership in growth with suppliers allow us to generate the energy of caring that is brightening the world.
Environment Management

POSCO ENERGY has a rigorous management system in place to control air quality, water quality, solid waste and toxic substances so that energy generation is environmentally friendly.

Management of Air Pollution

We have built a continuous emission monitoring system that checks NOx concentrations in power plant emissions in real time, and these concentration levels are strictly controlled. In addition, ongoing improvements to and investments in power generation facilities from 2010 to 2012, earned us recognition as an Outstanding Workplace for Airborne Pollution Reduction by the Incheon Municipal Government.

- Operate a telemetry monitoring system (TMS) for air quality
- Monitor NOx levels in real time
- Selected as Outstanding Workplace for BLUE SKY Air Quality Improvement Performance by the Incheon Municipal Government in 2012.

Management of Discharged Water Quality

POSCO ENERGY manages power fluent at the source. In-house water pollutant standards are stricter than what the law allows, and the water quality telemetry monitoring system maintains real-time surveillance on discharge and pollution control system operation and treatment status. Regular readings taken in-house produce a water quality index, and a control system determines whether water quality is irregular and then takes immediate corrective action whenever necessary.

- In-house control regulations are stricter than the permissible legal limit.
- Water quality TMS: Power plant effluent treatment is monitored in real time.
- A water quality index is made with regular readings and corrective action is immediate when needed.

Solid Waste Management

POSCO ENERGY’s waste intensity at power plants was about 72% lower in 2012 than it had been in 2009. Solid waste management and disposal at all operation sites strictly follow the procedures stipulated in the law, and whenever solid waste is to be transported, the type and weight of the shipment is first recorded without fail. The data are used to compile annual reports on waste disposal performance for submission to the local district office.

- Waste transfer stations have been installed to manage designated solid waste materials
- Standards for leachate flow prevention are strictly followed

Toxic Substance Control

Should a chemical leak occur, all effluent is sent to the treatment plant. Dikes and other barriers have been installed around chemical storage areas to contain such leaks. Regular inspections are also conducted, and a special inspection team remains on permanent standby. Facilities that handle chemicals are tightly controlled to prevent unauthorized persons from entering and chemical substances from draining outside the premises.

- A special inspection team is permanently on call to ensure safe management of chemical substances and prevent accidents.
- A system is in place to move all effluent to the treatment plant in the event of an on-site chemical spill.

Reductions in GHG Emissions, Energy Use

POSCO ENERGY acquires the most efficient generation facilities and continuously improves operational efficiency while advancing into renewable energy. As a result, our annual energy use has been cut steadily. Our focus today is on renewable energy sources such as solar, wind, fuel cells, waste heat and off-gas, enabling us to respond effectively to the renewable portfolio standard (RPS).

- Acquisition of highly efficient power plants and renewable power generation systems.
- Reduce GHG emissions by optimizing power generation efficiency.
Social Contribution

Our “Sharing Green Value” and “Communication with Local Communities” programs represent a commitment to providing “Energy for a Better World”

Major Programs

Energy Efficiency Improvement Activities - “Hopeful Energy, Sharing Love”
We improve energy efficiency by installing insulation, repairing windows & doors, replacing old pipes, and repapering walls & floors. Electric bills are lowered and CO2 emissions are reduced. This program was initiated at the homes of ten low-income families in Incheon’s Seo-gu district in 2012 and expanded in 2013 to include low-income family homes as well as public welfare institutions in Incheon and Seoul.

Education Support in Communities Near Power Plants - “Children are the Energy of the Future”
POSCO ENERGY provides financial assistance to needy school-children in Seoul, Incheon, Pohang, and Gwangyang. In 2013, we also provided supplies and repaired study rooms at ten children’s centers in Seo-gu, Incheon. Volunteers are dispatched from our Hopeful Energy University Student Community Service Corps to these centers as mentors.

Employee Participation Activities

Best Volunteer Activities of Employees
“Sharing Saturday” (Basic) is a volunteer program run at the organizational unit and sub-group level, designed to be more fun when done in groups. Theme Activities (Entertaining) are experiential programs for employees and their family members to do together. Energy-related Activities (Strategic) are lined to the major CSR programs. Family Activities (Together) are organized with other members of the POSCO Family of companies. These diverse activities are being conducted in local communities.

