



# GLOBAL LEADING ENERGY SOLUTION PARTNER

# Report Summary

KEPCO Engineering & Construction Company, Inc. (hereinafter “KEPCO E&C”) publishes Sustainability Reports every two years. This 2016 KEPCO E&C Sustainability Report is the fifth of its kind and contains major issues as identified by a materiality assessment. Through this report, KEPCO E&C discloses its sustainability management performance and activities in a transparent manner.

### Reporting Guidelines

This report has been prepared in accordance with the Global Reporting Initiative (GRI) Standards and fulfills the requirements of the Core “in accordance” option regarding the “Principles for Defining Report Content” and the “Principles for Defining Report Quality.” The detailed reporting guidelines are provided on pages 61-64 under Third-Party Assurance Statement and GRI Standards Index.

### Reporting Period and Scope

The reporting period for this report is from January 1, 2015 to December 31, 2016. For performance requiring an annual trend analysis, the report provides data covering three years (2014 - 2016). In the case of some qualitative performance, the report provides data for the first half of 2017. This report covers mainly KEPCO E&C’s sustainability management activities and performance of its domestic business sites (headquarters and the NSSS Division in Daejeon, etc.) and those of its overseas business sites within a limited scope.

### Independent Assurance

This report has been prepared in accordance with the GRI Standards and received third-party assurance from an independent verifier to ensure reliability of the content reported herein. The assurance results are provided in the Third-Party Assurance Statement on page 61~62.

### Inquiries

This report can be downloaded on KEPCO E&C’s website ([www.kepco-enc.com](http://www.kepco-enc.com)). For any inquiries, you may reach us by using the following contact information.

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## Sustainability Issue



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## CEO Message



KEPCO E&C will play a leading role in the midst of highly accelerating paradigm changes in the energy industry by promptly reorganizing and expanding new growth engines.

Dear esteemed stakeholders,

First of all, I wish to extend my sincere appreciation of your continued support and encouragement for KEPCO E&C. It is with great pleasure that I introduce our fifth Sustainability Report, presenting KEPCO E&C's future directions in line with the various paradigm changes taking place in the energy industry.

The energy industry in the Republic of Korea is preparing itself to initiate a new era of development. In line with the government's policy directions of producing clean and safe energy through a reduction of traditional low-cost nuclear and thermal power, and an increase in environmentally-friendly renewable energy and LNG, we expect rapid changes to take place not only within KEPCO E&C but throughout the entire energy industry.

Engaging in nuclear decommissioning in line with government policies since March 2017, KEPCO E&C has paid close attention to the government's policy changes while strengthening our technological capacity regarding the next-generation energy sources, such as new and renewable energy, nuclear fusion and hydrogen. We are also systematically preparing to expand our business areas to plants and the environment.

Established in 1975 with the goal of accomplishing self-reliance in power plant engineering technology, KEPCO E&C has utilized its technological capacity in the energy industry to contribute to Korea's economic development and provide convenience for its people over the past 40 years. Abundance, affordability, cleanliness, security and diversity form the basis of KEPCO E&C's energy technology. With a "positive attitude can destroy every negative obstacle" and the mindset sailing against headwinds, KEPCO E&C will turn challenges into opportunities. Furthermore, KEPCO E&C is committed to the following sustainability management directions with a view to achieving sustainable development.

**First, KEPCO E&C will focus all of its capacity in securing source technologies for new energy sources through sincere commitment to technological development.**

Since its establishment, KEPCO E&C has faced a series of challenges but has been able to overcome them through the concerted determination and will of its employees. We believe now is the time to come together as one and move towards the future by focusing on increasing our capacity.

**Second, KEPCO E&C will build a robust energy industry by forming win-win relationships with small and medium-sized enterprises.**

KEPCO E&C has provided firm support for the national energy industry along with countless small and medium-sized enterprises and we have grown together through mutual technological development and joint projects, based on which we will play a central role in establishing a mutual growth structure.

**Third, we will create a corporate culture that values perseverance and passion, while building a company that fulfills its social responsibilities.**

Even under many unfavorable conditions, KEPCO E&C was able to grow into a company possessing the world's top power plant design technologies, thanks to its corporate culture that values perseverance and passion. We will cherish and further develop our corporate culture and build a solid base on which we can grow, hand in hand with the community.

I ask for your unwavering support for KEPCO E&C as we carry our vision into the future as a socially responsible and ever-growing company.

Thank you very much.








KEPCO E&C  
CEO & President **Koo-Woun Park**



# Introduction






## Overview

Since its foundation in 1975, KEPCO E&C has fulfilled Korea's power plant demands based on its technological capacity to design nuclear, thermal and hydroelectric power plants. One of the world's best power plant design and engineering companies, KEPCO E&C is the only one that can independently conduct both architect engineering and nuclear steam supply system design. Furthermore, it is pioneering the development of clean coal thermal power plant design technologies by developing eco-friendly facilities through desulfurization and denitrification. KEPCO E&C is also securing competitiveness throughout the energy industry with its eco-friendly and new & renewable energy projects, transmission and distribution/substation projects, and PM/CM projects.

 Foundation	October 1975	 Head Office	269 Hyeoksin-ro, Gimcheon-si, Gyeongsangbuk-do
 President & CEO	Koo-Woun Park	 Guardian Agency	Ministry of Trade, Industry and Energy
 Asset	KRW 786,596 million	 Legal Ground for Establishment	Article 317 of the Commercial Code: Stock Company under the Commercial Act
 No. of employees	2,266		

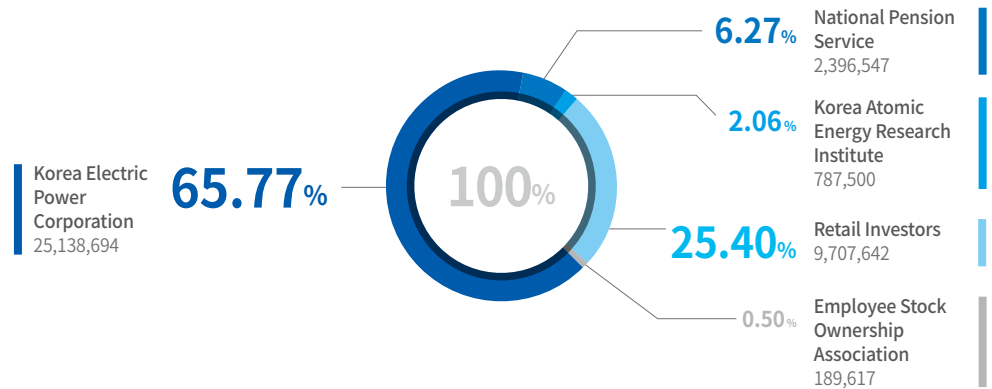
## Business Areas

In March 2017, KEPCO E&C added nuclear power plant decommissioning to its existing four essential businesses—design and engineering, operations and maintenance (O&M), eco-friendly business, and project management and construction management (PM/CM)—under its articles of incorporation. The company is thereby preparing itself for new paradigms in the energy industry.

Type ▶	Design & Engineering	O&M (Operations & Maintenance)	Eco-friendly	PM/CM	Decommissioning
					
Competitiveness ▶	Has its own independent technology for architect engineering nuclear/thermal power plants	Enhances operability and maintainability by offering technological support to power plants in operation	Active development and cultivation of eco-friendly technologies	Has reference performance in areas such as public projects	Has manpower and performance in technology development and decommissioning
Areas ▶	<ul style="list-style-type: none"> <li>• Nuclear power plants</li> <li>• Thermal power plants</li> <li>• Combined cycle and cogeneration power plants</li> </ul>	<ul style="list-style-type: none"> <li>• Performance improvement and continued operation</li> <li>• Performance restoration, life cycle extension and fuel switching, etc.</li> </ul>	<ul style="list-style-type: none"> <li>• Flue gas desulfurization/denitrification facilities</li> <li>• ESCO, new and renewable energy projects</li> <li>• Water pollution prevention</li> <li>• Waste disposal facilities</li> </ul>	<ul style="list-style-type: none"> <li>• Public projects</li> <li>• Private SOC projects</li> <li>• Power generation projects</li> <li>• Overseas projects</li> </ul>	<ul style="list-style-type: none"> <li>• Decommissioning engineering/Decontamination/Dismantling of main equipment</li> <li>• Site restoration</li> </ul>

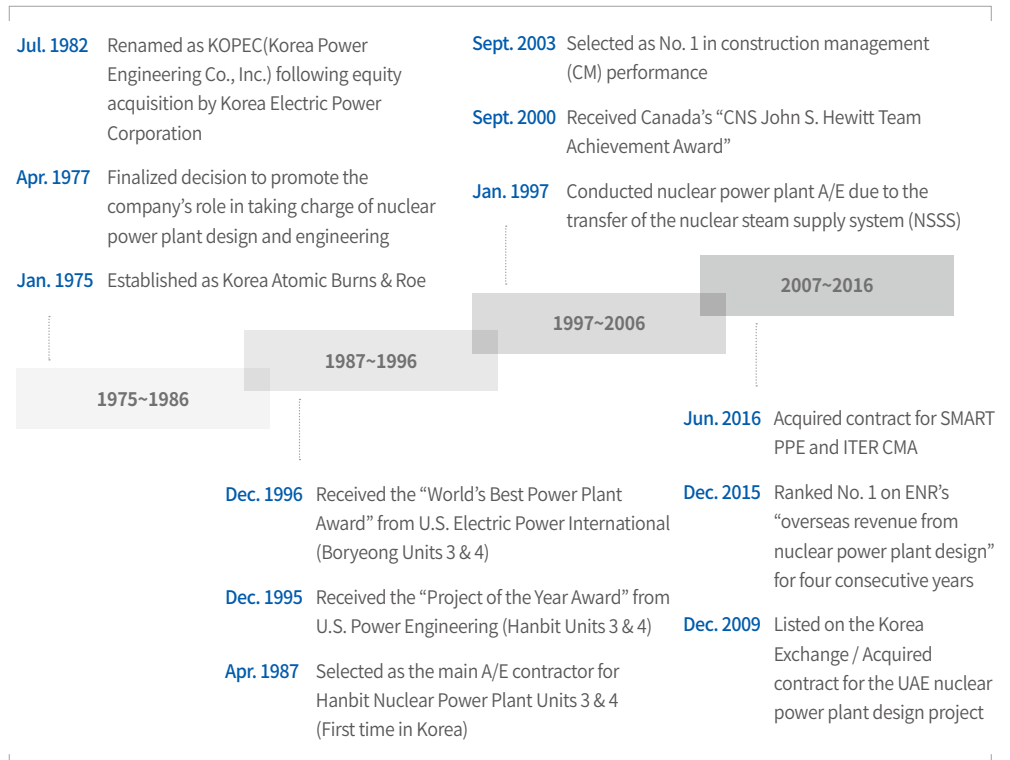
## Shareholder Composition

KEPCO E&C was listed on the Korea Exchange in December 2009 with a total of 38,220,000 listed stocks. As a subsidiary of Korea Electric Power Corporation (KEPCO), 65.77% of KEPCO E&C's shares are owned by KEPCO.



## Corporate History

Established in 1975 as Korea Atomic Burns & Roe, KEPCO E&C has played a central role in promoting the technological development of the Korean energy industry and providing a stable supply of electric power for the past 40 years. Since relocating to Gyeongbuk Innocity in 2015, KEPCO E&C prepares to reach new heights as the energy industry readies itself for new paradigm changes.



# Vision and Strategy

## Global Leading Energy Solution Partner

KEPCO E&C strives to become a “Global Leading Energy Solution Partner” through the Vision 2025 system built on its management philosophy of pursuing customer satisfaction and the prosperity of mankind by reinforcing power plant design and engineering technologies as a leader in the energy industry.

## Mid to Long-Term Management Strategy Structure

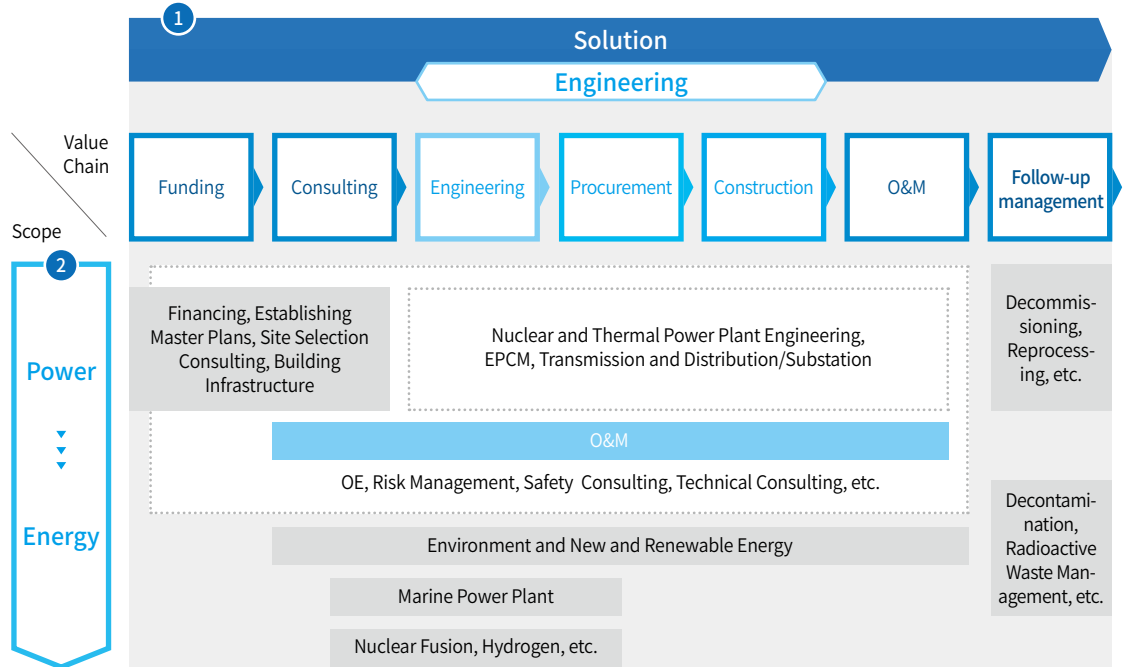
Actively embracing new paradigms in the energy industry, KEPCO E&C has re-established its mid to long-term management strategies for future sustainability. Based on its five core values of challenge, communication, expertise, reliability, and safety, KEPCO E&C will strive to realize its vision and attain management goals. KEPCO E&C has identified five strategic directions and 16 strategic tasks in line with the company’s Vision 2025 as follows.





## Energy Solution Partner

KEPCO E&C endeavors to provide a wider range of services by expanding its business areas to the overall value chain, including pre- and post-management. This includes businesses such as engineering and EPC, as well as energy fields beyond electric power.



1

### Engineering ▶ Solution

- Provide Customized Comprehensive Consulting
  - Financing, Establishing Master Plan, Site Selection Consulting, Building Infrastructure, etc.
  - OE, Technical Consulting, Risk Management, Safety Consulting
- Expand Back-end Management of Nuclear Power Plant
  - Decommissioning, Reprocessing, etc.



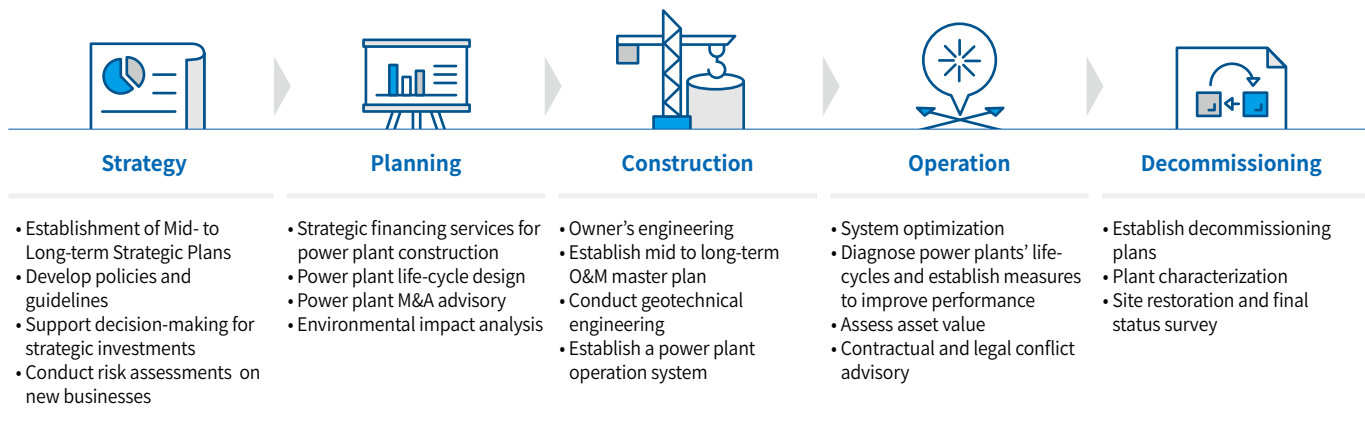
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### Power ▶ Energy

- Advance to Next Generation Energy Businesses
  - New and renewable energy
  - Nuclear Fusion, Hydrogen, etc.
- Expand to Other Energy Fields and Environmental Businesses
  - Marine Plants
  - Decontamination, Radioactive Waste Management, etc.




## Providing Customized Comprehensive Consulting

KEPCO E&C is building a customized comprehensive consulting business by expanding its business areas to cover the overall value chain. Ranging from establishing initial strategic plans, financing, and pre-consulting to engineering cooperation with players in each field, EPCM, O&M, and back-end management & decommissioning, KEPCO E&C's comprehensive consulting sets the foundation for its Total Solution business structure.



## Establishing the Basis for New Energy Businesses

KEPCO E&C is establishing the basis to expand into new businesses in line with new paradigms in the energy industry. It is evolving from power generation businesses based on conventional generation businesses, such as nuclear and thermal power, into next generation businesses using new and renewable energy, like hydrogen and nuclear fusion.

