



KOEN

LifeSwitch

KOEN KOREA SOUTH-EAST
POWER CO.

Korea South-East Power Co. 32, Sadeul-ro 123beon-gil, Jinju-si, Gyeongsangnam-do, Republic of Korea (Chungmugong-dong)
Tel 070-8898-1000 Fax 050-5027-1001 Homepage www.koenergy.kr

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POWER CO.

contents

- Message from the CEO 04
 - Highlights 06
 - Organization 08
- KOEN WAY – Value Creation 10
 - KOEN WAY – Openness 12
- KOEN WAY – A competitive spirit 14
- KOEN WAY – Social Contribution 16
 - Management Policy 18
 - Vision 20
 - Core Value 21
- Business Sites 34

We are making the heart-beating lights of dream

Power to move the world, light to brighten the future KOEN

There is power to move the world with uncommon passion.
There is light to brighten the future with ceaseless innovation.

Strengthening Global Competitiveness
with World-class Technologies and Facilities
- KOEN

KOEN has been striving to be a healthy and constantly growing company
with changing and innovative minds and creates the future values for the better world.

Welcome!

KOEN is a power generation company newly started on April 2, 2001, according to the government policy for restructuring the power generation industry.

The company operates five power generation facilities with a total capacity of 10,324 MW, including the Yeongheung Thermal Power Site Division, which has Korea's largest single unit thermal power facility, and the Samcheonpo and Bundang Thermal Power Site Divisions and the Yeongdong and Yeosu Thermal Power Plants, supplying 10% or more of the total national power stably.

As a driving force for the ever-increasing industries of the country and as a solid support for a happy living environment for the people, the company has steadily grown and has made its best efforts to become a role model that can be loved by the people by firmly fulfilling public responsibilities as a public energy company.

As a result of focusing on developing technologies to secure continuous growth by finding new growth engines for the future, KOEN becomes one of the best domestic power generation companies that stands comparison with global ones both in the Korean market and the overseas market, and has renewed itself as a global energy provider.

KOEN aims to become the vanguard in promoting shared growth with small and medium sized companies. Maintaining amicable, cooperative relationships with affiliated industries, it will develop a robust power generation industry ecosystem and contribute to sound national development. KOEN is ready to serve the country as a leading public company in the energy field while improving the welfare of the people of Korea.

About 2,200 employees of KOEN are committed to move forward to making KOEN a Clean & Smart Energy Leader. With the support of the people of Korea, KOEN will innovate continuously to devote itself to help the country become energy rich.

Thank you.

Lyu Hyang Reol, CEO of KOEN

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We create energy
for national
development
and welfare



+ Highlight

Our energetic steps
toward the future will
continue

2004

- 03.02 Completion of the lifetime extended work for the Yeosu Thermal Power Plant
- 04.02 Inauguration of Hee-gab Park as the second president
- 09.15 Foundation of the Nanuum Voluntary Service Group
- 12.23 Completion of the construction of Generator #1 and Generator #22 of the Yeongheung Thermal Power Plant

2003

- 04.10 Acquired Moody's A3 credit rating
- 05.15 Completion of the construction of the Muju pumped storage small hydropower plant
- 06.18 Issuance of USD 150 million worth of Eurobonds

2002

- 01.09 Launching of a meeting for young executives
- 10.22 Commencement of the construction of Samcheonpo Thermal Power Plant's desulfurization facility
- 12.23 Certification on the safety and health management system (KOSHA 18001) of all business sites

2001

- 04.02 Establishment of KOSEP and inauguration of Haeng-soon Yoon as the first president
- 05.24 Proclamation of the company's philosophy and vision
- 12.12 Proclamation of the ethical charter and the code of conduct

2007

- 01.25 Completion of the construction of the Bundang Hydrogen Fuel Cell Power Plant
- 04.03 Inauguration of Young-wook Kwak as the third president
- 10.11 Won the presidential award in the Public Institution Innovation Competition
- 11.23 Won the presidential award in the National Quality Management Awards

2006

- 02.27 Signing of the UN Global Compact
- 11.02 Completion of the construction of a photovoltaic 1,000 kWp facility at Yeongheung
- 11.24 Completion of the construction of an oceanic small hydropower facility at Samcheonpo
- 12.22 Consolidated certification for ISO 9001/14001 across the company

2005

- 04.22 Commencement of the construction of the Yecheon Pumped Storage Power Plant
- 05.25 Acquired Moody's A2 credit rating
- 10.13 Completion of the construction of Samcheonpo Thermal Power Plant's desulfurization and denitrification facilities
- 11.19 Completion of the construction of Samcheonpo Thermal Power Plant's photovoltaic power plant

2010

- 05.24 Commencement of the construction of the Samcheonpo Photovoltaic Power Plant
- 06.15 Ranked 1st place in the power company management evaluation
- 09.01 Issuance of the second sustainability report
- 11.23 Won the Gold Tower Order of Industrial Service Merit in the National Quality Management Competition and the presidential award in the Facility Management Awards

2009

- 01.19 Proclamation of the vision of becoming a Global Power Leader
- 05.20 Commencement of the construction for improving Yeosu Thermal Power Plant's Generator #2
- 09.22 Won the grand prize in the Korea VE Awards
- 10.07 Won the grand prize in the Korea Green Energy Awards

2008

- 01.23 Won the grand prize in the Transparent Management Awards
- 08.26 Issuance of the first sustainability report
- 10.28 Inauguration of Do-soo Jang as the fourth president
- 11.20 Won the presidential award in the National Task Team Competition Management Contest.

2013

- 03.06 Completion of the construction of the first-stage project of the photovoltaic power facility for expressways
- 05.09 Completion of the construction of the second-stage project of the complex fuel cell (3.08 mW) facility in Bundang
- 06.19 Achieved Grade A both for the institution and its head in the performance evaluation of public institutions for two years in a row
- 09.23 Inauguration of Yup Heo as the fifth president
- 11.28 Won the presidential citation in the National Quality Awards
- 12.13 Holding of the 2023 vision proclamation ceremony

2012

- 01.01 Completion of the construction of a 42 mW photovoltaic power plant in Bulgaria
- 06.13 Achieved Grade A in the performance evaluation of public institutions
- 07.19 Completion of the construction of the third photovoltaic power facility at Samcheonpo
- 09.26 Completion of the construction of the "NOVUS I" wind power plant in the United States

2011

- 01.01 Restructuring of the power industry (transfer of the Muju and Yecheon Pumped Storage Power Plants to Korea Hydro and Nuclear Power)
- 01.25 Establishment of Korea South-East Power Technology
- 06.27 Completion of the construction of a photovoltaic power plant at Tangjeong
- 07.20 Completion of the construction of a wind power commercialization complex with domestic systems at Yeongheung

2015

- 02.26 Won the grand prize in the Korea Social Contribution Companies Awards
- 03.05 Won the top prize in the shared growth management performance evaluation by the government for three years in a row
- 04.02 Selected as a Korea Global Leader
- 04.21 Selected as an excellent institution in the government 3.0 evaluation of public institutions
- 06.02 Signing of the joint cooperation agreement for nurturing and supporting the power generation industry for activating the local economy in Gyeongnam
- 11.16 Won the President's Prize of the Korea Safety Award

2014

- 03.27 Opening of the company's own building at the innovative city in Gyeongnam
- 05.21 Won the grand prize in the Korea Big Data Awards
- 06.10 Completion of the construction of Generator #5 of the Yeongheung Thermal Power Plant
- 06.12 Won the grand prize in the Korea Ethical Management Awards
- 11.05 Completion of the construction of Generator #6 of the Yeongheung Thermal Power Plant
- 12.19 Support for female companies for the first time as a public institution / received a presidential prize as an organization with merits

2025

Jumping up to a
Clean & Smart Energy Leader

2018

- 02.13 Inauguration of Hyang-reol Lyu as the seventh president
- 04.23 Selected as The best and innovative governmental organization

2017

- 02.15 Won Korea Ethical Management Grandprix
- 03.07 Won the top prize in shared growth management performance evaluation by the government for five years in a row
- 06.30 Commercial operation of all biomass fueled Yeongdong Unit 1
- 09.25 Minister's Award for New & Renewable Energy in Korea
- 12.15 Received Grand Prize in Korea Education & Donation Awards

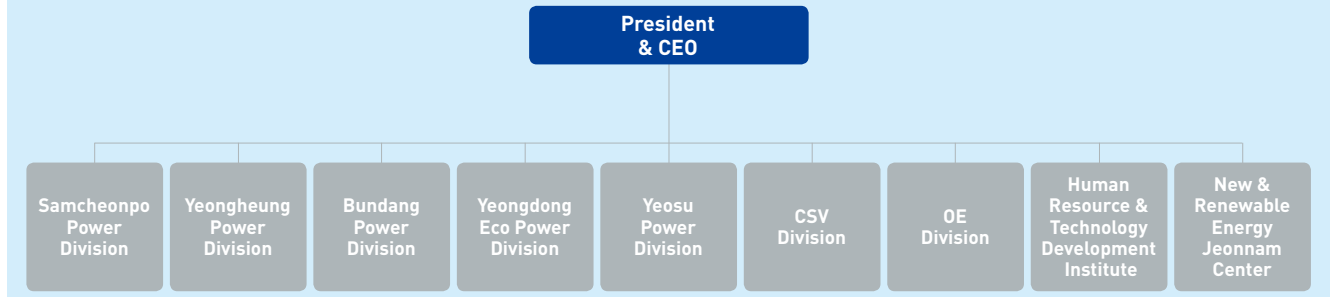
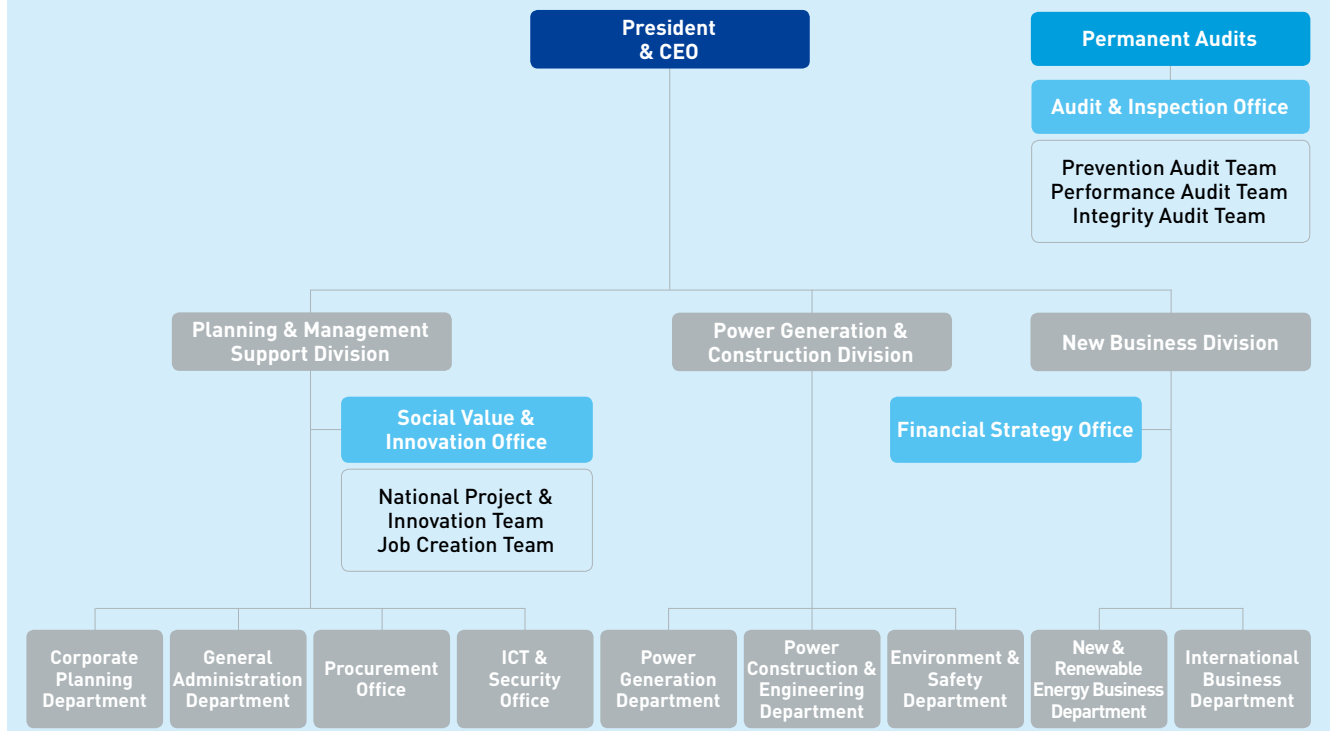
2016