Bright World Fund - Volunteer Donations by Employees
POSCO ENERGY employees voluntarily contribute to the “Bright World Fund” through wage deductions, and the company provides a matching grant, doubling the total fund amount. A Bright World Fund Committee is formed at each workplace to discuss how the money will be used and carry out the procedures for obtaining employee consent to donate.

Program Direction
Communication with Local Communities
Sharing Green Value

Major Programs
Improvement of Energy Efficiency
Educational Support for the Areas around the Power Plants

Best Volunteer Activities of Employees
Basic
Entertaining
Strategic
Together

Sharing Saturday
• Sharing Saturday is a basic volunteer activity with a long-established tradition
• Basic employee volunteer programs for environmental protection

Theme Activities
• Social activities focused on the major CSR programs
• Social volunteer activity related to the energy industry

Energy-related Activities
• Social activities with other POSCO Family companies
• Green activities with family members

POSCO Family Activities
• Joint activities with other POSCO Family companies
• Green activities with family members

Program Direction

Social Contribution

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Program Direction
Communication with Local Communities
Sharing Green Value

Major Programs
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Educational Support for the Areas around the Power Plants

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POSOCO ENERGY’s Sustainability Management Slogan
The tree in the shape of the human body represents POSCO ENERGY striving to create value for various stakeholders and to make a better world.
Corporate Culture

POSCO ENERGY is fostering a healthy organizational culture, publicly declaring our commitment to building trust, communicating openly and acting ethically.

Ethical Management

We aim to be a trusted and respected by all stakeholders, and so all our value judgments and actions are based on the principle of “engaging in the right business in the right way.” A Code of Ethics has been established, and a program is in place for self-regulated ethical practice. Training is provided to help employees avoid ethical problems, and employee conduct is monitored to instill an ethical mindset in employees. Our ultimate goal is to “Create a Better World Together,” and to this end we have declared that the “Better tomorrow,” “Fair Interests” and “Mutual Success” are the values we will pursue.

Appreciation Sharing

A new campaign is helping foster greater pride and appreciation among our employees, resulting in a more pleasant workplace. Employees are encouraged to share their feelings of appreciation, be grateful for what they have now and care for one another. At the same time, open and sincere communication serves as the foundation for expressing appreciation from the self and showing concern for others. A special “Appreciation Sharing Broadcast” is aired inside the company at quitting time each day, and an “Appreciation Sharing Mailbox” is provided as a venue for expressing gratitude to one’s family, colleagues and customers.

Shared Growth

POSCO ENERGY is a making diverse efforts to achieve shared growth with suppliers by operating various support programs and taking the lead in setting a culture of fair trade.

Fair Trade

POSCO ENERGY selects, makes use of and contracts with subcontracted suppliers in a fair and transparent manner, thereby establishing a solid tradition of transacting business in the proper way. Suppliers are selected according to procurement regulations, and the standards of assessment are strictly followed. The POSCO Family Supplier Relationship Management (SRM) system ensures fair processes for registering and evaluating new suppliers. As such we are committed to improving transparency at every stage, from bidding to contract finalization, and to maintaining equitable contractual relationships.

Partnership in Growth

Diverse support programs help raise subcontracted supplier competencies. The best performing suppliers are invited to participate in joint R&D projects, thereby becoming true partners in win-win growth. The new program has also been adopted whereby suppliers that suggest new business projects may share in the benefits after feasibility is confirmed within a preset time period. The results are shared through pilot product settlement, cash compensation and other contractual means. In addition, all procurements from SME suppliers are paid in cash.

POSCO ENERGY SUSTAINABILITY MANAGEMENT
Energy Creator

The energy created by POSCO ENERGY represents our present and our future. “Energy for life” is making life more convenient; “hopeful energy” inspires hope for the future; and “green energy” is helping to create a better future.

We aim to be a “World Best GREEN Energy Company” on the global stage, making a better tomorrow for people everywhere.

POSCO ENERGY is “Energy Creator.”