Type	Description	Approach
 <b>New and Renewable Energy</b>	Environmentally-friendly, safe and renewable energy sources such as solar, hydro, and wind power	<ul style="list-style-type: none"> <li>Selective technological investments based on new and renewable energy sources with high investment efficiency</li> <li>Technological development and capacity-building for new renewable hybrid businesses, converging technologies between new and renewable energy sources or with other energy sources</li> </ul>
 <b>Hydrogen</b>	Environmentally-friendly and infinitely renewable energy sources based not on the location of the resources but related technologies	<ul style="list-style-type: none"> <li>Technological development and reinforcement of research capability in preparation for the mass production of hydrogen using nuclear power</li> <li>Implement nuclear power hydrogen demonstration projects through information exchanges and technological cooperation with domestic/international institutions</li> </ul>
 <b>Nuclear Fusion</b>	Infinitely available and safe energy source with no risk of radioactive leaks, greenhouse gas emissions, or high-level radioactive waste	<ul style="list-style-type: none"> <li>Expand business areas within ITER and secure business/technological basis by continuously acquiring contracts</li> <li>Secure a leading position in an age of the commercialization of nuclear fusion</li> </ul>

# Proactive Risk Management

## Enterprise Risk Management(ERM) System

### Major Corporate Risk Indicators (CRIs) Related to Sustainability Management

Management Areas			Assessment Term
Level 1 Category	Level 2 Category	CRI	
Auditing	Moral hazard	Number of requests for disciplinary action by external organizations	Half-yearly
	Employment	Employment ratio of the disabled	Quarterly
Number of job solicitation cases found			
Human Resources	Labor Management Relations	Number of communications for the prevention of Labor-Management conflict	Yearly
	Customer Management	Integrity assessment results of the Anti-corruption and Civil Rights Commission	
Public Relations	Reputation	Ratio of negative media reporting	Monthly

## Strengthening Financial Risk Management – Exchange Risk Management

## Enhancing Enterprise Risk Management System

KEPCO E&C operates a forward-looking and enterprise-wide risk management process by which risks are managed on a regular basis through Corporate Risk Management (CRM) and Project Risk Management (PRM) which analyze and manage corporate risks and project risks, respectively. The Risk Management Team which is in charge of implementing ERM realizes proactive risk management by issuing risk management report in the form of Risk Management Status Reports and Bi-Weekly ERM Reports and incorporating risk management into the organization’s agenda and decision-making processes.

### Corporate Risk Management (CRM)

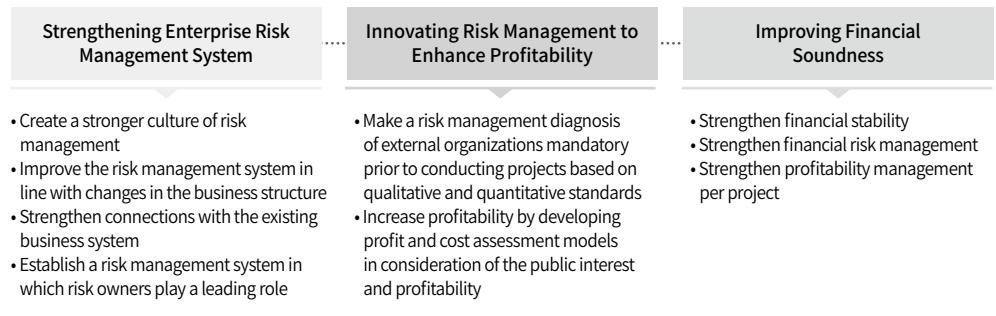
KEPCO E&C is an engineering company whose biggest asset is its human resources. It therefore manages, through the CRM system, corporate risk indicators (CRIs) relating not only to business but social factors that may have an impact on sustainability management. There are 49 CRIs in ten management areas such as financial accounting, auditing, and contracts. The Risk Owners in the relevant departments conduct risk management by assessing risks and formulating effective response measures regularly.

### Project Risk Management (PRM)

Project Managers are the risk owners who operate the risk management process from identifying project risks to implementing risk responses. In the case of potential projects, the risk management process is undertaken at the preparation and exploration stage, the bidding stage, and the contracting stage. For ongoing projects, the process is undertaken on a half-yearly basis. The project risk factor pool consists of 66 factors for potential projects and 158 factors for ongoing projects in six areas regarding contract, technology, client, etc. Furthermore, KEPCO E&C applies the lessons learned from its overseas and EPC projects and takes continuous measures to improve the risk management process by updating the risk factors to enhance project performance and increase the project profitability.

KEPCO E&C is exposed to higher exchange risks as overseas sales increase due to the diversification of its international market. To systematically manage exchange risks, the Risk Owner of exchange risk receives foreign exchange training program and improve risk management strategies consistently.

As the importance of risk management increases, KEPCO E&C is strengthening its risk management system on the enterprise-level by implementing various tasks that aim to innovate risk management to enhance profitability and financial soundness.



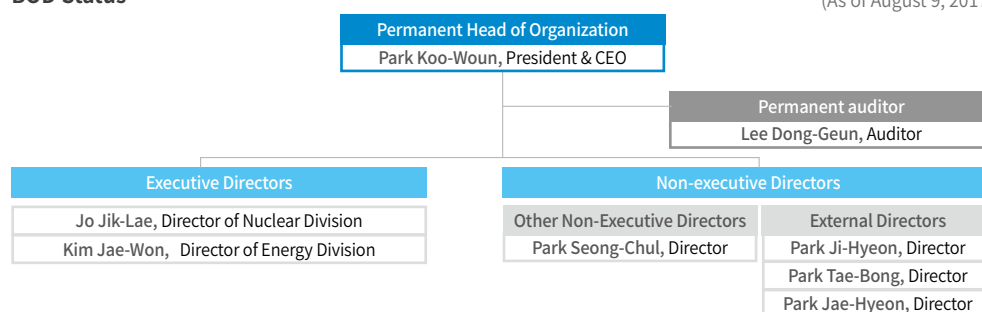
## Sound Governance

### Structure of the Board of Directors

The Board of Directors, the highest decision-making body of KEPCO E&C, consists of eight members: seven directors and one auditor, including the CEO who also serves as the Chair of the Board, one executive auditor, two executive directors and four non-executive directors. The President serves a three-year term, while the directors and auditor each serve a two-year term. The directors and auditor are appointed by the President of the Republic of Korea, the Minister of Strategy and Finance, etc., upon resolution of the general meeting of shareholders, given that they do not fall under the grounds for disqualification set forth in Article 34 of the Act on the Management of Public Institutions.

#### BOD Status

(As of August 9, 2017)



#### Appointment of the Board of Directors

Type	Deliberation & Decision	Appointment
CEO & President	Deliberation/decision at Public Enterprise Steering Committee and decision at general meeting of shareholders	President
Executive Directors	Decision at general meeting of shareholders	CEO & President
Non-executive Directors	Deliberation/decision at Public Enterprise Steering Committee and decision at general meeting of shareholders	Minister of Strategy and Finance
Executive Auditor	Deliberation/decision at Public Enterprise Steering Committee and decision at general meeting of shareholders	President

### Operation of the Board of Directors

The non-executive director pre-monitoring system adopted in 2015 contributed to increasing the participation of non-executive directors in BOD meetings. To operate the BOD systematically, operation plans are regularly established and reviewed. The BOD is convened at the request of the Chair or at least one-third of the directors in office and shall be attended by the majority of the directors in office. The Chair of the Board shall notify the directors and auditor seven days prior to the meeting, and the voting right of any director with special interest in specific agendas shall be limited to prevent conflict of interest within the Board.

#### Performance of the Board of Directors

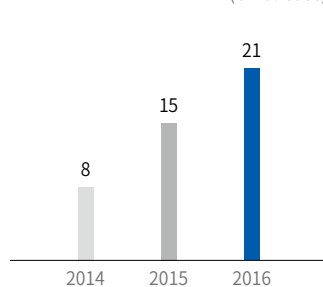
Type	2014	2015	2016
Meetings (No.)	9	9	9
Resolutions (No.)	22	27	31
Pre-deliberation Rate (%)	100	100	100
Decisions after Amendments (No.,%)	0(0)	0(0)	1(3.23)
Reported Agenda (No.)	2	9	7
BOD Participation Rate (%)*	77.5	89.3	72.2
Non-executive Directors Participation Rate (%)	63.6	87.5	57.4
Frequency of Statements by Non-Executive Directors (%)	43.2	47.1	47.8

\* BOD participation rate decreased due to business trips and other commitments of directors affiliated with the government (Ministry of Trade, Industry and Energy, Ministry of Science and ICT).

## Strengthening the Expertise of Directors

### Management Suggestions by Non-executive Directors

(Unit : Case)



KEPCO E&C secures the expertise of its Board of Directors by receiving recommendations of the President Nomination Committee and evaluating the capability of public agency executives when appointing directors. To ensure rational decision-making and the expertise of the Board, professionals in fields such as nuclear power and public policy are appointed as non-executive directors.

### Cases of Management Suggestions by Non-Executive Directors

Type	Policy Suggestions	Applications
Management	Review measures to utilize the main office building in Yongin (First meeting, February 12)	Added "real estate leasing" to essential business (October 17)
	Share the company's major issues with employees and establish measures to collect feedback (First meeting, February 12)	Enabled working-level employees to attend weekly management meetings to share the company's major issues and receive feedback
	Offer various capability-building programs to employees other than current educational programs (Fourth meeting, May 20)	Implemented leave of absence for self-development (December 27) - Eligibility: Employees with at least five years of service - Duration: Maximum one year
	Operate various programs to improve employees' quality of life after relocation to Gimcheon (Sixth meeting, August 30)	Established "Self Development Day" (October 15) - Every first and third Thursday, employees get off work on time and engage in self-development programs (IT lectures, university lectures, etc.)
	Add strategic tasks to management goals regarding cultivating talent and helping employees to improve their skills (Ninth meeting, December 27)	Added "Cultivating future talent and creative people" to major task action plans
Business	Increase interest and participation within the company regarding investment and promotion of the government's new energy-related projects (First meeting, February 12)	Held lecture on "Sun Village and New Energy Projects" (August 5, Gimcheon Headquarters)
	Make efforts to develop the nuclear power plant management technologies and market to secure drive for the company's new growth (Third meeting, March 21)	① Selected "nuclear power plant post-management" as a new growth business group ② Obtained a decommissioning research contract from a foreign company (PEL) for the first time in Korea ③ Added to essential business under articles of incorporation (March 2017) - Businesses related to nuclear power plant decommissioning, spent nuclear fuel, and radioactive waste

## Director Remuneration

Remuneration of the directors, which consists of a basic salary, incentives, and severance, is paid according to the management performance of the company within the limit approved by the general meeting of shareholders. In the case of executive directors, incentives are paid upon evaluation of their performance against the annual target. External directors receive the monthly fees necessary for carrying out their duties.

## Shareholder Status and Protection of Rights

As of December 31, 2016, the majority shareholder of KEPCO E&C is Korea Electric Power Corporation (KEPCO) with a share ownership ratio of 65.77%. Pursuant to relevant laws and regulations, all shareholders are entitled to attend general meetings of shareholders, cast votes, and participate in dividing profits. Information regarding corporate management is disclosed in a transparent and accurate matter via the KEPCO website, general meetings of shareholders, and disclosure reports, thereby guaranteeing shareholders' rights.

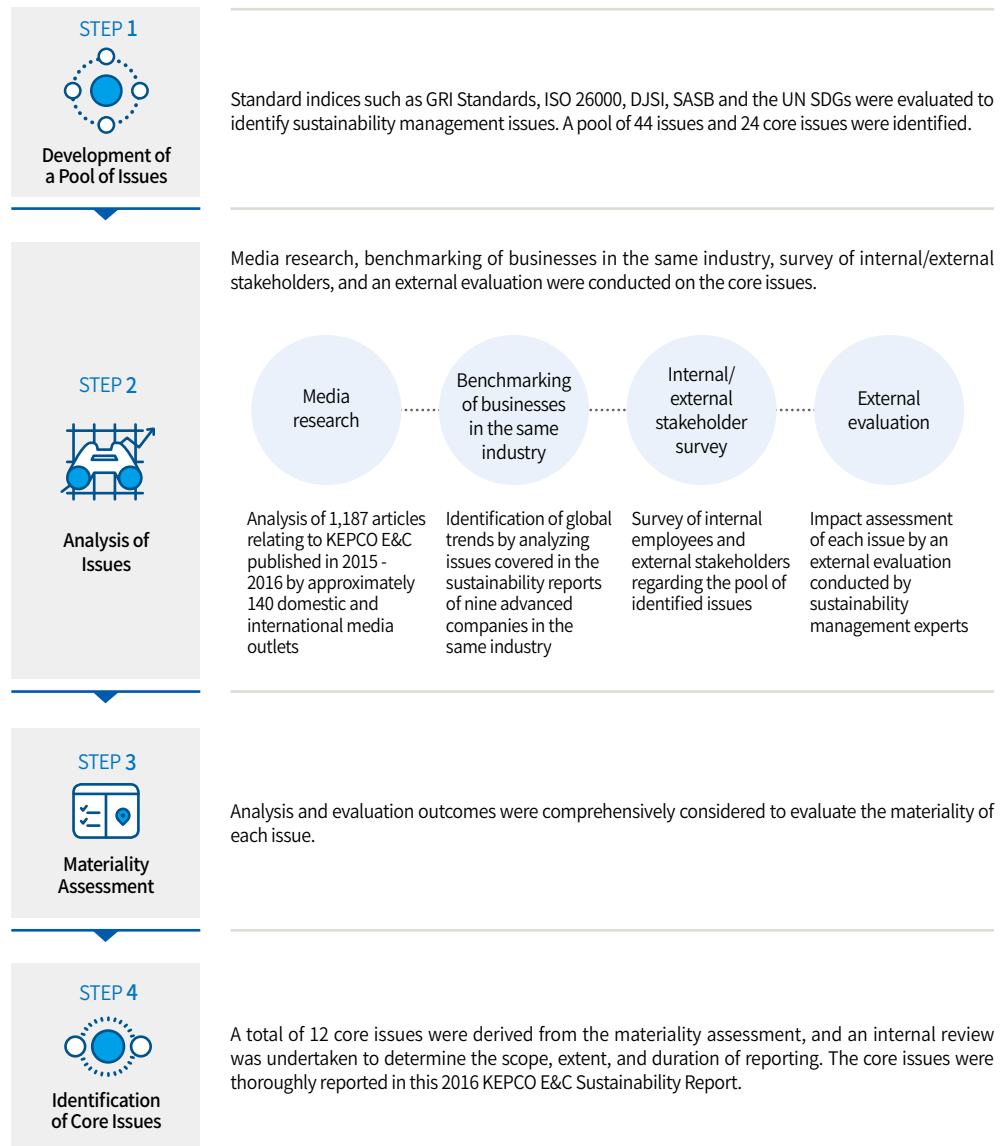
### Shareholder Status

Name of Shareholder	Number of Stocks Owned	Share Ownership Ratio (%)
Korea Electric Power Corporation	25,138,694 shares	65.77%
National Pension Service	2,396,547 shares	6.27%
Korea Atomic Energy Research Institute	787,500 shares	2.06%
Retail Investors	9,707,642 shares	25.40%
Employee Stock Ownership Association	189,617 shares	0.50%
Total	38,220,000 shares	100.00%

# Materiality Assessment

KEPCO E&C performed a materiality assessment to identify internal and external issues that may affect the company and to collect the various opinions of stakeholders to be effectively reflected in this report. By utilizing standard indicators for sustainability management, a pool of economic, social, and environmental issues was developed, followed by a materiality assessment on each issue using media research, benchmarking of businesses in the same industry, and internal/external surveys. Detailed accounts of the core issues identified by the materiality assessment are thoroughly provided in this report.

## Materiality Assessment Process



### Major Issue Pool

- Economic**
- 1. Creating economic value
- 2. Market position and corporate reputation
- 3. Expanding to the global market
- 4. Technology development and innovation
- 5. Creating new growth engines

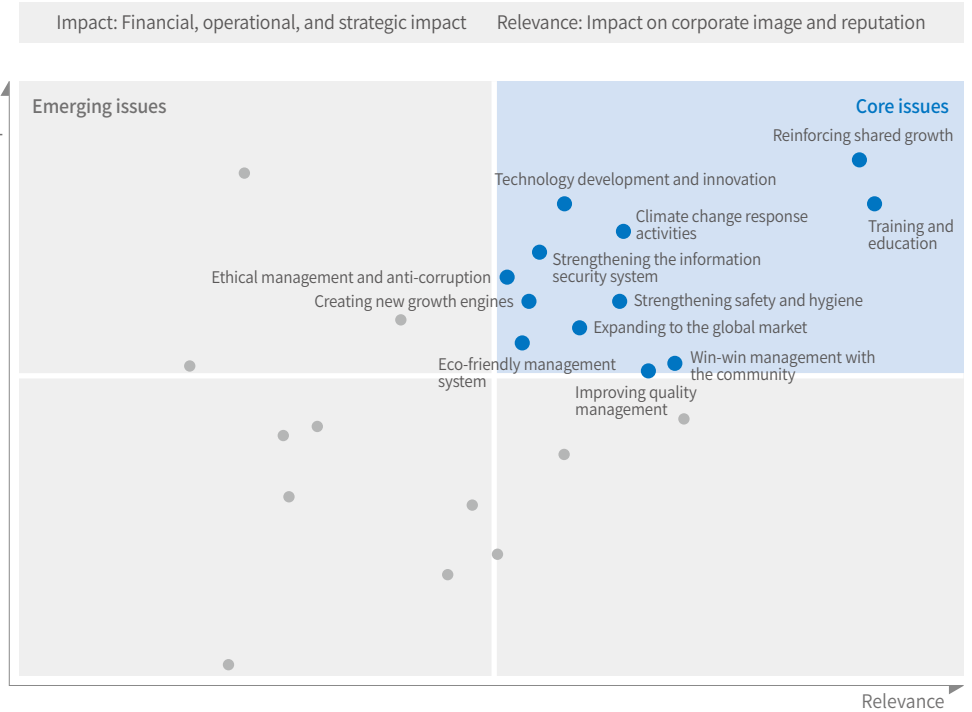
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- Social**
- 6. Healthy corporate culture
- 7. Improving customer satisfaction
- 8. Reinforcing shared growth
- 9. Training and education
- 10. Strengthening safety and hygiene
- 11. Ethical management and anti-corruption
- 12. Hiring talented people
- 13. Diversity and equal opportunities
- 14. Strengthening the information security system
- 15. Win-win management with the community
- 16. Proactive risk management
- 17. Improving quality management

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- Environmental**
- 18. Climate change response activities
- 19. Company-side energy reduction
- 20. Eco-friendly management system
- 21. Eco-friendly technology development
- 22. Pollutant discharge management
- 23. Supply network environment assessment
- 24. Biodiversity preservation efforts

A total of 12 core issues were derived from the 24 issues identified through the materiality assessment. The core issues are discussed under the same heading in KEPCO E&C’s report according to its four core values.