- 01.04 Proclamation of New Vision & Brand
- 05.11 Good public institution by Government 3.0 Review
- 08.31 Completion of Yeosu Unit 1
- 09.29 Initiated Tamra Offshore Wind Power Plant in Jeju
- 11.01 The first public institution that won the Presidential commendation for performance sharing
- 11.17 Inauguration of Je-won Jang as the sixth president

Will become a global energy company that can create a future



Organization Chart



Management

Lyu Hyang Reol, CEO



- Bachelor's degree in public administration from University of Seoul
- MBA from Helsinki School of Economics
- Master's degree in business administration from Yonsei University
- President of KEPCO Ilijan Corporation, Philippines
- KEPCO Executive Vice President of Overseas Operations



The best Service

Profits and costs

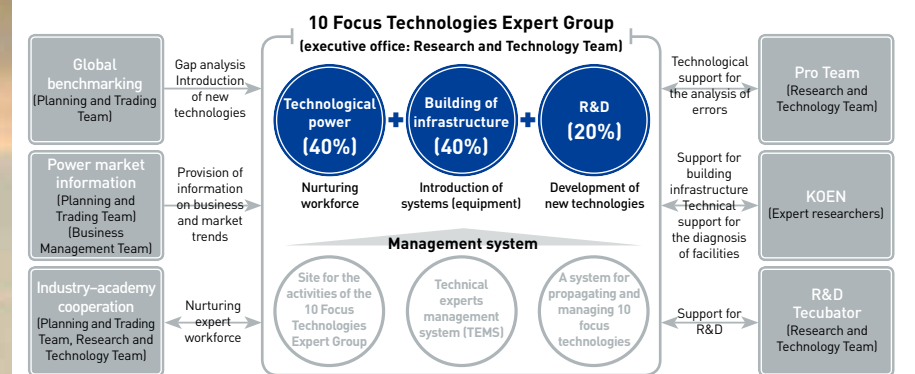
Sustainable growth

Value Creation

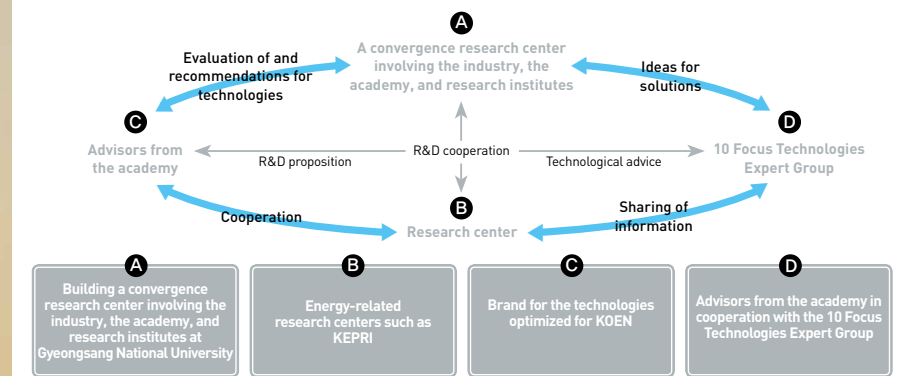
We adhere to a long-term and future-oriented attitude to increase corporate value in order to bring more value to customers and interested people.

Taking the growth of value for customers as the top priority in management activities

Building a road map and an action plan for the 10 core technologies including power generation technology, new and renewable energy technology, and new business
 Enhancing the reliability of power generation facilities by advancing the facility management system
 Building the KOEN R&D Tecubator and an industry-academy convergence research center



(An operating system for the 10 Focus Technologies Expert Group)



(KOEN R&D Tecubator Promotion Schematic Diagram)

KOEN open-type cooperation system between the industry and the academy

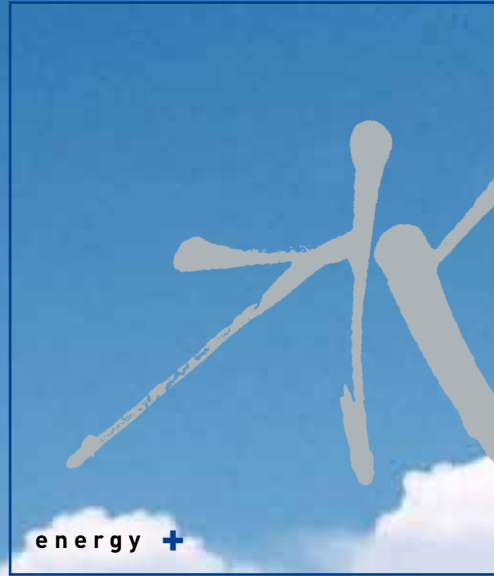
- Leading large-scale government-supported national tasks according to the mid- and long-term road map
- Accelerating advancement of ten major technologies to achieve the vision and reinforcing R&D execution capability

Handling works by taking into consideration the growth of profits and the reduction of costs

Building a differentiated KOEN costs system (system analysis of pre-estimated cost → actual cost → activity cost → material cost flow)
 ranked 1st for six consecutive years (2009–2014) in terms of the procurement unit price of flaming coal through the estimation of the market situation and the scenario-based procurement strategy
 building an integrated performance management system (u-BSC)
 realizing value management for maximizing corporate value through the KOEN-type independent business unit system (ND Com in Com)

Securing sustainable growth engines to create value for the future

Building the world's best high-efficiency and eco-friendly power plants
 securing world-class operating technologies
 investing continuously in new and renewable energy
 playing the role of a national company that can attract affection from the people through an ethical and transparent management



Open Mind

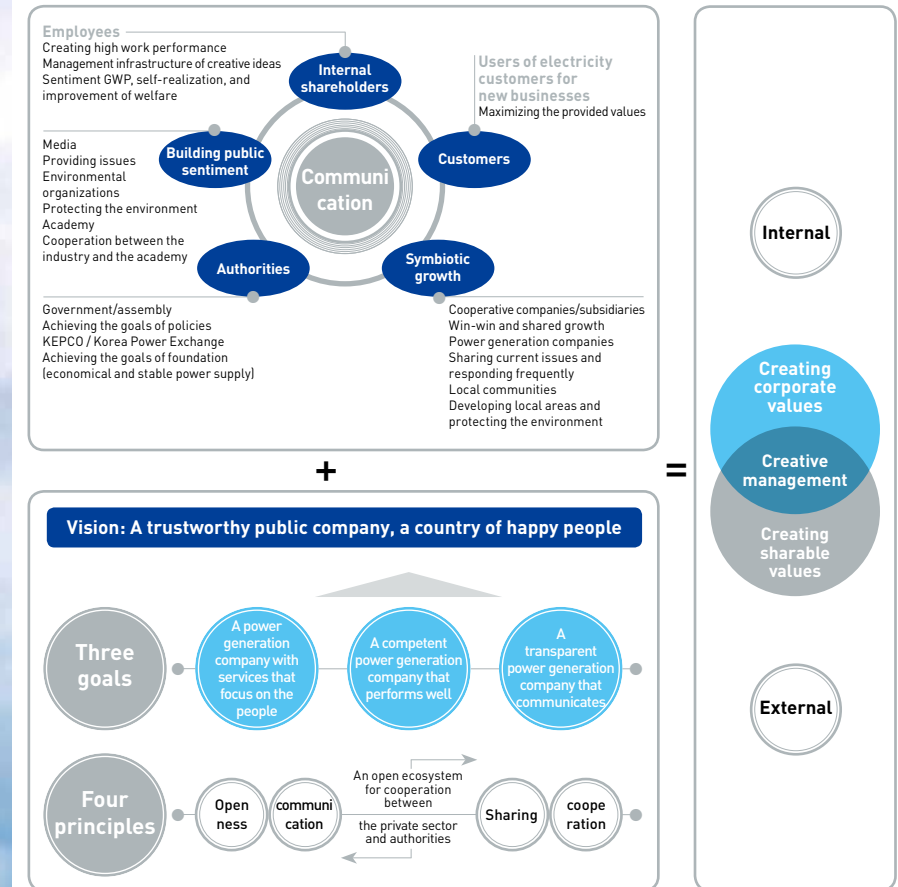
With an open mind, we make efforts to realize a transparent company and a fair society by listening to customers and communicating with them continuously

Communication and sharing

Breaking barriers

Harmony between labor and management

Creating socially sharable values by realizing government 3.0 of "Open-sharing-Communication-Cooperation"