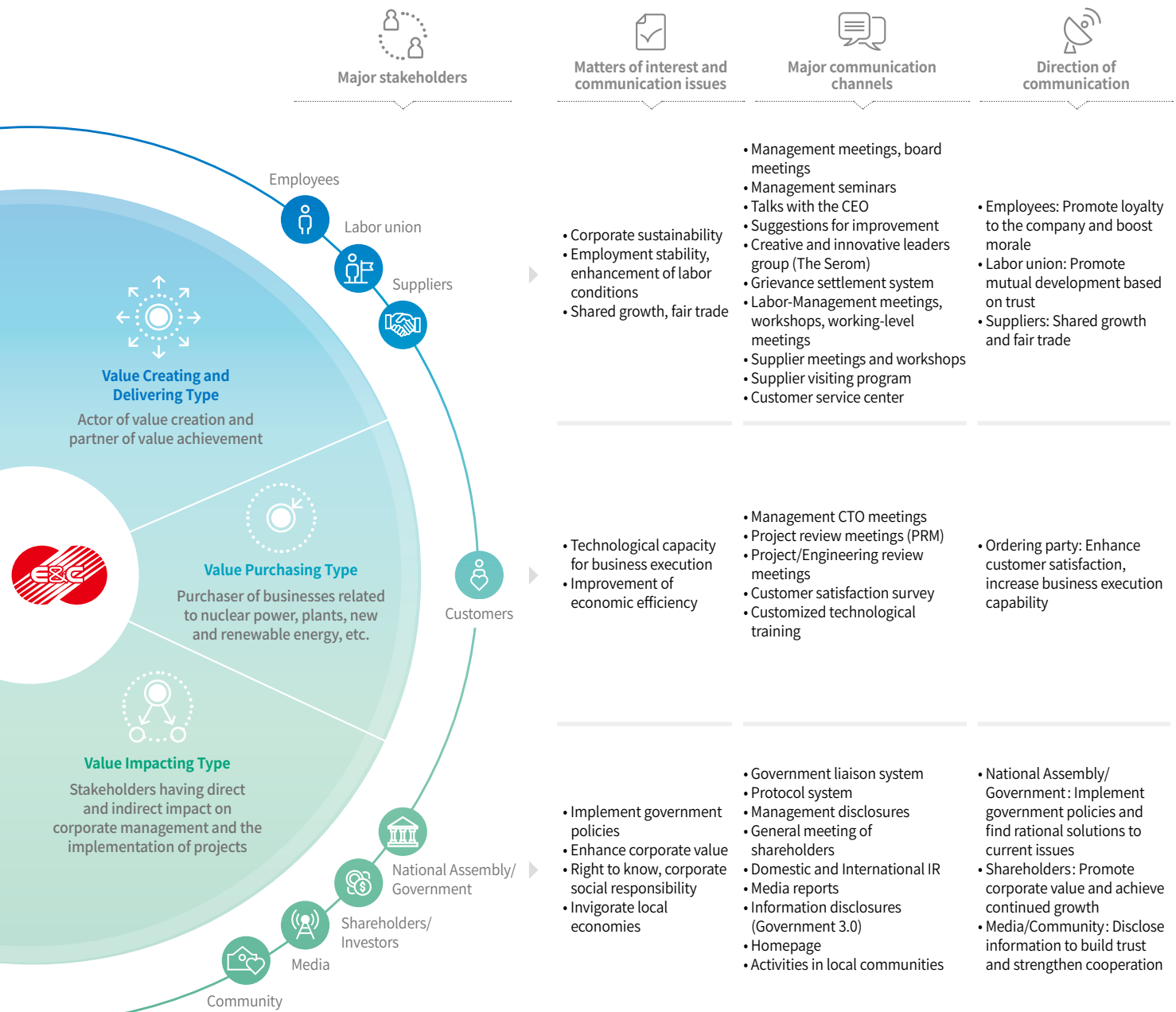


### 2016 KEPCO E&C Core Issues

Material Issue	Topic	Report category	page
Expanding to the global market	Economic Performance	Challenge : KEPCO E&C, pursuing the prosperity of mankind	27-28
Technology development and innovation		Expertise : KEPCO E&C, striving to be the best	52
Creating new growth engines	Other business issues	Challenge : KEPCO E&C, pursuing the prosperity of mankind	26
Reinforcing shared growth	Other business issues	Communication : KEPCO E&C, sharing hopes and dreams	39-40
Training and education	Training and education	Expertise : KEPCO E&C, striving to be the best	48-50
Strengthening safety and hygiene	Safety and hygiene within the workplace	Safety : KEPCO E&C, dreaming of a safer and cleaner future	30-32
Ethical management and anti-corruption	Anti-corruption	Reliability : KEPCO E&C, offering trust and confidence	44-45
Strengthening the information security system	Customer Privacy	Reliability : KEPCO E&C, offering trust and confidence	46
Win-win management with the community	Local Communities	Communication : KEPCO E&C, sharing hopes and dreams	36-38
Improving quality management	Other business issues	Reliability : KEPCO E&C, offering trust and confidence	42-43
Climate change response activities	Emissions	Safety : KEPCO E&C, dreaming of a safer and cleaner future	30
Eco-friendly management system	Energy, water		33-34

# Stakeholder Communication

KEPCO E&C categorizes stakeholders that have both direct and indirect impacts on corporate management activities into three groups: value creating and delivering type, value purchasing type, and value impacting type. Stakeholders in each group communicate with KEPCO E&C through various channels. The opinions gathered through this communication are actively reflected so as to enhance corporate sustainability. Through these efforts, KEPCO E&C will continue to do its best to achieve sustainable growth hand in hand with its stakeholders.





# KEPCO E&C, Reaching New Heights

The world's No.1  
KEPCO E&C Headquarters  
A Global Power Leader of  
Energy Companies

In August 2015, KEPCO E&C constructed a state-of-the-art intelligent building that not only symbolizes its position as a global energy company but also realizes reduced energy consumption. This revolutionary low-carbon green building also provides an incredibly pleasant work environment. With its new, cutting-edge building, KEPCO E&C will reach new heights as it heads into the future.



## ☑ Reducing Environmental Impact with a New Eco-friendly Building

### Major Items

#### ■ Transportation

- Eco-friendly transportation using bicycle parking racks
- At least two public transportation hubs within 150 meters

#### ■ Energy

- 101 points on the energy performance index
- New and renewable energy such as sunlight and geothermal heat

#### ■ Ecological Environment

- Improve biotope in consideration of the ecological environment
- Increase the natural soil green area ratio

#### ■ Materials and Resources

- Use eco-friendly certified products
- Use products that provide information on carbon emissions

#### ■ Indoor Environment

- Create natural ventilation
- Individual control of the lighting environment in work spaces

#### ■ Water Resources

- Expand the use of rainwater and heavy water
- Apply water-saving hygiene tools



Argon Gas  
Low emissivity three-layer coating

OA EA SA RA  
Total Heat Exchange

Level 1 Energy Efficiency Building

100% LED Lighting

Sunlight Generation

**Strengthen the performance of the building envelope**

- Enhance glass shielding of solar radiation
- Enhance glass insulation
- Apply super insulating materials
- Enhance insulation of the highest floor
- Apply electric retractable screens

**Enhance the efficiency of facilities**

- Calculate the optimum heat source capacity
- Apply air conditioning equipment and a total heat exchanger
- Enhance the performance of the geothermal heat pump
- Expand the geothermal heat zone

**Minimize energy use**

- 100% LED lighting in work spaces
- Minimize the lighting density in main rooms

**Minimize energy use**

- 100% LED lighting in work spaces
- Minimize the lighting density in main rooms

<b>Supply Rate</b> (Against amount of energy use)		
<b>19.28%</b>		
<b>Installed Capacity</b>		
Sunlight (PV)	Geothermal Heat (Closed Loop)	Solar Heat
<b>1,824.66</b> kw (327Wpx5,580sides)	Air conditioning <b>2,808</b> kw, Heating <b>2,745</b> kw	<b>65.30</b> m <sup>2</sup>



## 🎯 Win-win Activities in the New Location of the Headquarters

### Support for the Cultivation of Local Talent

Since relocating to Gimcheon Innocity in North Gyeongsang Province, KEPCO E&C has played a leading role in cultivating local talent. In July 2015, KEPCO E&C donated KRW 100 million to the Gimcheon-si Talent Cultivation Foundation, supporting scholarships and the improvement of the educational environment for local talent. It is also expanding industrial-academic cooperation with high schools and universities in the region while implementing various regional cooperation programs—such as a human resources development program in the field of power generation plant engineering CAD—to support the cultivation of local talent.

### Agreement with Gimcheon University to Create a Vocational Education and Training Course

A vocational education and training course is an undergraduate degree program established and operated by universities under inter-institutional cooperation with the State, local governments, or enterprises by executing an agreement to promote education particularly in the industrial fields. In March 2017, KEPCO E&C signed an agreement with Gimcheon University to establish and operate a Convergence Energy Engineering Department as a vocational education and training course. The Department offers courses converging construction, mechanics, and electric and electronic engineering to approximately 20 students, holds regular student meetings to promote team building and motivation, and provides students with opportunities to participate in exhibitions and study tours to enterprises. Classes are held every Wednesday (evening) and Saturday (daytime) to enable students to effectively combine study and work. Various scholarship programs are being devised to provide 50% of tuition fees to students and other institutional measures to boost motivation.

### A Helping Hand to Local Farms

KEPCO E&C has carried out a variety of activities in the local community such as giving a helping hand at local farms during busy farming seasons, cleaning the environment, and volunteering at affiliated institutions. At the center of KEPCO E&C's community service activities is the Chamsarang ("True Love Service Corps") Volunteer Group,

the company's own volunteer group that was organized in 2005. In 2017, over 40 employees visited a farming village located in Sangjwawon-ri, Guseong-myeon, Gimcheon-si and helped with harvesting onions under the sweltering heat. They also purchased some of the onions they had helped harvest, contributing to the farms' income.

### Support for Promoting Traditional Markets

In an effort to boost the local economy by promoting the use of traditional markets, KEPCO E&C carried out a campaign in June 2017 in Gimcheon Hwanggeum Traditional Market. It also donated Onnuri gift certificates in the amount of KRW 3 million to Wolmyeong St. Mary's House, a welfare organization based in Gimcheon, thereby sharing through giving as well as contributing to the promotion of traditional markets in the region. Since relocating to Gimcheon Innocity in 2015, KEPCO E&C has carried out various win-win activities in the region and will continue to strengthen its ties with the local community.



- 1 Support for the Cultivation of Local Talent
- 2 Agreement with Gimcheon University
- 3 A Helping Hand to Local Farms
- 4 Support for Promoting Traditional Markets

## 2015 - 2016 Highlights

### KEPCO E&C Announces Ten Major New Growth Businesses

In January 2017, KEPCO E&C selected and announced new growth businesses, reflecting its purpose of incorporation and future strategic directions. Ten major new growth businesses—(i) nuclear decontamination and decommissioning, (ii) spent nuclear fuel and radioactive waste, (iii) small and medium-sized reactors, (iv) i-POWER, (v) floating storage power plant, (vi) Industry 4.0, (vii) enhancement of thermal power performance, (viii) environment improvement, (ix) generation of new & renewable energy, and (x) convergence of new & renewable energy—were selected in five areas: post-management of nuclear power plants, development of nuclear reactors for export, convergence technology, clean thermal power, and new & renewable energy. These new growth businesses will be implemented in a systematic manner by supplementing relevant organizations, manpower, and institutional systems.



### KEPCO E&C Establishes a Branch Office in Indonesia

In February 2017, KEPCO E&C established a branch office in Jakarta, Indonesia. The branch office aims to win contracts for thermal power plants and nuclear power plants in countries such as Vietnam and Malaysia by tapping into the Southeast Asian market. It is expected that through our branch office we can effectively make inroads into the rapidly growing Southeast Asian electricity market and KEPCO E&C will continue to make various efforts to expand into overseas markets.



### KEPCO E&C Is Awarded the Presidential Award at the Korean National Quality Award

KEPCO E&C received the Presidential Award at the 42<sup>nd</sup> Korean National Quality Award, hosted by the Korean Agency for Technology and Standards under the Ministry of Trade, Industry and Energy to reward enterprises and individuals who have achieved outstanding management performance through quality management activities. The award was given in recognition of KEPCO E&C's notable quality management performance, such as adopting the quality assurance system for the first time as a domestic engineering company and establishing a quality management system that meets global standards.



### KEPCO E&C Wins an Overseas Decommissioning Research Contract for the First Time in Korea

In August 2016, KEPCO E&C executed a research contract on nuclear decommissioning with a German company, PreussenElektra GmbH, PEL. Pursuant to this contract, KEPCO E&C will conduct research on system changes for optimizing cost and energy during nuclear decommissioning, analyzing the cost benefit of adding or modifying the equipment or systems required for nuclear decommissioning in its preparation stage. By winning this contract, KEPCO E&C's extensive experience and technology in nuclear power plant engineering were recognized in the overseas nuclear decommissioning market.





**KEPCO E&C's New Building Wins the Grand Prize at the Green Architecture Competition**

KEPCO E&C's new building that was built in Gimcheon Innocity upon relocation was awarded the Grand Prize at the 2016 Korea Green Architecture Competition hosted by the Presidential Commission on Architecture Policy in November 2016. The new building, boasting a gross area of 145,864m<sup>2</sup>, with 28 aboveground floors and two underground floors, is an eco-friendly, energy-saving building that was rated first class in green construction, 1+ level in energy efficiency, and first class as an intelligent building. The award was given in recognition of its excellence as an eco-friendly construction project that actively applies new & renewable energy and various green technologies such as sunlight generation facilities, thermal heat air conditioning and heating systems, and rainwater/heavy water facilities.

**KEPCO E&C Launches an "Open Library" for Local Residents**

In June 2016, KEPCO E&C created an open library for local residents and the families of its employees. Located on the first floor of the new KEPCO E&C building and covering 510m<sup>2</sup>, the open library currently offers over 10,000 publications. These include books for children and young adults, English-language books, and periodicals, and an additional 25,000 books will be acquired in the near future. The open library is expected to serve as a bridge between KEPCO E&C and the local community by offering a learning space for the local children and a cultural space for the local residents.



**KEPCO E&C Wins the Invest in Provence Award**

At the ITER Business Forum 2015, KEPCO E&C was awarded the Invest in Provence Award, which is an award given by the Provence Foreign Investment Promotion Agency and the Marseille Chamber of Commerce and Industry in recognition of the contribution of foreign companies to the development of local economies in France. KEPCO E&C's contribution to promoting the local economy was recognized as it had established the ITER International Organization Liaison Office in June 2015 and helped increase the organizational capability of ITER.



**KEPCO E&C's EPC Project Achieves 4 Million Accident Free Man-Hours**

As of October 12, 2015, KEPCO E&C's EPC (Engineering, Procurement and Construction) project in Côte d'Ivoire had achieved 4 million Man-hours without an accident. The project aims to convert the existing power plant with a 110MW class gas turbine into a combined cycle power plant by adding two heat recovery steam generators (HRSG), one steam turbine, and one air cooled condenser (ACC). KEPCO E&C was able to achieve 4 million accident-free Man-hours through strict health, safety and environment (HSE) management activities such as safety trainings, safety inspections, and permit to work system. This achievement proves KEPCO E&C's world-class safety level, and its effort to create a safe working environment will continue.

**KEPCO E&C Earns the Highest Grade in the Shared Growth Assessment**

KEPCO E&C earned a grade of "Excellent" (the highest possible grade) in the 2016 Shared Growth Assessment for Public Institutions, announced annually by the Minister of Trade, Industry and Energy in accordance with Article 19 of the Act on the Promotion of Collaborative Cooperation between Large Enterprises and Small-Medium Enterprises. KEPCO E&C earned high points for its strong commitment to achieve shared growth, implementation of shared growth plans, establishment of a shared growth roadmap and tasks reflecting its institutional characteristics, and the ONE-STOP shared growth support system. It is notable that KEPCO E&C was selected as an "excellent" organization since it jumped two grades in just one year, an unprecedented achievement in a public institution assessment.

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# SUSTAINABILITY ISSUE

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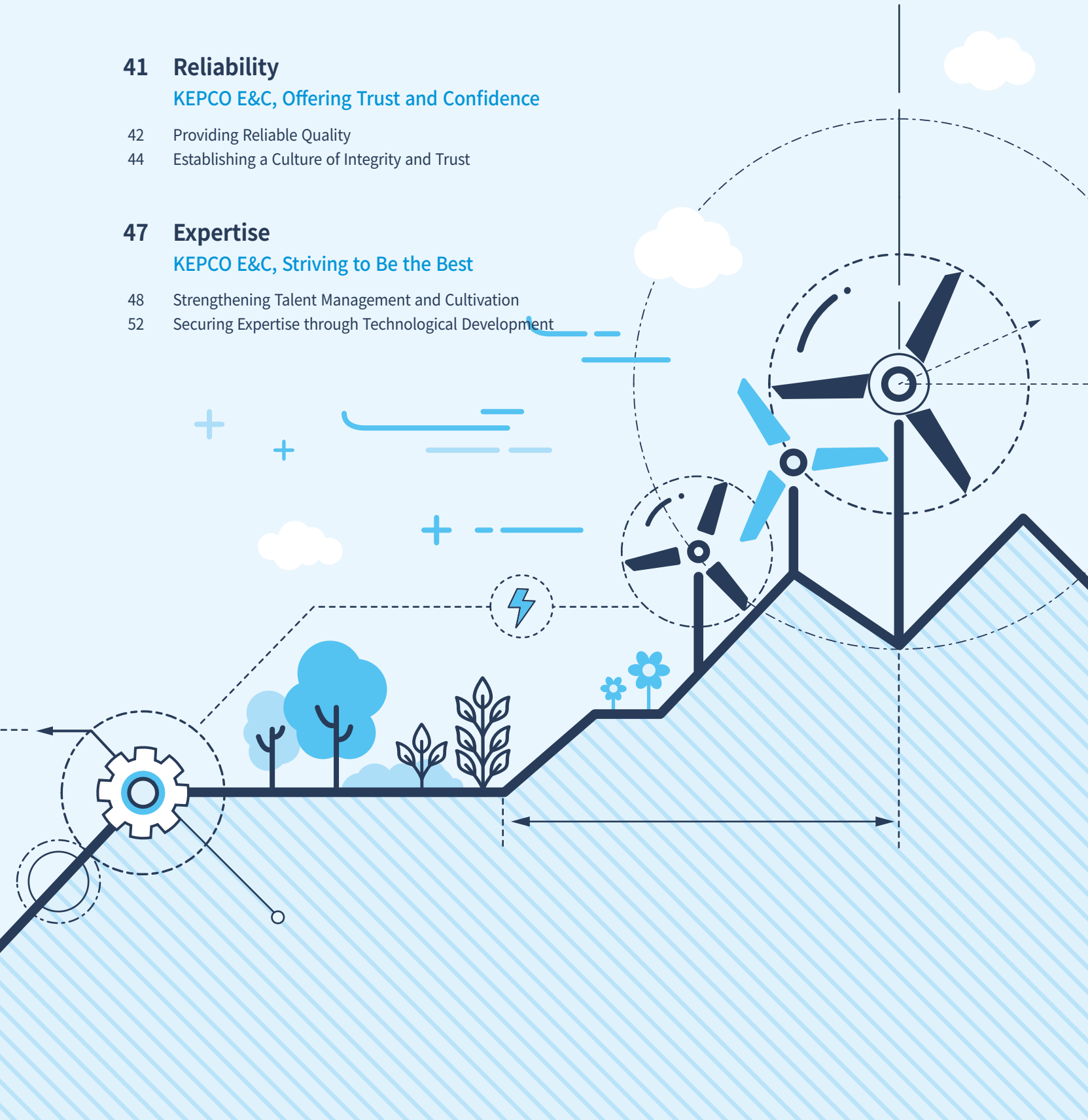
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# CHALLENGE

## KEPCO E&C, Pursuing the Prosperity of Mankind

MA (Management Approach)

### 2015-2016 KEY PERFORMANCE



2016 International Nuclear Power Plant Design as Published by ENR

**World's No. 2**



KEPCO E&C's Ten New Growth Businesses in Five Major Areas

### New Growth Businesses



Won the Contract for the ITER CMA Project

### IMPORTANCE OF ISSUE

In 2016, the plant industry was impacted by the economic downturn and stronger global competition due to oversupply and low demand. This new era is marked by low growth, low consumption, and high unemployment. Nevertheless, it is critical for companies to turn such hardships into opportunities and advance forward. As such, KEPCO E&C will strive to yield sustainable performance results by facing these new challenges.

### OUR APPROACH

Notwithstanding recent hardships in winning contracts, KEPCO E&C has continued to strengthen its capacity in core business areas such as nuclear energy and the plant business. Furthermore, it has selected and actively implemented ten new growth businesses in five major areas: post-management of nuclear power plants, development of nuclear reactors for export, convergence technologies, clean thermal power, and new and renewable energy. In the global electricity market, KEPCO E&C continues to expand into new markets by acquiring contracts regarding small and medium-sized SMART nuclear power plants and ITER projects.

### OUR PLAN

KEPCO E&C will continue to strengthen the competitiveness of its core businesses by making advancements in architect engineering technology and expanding its areas of business. The company will also secure new growth engines by implementing its ten new growth businesses in five major areas. Through these efforts, KEPCO E&C seeks to contribute to the prosperity of all as a "Global Leading Energy Solution Partner."



### INTERVIEW



Hwang Seong-Ryul (Deputy Head of Department, KEPCO)

**"I hope KEPCO E&C will continue to reach new heights with thorough preparations to meet future challenges."**

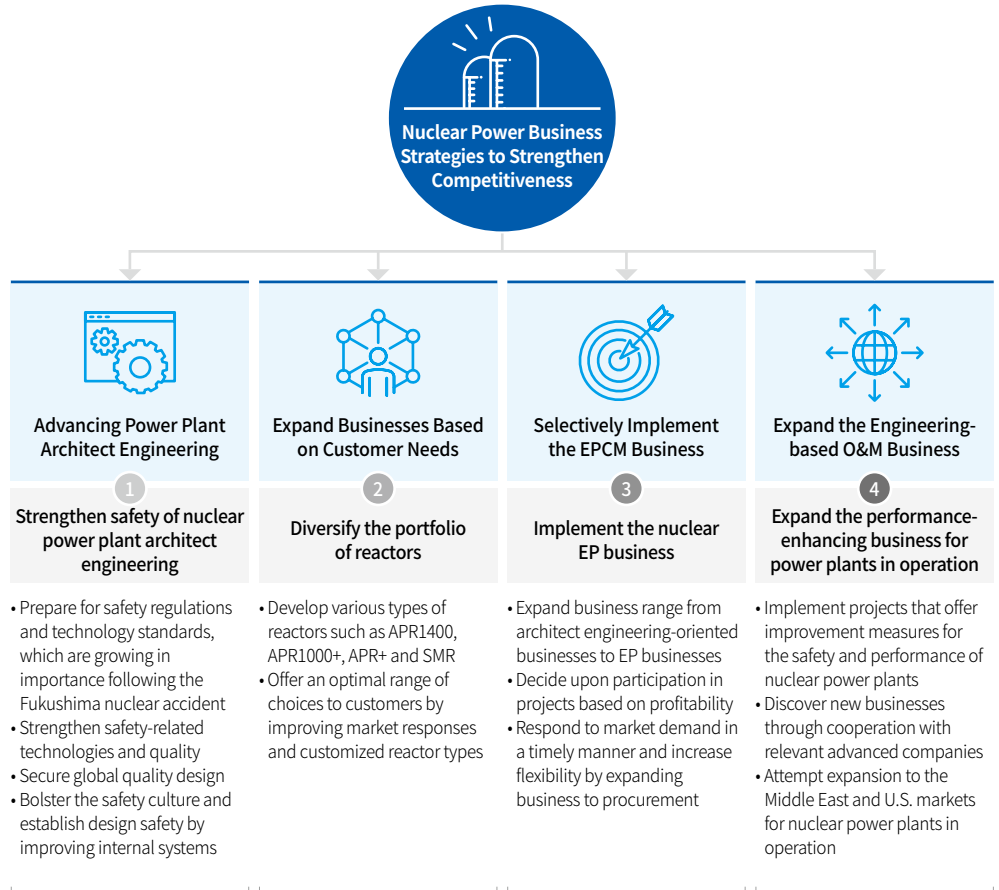
For an enterprise to achieve sustainable growth in the midst of new energy paradigms set forth by the new government, it must make great efforts to develop new business areas, explore new business items, and make technological advancements. As a leading company in energy technologies, KEPCO E&C has been expanding its business areas into post-management of nuclear power plants and new and renewable energy. All the while, it is maintaining its existing strengths in engineering and EPC projects. Post-management of nuclear power plants is an area in which active discussions have been taking place with the recent governmental policies on nuclear decommissioning and the permanent shutdown of the Kori-1 reactor. It is an area that requires technological advancement as well as industrial experience for tapping into overseas markets. New and renewable energy is also an area where technological development and efforts to reinforce competitiveness are vital. I hope that KEPCO E&C will face these challenges by making technological advancements and developing new markets, thereby taking a new leap forward as a total energy solution partner expanding beyond its strengths in architect engineering and the construction of power plants.



# Creating Future Growth Engines

## Increasing Competitiveness in the Nuclear Power Business

KEPCO E&C continues to strengthen its competitiveness by reinforcing the safety of its nuclear power plant architect engineering business, maximizing customer satisfaction by diversifying its portfolio such as APR1400, APR1000+, APR+ and SMR, and expanding its EPCM and engineering-based O&M business.



### Performance

**1. Began commercial operation of Shin Kori-3, the world's first third-generation reactor**

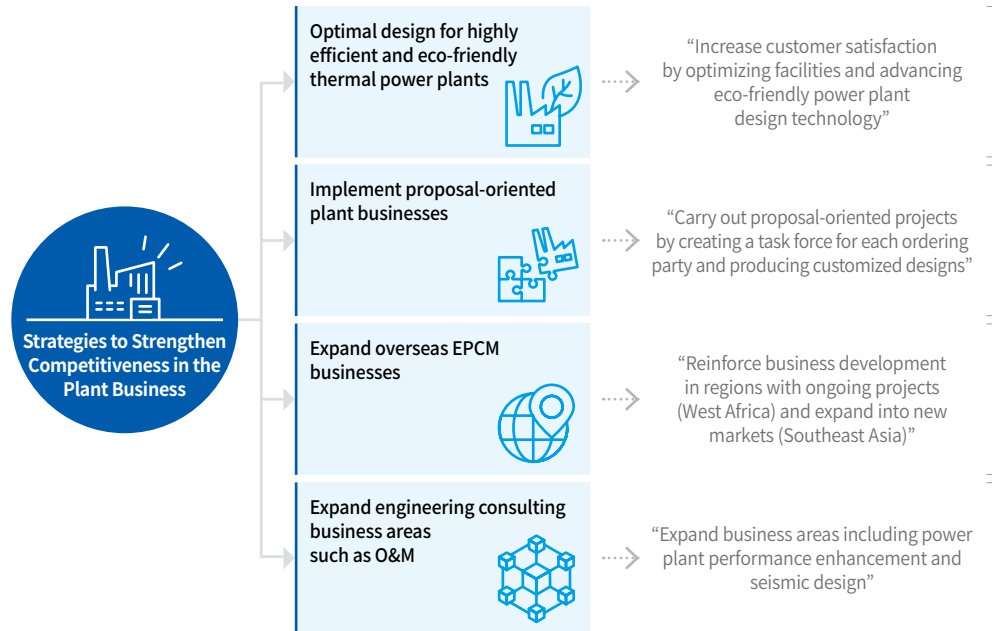
In December 2016, the Shin Kori-3, a third-generation APR1400 reactor, began commercial operation. The safety and propriety of APR 1400, also applied to nuclear power plants to undergo construction in the UAE, has thus been verified. The excellence of the “Korean nuclear reactor design” has been demonstrated through the stable construction of the Shin Kori-3.

**2. Established a comprehensive design management system to carry out design for multiple reactors simultaneously**

KEPCO E&C has established a proactive response system for handling delay factors which checks the status of relevant processes on a daily basis and operates a database that serves as standardized supplier document list. In addition, by establishing a data-based configuration system and a database of design requirements, KEPCO E&C has eliminated any potential nonconformance of reactor design requirements, design documents and physical configuration, as well as gained reliability for its superior reactor design technology.

## Increasing Competitiveness in the Plant Business

KEPCO E&C will pursue economically feasible plant design businesses by carrying out proposal-oriented projects based on eco-friendly and highly efficient thermal power plant design. In addition, it creates future growth engines by selectively implementing small and medium-scale EPCM businesses and strengthening competitiveness in the plant business by expanding its thermal-based O&M business.



### Performance in the Plant Business

#### 1. Successfully completed two large-scale ultra-supercritical coal-fired thermal power plants (1,000MW)

In 2016, KEPCO E&C successfully completed 1,000MW-scale ultra-supercritical coal-fired thermal power plants, thereby meeting 100% of its target goal for technological independence and setting the foundation for expanding into the overseas market for large-scale thermal power plants. In particular, for Dangjin Units 9 and 10, the design standards for building eco-friendly power plants were improved in response to changes in trends. Air pollution prevention facilities with enhanced performance were also applied to reduce fine dust. Facilities to detect and warn of hazardous substances were also installed, meeting the strict requirements under the Toxic Chemicals Control Act.

#### 2. Applied VE (Value Engineering) and the 3D design basis verification process

Value engineering (VE) refers to a rational approach to enhance design quality while reducing cost, based on the low-cost, high-efficiency economic principle. By applying value engineering in constructing the Gangneung Thermal Power Plants Units 1 and 2, KEPCO E&C was able to not only shorten the construction process but also reduce a total of KRW 75.7 billion of life-cycle costs, including KRW 62.7 billion in construction costs and KRW 13 billion in maintenance costs. In addition, it has developed a 3D design basis verification system to improve design quality, increasing design accuracy by reviewing interference factors in advance by using 3D simulations, while enhancing work efficiency through 3D direct design in each technological area.

#### 3. Strengthened the EPC business capacity

By successfully executing the Osan EPC project, KEPCO E&C won customer trust and built the foundation for carrying out preliminary projects for follow-up fuel cell projects and winning additional contracts. Furthermore, by successfully completing the CIPREL IV EPC project in Côte d’Ivoire, KEPCO E&C secured the capacity to execute follow-up EPCM projects, based on which it will attempt to obtain new EPCM projects in West African and Southeast Asian countries.

## KEPCO E&C's New Growth Businesses

In order to diversify its portfolio for increased business revenue and achieve its mid to long-term management goal of '25% in future growth engine sales' under Vision 2025, KEPCO E&C has selected ten new growth businesses in five major areas. The new growth businesses were selected based on their propriety, novelty, and marketability in consideration of the government's strategies in the energy industry and KEPCO E&C's own management strategies. Mid to long-term plans will be established and implemented for these new growth businesses, which are expected to be the future growth engines of KEPCO E&C.



# Expanding into the Global Electricity Market

## Winning the Contract for the ITER CMA Project

Since 2016, KEPCO E&C has been providing Construction Management-as-Agent services for the International Thermonuclear Experimental Reactor (ITER) project by winning a KRW 230 billion contract. The ITER project is a super-large international joint research project in which seven countries—Republic of Korea, United States, Russia, the European Union, Japan, China, and India—will jointly construct a super-large thermonuclear experimental reactor in Cadarache, France, to substantiate the possibility of mass producing energy through nuclear fusion. KEPCO E&C organized a consortium with AMEC FW UK and ASSYSTEM France, winning the contract based on its technological prowess and confidence gained from a variety of past projects, including radioactive waste management, as well as engineering and cable engineering projects from the ITER international organization. KEPCO E&C was able to accomplish this on the merit of its world-class nuclear and thermal power plant engineering capabilities. Winning this project will help promote KEPCO E&C's practical engineering and excellent technological capability in the global market and secure various technologies needed to build thermonuclear reactors in the future.



1, 2 Winning the contract for the ITER CMA Project

3, 4 Winning a PPE contract for a SMART project

## Winning the SMART Pre-Project Engineering (PPE) Project

KEPCO E&C is currently carrying out pre-project engineering (PPE) of a system-integrated modular advanced reactor (SMART) nuclear reactor since winning the KRW 82.5 billion contract. SMART is a small-sized reactor with multiple purposes, such as supplying electricity to small cities with a population of under 100,000 with a quarter of the capacity (100MW) of existing reactors as well as living water and heat through desalination. It is particularly useful in countries that have difficulty building single electrical grids due to the dispersion of the population. Winning this project is significant for KEPCO E&C because the company gained an opportunity for the initial commercialization of small and medium-sized nuclear reactors. This took place in a time when the need for reactors is attracting attention again following the Paris Agreement, under which countries around the world agreed to reduce their greenhouse gas emissions. This project is also expected to be a new breakthrough in which nuclear reactors will become an export item by entry into other countries.

- ◆ Headquarters
- ITER Liaison Office, France
- Côte d'Ivoire Branch
- Ghana Branch
- Saudi Arabia Branch
- UAE Branch

## Completing Zero-Accident Construction in Overseas EPCM Businesses

### CIPREL project in Côte d'Ivoire

KEPCO E&C successfully had constructed for 4 million hours with no industrial accidents and began commercial operation of the CIPREL project in Côte d'Ivoire. The CIPREL IV Volet B EPC project aims to convert the existing open cycle power plant into a combined cycle power plant by adding two heat recovery steam generators (HRSG), one steam turbine, and one air cooled condenser (ACC). The project also contributed to the development of domestic companies by helping small and medium-sized enterprises enter into overseas markets, while proving KEPCO E&C's ability for safe construction by achieving 4 million zero-accident hours.

### Takoradi T2 Project in Ghana

KEPCO E&C's T2 project in Ghana was successfully completed with no industrial accidents and has begun commercial operation. The T2 project aims to increase the total generation capacity to approximately 330MW by converting the existing gas plant, the Takoradi T2 (220MW, simple cycle), into a combined cycle power plant. By achieving 7.9 million zero-accident hours, KEPCO E&C proved its ability for safe construction and opened up new possibilities in the EPC business area by successfully completing the first power plant overseas.



4 SMART PPE 종합설계용역 계약체결



5 Côte d'Ivoire CIPREL project



6 Ghana T2 project



# SAFETY

## KEPCO E&C, Dreaming of a Safer and Cleaner Future

MA (Management Approach)

### 2015-2016 KEY PERFORMANCE



Accident-free Construction in Domestic and Overseas EPC Projects  
**12.79 Million Hours**



Secured Commercial CCS Technology  
**2.56 GJ per Ton CO<sub>2</sub>**



Highest Level in Four Areas  
**Certified as an Eco-friendly Building**

### IMPORTANCE OF ISSUE ☆

As safety and environmental regulations continue to become more stringent in the international community, demand has been rising for nuclear power design that prioritizes safety. Especially in the aftermath of the Gyeongju earthquakes, public scrutiny of nuclear power plant safety is growing and the importance of verifying safety in the design stage of building is being further emphasized. As eco-friendly and high-efficiency technologies in both the domestic and international markets take center stage, the demand for new & renewable energy, the energy sources of the future, is also increasing.

### OUR APPROACH ✔

Upholding safety as one of its core values, KEPCO E&C has established and operates a Health, Safety, and Environment (HSE) management system in accordance with global standards. KEPCO E&C is making strides in creating a safety culture throughout the company through various programs to establish employees' well-being as the top priority. By concentrating its capacity on technological development and the commercialization of eco-friendly energy sources, KEPCO E&C is aiming to become a more competitive player in the next-generation energy businesses oriented around new & renewable energy such as solar, water, and wind power.

### OUR PLAN ➔

KEPCO E&C will continue its efforts at the company level to further promote a culture that holds safety as the highest priority. In order to secure growth engines for future energy solutions, one of its five strategic directions, KEPCO E&C will continue making efforts toward developing and commercializing sustainable eco-friendly next-generation energy sources.



### INTERVIEW



Hwang Joo-Ho (Professor, Department of Nuclear Engineering, Kyung Hee University)

**“Research on the management and safety of post-management of nuclear power plants is absolutely essential.”**

KEPCO E&C has accumulated extensive technological capacity and experiences in the area of nuclear power plant safety throughout its corporate history. Nuclear decommissioning and post-management have recently become an important issue, requiring a transition from an academic approach to a practical approach based on an engineering perspective. This will enable decommissioning technologies to be applied to actual projects. In this regard, KEPCO E&C must create an organization to handle post-management work, cultivate experts, and increase investment in decommissioning technology. Based on such efforts and outcomes, it is anticipated that KEPCO E&C will play a leading role in securing world-class decommissioning technologies.

# Safe and Clean Energy

## Strengthening the HSE Management System

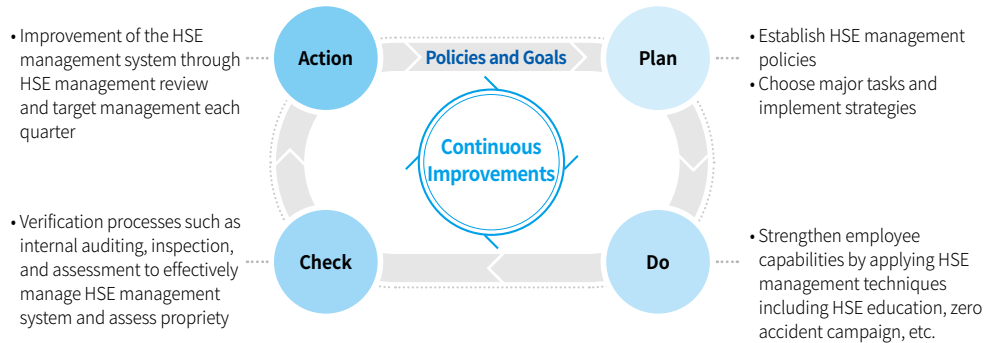


HSE System (Certificate)

KEPCO E&C has selected ‘safety’ as one of its core values and applies a systematic HSE management process to effectively operate its HSE management system.