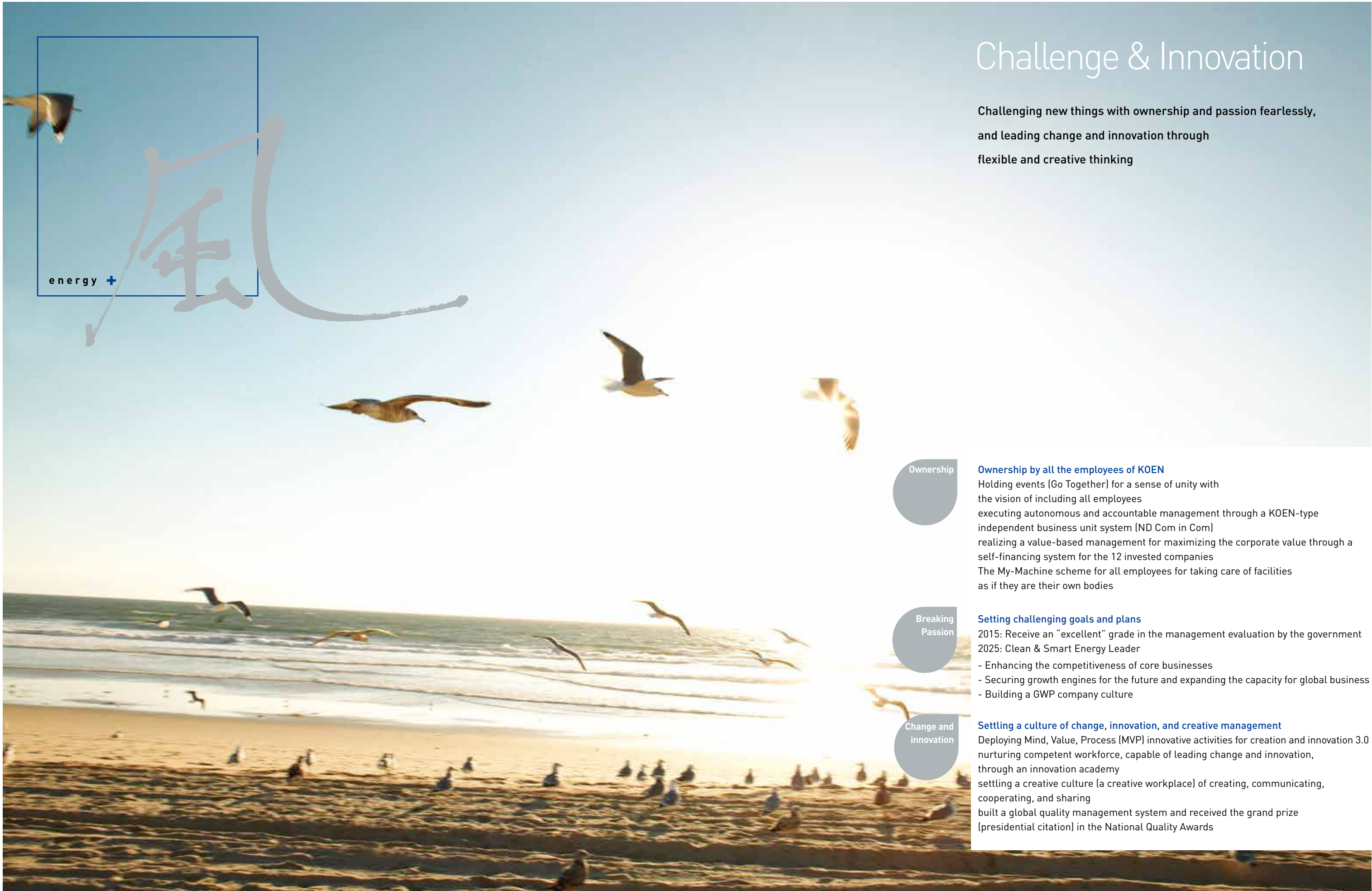


Recognizing mutual difference and taking an open attitude for diverse cultures

Recruiting new employees through an NCS-based recruitment scheme for practicing "recruitment centered on abilities" strengthening the scheme of recruiting based on social equity, such as employing high school graduates, those who come from non-metropolitan areas, those who have disabilities, and those who are recognized for records related to war veterans. The "In Someone Else's Shoes" campaign to break barriers among jobs and departments

Settling a cooperative relationship between labor and management through trust and communication

Selected as an excellent company in terms of the labor-management culture and innovation in the workplace fulfilling social responsibilities through the Union Corporate Committee (UCC) selected as one of the "100 Great Places to Work" in an event hosted by GWP Korea



Challenge & Innovation

Challenging new things with ownership and passion fearlessly,
and leading change and innovation through
flexible and creative thinking

Ownership

Ownership by all the employees of KOEN

Holding events (Go Together) for a sense of unity with the vision of including all employees
executing autonomous and accountable management through a KOEN-type independent business unit system (ND Com in Com)
realizing a value-based management for maximizing the corporate value through a self-financing system for the 12 invested companies
The My-Machine scheme for all employees for taking care of facilities as if they are their own bodies

Breaking Passion

Setting challenging goals and plans

2015: Receive an "excellent" grade in the management evaluation by the government
2025: Clean & Smart Energy Leader
- Enhancing the competitiveness of core businesses
- Securing growth engines for the future and expanding the capacity for global business
- Building a GWP company culture

Change and innovation

Settling a culture of change, innovation, and creative management

Deploying Mind, Value, Process (MVP) innovative activities for creation and innovation 3.0
nurturing competent workforce, capable of leading change and innovation, through an innovation academy
settling a creative culture (a creative workplace) of creating, communicating, cooperating, and sharing
built a global quality management system and received the grand prize (presidential citation) in the National Quality Awards



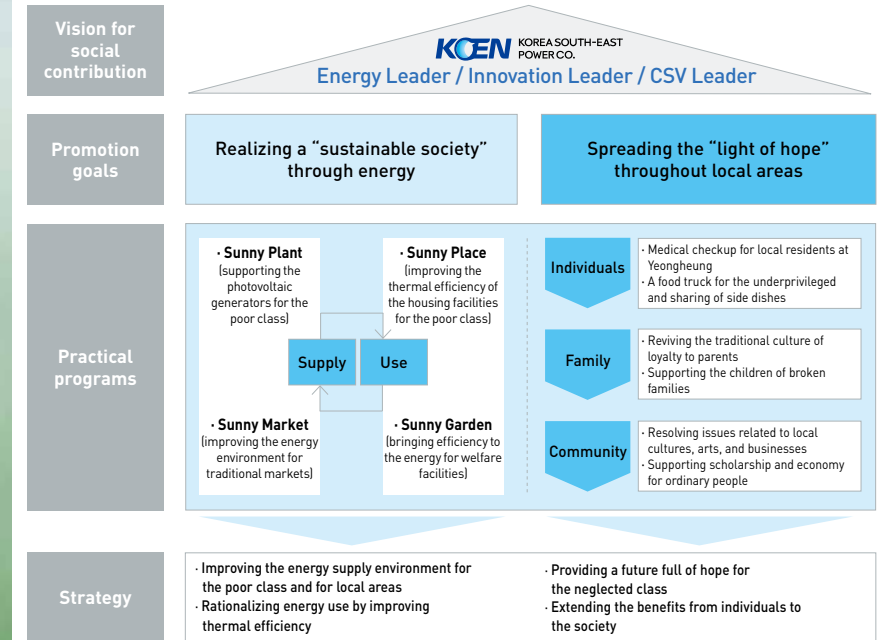
Social Responsibility

We will sincerely play the role as a corporate citizen that shares light and hope by supplying power.

Symbiotic growth

Social contribution activities for creating a sharing society

"KOEN The Sunny Project" for the improvement of the energy welfare for the poor class
 the "Hopes Up" program for win-win growth together with local communities
 "planting trees of hope" and supporting medical costs for children with cancer
 operating an export agency (G-Tops) that specializes in the products of middle-sized companies for the first time as a power generation company
 supporting the workforce for small- and medium-sized companies by utilizing workforce retired from the navy and air force



Ethical management

Complying with laws and ethics toward becoming a clean company

Achieving the highest grade (AAA) in KoBEX SM's Excellent Company ratings for seven consecutive years
 advancing the Kemco Ethical Management Index (KEMDEX) and strengthening the promotion organization
 reducing corruption down to zero by operating a system for eradicating the cause of errors

Eco-friendly

Making efforts to produce clean energy

Minimizing environmental load by operating high-tech environmental facilities optimally certified for the environmental management system (ISO 14001) and designated as a green company
 measuring exhaust gas in real time and sending the data to local governments and the Korea Environment Corporation, providing transparent environment information publicly

Life Switch

A switch of change for the future life

With empathic trust, forward-thinking coupled with added value, and our pride, KOEN will become an energy company that brings a more promising and happier future.

Relationship Building genuine relationships

- **A company that gives trust by removing relationship barriers**
Investigates and removes the cause of the barriers
 - Seeks quality growth by sharing value
 - Communicates actively to achieve common goals
 - Builds trust with transparent and fair work procedures
 - Solidifies cooperative relationships based on respect and thoughtfulness
 - Focuses on preemptive measures, not reactive response

Advanced More than simply advancing

- **A company that brings a big change through small changes of actions**
Turns resolutions into action
 - Focuses on the possibility of success rather than fear for failure
 - Establishes and executes "S.M.A.R.T" goals for change
 - Sets a common goal to be achieved in the short period of time
 - Obtains intellectual property rights and tacit knowledge
 - Seeks new opportunities by cooperating with partners

Deep;erence Delivering one and only value

- **A company with deep roots that proposes new energy frames**
Applies a global market focused-competitive framework and proposes global standards
 - Makes creative destruction into a habit, beyond organic growth
 - Retires from the competition among the five major power generation companies
 - Understands the global energy environment and policy
 - Avoids solving new issues with the existing method
 - Finds hidden opportunities out of uncertainty