### HSE Management Process

KEPCO E&C operates a systematic Health, Safety, and Environment (HSE) management system based on the requirements of the international standards OHSAS 18001 and ISO 14001. The HSE management system covers practical operational measures to prevent disasters and accidents during the course of business, according to which the company will manage the relevant processes.



First Aid Center

### HSE Plans and Operation

In executing the EPC project, KEPCO E&C operates a Health, Safety, and Environment (HSE) management process that both reflects the needs of the government and customers, and can be adapted to the business environment. First of all, HSE plans are devised after the legal requirements and customer demands are accurately identified. A risk assessment is then carried out for the overall project, based on which risk factors are identified in advance. Prevention measures are then established and implemented accordingly.



First Aid and CPR Education

The Hygiene Management and First Aid Center is operated according to the HSE plans, managing the health of KEPCO E&C’s employees. The work permit system enables safe and eco-friendly construction through the management of hazardous substances and dangerous work and the prevention of fire. KEPCO E&C instills safety consciousness throughout the company by implementing HSE education in each work area and distributing HSE handbooks for employees to make sure they understand and practice what they have learned.

Since 2012, KEPCO E&C has been providing first aid and cardiopulmonary resuscitation (CPR) education to employees so that at least a certain percentage of individuals in each department can provide first aid response in case of emergency medical situations such as cardiac arrest. In 2015 and 2016, 134 completed the First Aid education program and 111 employees completed the CPR program, bringing the total number of employees certified as first aid providers to 510 (22.5% of all employees).



Color Coding HSE Inspection

### HSE Inspection and Measures

At the inspection stage, the HSE check, HSE audit and safety accident investigations are carried out to identify any non-conformance arising in the course of EPC project and establish response measures. In particular, the HSE inspection applies the color coding system for all business managers to easily manage equipment and continuously improve the non-conformance management system.

## Establishing and Promoting a Safety Culture

KEPCO E&C has identified core activities and implemented various programs to establish a safety culture. In addition, it carries out regular monitoring to check and improve safety issues, which will allow such a culture to take root in the company.

### Establishing a Safety Culture Policy and Process for Nuclear Power Plants

By establishing a safety culture policy, KEPCO E&C's CEO has demonstrated his conviction to firmly establish a safety culture in the company. By applying the Corrective Action Program (CAP, the safety culture data processing system) to all nuclear power businesses, non-conformance items in safety, health, environment, and quality are continuously identified and handled. Through these efforts, KEPCO E&C is able to secure high quality by identifying in advance and effectively managing potential problems that may arise during architect engineering.

#### Securing Professionalism in Safety Culture

- Education for cultivating professionals
  - Korea Hydro & Nuclear Power (KHNP) professional cultivation program (1 person)
  - Domestic and international academic participation program (2 persons)

#### Employee Education (Including Supplier Employees)

- Education for distributing and applying visual tools
- Education for on-site employees at nuclear power plants in operation (115 persons in 4 domestic sites)
- Safety culture education for design-related suppliers through Quality Day

#### Benchmarking of Best Practice Cases

- Reflecting best practices to KEPCO E&C's safety culture program by benchmarking advanced companies in safety culture
  - KHNP's safety culture program (Process / Education / System))

### Increasing Safety Consciousness

KEPCO E&C provides safety culture education courses for each rank to instill safety consciousness in all employees, while completing domestic and international professional courses to secure safety culture professionals and expertise. An event called "Quality Day" is regularly held with suppliers to share opinions on quality issues as well as improve their understanding of the importance of nuclear power plant safety.

### Evaluating the Safety Culture

As part of its efforts to implement a safety culture program based on the International Atomic Energy Agency (IAEA) standards, KEPCO E&C has been conducting self-evaluations of its safety culture since 2013. Using the safety culture survey jointly developed by KEPCO E&C and the Korea Atomic Energy Research Institute, the level of safety culture among its employees is regularly evaluated. Through these efforts, vulnerabilities and areas for improvement are identified and reflected in various activities to promote greater safety within the company.



### Completing Accident-free Construction in All Domestic and Overseas EPC Projects

In carrying out power plant extension projects in Ghana and Côte d'Ivoire, KEPCO E&C operates an HSE management system in which the laws and regulations of each country, company rules, and customer demands have been well reflected. Thanks to its systematic HSE management system, KEPCO E&C was able to achieve 12.79 million accident-free hours in the entire construction process, earning recognition for its world-class quality and safety management capability.

Country	Site Name	Construction Date	Accident-free Hours
Ghana	Takoradi T2 Combined Cycle EPC Site	December 2015	7,900,000
Côte d'Ivoire	CIPREL IV EPC Site	February 2016	4,563,000
Republic of Korea	Osan Combined Heat and Power Plant Site	February 2016	334,720



## Securing Safe Nuclear Power Technology

### Designing Safe Nuclear Power Plants in Korea

KEPCO E&C has conducted a probabilistic seismic safety assessment to verify the earthquake resistance of nuclear power plants in case of natural disasters. Through the analysis of seismic hazards, seismic fragility, and seismic accident sequences, the company increased the resilience of nuclear power plants in the face of disasters by strengthening seismic design standards in next-generation reactor types. Furthermore, a stress test was conducted to evaluate the response capability of nuclear power plants in operation against extreme natural disasters, which confirmed their response capability and safe design. In October 2015, KEPCO E&C obtained a license to operate Shin Kori Unit 3, the world's first third-generation reactor and gauge for judging the propriety of APR1400 design as the preceding unit of the nuclear power plant in the UAE, and began its commercial operation in December, 2016.

#### Analysis of Seismic Hazards

- Review historical materials on earthquakes
- Review materials on epicenters and topographies
- Investigate analyzed sites

1

#### Analysis of Seismic Fragility

- On-site investigation of equipment and structures
- Analyze seismic response
- Analyze soil-structure interaction

2

#### Analysis of Seismic Accident Sequences

- Analyze power plant system
- Analyze relay malfunction
- Identify equipment and structures of analysis

3

- Reinforce reactor response capability to disasters by strengthening seismic design standards in next-generation reactor types
- Implement improvement measures to increase the seismic performance of vulnerable equipment after on-site inspections

### Securing Nuclear Power Plant Decommissioning Technology and Competitiveness in the Back-end Management & Decommissioning Business

Since the beginning of the 21st century, KEPCO E&C has been devoted to developing nuclear power plant decommissioning technologies. To this day, it is strengthening its technological competitiveness in the areas of decommissioning planning and site restoration upon the completion of decommissioning efforts. In 2016, KEPCO E&C won a decommissioning research contract from overseas, proving its ability to execute decommissioning and setting the foundation for expanding into related businesses both at home and abroad. KEPCO E&C has also obtained technologies from advanced overseas markets related to back-end nuclear fuel cycles by holding two advisory meetings with foreign technical experts and four technical transfer education sessions.



#### Technological Development

- Applied for a patent for the "independent storage facility for storing spent nuclear fuel during nuclear decommissioning"
- Published four research papers including one titled, "SFPI Conversion Design Factors in Nuclear Decommissioning and Case Analysis"
- Selected the highest priority items in the mid to long-term technological development roadmap of Vision 2025



#### Technical Expert Advisory Meetings

- NSSS system design in consideration of decontamination, decommissioning and minimization of contamination (May '16 - Jul '16, DERADS, U.S.A.)
- Machine design for spent fuel storage cask (Sep. '16 - Dec. '16, ADVENT, U.S.A.)



#### Technical Transfer Education

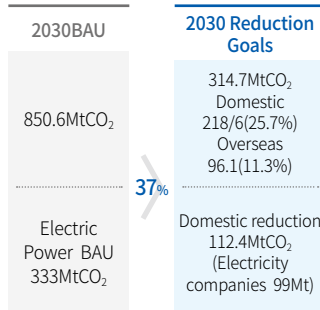
- Technology Transfer in six areas including decommissioning transition design (Preussen Elektra GmbH, Germany)
- Technology Transfer in three areas including decommissioning work package (WEC, U.S.A.)
- Education on decontamination and decommissioning technologies (Korea Atomic Industrial Forum)
- Decommissioning education, Argonne National Laboratory, U.S.A.
- Decommissioning education, Korea

## Establishing Eco-friendly Power Plants

### Marketable CO<sub>2</sub> Compression Technology

Item	Existing Technology	Improvements
Facility Scope	Demonstration of 10MW-scale CO <sub>2</sub> capture and compression facilities	Basic design and FEED development of 150MW-scale CO <sub>2</sub> capture and compression facilities
Amount of Captured CO <sub>2</sub>	70,000 ton per year	1 million tons per year
Amount of Agent Re-generation Energy	2.64 GJ per ton CO <sub>2</sub>	2.56 GJ per ton CO <sub>2</sub>

### Greenhouse Gas Reduction Goals of Electricity companies



KEPCO E&C is a leader in realizing “clean energy,” based on its extensive engineering experience and eco-friendly technologies. In line with the government’s environmental conservation and greenhouse gas emission reduction policies, KEPCO E&C will consistently strive to protect the environment and secure technological independence by actively expanding into new business areas related to new and renewable energy and eco-friendly power plants.

### Securing Eco-friendly Technologies

In order to reach Korea’s greenhouse gas reduction goal, obtaining carbon capture and storage (CCS) technologies for commercial is necessary. In this regard, KEPCO E&C has been participating in government-led CCS technology development projects since 2008 and has accumulated experiences in wet amine Carbon Capture and dry Carbon Capture technology, as well as patent application in Korea. The company also boasts excellent technological capacity in air pollution prevention facilities such as flue-gas desulfurization and denitrification, in addition to design and construction capacity and wide-ranging project execution experiences in the area of water and waste water treatment technology. In 2016, in response to the government’s special requirements of fine particles immediately, KEPCO E&C modified the design standards of the air pollution substance emission for Dangjin Units 9 and 10 and Taean Units 9 and 10, and then took measures to fully satisfy the licensing requirements.

※ Carbon capture and storage (CCS) refers to a technology that captures carbon dioxide, liquefies it by applying pressure, and then stores it.

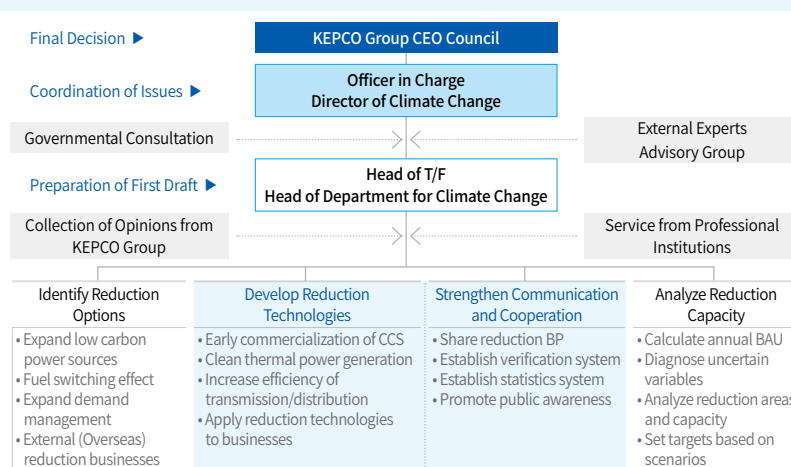
### Improving the Performance of Environmental Facilities in Aging Power Plants

KEPCO E&C makes continuous efforts to improve the performance of aging power plants in Korea and propose the installation of additional environmental facilities. These efforts are particularly focused on improving the performance of generation facilities. Such improvements include replacing turbines and boilers, and partially replacing electric power facilities and auxiliary equipment. KEPCO E&C also establishes measures to install additional environmental facilities for air pollution reduction, such as desulfurization and denitrification facilities, in consideration of the specific characteristics of each power plant. In 2016, the company established the basis for undertaking performance improvement projects by winning a performance improvement project for Boryeong Unit 3 and feasibility study contracts for Samcheonpo Units 5 and 6, as well as executing 500MW-scale standard thermal power performance improvement feasibility study contracts for power plants owned by four generation companies.



### A Climate Change Conference for the KEPCO Group




The COK 11 (Conference of KEPCO Group Companies to cope with climate change) was established to devise greenhouse gas reduction strategies at the company level in line with Korea’s greenhouse gas reduction target. The COK 11 will respond actively at the company level to governmental policies for reducing greenhouse gas emissions and the general issues of climate change. Members of the COK 11 will cooperate closely to establish a carbon management system for the KEPCO Group, secure core technologies for greenhouse gas reduction, and carry out core tasks including reinforcing joint research and development. Through such efforts, the KEPCO Group as a whole will strive to maximize the effects of greenhouse gas reduction throughout the entire process from power generation to sales.



\* KEPCO E&C is currently participating in this conference to establish the greenhouse gas reduction roadmap.

### Developing Technology to Demonstrate New and Renewable Energy

KEPCO E&C is making consistent efforts to gain technological competitiveness in the businesses that are driven by new & renewable energy technologies, such as solar, offshore wind, and bio-based power. In 2016, the company developed demonstration technologies for generating power from new & renewable energy and expanded its business areas. These business area expansion efforts include developing a feasibility analysis tool for offshore wind farm project, optimal process for multi-fuel biomass facilities, and feasibility analysis and design technologies for solar power plant.

	Implementation	Performance
<b>Wind Power</b> 	<ul style="list-style-type: none"> <li>Developed a feasibility analysis tool for offshore wind farm project (Jan. '15 - Dec. '16)</li> <li>Developed an optimal floating storage-based model for offshore wind farm (Jan. '16 - Dec. '16)</li> <li>Developed technology for designing wind turbine towers (June '14 - June '16)</li> </ul>	<ul style="list-style-type: none"> <li>Won a government contract for the fundamental investigation and complex design of nuclear-renewable combined power generation (Dec. '16)</li> <li>Signed a joint development agreement for the Jeju Hallim offshore wind farm project with KEPCO, KOMIPO and Daelim (Dec. '16)</li> <li>Developed the EPC business for phase 2 construction of the Yeomsan wind farm</li> </ul>
<b>Bio-based power</b> 	<ul style="list-style-type: none"> <li>Developed optimal processes for multi-fuel biomass facilities (Jan. '14 - Dec. '15)</li> </ul>	<ul style="list-style-type: none"> <li>Won a contract for the basic/detail design and owner's engineering services for the Dangjin Biomass Unit 2(100MW, Coal+PKS multi firing) (Nov. '16)</li> </ul>
<b>Solar Power</b> 	<ul style="list-style-type: none"> <li>Developed feasibility analysis and design technology for solar power generation (Sept. '16 - Sept. '17)</li> </ul>	<ul style="list-style-type: none"> <li>Won a contract for feasibility study of the solar power project using disused railway yard (Jan. '17)</li> </ul>

### KEPCO E&C's Eco-friendly Building Receives Highest Level Certifications in Four Areas

In November 2016, the KEPCO E&C building located in Gimcheon, Gyeongbuk Province won the Grand Prize at the 2016 Korea Green Architecture Competition. The award was given in recognition of its excellence as an eco-friendly building that actively applies new and renewable energy and various green technologies such as solar power generation facilities, thermal heat air conditioning and heating systems, and rainwater/heavy water facilities. The building is highly energy efficient as it uses a vacuum/triple glazing system, high-efficiency energy materials, and high-efficiency LED lighting. It was also certified as an eco-friendly, energy-saving building, being rated first class in green construction, 1+ level in energy efficiency, and first class as an intelligent building.

  
 에너지효율  
 1등급건물  
 Eco-friendly construction  
 (Highest level certified)

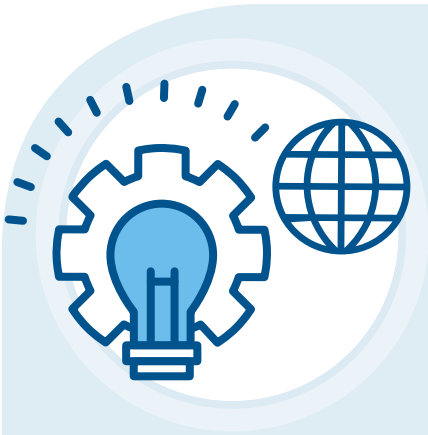
  
 녹색건축인증  
 최우수(2관1등급)  
 ★★★★★  
 Energy efficiency level  
 (Level 1 certified)

  
 Smart building  
 (Level 1 certified)

  
 Super high speed information communication  
 First class grade



-  Photovoltaic Power Generation (PV)
-  Thermal Heat Air Conditioning and Heating (Open Loop)
-  Solar Water Heating
-  Hybrid Street Lights
-  Wind Power Generation



# COMMUNICATION

## KEPCO E&C, KEPCO E&C, Sharing Hopes and Dreams

MA (Management Approach)

### 2015-2016 KEY PERFORMANCE



Offering over 10,000 Publications

#### Open Library



2016 Shared Growth Evaluation

#### “Excellent” Grade (Grade 1)



First Public Enterprise to Adopt

#### Win-win Payment System

### IMPORTANCE OF ISSUE



Corporate social responsibility (CSR), the idea that companies have social responsibilities to fulfill beyond seeking profits, is now a core value adopted by many companies. More recently, by combining CSR and each company's business model, the idea of creating shared value (CSV) and shared growth is now accepted as an important social paradigm. Various government policies also encourage the alleviation of polarization, as well as balanced regional development, by supporting companies' relocation to innovation cities and win-win cooperation activities.

### OUR APPROACH



Since relocating its headquarters to Gimcheon in 2015, KEPCO E&C has enacted various CSR programs as it strives to earn recognition as a member of the local community. As a public enterprise in architectural engineering, KEPCO E&C shares its excellent technological capacity and the skills possessed by its employees through programs to foster talent, namely the Power Engineering School. The company also carries out shared growth activities with small and medium-sized enterprises in the region. In addition, it operates various shared growth programs with small and medium-sized suppliers, supporting their capacity-building through joint technology development, a win-win payment system, and public procurement.

### OUR PLAN



In an effort to build a strong partnership with the local community and its small and medium-sized suppliers, KEPCO E&C will communicate with them as much as possible and reflect their needs in its mid to long-term strategies. KEPCO E&C will consistently strive to improve and implementing social contribution and shared growth programs.



### INTERVIEW



Yeo Bang-Hee (Social Welfare Worker, Wolmyeong St. Mary's House)

#### “I hope this warmhearted sharing will continue.”

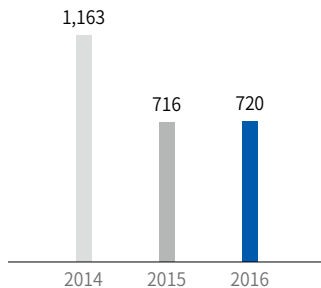
Over 150 elderly people reside in Wolmyeong St. Mary's House. KEPCO E&C's donations, both material and financial, have had an incredibly positive impact on our residents' lives. Participating in KEPCO E&C's CSR activities has also been a valuable experience for St. Mary's House, and we've been able to help in promoting visits to traditional markets. We greatly appreciate the volunteer work of KEPCO E&C's newly hired employees in 2016 who wholeheartedly shared their time with our residents and provided valuable help in many areas, such as everyday activities, farm work, and performance and music activities. I look forward to KEPCO E&C's social work as they share their warmth and affection for people who are in need.