+ Vision

Goals

Growth

- To increase the ratio of eco-friendly equipment

Profitability

- To ensure the world's best eco-friendly technology and skills

Business area

Capability

- To achieve and maintain the world's highest level of profitability

Public interest

- To establish and maintain the world's best sustainable management practice

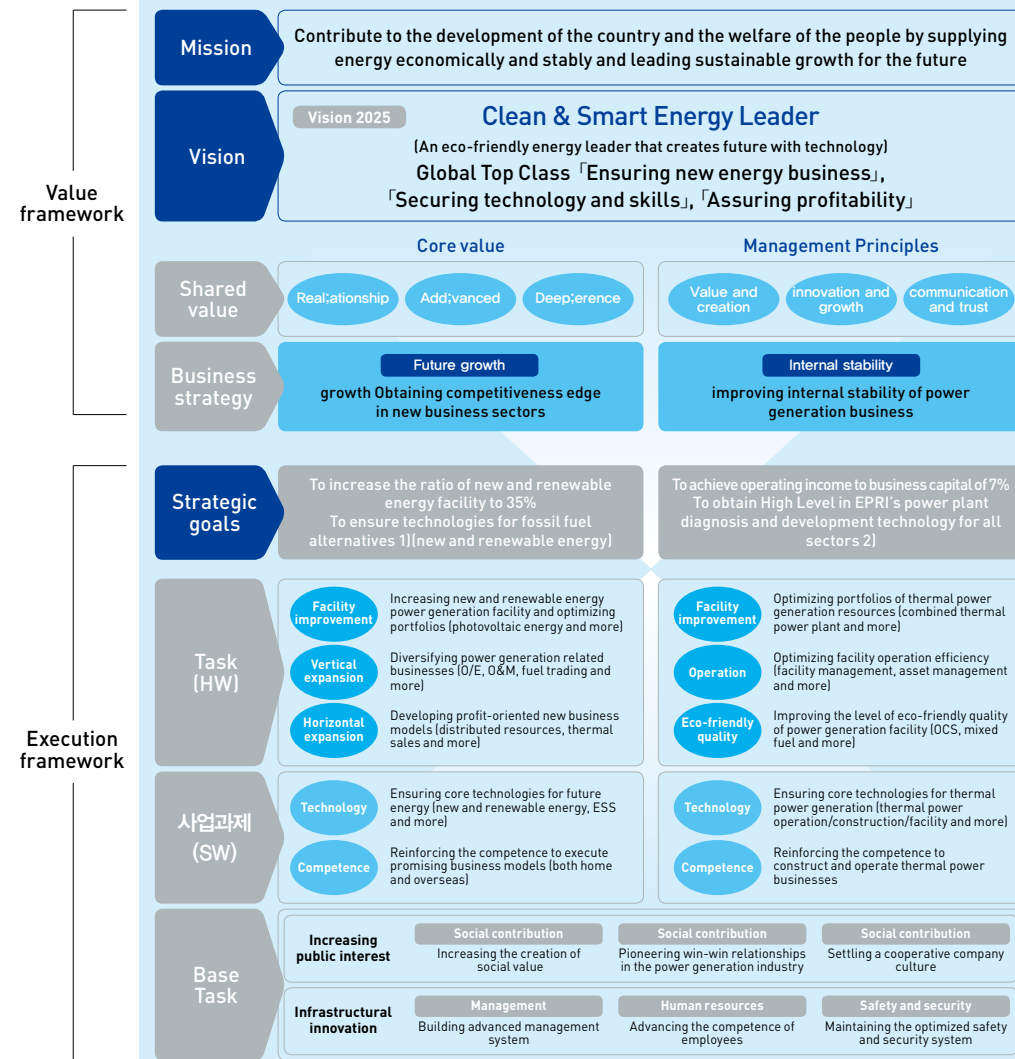
Function area

Clean & Smart Energy Leader

Vision

Vision	Statement	How
Clean	Innovation of business structure to focus on eco-friendly energy	<ul style="list-style-type: none"> Innovating the business structure by expanding the ratio of eco-friendly energy equipment and facilities Strengthening leadership to overcome the scarcity of resources and climate change
Smart	Obtaining competitiveness edge in eco-friendly technology	<ul style="list-style-type: none"> Advancing thermal power plant operation skills and technology to reduce GHG emissions Developing new and renewable energy technology using photovoltaic and wind power Expanding technology-centered business and areas (new and renewable energy or power generation related businesses, development of overseas business)
Energy Leader	Creation of future-oriented public interest value	<ul style="list-style-type: none"> Supplying quality energy to customers with qualitative growth Reinforcing its public interest role in contributing national development and welfare Building knowledge-based management system

Strategies for Vision Achievement



+ Policies and business summary

Expanding the profit basis

Construction and operation of economical power plants

Yeosu Generator #1

Contributing to the stable power supply of the Yeosu National Industrial Complex #1 (350 mW): Completed by August 31, 2016

Reinforcing old facilities

Improving the facilities of Yeongdong Generator #1 and Generator #2
 Improving the facilities of Bundang Block 1

Procuring economical fuel

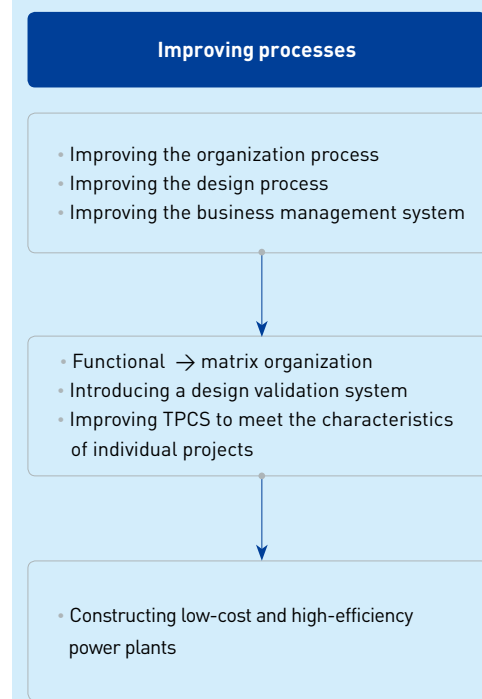
Purchasing at 5% lower prices compared with the global market situation, thanks to the advancement of the procurement system

Advancement of the quality of contracts

Realizing high-quality contract work by strengthening the competence of responsible workers

- Enhancing kindness, promptness, cleanliness, and transparency by operating a contract work response guideline for contract works
- Reducing the purchase budget by 15% by promoting contracts strategically

Construction and operation of economical power plants



Vanguard in Low Carbon Green Growth

Execution of new and renewable energy Vision 2025

- Becoming a leading green energy company by generating 35% of power with new and renewable energy by 2025

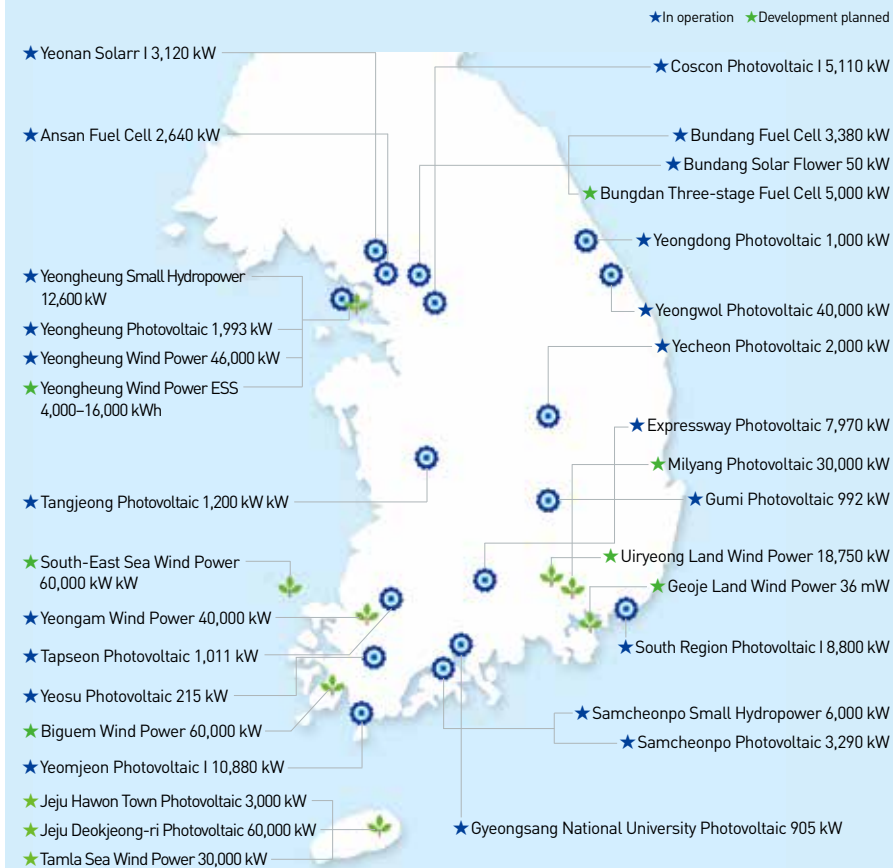
Proactive development and commercialization of new and renewable energy

- Developing a 4,740 kW-grade ocean small hydropower system by using the coolant of a power plant for the first time in the world
- * Received the presidential prize in a management innovation competition fair managed by the Ministry of Strategy and Finance in 2007
- Operating the Bundang Fuel Cell Power Plant, which is the first grid-connected plant in Korea
- Operating the Samcheonpo Photovoltaic Plant, which is the first grid-connected plant run by a power generation company
- * Received the grand prize in the awards for the installation of new and renewable energy hosted by the Korea Energy Agency in 2008 (Yeongheung photovoltaic power plant)
- * Received the grand prize in the Korea Green Energy Awards (Ministry of Knowledge Economy) in 2009

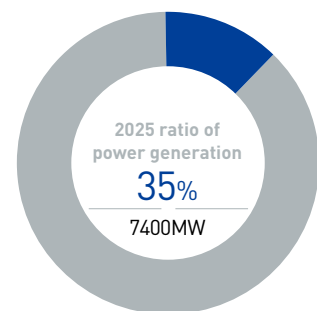
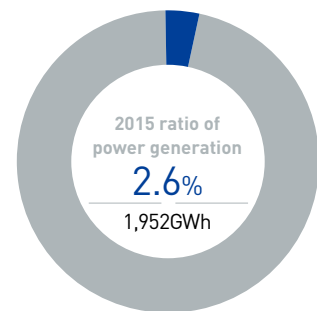
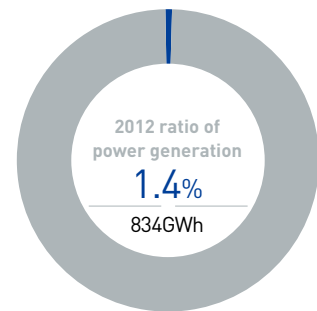
Preparing Korea's first and largest domestic wind power system commercialization complex (government)

- Preparing a 46 mW-grade wind power complex with domestic systems
- Enhancing the competitiveness of wind power plants with domestic systems and building a basis for entry into the global market