# Sharing with the Local Community

## Social Contribution System

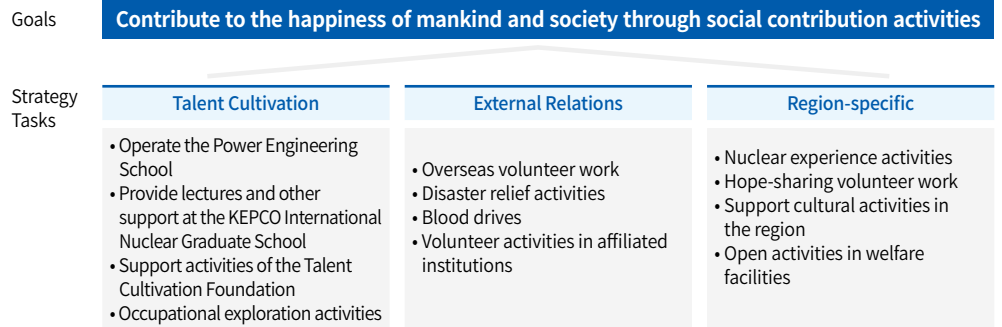
### Execution of the Social Contribution Budget

(Unit : KRW Million)



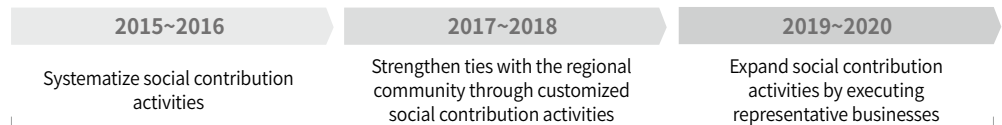
### Social Contribution Strategy

KEPCO E&C pursues its goal to help create a happier and healthier society by carrying out various social contribution activities. The company has created a culture of sharing and leverages its unrivaled power plant architectural engineering technologies and human resources to improve the lives of others. To ensure that the company fulfills its role as a corporate citizen, KEPCO E&C has established strategic tasks in three areas - talent cultivation, external relations, and region-specific activities - and continues to improve the social contribution system.



### Mid to Long-term Roadmap

Since founding the Chamsarang Volunteer Corps in 2005, KEPCO E&C has engaged in various social contribution activities. The company established a mid to long-term roadmap for social contribution after relocating its headquarters to Gimcheon in 2015 and has been setting the groundwork for a mutually beneficial relationship with the local community. KEPCO E&C seeks to effectively carry out the company's unique social contribution activities in the region.



### The Talent Sharing Volunteer Corps



<b>Purpose</b>	Promote the quality of life of the socially vulnerable in line with KEPCO E&C's core values (Founded in May 2016)
<b>Target</b>	Children under 12 years of age from low-income families in Gimcheon
<b>Support</b>	Weekly tutoring and experiential learning, etc.
<b>Others</b>	This group is run voluntarily by employees and the members create a unique program for each year.

### Social Contribution Organization

The Social Contribution Commission, chaired by the CEO, sets KEPCO E&C's social contribution directions and strategically carries out its social contribution activities. The department in charge monitors the planning, implementation, assessment, and outcome reporting of the company's social contribution activities. The Chamsarang Volunteer Corps in each division play a central role in implementing various volunteer activities. With the creation of the Talent Sharing Volunteer Corps in 2016, employees gained access to volunteer opportunities through which they can actively share their talents with others.



## Talent Cultivation Social Contribution Activities



1. 2016 Power Engineering School (PES)  
2. Donation to Gimcheon Talent Cultivation Foundation

KEPCO E&C is well-positioned to implement an array of activities to foster talent due to the company's unmatched power plant architectural engineering technologies and accomplished employees. The company trains future talent in the natural sciences and nuclear power fields and provides young adults in the local community with opportunities to explore their future careers and develop their capabilities.

### Power Engineering School (PES) Camp

Since July 2011, KEPCO E&C has held the Power Engineering School (PES) Camp twice a year (in the summer and winter seasons) for university students studying natural sciences across the country. PES is a three-day camp offering various programs including special lectures in humanities, basic education in nuclear power, team tasks, and power plant tours. Participants are invited to visit the KEPCO E&C headquarters, Kori nuclear power plants, and the KEPCO International Nuclear Graduate School during the camp. The program not only offers a valuable opportunity for participants to improve their understanding of nuclear power and explore their future careers, but it also academically motivates them to pursue their interest in electric power technology by providing scholarships to outstanding students. A total of 609 university students have completed the course from 2011 to 2016.

### Fostering Local Talent and Exploring Careers

KEPCO E&C operates a variety of programs to cultivate future talent, such as academic-industrial cooperation, scholarship support, and career exploration. In 2015 and 2016, KEPCO E&C donated KRW 100 million, respectively, to the Gimcheon-si Talent Cultivation Foundation to financially support outstanding students and help improve the local educational environment. The company also helps local talent develop their capabilities through academic-industrial cooperation with high schools and universities in the region, operating power generation plant engineering CAD programs and student research programs.

## External Relations- oriented Social Contribution Activities



3. Global Social Contribution Activities  
4. Yun Dong-Ju Poetry Prize Literary Contest in Yanbian

KEPCO E&C spreads the value of sharing to those in need by utilizing its business characteristics and core capabilities and cooperating with related organizations.

### Gyeongju Earthquake Disaster Relief Activities

In 2016, a series of earthquakes hit Gyeongju, a city where multiple nuclear power plants are located. KEPCO E&C provided emergency technical support by dispatching a group of seismic design and reactor safety assessment experts, and then donated a relief fund of KRW 62 million to earthquake victims.

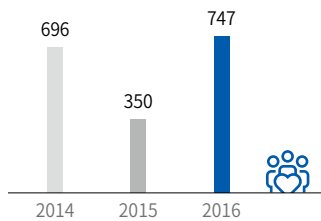
### Global Social Contribution Activities

KEPCO E&C regularly carries out social contribution activities overseas to achieve the company's goal of contributing to the happiness of people and societies around the world. It provides support for improving education and the environment in villages in Vietnam and the Philippines. In Yanbian, China, the company supports the conservation and inheritance of Korea's 'national soul' among ethnic Korean adolescents residing in the region. In 2015, KEPCO E&C signed a sisterhood agreement with Yanbian People's Publishing House for the support and cooperation of the "Yun Dong-Ju Poetry Prize" literary contest. Through this agreement, KEPCO E&C helps promote the Korean language and culture among ethnic Korean adolescents in China.

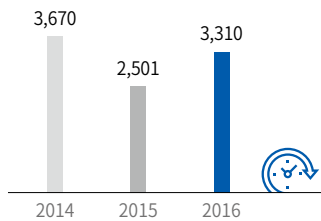
## Region-specific Social Contribution Activities

### Chamsarang Volunteer Corps Performance

Number of Participants (Unit : Persons)



Volunteering Hours (Unit : Hours)



5. Lending a Helping Hand in One-Company, One-Village Sisterhood Farms
6. Volunteering by Newly Recruited Employees
7. Opening of the KEPCO E&C Open Library
8. Campaign to Promote Traditional Markets



Since relocating its headquarters to Gimcheon Innocity in 2015, KEPCO E&C has been making various efforts to communicate with the local residents and contribute to regional development. In doing so, it created a consultative body including Gimcheon City and 73 welfare facilities in April 2015, and has been engaging in many region-specific social contribution activities.

### Engaging Employees for Volunteer Activities

KEPCO E&C's employees have come to grasp the true meaning of sharing and earn recognition as part of the Gimcheon community through their volunteer work. This was able to take place because of the employees' sincere communication and cooperation with the local residents. The company's Chamsarang Volunteer Corps engaged in a diverse range of volunteer activities. These efforts included volunteer work by new employees, activities conducted in small groups, and lending a helping hand at local farms and welfare institutions. In 2016, the Talent Sharing Volunteer Corps was launched and it attracted the participation of 107 employees thus far. These volunteers donated their skills by offering weekly tutoring and experiential learning opportunities to individuals from socially vulnerable groups. The Mayor of Gimcheon City lauded KEPCO E&C for the company's contribution to promoting the community's welfare with a certificate of appreciation.

### Greater Access to Experiential and Cultural Activities

Since 2016, KEPCO E&C has organized a myriad of cultural and experiential programs for the purpose of helping members of the local community gain a basic understanding of nuclear power generation. These programs also provide greater opportunities to local residents who have relatively less exposure to culture compared to individuals living in large cities. For instance, KEPCO E&C has created an open library on the first floor of the company's headquarters, offering a space for local residents to enjoy over 10,000 publications including children's books, educational materials, and English-language books. The company also provides various educational and cultural activities and programs to the local community, including the Wolsong nuclear power plant tour for children from low-income families in the region, book donations, free screenings of the latest movies, and musical performances.

### Campaign to Promote Traditional Markets and Boost the Local Economy

In an effort to build up the local economy and strengthen ties with the community, KEPCO E&C's CEO and employees held a campaign to promote traditional markets in Hwanggeum Market in Gimcheon City. The campaign was done with the hope of contributing to a more vibrant local economy and to enable the company to build deeper relationships in the region.

## INTERVIEW

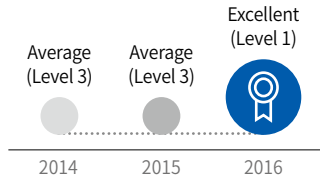
Park Hyun-Joo  
(Reporter,  
Yeongnam Ilbo)

While Korea underwent compressed economic growth, Gimcheon on the contrary had to experience a prolonged stagnation. Against this backdrop, residents of Gimcheon Innocity have high hopes for KEPCO E&C's relocation of its headquarters to their city, which is understandable given the company's size and the nature of its work. Particularly noteworthy are its efforts to communicate and bond with local residents through various cultural activities such as movie screenings, concerts and exhibitions. The Open Library, in particular, is a cultural space open to the general public and overcomes the limits of one-time events which only a limited number of people can enjoy. I hope that KEPCO E&C's performance through its business activities will have a positive impact on the regional community as a whole and contribute to achieving a balanced regional development.

# Win-win-based Shared Growth

## Advancing the Shared Growth System

### Shared Growth Assessment by the Government (MOTIE)



### Establishing Shared Growth Strategies

- Opinion-gathering and Discussion
  - Internal discussion on reflecting KPI index
  - Shared growth consulting (Shared Growth Committee, June)
- Establishment/Reporting of Shared Growth Strategies
  - KEPCO E&C Shared Growth Committee (Chair: President & CEO) Reporting (July 27)
- Submission of Basic Plan on Shared Growth
  - Submission of Basic Plan on Shared Growth to Ministry of Trade, Industry and Energy (Shared Growth Committee) (August 22)
- Shared Growth Activity Monitoring System
  - Self-monitoring of performance
  - Feedback via supplier VOC (December 21-23, visited 9 suppliers)

### Strategy

By setting leading changes in the technological ecosystem through win-win growth as one of its four strategies, KEPCO E&C has established strategic tasks that the company is now implementing. The win-win growth strategy was established through a process of opinion gathering and discussion, establishment and reporting of strategies, submission of basic plans to the government, and activity review. The company is focused on carrying win-win cooperation activities and is strengthening corporate social responsibility (win-win management) in its mid to long-term management strategies. As a result of these efforts, KEPCO E&C received the highest grade of “excellent” in the 2016 Shared Growth Assessment by the Ministry of Trade, Industry and Energy, which is an improvement of two grades compared to the previous year.

### Goal: Leading Changes in the Technological Ecosystem through Win-win Growth

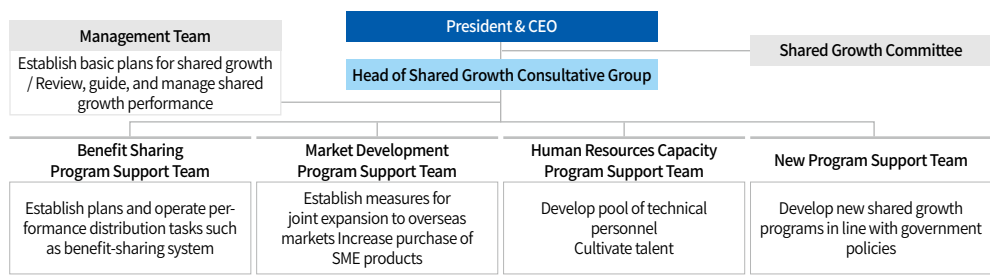
Strategic Tasks	Win-win Growth as a Relocated Public Institution	Expand Benefit Sharing Win-win Management	Utilize Technological Capacity Establish Cooperative Structure	Expand Public Procurement Opportunities for SMEs
	<ul style="list-style-type: none"> <li>Sign mutual cooperation agreement with KEPCO Group</li> <li>Develop support programs for local suppliers</li> <li>Improve cash flow of suppliers</li> </ul>	<ul style="list-style-type: none"> <li>Develop benefit-sharing types of contracts</li> <li>Find new benefit-sharing tasks</li> <li>Confirm existing tasks</li> </ul>	<ul style="list-style-type: none"> <li>Operate technology-based market support program</li> <li>Support patent right allowance and technical protection</li> <li>Support mutual expansion to overseas markets and localization</li> </ul>	<ul style="list-style-type: none"> <li>Increase ratio of SME products</li> <li>Establish goals in comparison to previous year</li> <li>Strive to achieve goals such as reflecting key performance indicators (KPI)</li> </ul>

### Organization

In 2016, KEPCO E&C newly established the Corporate Partnership Team to take charge of the company’s win-win growth initiatives and systematically implement them. This team then formed a company-wide shared growth consultative body, the Shared Growth Consultative Group. Driven by its determination to achieve win-win growth, the company also made adjustments to related organizations and policies, such as elevating the position of the Chair of the Shared Growth Committee, the highest decision-making body regarding shared growth, from director-level to the CEO. KEPCO E&C also received positive feedback in the government’s shared growth assessment for its professional and systematic performance management by the organization in charge, company-wide cooperative efforts, and pursuing shared growth at the business planning stage.



### Organizational Structure for the Shared Growth Consultative Group





## Strategic Promotion of Shared Growth Culture and Establishment of Infrastructure

### Shared Growth Performance

Category	Unit	2015	2016
Personnel in Charge	Persons	6	27
Technology Sharing		2	4
Joint Expansion to Overseas Markets		3	5
Registered Benefit Sharing	Count	-	2
Confirmed Benefit Sharing		-	3
Purchasing of SME Products	%	69.0	80.3

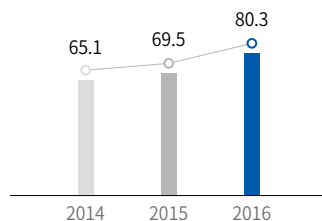
### Sales from Joint Expansion to Overseas Markets in 2016 (SMEs)

(Unit: KRW million)

Country	Supplier Sales
UAE (Hydro power clean development)	New project
Canada (Darlington)	New project
UAE	8,256
Côte d'Ivoire	591
Ghana	2,356

### SME Product Purchasing Ratio

(Unit: %)



### Innovating and Spreading the Shared Growth Ecosystem as a Relocated Public Institution

Upon completing relocation to Gimcheon Innocity in 2015, KEPCO E&C has established a three-track strategy consisting of market development, talent cultivation, and joint research. This strategy sets the direction for the company as it fulfills its social responsibility as a public institution and strengthens the competitiveness of small and medium-sized enterprises in the region. Various programs have been carried out in accordance with this strategy: KEPCO E&C has participated in local purchasing consulting events, conducted academic-industrial joint research with local institutions, and developed technologies for localization. Thus far, the company's job creation and talent cultivation efforts in the region have increased employment in Gimcheon city by 9.5% (Employee Trends by Region in April 2016 by the Ministry of Employment and Labor, August 22, 2016).

### Win-win Management by Developing and Expanding Benefit Sharing

The Benefit-sharing system is a core shared growth task of the government. The Ministry of Trade, Industry, and Energy announced the establishment of a win-win culture through benefit sharing via the Third Basic Plan Regarding Large, Medium, and Small-sized Companies (November 17, 2014) and press release in January 2017. In line with these government policies, KEPCO E&C has enacted various efforts to expand the benefit-sharing system and play a leading role in implementing shared growth and win-win cooperation. As a result, the company was able to increase the number of registered and confirmed performance-sharing tasks from zero in 2015 to five in 2016.

### Establishing a Shared Growth & Win-win Development Structure Utilizing Its Technological Capacity

As a public enterprise specializing in architect engineering technology, KEPCO E&C has aimed to create and adopt a shared growth model consistent with the company's characteristics to increase the effectiveness and longevity of its win-win cooperation activities. KEPCO E&C's efforts have been concentrated on creating a one-stop support system for small and medium-sized enterprises, covering technological development, technical protection, and market development. KEPCO E&C's program for SMEs helps them jointly expand into overseas markets by supporting localization and experience-gathering in global settings. The company also supports SMEs to explore and develop new markets through joint technological and business development activities.

### Strengthening Public Value by Purchasing More SME Products

KEPCO E&C has contributed to stabilizing SME management and building a healthy industrial ecosystem by actively promoting the purchasing of SME products. To ensure that the company may continue to purchase SME products, irrespective of any changes in its management circumstances, the goal was set to increase the purchasing ratio, rather than the absolute amount of purchasing. As a result, the ratio increased from 65% in 2014 to 70% in 2015, followed by 80% in 2016.



### Pursuing Two-way Shared Growth by Strengthening Communication with Suppliers



KEPCO E&C has strengthened communication efforts with its SME suppliers to achieve actual shared growth based on a win-win relationship, rather than one-way support. Since December 2016, KEPCO E&C has adopted the "Shared Growth Finds You" program through which the company visits its suppliers to hear their difficulties and suggestions. In April 2017, it organized the KEPCO Cooperation Society, which is a consultative body of subcontractors consisting of ten suppliers, and signed a shared growth win-win agreement. It also continues to make improvements to the contract system and internal regulations for the fair and transparent selection and management of suppliers.



# RELIABILITY

KEPCO E&C,  
Offering Trust and Confidence

MA (Management Approach)

## 2015-2016 KEY PERFORMANCE



Korean National  
Quality Award

**Presidential Award**



Ethical Management Training  
Performance (accumulative)

**9,951participants**



**Establishing the  
Cyber Security Control  
Tower**

## IMPORTANCE OF ISSUE



Stronger demands are being placed on companies to implement the government's anti-corruption policies and fulfill their social responsibilities. In view of eliminating corruption and the abuse of office within the public sector and society in general, the Anti-corruption and Bribery Prohibition Act, also known as the "Kim Young-ran Act," has been enacted, along with many other efforts to establish a corporate culture of integrity. As companies become more exposed and vulnerable to risk factors such as sophisticated cyber attacks and the recurrence of design errors, internal reform is necessary to improve their competitiveness.