New & Renewable Energy operating states and development plan



● Goals
To replace 35% of the current resources to generate power with new and renewable energy by 2025



Nurturing core workforce

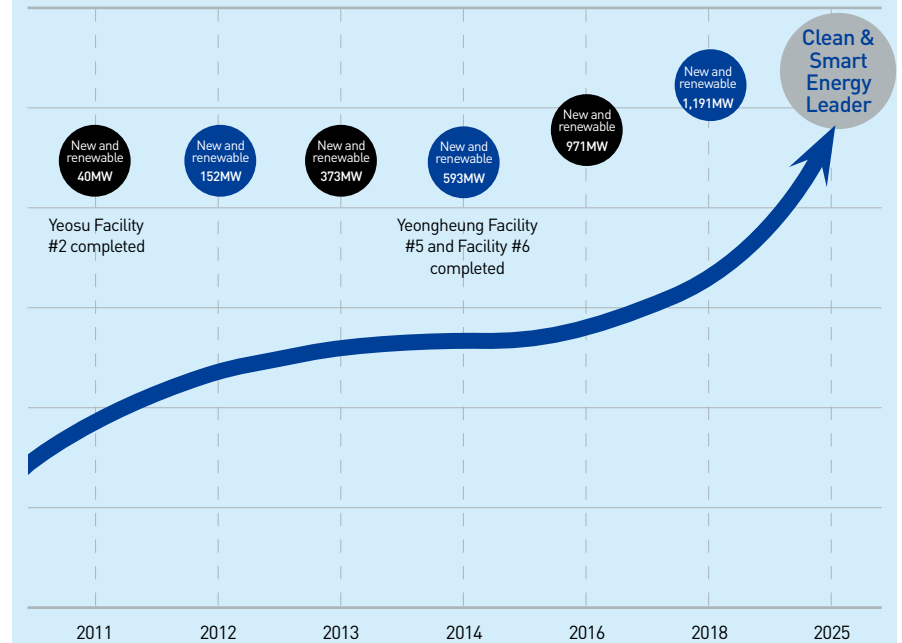
Assigning core workforce to businesses for securing new growth engines, such as new and renewable energy business and new businesses, and nurturing them



Building a portfolio for new and renewable energy business

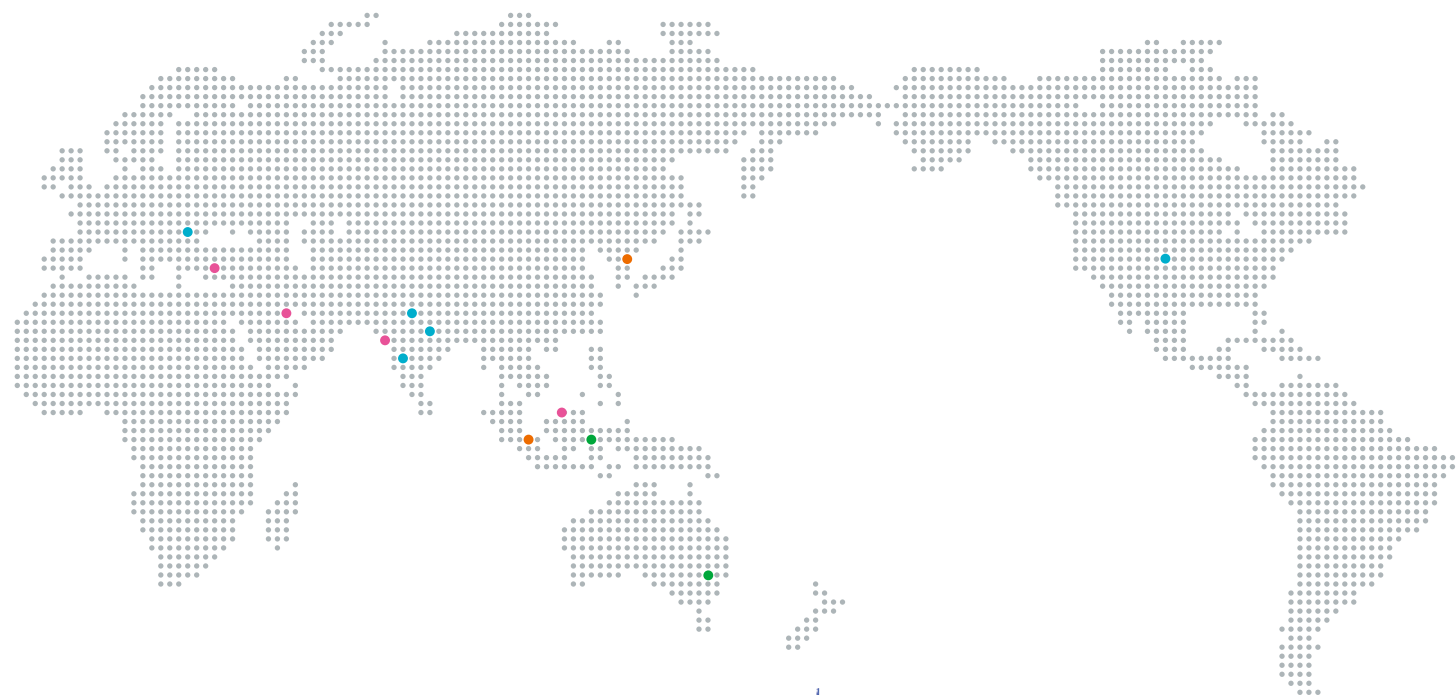
Progressing business restructuring to build a new business portfolio that consists of new and renewable energy business, Independent Power Producer (IPP), and resource development business while reducing the ratio of power generation business down to 50%

A road map for securing new growth engines



New business development status

● Overseas power generation, and operation and maintenance (O & M) ● Overseas technology services ● Resource development ● IPP



Service business of pilot-operating the Bahrain Al Dur Desalination Combined Thermal Power Facility (completed)

- Capacity: 1,245 MW
- Location: 40 km to the south of Manama
- Client: Hyundai Heavy Industries
- Period: November 2009 to October 2011
- Workforce assigned: 6

Service business of pilot-operating the India Mundra Coal-Fired Thermal Power Facility (completed)

- Capacity: 4,000 MW
- Location: Mundra
- Client: India CGPL (Tata Power)
- Period: April 2010 – May 2012
- Workforce assigned: 6

Service business of pilot-operating the Turkey Tutan Valley Coal-Fired Thermal Power (fluidized bed) Facility (in operation)

- Capacity: 450 MW (150 MW x 3 units), CFBC
- Location: 350 km to the southeast of Ankara
- Client: SK E&C
- Period: November 2014 – May 2016 (19 months)
- Workforce assigned: 9



Overseas business development status

Progressing systematic commercialization, including the construction of overseas power plants, operation business, and overseas performance recovery business, based on the technologies for constructing and operating large-scale generators such as the 800 MW supercritical coal-fired facility owned by KOEN

Overseas technology services business

Progressing the service business of pilot operation in Turkey, Bahrain, and India based on the experience of building 24 power plants, including domestic large-scale power generation facilities (800 MW), and facility operation technology and experience in various areas (coal, pumped storage, heavy oil, combined, and fluidized bed)

- Main services of pilot operation: Performing OJT at sites and supporting the diagnosis of facilities at sites / suggesting for the improvement of facilities / participating in public hearings for pilot operation and reviewing the pilot operation schedule / practicing trainings for local employees
- Effects: Creating new profits by exporting technology building a foothold for overseas business by executing the service business in the pilot operation of power generation facilities enhancing the company's brand name

Overseas power generation business (equity participation, EPC, O & M) Maharashtra

KOEN has created new growth engines and has helped domestic companies (creation of materials and equipment, and construction service) launch together in overseas markets through the accumulated technologies of constructing and operating power plants. It has been developing a coal-fired thermal power business with Maharashtra of India, and hydroelectric power businesses with Nepal and Pakistan. It operates wind power and photovoltaic power facilities in the United States and Bulgaria, respectively. In addition, it has diversified the profit structure by expanding the business scope in countries with high potential for growth.

- Effects: Advancing toward becoming a global power company through the diversification of overseas businesses and regions developing future profit sources by promoting high value-added IPP and O & M businesses



USA Novus I and II (in operation)

Located in Oklahoma in the midwest of the United States, the Novus wind power complex generates a total of 120 MW, following the completion of Novus I in September 2012 and Novus II in December 2012. The Novus wind power complex means a lot because it was constructed in United States, one of the most developed countries in terms of new and renewable energy, through cooperation between the domestic company and finance. It can be said to be one of the exemplar cases because the project secured business feasibility by acquiring cash investment from the US Department of the Treasury for the amount of 28% of the total project cost by utilizing the Cash Grant scheme, which is for the US government to support new and renewable energy, and because, in the project, small- and medium-sized domestic companies that produce parts for wind power generators were supported in launching together overseas, contributing, as an exemplar case, to the government policy of nurturing the industry of exporting domestic wind power generators.

Project name	Novus I	Novus II
Facility capacity	80 MW (2 MW x 40 units)	40 MW (2 MW x 20 units)
Location	Texas County, Oklahoma (mid-south of the United States)	
Total project cost	KRW 174.5 billion	KRW 84.2 billion
Commercial operation	Sep. 2012	Dec. 2012
Participants	KOEN / DeWind	KOEN / DeWind / SPECO
Equity ratio	50% / 50%	49% / 48% / 3%



Bulgaria Solar Photovoltaic Power Generation (in operation)

It was Korea's first new and renewable project for East Europe and is the world's 15th-ranked project in terms of scale. The project was designed to construct and operate, for 20 years, a photovoltaic power generation complex of 42 MW based on the Build-Own-Operate (BOO) method. In this project, two photovoltaic power generation plants of 21 MW are constructed in Valleycozelitarizza and Samovozen, respectively, 200 km to the east of Sofia, the capital. After being completed on March 8, 2010, the power plants are now in full-scale operation. The project was progressed by utilizing our company's knowledge and experience in the operation of power plants as well as the technologies of small- and medium-sized companies in the photovoltaic sector. For progressing this project, the Korea Development Bank and the Korea Trade Insurance provided policy-based finance. The project is an exemplar case in which a public company and small- and medium-sized companies advanced and launched together in overseas markets for new and renewable markets.