## OUR APPROACH



KEPCO E&C identifies emerging risks and prevents them in advance. The company minimizes potential damage or loss by responding in a timely manner to risk factors that may emerge during the course of business due to quality issues and information leaks. To prevent and systematically handle anti-corruption issues, the company analyzes its ethical management performance from a PDCA perspective and reflects the results in the ethical management plans for the following year.

## OUR PLAN



KEPCO E&C will continue its efforts toward establishing an advanced ethical culture throughout the company by upgrading its quality management system, spreading a culture of integrity throughout the company, and strengthening its ability to "self-treat" corruption. Furthermore, the company will reinforce information security by making its security control activities more effective and the relevant systems more stable.



## INTERVIEW



**You Han-Beom** (Transparency International Korea, Managing Director)

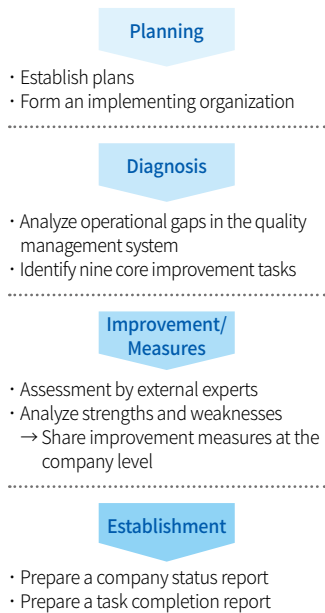
### "Responding to the paradigm of voluntarily realizing integrity and ethics"

In today's management environment, integrity and ethics have become a demand of the times as well as a universal value for all companies. The paradigm is also changing from preventing corruption simply by abiding by the law in a passive sense to voluntarily achieving integrity and ethics by actively establishing an appropriate set of values in an organization's members. In this regard, KEPCO E&C has been providing incentives to people of integrity and spreading an ethical culture throughout the company by implementing various ethical management programs including the Sinmungo, the personnel's off-line petition & discussion system, ethics & integrity reward system, and the integrity day. I hope that KEPCO E&C will continue its efforts in always being vigilant against corruption and internalizing an ethical consciousness.

# Providing Reliable Quality

## Increasing Competitiveness through Quality Management

### Systematic Establishment of the MB Quality Management Model







KEPCO E&C strives to provide its customers with the best-quality products to achieve sustainable growth. By strengthening its quality management system, the company enhances the design quality and safety of its power plants and gains the trust of its customers.

### Upgrading the Quality Management System

KEPCO E&C promotes the quality of its products and services by identifying core tasks based on the strengths and weaknesses of its quality management system, with a view to establishing a system that meets the highest global standards. In particular, KEPCO E&C takes various measures for its own MB quality management model to take root by identifying and concentrating on undertaking improvement tasks in strategic planning, customer and human resources management, and operations management.

\* MB quality management model is a U.S. national quality award system aimed at promoting the global competitiveness of domestic companies. The MB model has been benchmarked and operated in 92 countries, including the Republic of Korea.

	Issues	Measures
<b>Strategic Planning</b> 	Need to establish a feedback system to systematically manage major issues such as management directions	Establish a computerized management process and feedback system for managing major issues
<b>Customer Management</b> 	Difficult to establish improvement measures and reflect them in the following year's plans because the customer satisfaction survey is conducted in the second half of the year	Establish a customer satisfaction promotion process by conducting the customer satisfaction survey in the first half of the year and reflecting the analysis results and improvement measures in the second half
<b>Human Resources</b> 	Need to create a systematic education program for suppliers' employees	Create a separate education and training system for each job category and operate educational programs for external human resources
<b>Operational Management</b> 	Mismatch between mid- to long-term management strategies and the company's PDCA cycle according to the quality management system	Strengthen connection between the two by reflecting the R&D process in the business process according to mid- to long-term management strategies

### Consistent Improvement of the Quality System

KEPCO E&C increases the efficiency of its business process by promptly reflecting changes to its quality system documents such as the quality management manual, supplier business procedure, risk management procedure, and project design control procedure. In 2016, improvement measures were reflected in the company's organizational operation, vision and quality management policy, and process/system. It also simplified the procedure for each division (bureau) so that it is in accordance with the company's standard procedure while also reflecting the characteristics that are unique to that division.

### Strengthening Quality Education

KEPCO E&C conducts headquarters-level and on-site business quality education, through which its employees gain a better understanding of each division's project quality assurance manual and operational quality assurance manual. The company also provides quality capacity-building education to its suppliers to enhance their design capacity and service quality. The company has invited employees of its suppliers and shared with them important quality-related information such as domestic and international trends related to nuclear energy and response strategies, subcontractor PQ assessments and business execution capacity assessments, and major issues in subcontractor quality audits.

## Pursuing Zero Design Errors

KEPCO E&C aims to achieve zero design errors by internally stabilizing quality control activities. The company will also secure customer trust and reliability by enhancing its design quality through quality assurance programs.

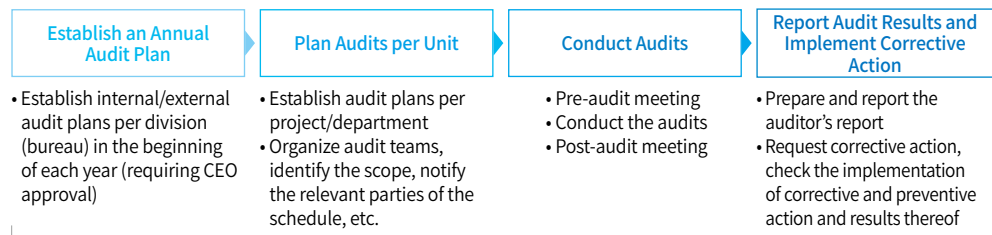
### Quality Audit Performance

(Unit: Number of Cases)

Type		2014	2015	2016
Internal Audits	Plan	30	32	35
	Performance	31	32	35
External Audits (Suppliers)	Plan	31	24	25
	Performance	38	24	29

### Stabilizing Quality Verification Activities

To enhance design quality and the efficiency of the design process, KEPCO E&C carries out various quality verification activities. It regularly inspects the design process, the results of which are reflected to improve the process. Quality assurance activities for the design process include quality assurance audits and quality monitoring. Both internal and external quality assurance audits are performed according to annual audit plans, and quality monitoring is carried out on specific processes for design outputs on an ad hoc basis.



In 2016, KEPCO E&C included technical experts in the internal auditing process, thereby strengthening the inspection of conformance between licensing and design documents. Meanwhile, the company maximized the efficiency of the external auditing process by, for instance, conducting a comprehensive audit on suppliers involved in multiple projects.

### Minimizing Design Errors through Corrective and Preventive Action

KEPCO E&C seeks to minimize design errors in its nuclear and thermal power plants by improving and supplementing its design process. The detailed processes that may affect design quality from the planning stage to the final stage are thoroughly documented, computerized, and strictly managed. Moreover, the company takes measures in advance to modify any part of the design input, design changes, supplier documents, corrective action program, and quality record control that require improvement, and preventive activities were strengthened by promptly implementing corrective actions. Such efforts resulted in the company reducing the average number of items requiring corrective action from 4.3 cases per audit in 2015 to 3.2 cases in 2016, and design errors continue to decline.



### KEPCO E&C receives the Presidential Award at the Korean National Quality Award



42nd National Quality Management Convention

KEPCO E&C has been a leader in quality management, having obtained the N-Certificate from the American Society of Mechanical Engineers (ASME) in 1984 and becoming the first engineering company in Korea to adopt a quality management system. As a public enterprise in engineering, the company has also led quality management among domestic companies in the same industry by adopting international standards such as ISO 9001, OHSAS 18001, and ISO 27001. Based on its superior design quality, KEPCO E&C actively expanded into the global market, attaining many notable achievements such as being ranked No. 1 in “overseas revenue from nuclear power plant design” for four consecutive years (2012~2015) and No. 3 in “overseas revenue from combined cycle power plants” (2015) on Engineering News-Record (ENR), an American architectural and engineering magazine. Rising to become a truly global engineering company, KEPCO E&C was honored with the Presidential Award at the Korean National Quality Award in 2016, in recognition of the outstanding quality of its power plant designs and safety efforts.

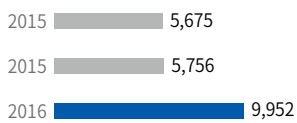
# Establishing a Culture of Integrity and Trust

## Establishing a Transparent Organization through Ethical Management

TOP Ethical Management System (TOP: Trust, Organization, Pride)

: KEPCO E&C's corporate culture based on building Trust by promoting ethical awareness, establishing infrastructure in its Organization, inspiring Pride by spreading an ethical culture, thereby becoming a TOP-tier company

### Ethical Education Performance (Unit: Number of persons)



In pursuing ethical management of the highest level, KEPCO E&C strengthens its integrity and ethics infrastructure by establishing an integrity/ethics system and promotes an ethical awareness among its employees by offering customized ethical education courses. The company also makes diverse efforts to create a clean ecosystem among its suppliers and the local community.

### Establishing an Ethical Management System

Strives to win the trust and confidence of the society through its companywide ethical management, KEPCO E&C has established a TOP ethical management system. TOP stands for Trust through enhancement of ethical awareness, Organization of the ethical management infrastructure, and Pride in its culture of integrity and ethics. According to the TOP strategic plans, the company selects and earnestly implements the major tasks.

### TOP Ethical Management Strategic System

Participate in Integrity and Ethics, Trust in KEPCO E&C			
Vision	Trust Build Trust	Organization Establish Infrastructure	Pride Spread an Ethical Culture
Strategy	<b>Build social trust by promoting ethical awareness</b> <ul style="list-style-type: none"> <li>Promote ethical awareness by offering ethical education to employees</li> <li>Conduct ethical education and PR activities to suppliers and external customers</li> </ul>	<b>Upgrading the ethical management system</b> <ul style="list-style-type: none"> <li>Increase the motivation for ethical management and self-monitoring</li> <li>Strengthen implementation of the Code of Ethics</li> <li>Establish the ethical assessment system, e.g., the mileage system</li> </ul>	<b>Inspire pride by spreading an ethical culture</b> <ul style="list-style-type: none"> <li>Eliminate routine unethical conduct</li> <li>Practice ethical management in everyday business</li> <li>Strengthen cooperative activities for ethical management in external relations</li> </ul>
Tasks			

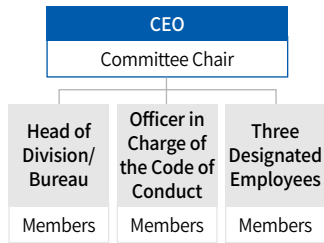
### Trust: Building Social Trust by Promoting Ethical Awareness

**Strengthening Ethical Education** | To help employees have greater ethical awareness, KEPCO E&C provides relevant training that is customized to each level of job position, from freshly recruited employees all the way to top executives. Members of the upper management are required to complete executive courses at the Ethical Training Institute every year, while new employees are encouraged to participate in the company's anti-corruption policies by taking required courses in ethical education. The company also provides education to persons in charge of ethics-related duties to strengthen expertise in their work. Furthermore, KEPCO E&C operates the "Ethical Education Finds You" program, which is a set of educational courses customized to various users such as field office employees. The company also offers online ethical education programs to all employees regarding the Code of Ethics and corruption case studies.

Type	Education Direction	Performance
Life cycle-based ethical education	Ethical education to each level of job position	• Education for newly recruited employees and online education for each position level
	(Newly recruited employees to management)	• Ethical education courses for management at the Ethical Training Institute
Education customized to users	Focus on personnel dealing with ethical management	• Education to cultivate lecturers in integrity and ethics (Target integrity and ethics leaders in each division)
Education to minimize ethical blind spots	Ethical education customized to user groups	• "Ethical Education Finds You" program to field office employees both domestically and internationally • Ethical education programs for employees of suppliers on the Anti-corruption and Bribery Prohibition Act

**Promoting Education and PR activities targeting Suppliers** | In an effort to build the basis for fair trade and develop hand-in-hand with its suppliers, KEPCO E&C offers ethical management education to their employees and expanded related activities. In particular, the company demonstrates its determination to implement ethical management by strengthening PR activities such as displaying promotional banners, implementing the use of specific document forms for ethical management, and adding Ethics News to the corporate newsletter to introduce integrity and ethics-related news.

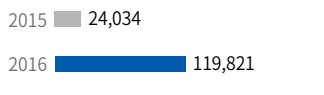
### Organizational Structure of the Ethics Management Committee



### The KEPCO E&C Integrity and Ethics System



### Increased Log-ins to the Integrity and Ethics System



\* The number of users logging on to the Integrity and Ethics system in 2016 increased due to the reinforcement of ethical policies such as the enactment of the Anti-Corruption Act and better access to the system.

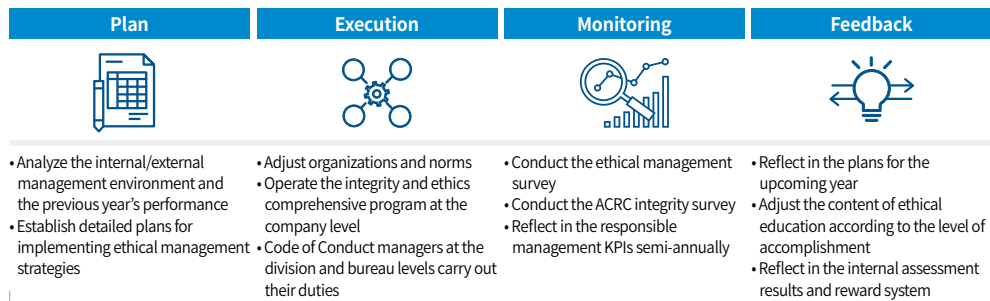
### Ethical Management Emblem and Slogan



### Organization: Advancing the Ethical Management System

**Strengthening the Ethical Management Organization and Ethical Code** | To strengthen the driving force behind the company's pursuit of ethical management, KEPCO E&C operates the Ethics Management Team and the Ethics Management Committee, which is the highest body deliberating on important ethical management issues. In addition, it pursues ethical management attuned to the characteristics of each division and appoints Code of Conduct managers from the department head level and "ethical management keepers" from working-level employees for effective communication with the voices from the field. Moreover, it was the first domestic company to establish the "Code of Ethics for Professional Engineers," stipulating it in the Ethical Code of Conduct for employees and elevating this code to the level of company regulations. KEPCO E&C has strengthened the standards of professional conduct based on current status analysis through lectures and meetings, while expanding educational and PR activities regarding improvements to the prior reporting system.

**Establishing the Ethical Management and Monitoring System** | To engage employees in ethical management activities, KEPCO E&C operates an integrity and ethics system, through which the company announces its ethical management strategies, the Code of Ethics, the Integrity and Ethics Newsletter among other items to help employees gain an understanding of the overall integrity policy. KEPCO E&C also operates a single portal system encompassing all matters related to ethical management, such as application for and management of the integrity mileage and corruption/bribery reporting system. Finally, to systematically implement ethical management, KEPCO E&C has established a PDCA-based ethical management process through which it analyzes the related results each year and reflects them in ethical management plans for the next year.



### Pride: Instilling Pride through a Culture of Integrity

**Operating Ethical Management Promotion Programs** | KEPCO E&C holds the Integrity Convention to demonstrate the company's resolve to eliminate corruption and solidify a culture of integrity. The company also emphasizes its intention to conduct business ethically by installing banners in the main lobby of the headquarters building, entrance of each department, and other major locations, as well as printing the integrity emblem and slogan on business cards and outgoing documents. Other efforts include the Integrity Pledge taken by all employees, monthly integrity messages, the "Integrity Golden Bell" quiz contest, and the integrity reward system, through which employees actively participate and take the lead in the company's ethical management activities.

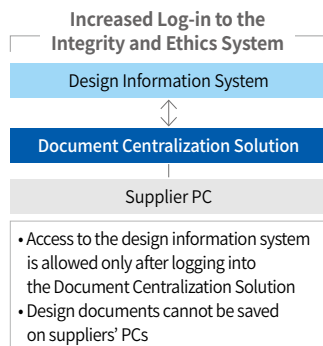
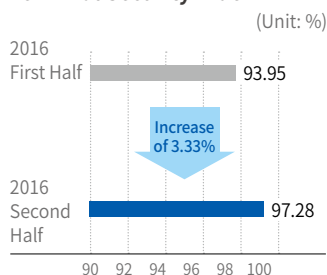
**Strengthening External Cooperation to Create a Clean Ecosystem** | In view of creating a clean, corruption-free ecosystem, KEPCO E&C makes various efforts to build a fair society through external cooperation, such as actively taking part in the activities of the Korean Network on Anti-corruption and Transparency, a public-private anti-corruption consultative group and signing the Fair Play Pledge against Corruption hosted by the UN Global Compact. The company also focuses its regional cooperation efforts for ethical management by, for instance, signing an MOU for supporting ethics-related work among public institutions in Gimcheon Innocity.

## Strengthening the Information Protection System



Establishment of the Cyber Security Control Tower

### Achieved the Maximum Ratio of a Perfect Score on the Terminal Security Index



KEPCO E&C operates security regulations that fully reflect the Basic Guidelines on National Information Security and the Operational Guidelines on Information Security of the Ministry of Trade, Industry and Energy. After the design-related information systems were designated as national information communication infrastructure in January 2016, the company has spared no effort in establishing measures in accordance with the Information Communication Infrastructure Protection Act. It continues to strengthen its information security system to prevent any leakage of design technology and documents in response to increasing cyber hacking attacks.

### Establishing an Information Security Control System

KEPCO E&C complies with the ISO 27001, the international standard for information security management systems, and maintains its certification through continued efforts to improve the information security system. Through various efforts to strengthen information security in accordance with its information protection system, the company received a higher ranking in the security audit of public institutions under the Ministry of Trade, Industry and Energy.

### Undertaking More Advanced Cyber Security Activities

KEPCO E&C operates its own cyber security control tower capable of responding rapidly to information leaks and cyber hacking. The cyber security control tower monitors for security threats and leakage of technical documents in real-time and disseminates status information by combining information protection system and control facilities. It has also strengthened its internal security response capacity by assigning security control experts and established control rooms, conference rooms, and other facilities to undertake information security control related work. The company has built a solid foundation in robust preparation for cyber attacks by not only operating its own cyber security control tower but connecting it to the control towers of the National Intelligence Service and the Ministry of Trade, Industry and Energy. Furthermore, KEPCO E&C conducts simulated training against malicious emails to raise awareness of the importance of preventing the leakage of technical documents. Finally, the company improved terminal server security by blocking network connections to terminal servers that are vulnerable to security threats.