SPC	ASM	RES
Location	Veliko Tarnovo, Bulgaria	
Project capacity	20.14MW	21.48MW
Total project cost	KRW 109.9 billion	KRW 110.7 billion
Period	Dec. 2011 to Dec. 2031 (20 yrs)	Mar. 2012 to Mar. 2032 (20 yrs)
Participants	KOEN (50%), SDN (50%)	



Nepal Upper Trishuli-1 Hydro Power Plant (under development)

The project is designed to construct and operate a hydroelectric power plant of 216 MW in the Trishuli river about 70 km from Kathmandu, the capital of Nepal. As the company's first power generation project in Southwest Asia, it means securing a foothold in the local region. Moreover, it is highly significant, taking into consideration that it is the first project for the International Finance Corporation (IFC) to progress jointly with a Korean company for the first time in a developing country.

- Contents of the project: Construction, operation, and O & M
- Facility capacity: 216 MW (72 MW x 3 units)
- Contractors: Daelim, Gyeryong, IFC, and Jade Power
- Total project amount: KRW 606.1 billion



Pakistan Gulpur Hydro Power Plant (construction to be started)

It is a project based on the Build-Own-Operate-Transfer (BOOT) method, and designed to construct and operate a hydroelectric power plant of 100 mW in Poonch River's water system about 167 km to the southeast of Islamabad, the capital of Pakistan.

- Contents of the project: Construction, operation, and O & M
- Facility capacity: 100 MW (33 MW x 3 units)
- Contractors: Daelim, Sambu, and Lotte
- Total project amount: KRW 353.7 billion



India Maharashtra Coal-fired Power Plant (under development)

It is a project based on the BOO method and designed to construct and operate a coal-fired thermal power plant of 600 MW in Yavatmal of Maharashtra in the middle of India. The company owns 40% equity and is responsible for operating and maintaining (Q & M) the power plant.

- Contents of the project: Equity investment, O & M
- Facility capacity: 600 MW (300 MW x 2 units)
- Contractors: Jinbhuvish
- Total project amount: KRW 690.0 billion



Turkey Afsin Coal-fired Plant (under development)

This project is designed to carry out construction, pilot-operation and O&M of a mine mouth coal-fired thermal power plant that uses lignite with ultra-low calorific value in the Afsin-Elbistan region. This is a large-scale project in which starting from development of mines and completion of the C plant by 2022, the D and E plants will be completed in order. The project is currently under development aiming to conclude an agreement (IGA) with the Turkey government in Nov 2015.

- Contents of project: Equity investment and O&M (including development of mines)
- Facility capacity: 4,320 MW (1,440 MW x 3 units)
- Starting/Ending: Nov 2017 / Dec 2022 (expected, based on the C plant)
- Total project amount: About USD 12 billion (about KRW 12 trillion, KOEN: KRW 180.0 billion)



Overseas resource development

Promoting the development of overseas resources to respond to the drastic increase of prices of flaming coal and the instability in its supply and demand, and to secure flaming coal stably in a long-term duration. Currently, we secured a priority purchase right for flaming coal of 6.62 million tons per year as a result of launching coal resource development projects involving the Adaro mine in Indonesia and the Moolarben flaming coal mine in Australia.

- Effects: Securing fuel for power generation and generating investment profits including dividends and sales commission
- making efforts to substantialize overseas power generation and resources projects by developing a package for investing in and owning mines, and linking them to power generation



Indonesia Adaro Mine Development

- Reserve amount: 3.5 billion tons
- Secured amount: 3 million tons per year
- Location: Near Kalimantan Banjarmasin
- Participants: Adaro Energy / KEPCO / KOEN
- Total investment: KRW 14.3 billion
- Period: 2009-2023 (14 years)
- Calorific value: 4,920 kcal, NAR

Australia Moolarben Mine Resource Development

- Reserve amount: 600 million tons
- Secured amount: 625,000 tons per year
- Location: New South Wales, Australia
- Participants: Yancoal / Sojitz / Korea Consortium
- Total investment: KRW 12.8 billion
- Period: 2008-2028 (20 years)
- Calorific value: 6,000 kcal, NAR



Domestic power generation business (equity participation, EPC, and O & M)

Yeosu Hyundai Energy (in operation)

This is a consolidated energy project for supplying processing steam to the companies residing in industrial complexes and selling electricity to Korea Power Exchange by utilizing the coal-fired thermal power facility operation technology owned by the company. Its capacity is 48.42 MW (24.2 MW x 2 units) for electricity and 700 t/h (350 t/h x 2 units) for steam. The facility was constructed and has been operated in the Yeosu Thermal Power Site Division. The total project cost is KRW 603.5 billion, and KOEN has 30.7% equity investment (a total of KRW 47.1 billion) and is responsible for O & M. Started to be constructed in December 2009 and commenced its commercial operation in January 2013, the facility supplies steam at low prices to seven companies near industrial complexes, contributing to the strengthening of national competitiveness and the activation of the local economy.

Goseong Green Power (under development)

This project is designed to construct and operate a coal-fired thermal power plant of 2,080 MW (1,080 MW x 2 units) in an area of Deokho-ri, Goseong-gun, Gyeongnam. KOEN has 29% equity participation and is responsible for carrying out the O & M of the plant for 30 years. In addition to the Gangreung thermal power plant project, this project is one of our first 1,000 MW-grade plants and is an opportunity for our company to advance in technological power. It is also an exemplar case of contributing to the government's policy of boosting power generation through the private sector.

- Contents of the project: Equity investment and O & M
- Facility capacity: 2,080 MW (1,080 MW x 2 units)
- Contractors: SK E&C and SK Gas
- Total project amount: KRW 3.9 trillion

Gangreung Eco Power (under development)

This project is designed to construct and operate a coal-fired thermal power plant of 2,080 MW (1,080 MW x 2 units) in an area of Aninri, Gangdong-myeon, Gangrung-si. KOEN has 29% equity participation and is responsible for carrying out the O & M of the plant for 30 years. This project is expected to contribute significantly to resolving the national shortage of electric power and vitalizing the local economy such as creating and expanding jobs by developing a power generation complex in the Gangwon area.

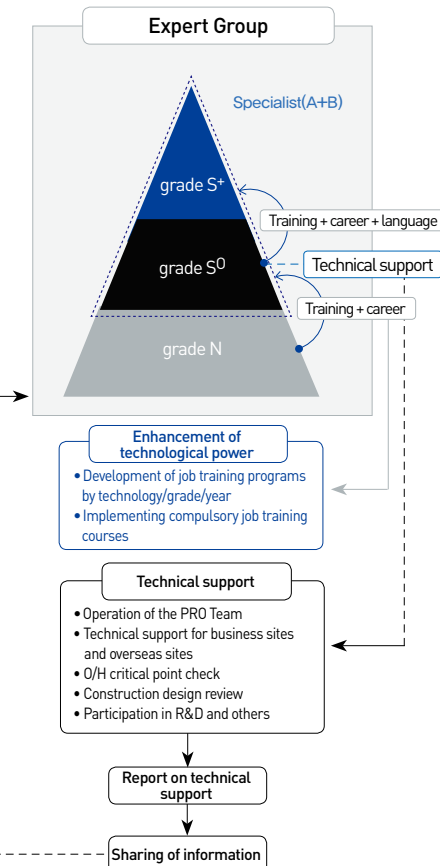
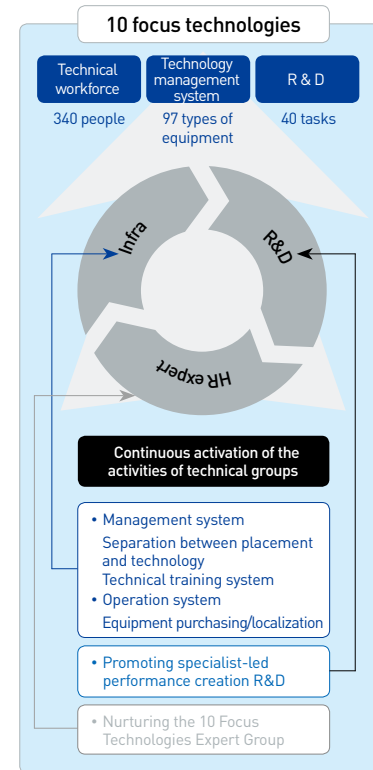
- Contents of the project: Equity participation and O & M
- Facility capacity: 2,080 MW (1,080 MW x 2 units)
- Contractors: Samsung C&T
- Total project amount: KRW 4.1 trillion

Ansan Combined Thermal Power (in operation)

This project is designed to construct an LNG combined thermal power plant of 835 MW in Shiwha MTV, Ansan-si, Gyeonggi-do, and operate it for 30 years. Its total project cost is KRW 887.1 billion, and its operation period is 30 years. The plant was constructed in December 2014. KOEN is responsible for construction management and O & M, and Samchully and Posco E&C is responsible for the management of S Power (SPC) and for EPC. The electricity and heat to be generated are expected to be sold to Korea Power Exchange and Ansan Urban Development, respectively.



Strategies for securing and using technological powerstrategy



Strengthening core technologies and competencies

Advancing 10 focus technologies

To respond proactively to the drastically changing business environment, including the continuation of low-growth trends in the domestic demand for power, the competition among domestic power generation companies, the ever-increasing competition in the power generation industry due to the expanded participation in markets by private power generation companies and new and renewable energy companies, the strengthening of environment restrictions, and the increase in the cost of raw materials, KOEN has established mid- and long-term road maps for 10 focus technologies for launching in the businesses of new combustion technologies, predictive maintenance technologies (boilers, turbines, generators, and controls), new and renewable energies, and new businesses; has prepared detailed action plans; and has promoted the systematic nurturing of workforce and the development of technologies.

Nurturing of core workforce

By operating the PRO Team, which consists of people with a master's or doctorate degree, and expertise in individual sectors, through cooperation between the industry and the academy, KOEN has focused on investing on enhancing technological power by accumulating knowledge and experience through technical support in Korea and overseas, providing customized trainings on weekends, and practicing specialized and working-level trainings for the makers to nurture core workforce.

Development of technologies

KOEN has provided technical advice through the R&D Tecubator for securing source technologies, and has led large-scale government-initiated tasks. It has secured technologies and has enhanced technological power by establishing a convergence research center through cooperation between the industry and the academy.

10 focus technologies



Green management

Environmental Management System

Establishment of four environmental goals and nine environmental indicators; designing execution framework for life cycle assessment, environmental performance evaluation, and environmental accounting with ISO 14001 system; fulfilling its social role as a green company to become a "Clean & Smart Energy Leader that creates a sustainable environmental future"

Company-wide integrated environment monitoring system

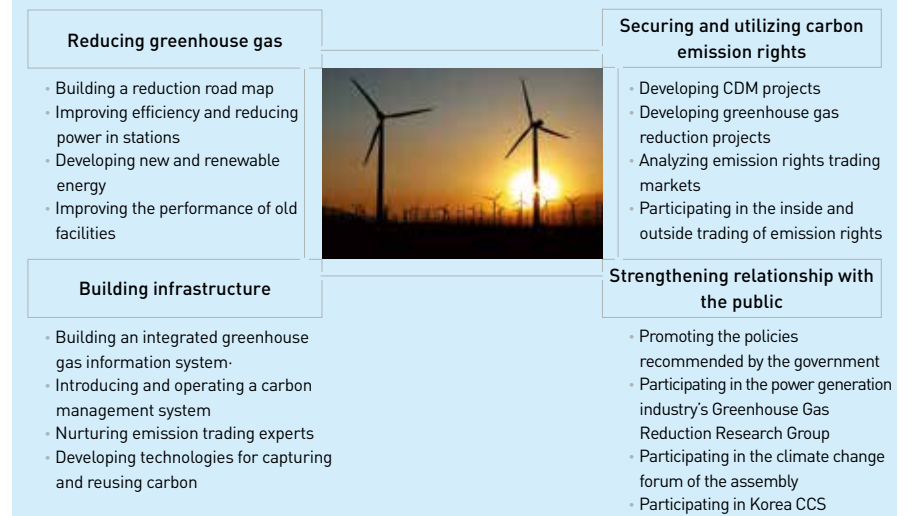
Exhaust gas, filtered out by advanced environment facilities at individual business sites, will be measured automatically through stacks. Thus, measured real-time data will be sent to the remote stack monitoring center of individual local governments and regions to be made public promptly and accurately.

Resource recycle system

An eco-friendly resource recycle system has been built and operated to reuse waste resources such as coal ashes, desulfurization gypsum, process waste water, and hot waste water from the power generation process.

Responding to the convention on climate change

4 strategies and 16 focus tasks to be promoted



Securing greenhouse gas reduction projects and securing emission rights

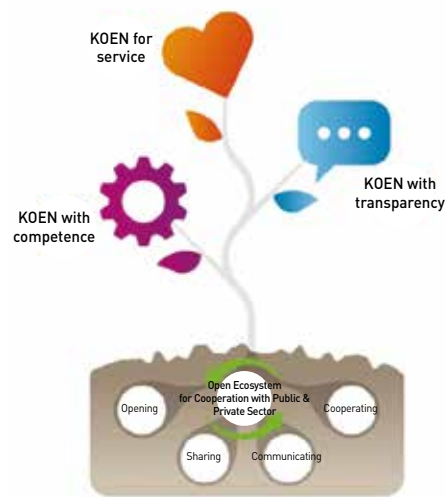
Securing greenhouse gas reduction projects and registering the Samcheonpo and Yeongheung ocean small hydropower CDM projects to secure carbon emission rights

Developing capturing, using, and storing carbon (CCUS) technologies

Promoting continuously the research tasks of core technologies to preempt source technologies such as capturing and using carbon dioxide

Building an infrastructure for greenhouse gas

Building and operating an integrated greenhouse information system, nurturing experts on the trading of emission rights, and enhancing the competence of employees to establish a carbon management system



KOEN

With openness, sharing, communication, and cooperation, KOEN is committed to become a company with trust that serves Korea with transparency and brings happiness to the people.

A transparent power generation company that communicates

Transparent opening of information

Environmental information
Status of SOx, NOx, and Dust emissions

Management information
Making public 3,854 cases related to the information on quality management, work promotion expenditures, and anti-corruption and uprightness activities

Construction information
Construction process data / construction technology data

Opening public data

Opening performance-related public data
Including power generation performance, fuel information, and performance related to the environment and emissions
2014: 50% ▶ 2017: 90%

Opening data related to patents and ordering
Free-of-charge transfer of owned patents, notice prior to ordering, 245 patents, 156 cases related to ordered construction, and 307 cases related to material purchasing

Online public participation system

Sinmungo/voice of customers
Online difficulty handling center
Ombudsman
Making public information on the environment, uprightness, and management

A competent power generation company that performs well

Building a cooperation system for power generation companies

Common certification for qualification for supplying materials and equipment
educating duplicate reviews

Common operation of spare maintenance parts
Reducing inventory costs and strengthening responsiveness to errors

Swapping of power generation fuel
Strengthening responsiveness to emergency (adverse weather, fires)

Common purchase of power generation fuel
3.2 million tons in 2014
8.4 million tons in 2015

Strengthening work efficiency

Sharing of fuel information
Data of purchased quantity → Domestic coal industry
Data of purchasing country → Domestic shipping industry
Market situation analysis data → Domestic oil industry

Test report falsification and modification prevention system
Fundamentally eradicating test report falsification and modification by operating a cooperative validation system that links issuers, makers, and clients

Video conference
Activating the culture of video conference and broadcasting conferences in real time

Scientific and data-based management

Analysis of big data
Fuel information system
Fuel supply network, fuel information, climate information, conditions of a power generation facility, and conditions for fuel mixed firing
Predictive facility diagnosis system
Analyzing facility status data including the operation of a facility, performance, errors, and maintenance

A people-oriented power generation company for service

Energy welfare customized for users

Services customized by life cycle
Providing services, such as supporting revenue-making projects, providing cultural performance, and nurturing talents, by analyzing the needs of local residents

Sunny Project
Sunny Place: Improving the energy efficiency of buildings
Sunny Plant: Supplying photovoltaic generators
Sunny Garden: Vegetating the rooftops
Sunny Market: Improving the energy environment for markets

Supporting small- and medium-sized companies

One-stop support for business activities
R&D
Planning → Product development → Verification → Promotion → Overseas sales
Exporting the products of small- and medium-sized companies through exporting agencies
USD 1 million in 2014
USD 3 million in 2017

Operating the R&D Tecubator
KOEN + KAIST + professional research institutes + experts on small- and medium-sized companies for mentoring (cooperation among the private sector, the government, the industry, and the academy)

Supporting vulnerable social groups

Clean pay system
Check whether payment is made to the workers of final-stage subcontractors

Enhancing the access to Web sites
Developing Web services customized for people with disabilities and the elderly

Selected as an excellent institution in the government 3.0 evaluation of public institutions consecutively in 2014 and 2015

KOEN as an excellent case of government 3.0

Area	Cases
Innovation of working methods	Creating common values through the development of new and renewable energy participated in by the public
Opening and utilizing public data	Opening fuel data and an integrated fuel procurement information system, and activating its utilization through the private sector
Performance in sharing information among institutions	Optimally utilizing the surplus stone, which is generated from preparing the power plant site, through the sharing of information and cooperation among institutions
Customized services	Advancing customized one-stop support services for small- and medium-sized companies Providing locally customized support services by life cycle and type (the case of the Yeongheung Division)

Shared growth

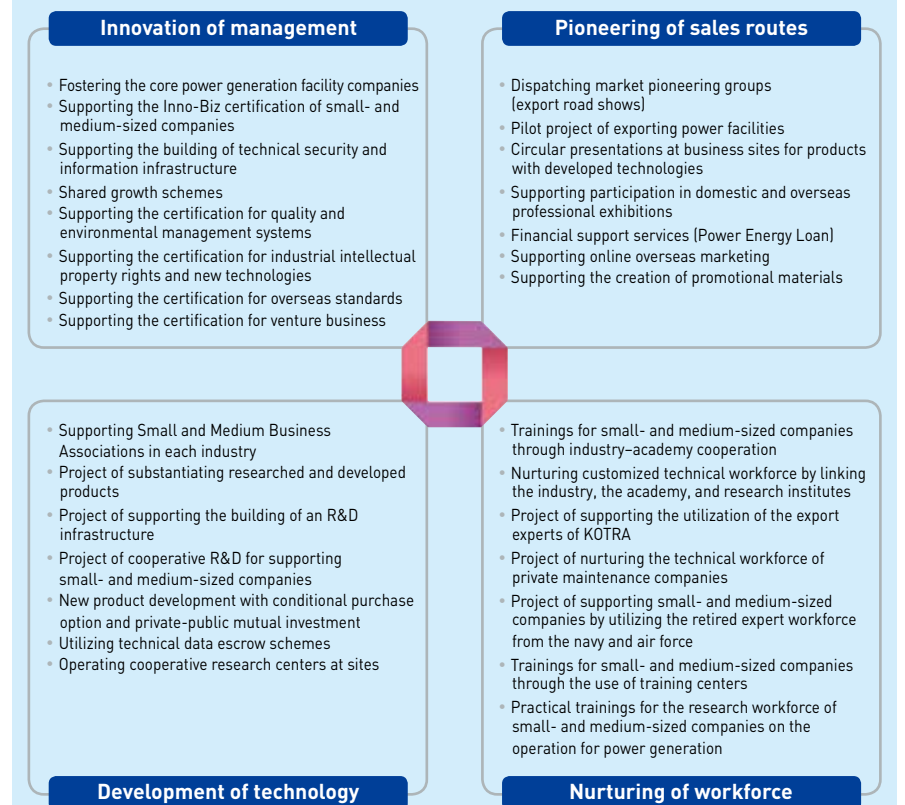
To comply with the government-promoted policy of shared growth among small-, medium- and large-sized companies, KOEN has played a leading role of shared growth through win-win cooperation such as preparing and operating various customized support programs for small- and medium-sized companies

Mid- and long-term strategy system for shared growth

Goals of shared growth	Clean & Smart Energy Leader that grows together with small and medium sized companies Ensuring the foundation for sustainable growth by supporting the global growth of suppliers			
Mid- and long-term strategic tasks	Securing leading power in technology · Promoting the expansion of R&D · Cooperative small- and medium-sized companies secure technological competitiveness and core technologies.	Innovating and strengthening productivity · Cooperative small- and medium-sized companies strengthen management competence, reduce costs, and improve productivity	Pursuing market diversification · Pioneering overseas markets · Expanding support for promotion · Expanding public purchasing · Strengthening cooperation with KOTRA	Building a culture of shared growth · Smoothing communication · Activating benefit-sharing systems · Improving unreasonable systems · Nurturing cooperative small- and medium-sized companies
Performance goal	· Number of common R&D cases 38 ¹³ Achieved ◯ 40 ¹⁴ ◯ 50 cases ²³	· Productivity improvement ratio 0 ¹³ Achieved ◯ 50 ¹⁴ ◯ 60 cases ²³	· G-TOPS export amount 40 ¹³ Achieved ◯ 500 ¹⁴ ◯ USD 10 million ²³	· Number of companies nurtured to become global ones 0 ¹³ Achieved ◯ 3 ¹⁴ ◯ 30 cases ²³
Focus tasks	<ol style="list-style-type: none"> Strengthening the implementation of a "technology commercialization platform" Newly promoting the "management supporters scheme" Newly promoting the "KWC-30¹¹ Project" 		<ol style="list-style-type: none"> Expanding domestic and overseas sales routes, and strengthening promotion Expanding purchasing, for example, by improving unreasonable schemes Activating benefit sharing schemes through R&D income 	

¹¹ KOSEP World Class 30: Finding and nurturing 30 domestic companies with the best technologies to become global ones by 2023

Kinds of shared growth support programs



Creating differentiated competitiveness

KOEN creates differentiated competitiveness with forward-thinking and technology
Pursuing both public interest and profitability, KOEN is committed to become a
company trusted by the people
and generate low-priced, sustainable electricity. With its world-class technology
and competitiveness's, KOEN will become a Clean & Smart Energy Leader that
proudly competes in the global market.

Locations of
business sites





A power plant loves environment and people – Samcheonpo Power Division

Samcheonpo Power Division is the first 500MW coal-fire power plant in large scale thermal power plant complex in southern Korea, with total capacity of 3,240 MW. In order to protect the environment and produce energy at low price, the plant not only focuses on developing environmental friendly combustion technology but it has also installed and operates the cutting edge environmental facilities for desulfurization and denitrification.

Especially, it operates a refinery plant for recycling of bottom ash produced in the process of generating electricity. And it spares no efforts to develop renewable energy facilities including the first photovoltaic power facility set up in Korea. As these efforts have been recognized, Samcheonpo power station has received the Grand Prize in Environment Management Awards, showing its leading role in the nation for environment-friendly management system.

Plus, by developing and operating a small hydro power plant(4,740kW), the first of its kind in the world using discharged cooling water, it also leads the government's policy for low carbon green growth through development of new green energy.

- **Site** 2,210,000 m²
- **Construction year** Generator #1: August 16, 1983 / Generator #2: February 28, 1984
Generator #3: April 30, 1993 / Generator #4: March 31, 1994
Generator #5: July 1, 1997 / Generator #6: January 1, 1998
- **Facility capacity** 3,240 MW



The no.1 eco-friendly & cutting-edge power plant – Yeongheung Power Division

Known for its 800MW-class coal-fired unit introduced for the first time in Korea, Yeongheung division plays a critical role for stably supplying electricity to metropolitan area where itself consumes 23% of national gross electricity produced.

Yeongheung division is also well known for its highly efficient and advanced environmental facilities. Despite the strict environmental regulations, Yeongheung power station is being operated hardly creating any pollution. Meanwhile, by setting up photovoltaic power facility(8MW), marine hydro power facility(12.6MW), wind power facilities(46MW), Yeongheung is also growing into a hub for renewable energy business.

As part of its effort to fulfill corporate social responsibility, Yeongheung division designed and built Energy Park, a cultural and information hall opened in 2007. At the Energy Park, through various activities students could learn about electric energy, also local residents could enjoy various cultural events including movie, musical performances, etc. It has not only become tourist attraction but it has certainly become the pride of local area.

- **Site** 5,958,153 m²
- **Construction year** Generator #1: July 12, 2004 / Generator #2: November 30, 2004
Generator #3: June 1, 2008 / Generator #4: December 1, 2008
Generator #5: June 10, 2014 / Generator #6: November 5, 2014
- **Facility capacity** 5,080 MW



a power plant
as clean as a park – Bundang Power Division

Being located in a highly populated residential area, Bundang power station operates gas combined cycle units with using clean and safe fuel, LNG, to provide electricity and heat to metropolitan areas while it hardly produces any air pollutants. The division continues its effort to make comfortable and eco-friendly park of a power station by enhancing environmental facility and noise control, as well as keeping utmost safety in workplaces.

Meanwhile, starting with 300kW fuel cells first installed in 2006, Bundang power station has been expanding fuel cell facilities by adding 3MW fuel cells in 2013, a 6MW plant in 2016, and a 6MW plant in 2018 as 2nd, 3rd, and 5th phase of the construction project, followed by a 17MW plant and an 8MW plant as 4th and 6th phase. In addition, it has also set up renewable energy facility such as 50 kW photovoltaic power facility.

Based on its management policy, 'basic and principles, communication and consideration, value creation', Bundang division endeavors to create a promising society caring for people's well-being and happiness.

- Site 215,016 m²
- Construction year First stage: September 16, 1993
June 30, 2017 (Completion of fuel conversion to wood pellets)
Second stage: March 31, 1997
- Facility capacity 922 MW



The ECO power plant
for environment and
local community – Yeongdong Eco Power Division

Since the establishment of its 1st power plant unit in 1972 and the 2nd unit in 1979, Yeongdong Eco Power Division has more than 40 years of history and tradition. Yeongdong Eco Power leads the economic growth in Gangwon Area by mixing the local coal to its fuel.

The 1st unit adopted wood pellet as its environmental friendly fuel for the first time in Korea, as a way to provide stable and eco-friendly power generation for the region with its continuing effort for improving environmental facilities. Yeongdong Eco Power Division is striving to operate the plant in clean and environment-friendly way.

Also, Yeongdong Eco Power Division is making an effort to co-exist with the local community by taking social responsibility with sharing activities.

- Site 1,359,018 m²
- Construction year Generator #1: May 23, 1973
Generator #2: October 31, 1979
- Facility capacity 325 MW



Eco-friendly power plant, leading the green management – Yeosu Power Division

Initially constructed as oil-fueled power plant in 1997, Yeosu Power Division has converted its facilities to fluidized-bed power plant that consumes affordable and more diverse fuels, in order to respond to the changing environment of power generation and operate the facility more efficiently. The unit2[300MW] converted its oil-fueled facilities to fluidized-bed boilers[328.6M] in September 2011, and added Oil-fueled unit1[200MW] in August 2016, for the reliable power distribution in the surrounding area and Yeosu National Industrial Complex. Yeosu Power Division also leads green management as the safe and eco-friendly power station, by reducing greenhouse gases with eco-friendly mixed fuels and developing new & renewable energy. The effort was rewarded by Green Management Award by the prime minister in 2016, Leader of Recycling Companies Award by the president in 2013, as well as the Safety Management Awards in 2014 and KOSHA/OHSAS 18001 certificates.

- Site 309,173.5 m²
- Construction year Generator #1: August 31, 2016
Generator #2: September 28, 2011
- Facility capacity 668.6 MW

Clean & Smart Energy Leader KOEN

Plants in operation

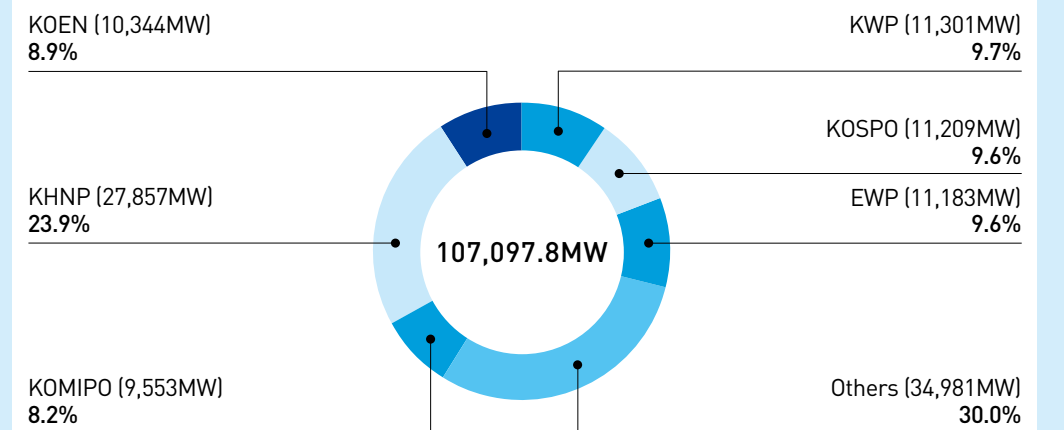
[As of Jan. 2018]

Load type	Site	Used fuels	Installed capacity	Remarks
Base load	Samcheonpo	Bituminous	3,240MW	9,188.6(88.8%)
	Yeongheung	Bituminous	5,080MW	
	Yeosu	Bituminous	668.6MW	
	Yeongdong	Anthracites	200MW	
Peak load	Bundang	LNG	922.1MW	922.1(8.9%)
Renewable	Biomass (Yeongdong #1)			
	Yeongheung wind power, small hydro power, etc.	-	233.8MW	233.7(2.3%)
Total			10,344MW	10,344(100%)

Market share of Korean Gencos

[Facility capacity: as of Jan. 2018 / Power generation: as of Dec. 2017]

Classification	KOEN	KHNP	KOMIPO	KWP	KOSPO	EWP	Others	Total
Installed capacity(MW)	10,344	27,857	9,553	11,301	11,209	11,183	34,981	116,428
Share (%)	8.9	23.9	8.2	9.7	9.6	9.6	30.0	MW
Generated capacity(Gwh)	70,632	155,407	52,954	47,936	49,014	51,103	126,859	553,905
Share (%)	12.8	28.1	9.6	8.7	8.8	9.2	22.8	Gwh



We are building trust
with a solid foundation.

● **Facilities owned**
In operation: 10,344 MW

● **Only in KOEN**

- Among power generation companies, it realized the lowest power generation cost because it owns flaming coal facilities (88.8%) at a maximum level.
- It has the experience and technology of constructing a large 800 MW-grade flaming coal power plant, which is the first one in Korea.
- It owns the largest power generation site where 12 generators can be built (approximately 3,100,000 m² in Yeongheung).

● **Main financial status**

(Unit: KRW million)

	2015	2016	2017
Assets	93,268	97,737	98,796
Liabilities	48,598	47,943	48,442
Capital	44,670	49,794	50,354
Debt ratio	108.8%	96.3%	96.2%
Sales revenue	49,617	50,935	53,879
Net income	6,012	5,310	1,304

● **Achieved the highest net profit since the foundation (in 2015)**

KOEN achieved the highest net profit of KRW 601.2 billion since its foundation and ranked top in terms of capital productivity and labor productivity (based on the value added). KOEN has also ranked top among power generation companies in terms of key financial statements indices by offering the lowest unit price on power generation and flaming coal procurement.



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자연을 에너지로
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안전한 에너지로
인류의 미래를 생각합니다.

환경과 인류를 지키는
ENERGY CHANGE!
한국남동발전이
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〈탐라해상풍력 전경〉

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