### Strengthening Security Processes

As part of its efforts to systematically implement and gradually reinforce information security, KEPCO E&C strengthened security processes in the areas of facility, document, and human resources security. First of all, the company operates a visitor management and CCTV control systems, while controlling access more strictly by applying a dual control system that requires passwords and card keys to restricted access areas. These systems allow for more rigorous control of access by outsiders or incoming equipment, and it also blocks the leakage of internal documents. Furthermore, the company reduces security risks by systematically managing informational assets, for instance, by regularly evaluating the propriety of authority to handle confidential information and detecting irregular internal activities using the technical information log system.

### Raising Suppliers' Security Awareness

KEPCO E&C has established a systemic basis to support security activities by its suppliers by establishing special conditions in security-related contracts. The company has also supported their establishment of information security control systems so that they can carry out their own security control activities. For the first time in the KEPCO Group, KEPCO E&C adopted the "Document Centralization Solution" which fundamentally blocks any leakage of design documents by only allowing access after logging in to the design information system.



# EXPERTISE

**KEPCO E&C,**  
Striving to Be the Best

MA (Management Approach)

## 2015-2016 KEY PERFORMANCE



IAEA-recommended  
Training Methodology

**Established the  
Systematic Approach to  
Training (SAT) Program**



Passive Auxiliary Feed-water System  
(PAFS)

**Designated as National  
Core Technology**



Investment in R&D against Sales

**12.2%**

## IMPORTANCE OF ISSUE



Companies can acquire superior competitiveness and sustainable growth by securing and nurturing talented individuals and retaining high technological capacity. The power plants, in particular, lie in a rapidly changing management environment such that the de-nuclearization and environment-friendly new & renewable energy emerge as important national issues. Against this backdrop, KEPCO E&C is expected to be flexible enough to strengthen human resources and facilitate organizational communication. It is also necessary to nurture new growth energy businesses by securing core technologies in early stages in relation to nuclear decommissioning and new & renewable energy design.

## OUR APPROACH



KEPCO E&C has newly established a job-oriented recruitment and training system and operates global standard training programs in order to help its employees cultivate their capacity to perform the project and work. Based on a healthy corporate culture and win-win labor-management relationship, the company spares no effort to increase employee satisfaction. Meanwhile, it builds a solid technological basis to diversify its businesses by forming technological partnerships with advanced foreign companies, playing a leading role in government research and development projects on nuclear technology, and developing environment-friendly power plant design technologies.

## OUR PLAN



By upgrading the training system, KEPCO E&C will continue to implement consistent feedback and improvement to achieve 100% of the levels required by the International Atomic Energy Agency (IAEA). It will also continue the efforts to achieve the complete independence of decommissioning technology with strategic cooperation with the KEPCO group companies, government and foreign companies and its own technological development efforts.



## INTERVIEW



**Lee Dong-hoon** (Team Manager, Subcontract Team, KEPCO E&C)

### “Enhancing productivity through an employee-centered corporate culture”

Since relocating its headquarters to Gimcheon Innocity in the second half of 2015, KEPCO E&C has helped its employees to settle down in the region by opening an in-house daycare center, adopting flexible work hours, building a company dormitory, and leasing rental apartments. The company also helps its employees enhance expertise in their work by offering education through its “Mid to Long-term Talent Cultivation Strategy” program. In 2016, a creative and innovative leaders group “The Serom” was founded to discuss current issues and create future business for the company. The group is organized into ten teams consisting of team members with a diversity of job positions, departments, age and gender, who are being fostered as next-generation leaders, sharing management status through the field of communication with the CEO at “Let’s Talk” sessions. I hope that KEPCO E&C will continue to grow into a sustainable company, whose employees work productively while finding balance between life and work with the help of employee support programs and policies.



# Strengthening Talent Management and Cultivation

## Fair Recruitment System

KEPCO E&C's recruitment opportunities are open to anyone on an equal basis irrespective of gender, alma mater, or region. To recruit employees based on their work performance capacity based on a fair recruitment and selection system, the company developed job descriptions based on the National Competency Standards (NCS) in 2015 and has applied them in the recruitment process. As a public enterprise, the company contributes to increasing social equality by actively recruiting women, the disabled, local talents, and high school graduates.

## Systematic Talent Development

### Cultivating Talent in Connection with Management Strategies

In order to respond in a timely manner to the changing management environment, maintain its position as a leader in core business areas, and continuously enhance its business performance, KEPCO E&C has established an HRD strategy and a mid to long-term talent cultivation roadmap in connection with its management strategies.

### Recruitment Performance

(Unit: Number of persons)

Type	2014	2015	2016
Permanent employees	120	86	72
Female employees	21	18	11
Interns	93	93	93
Temporary employees	32	29	14





### Social Equality Recruitment Performance

(Unit: Number of persons)

Type	2014	2015	2016
Current female employees	208	197	206
Female employee ratio (%)	9.6	9.2	9.6
Female managers ratio (%)*	3.0	3.0	3.0

\* Female employees who are in the position to be appointed as team managers or positions of higher level

#### Strategies ▶

 <b>Strengthen individual competency for sustainable growth</b>	 <b>Advance the competency management system</b>	 <b>Lead the competency enhancement of the energy industry</b>	 <b>Strengthen HRD infrastructure</b>
<ul style="list-style-type: none"> <li>Re-establish the core competency to execute Vision 2025</li> <li>Strengthen the competency to execute differentiated global business</li> <li>Strengthen corporate values (Safety, ethics, creativity, sensitivity)</li> </ul>	<ul style="list-style-type: none"> <li>Re-establish the competency model for advancing the competency-based HRD system</li> <li>Establish the competency evaluation system to operate the competency model</li> <li>Develop CDPs in consideration of expertise and applicability</li> <li>Organic connection with education to increase the executability of the HRD strategy</li> </ul>	<ul style="list-style-type: none"> <li>Enhance supplier competency to secure quality and prevent corruption in the nuclear industry</li> <li>Strengthen external education to secure an advancement of power plant design technology system</li> <li>Contribute to society by fostering future talent</li> </ul>	<ul style="list-style-type: none"> <li>Secure global reliability by establishing SAT Program</li> <li>Improve the training and evaluation system on an ongoing basis</li> <li>Establish training management system</li> <li>Secure infrastructure for external education and employee training</li> </ul>

#### Tasks ▶

To successfully implement its HRD strategy, KEPCO E&C performs job analyses and organizational competency evaluations, based on which the company adjusts its competency-oriented training program and provides customized training programs according to the employees' job and positions.

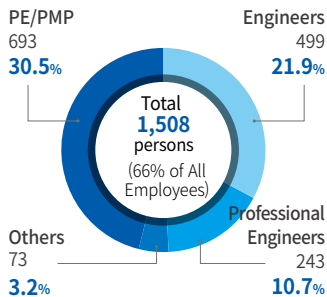
	Leadership Competency	Basic Competency				Job Competency				Global Competency	
		Personal Competency	Organizational Competency	Occupational Conduct	Job expertise	Global Mindset	Language				
Principal ▶	Strategic Leadership Course	Reading and Communications Training Course Integrated Talent Cultivation Training (History, Philosophy, Communication) Pre-retirement Training Core Values (Challenges, Expertise, Communication, Safety, Reliability) Training Integrity and Ethics Training Security Training Career Employee Training	OA System User Training Occupational Conduct Capacity-building Training	Technical Expertise Training (Basic, Intermediate, Advanced) Certificate Maintenance, License Training Departmental Professional Training, Group Seminar Academic Activities, Domestic Degree Course Training, Group Seminar Career Employee Training	Overseas On-site Training Customized Overseas Training	Online/Offline English and Writing Training Video Telephone English Training 2:1 Intensive English Training and Overseas Degree Course					
Supervisory ▶	Manager-level Leadership Training										
Senior II ▶	Staff-level Leadership Training										
Senior I ▶	Follow up										
Junior ▶											

**Education and Training Performance**

(Unit : Hours)

Type	2014	2015	2016
Total Employee Education Hours	262,428	229,371	199,408
Education Hours per Person	118	101	88
Job Education Hours per Person	60	61	66

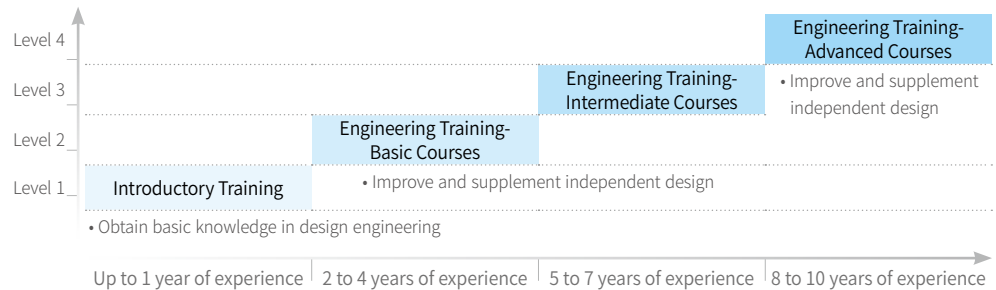
**Certificates**



**Job Competency Training**

KEPCO E&C provides various technical training courses for different fields and career levels to continuously strengthen its employees' competency in core technologies. In particular, the four-level mandatory technical training course for design specialists is the company's core technology education, the subjects and contents of which are organized in consideration of the employees' number of years of service and job duties. Recently, more educational courses have been offered in connection with other job areas to promote engineers' ability to cooperate and integrate their knowledge with other fields. Furthermore, the company responds to the needs of specific employee groups and encourages their integration by, for instance, offering basic technology orientation course to high school graduates and career and temporary employees, and establishing a Convergence Energy Engineering Department in a local university. The company also provides field-centered and case-oriented professional education so that the technology transfer of the cumulated know-how of long-term employees and retirees can be made effectively.

**Four-level Mandatory Technology Education Course for Design Specialists**



In addition to these efforts, KEPCO E&C maintains its pool of professionals in each technological area by helping employees obtain professional certifications, while encouraging them to acquire the latest technologies and knowledge by offering education via domestic and overseas professional institutions. In particular, the company runs degree programs in 12 major technological areas including de-commissioning and post-management, thereby cultivating key personnel in new growth areas.



**Best Practice**

**Established the SAT (Systematic Approach to Training) Program in compliance with IAEA Standards**

The Systematic Approach to Training (SAT) is an education development methodology recommended by the International Atomic Energy Agency (IAEA). In order to enhance reliability in job performance, KEPCO E&C introduced The SAT Program in 2015 and established the Personnel Job Qualification (PJQ) management system. According to the system, qualifications required for job performance are identified through a job analysis, according to which design engineers' qualification levels are established. In ten job areas, 127 PJQs were developed, as well as procedures including work performance procedures which were reflected in PJQs. Accordingly, the company allows only those who have obtained required qualifications to perform their work. Furthermore, new programs, such as the instructor certification program, were introduced to support the SAT, while education and training regulations, operational guidelines and other relevant regulations were modified. Through these efforts, KEPCO E&C received 3.92 out of 4 points in the SAT system assessment conducted by Sargent & Lundy, a firm that provides consulting services in establishing the SAT, thereby being recognized as an educational system in compliance with IAEA standards and regulations. By further expanding the application of the system, 2,890 qualifications have been obtained in 19 job areas as of the end of 2016.

### Global and Leadership Capacity-building Education

KEPCO E&C has established and operated the Systematic Approach to Training (SAT) required by the International Atomic Energy Agency (IAEA) to strengthen its global capacity for executing projects overseas and developing new markets. The company also provides online and offline language education courses and offers opportunities to participate in overseas educational programs to help employees acquire skills in foreign technologies and develop a global mindset. In particular, the company offers a long-term commissioned education program such as the master's degree program at the KEPCO International Nuclear Graduate School to educate global professionals. Furthermore, in responding effectively to the rapidly-changing management environment, the company has developed and provided leadership education to all employees at each job position level.

### Job-oriented Shift Work System for Career Development

With a view to helping employees design their own careers by finding the kind of work that suits their capacity and aptitude, while increasing productivity by placing the right person in the right position, KEPCO E&C actively implements a job-centered shift work system. In doing so, 48 career development areas were defined and five career development paths (CDP) were established and applied.

Level of Position	Type	Principle
Staff-level/Manager-level	Career exploration type	• Movement among divisions (bureaus) and job groups considering one's major, aptitude, etc.
Senior Manager-level (Section Head)	Career-setting type	• Movement considering one's aptitude, career goals, senior's opinions, etc.
Senior Manager-level (Department Head, Division Head)	Two-track career management type	• Manager type: Movement among similar job groups considering one's aptitude and career goals • Expert type: Excludes shift work employees and performs duties in one's professional area in principle

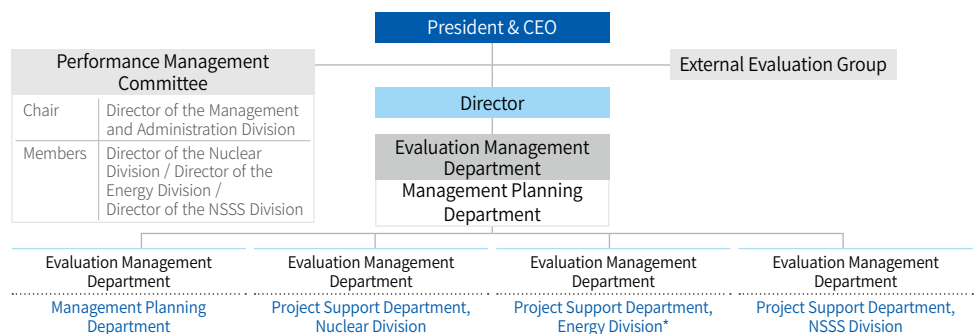
## Reasonable and Fair Performance Evaluation

### Evaluation Objection System Process



### Performance Evaluation in Connection with Management Strategies

KEPCO E&C conducts organizational and individual evaluations of all employees on an annual basis, and ensures that efforts are rewarded by fair compensation through a reasonable performance evaluation system. By setting individual performance goals in connection with the strategic directions of Vision 2025, KEPCO E&C's management goals, the company will be able to achieve its goals in an efficient manner. To ensure that the evaluations are objective, the weight of each index is adjusted in consideration of the characteristics of each department's work and commissioned trainings are provided to performance managers to enhance their expertise. Finally, the company is able to conduct such evaluations in a fair manner with the help of a performance management organization as well as deliberation and appeal system through the Performance Management Committee.



\* As of August 1, 2017

## Establishing a Sound Organizational Culture

### Flexible Work Hours System Performance

(Unit: Number of persons)

Type	2014	2015	2016
Flexible start/finish times with 8 working hours per day	536	402	509
Flexible number of working hours per day, 5 days per week	-	1,214	1,346

## Establishing Win-win Labor-management Relations

### Supporting a Balance between Work and Family

To help its employees find a healthy balance between work and family life, KEPCO E&C offers various maternity and childcare support policies. Prenatal examination leave has recently been adopted, while the company guarantees maternity leave as an employee's right and strongly encourages them to take maternity leave. Moreover, the company has opened additional daycare centers in the workplace and improved the conditions of "maternity rooms" for pregnant and nursing employees. Furthermore, KEPCO E&C has adopted the flexible work hour system to promote leisure among its employees. After a pilot test, employees took a survey, providing feedback to fine-tune the system. Accordingly, employees can choose from several flextime systems according to the reasons why they are opting for flextime—whether it be self-development or childcare. Furthermore, every second and fourth Thursday has been designated as "Self-Development Day," on which employees are encouraged to depart work on time and spend time on themselves. Finally, the company continues its efforts toward enhancing employees' quality of life, for example, offering self-development programs in yoga, baking, etc.

### Helping Employees Settle Down in Gimcheon

To help employees settle down and start a new life in Gimcheon after relocating, KEPCO E&C offers support for residential and cultural activities. It provides residential support through temporary company housing, dorms, and support for paying interest on housing funds, while improving living conditions by holding concerts and musicals as well as operating convenience facilities such as a library, café, and dry cleaner service.

With the goal of "establishing win-win labor-management relations by creating a culture of reliability and harmony," KEPCO E&C makes various efforts to build healthy and reasonable labor-management relations through active communication and cooperation. The Labor-management Council, consisting of fewer than ten members with at least three from each side, consults on issues such as employee grievances, welfare, safety and hygiene. The council's regulations clearly state its obligation to thoroughly report on management issues including management performance and plans and HR management. In 2016, the company also created the Win-win Labor-management Relation Manual in an effort to establish a labor-management conflict prevention and management system under a multiple union system. Such consistent efforts enabled KEPCO E&C to mark 12 consecutive years of zero labor-management disputes.

### Labor Union Status

(Unit: Number of persons)

	Number of Employees Eligible to Join Labor Unions	Members
First Union	1,448	1,433
Second Union	2,102	20

\* As of the first quarter of 2017



Conversation with the CEO through the "Let's Talk" initiative

### Establishing an Open Labor-management Culture

In 2016, KEPCO E&C opened an online one-stop grievance settlement system in connection with the company's portal, through which all nine of the cases reported were settled. In addition, "Let's Talk," an event for employees to openly discuss issues with the CEO, was held twice. Other efforts to build a labor-management culture of open communication include the foundation of "The Serom," a creative and innovative leaders group to invigorate communication within the company.

# Securing Expertise through Technological Development

## Developing Core Independent Technologies

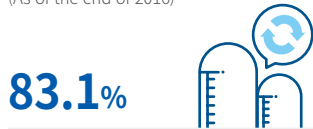
### Research and Development Performance

(Unit: KRW million)

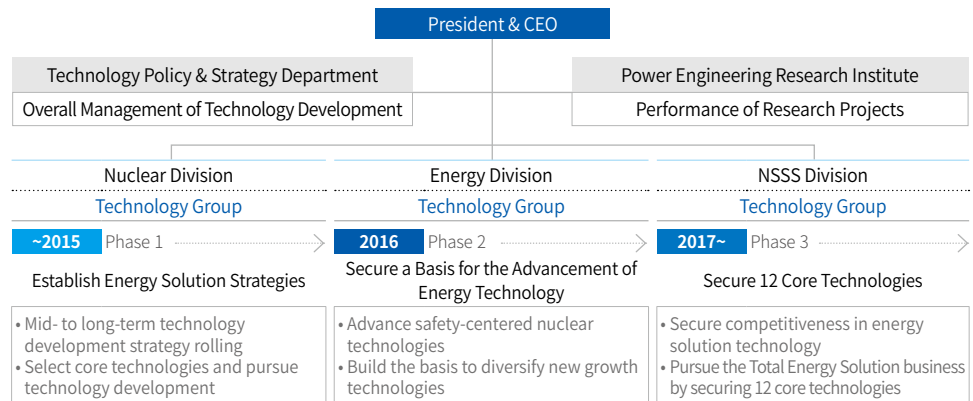
Category	2014	2015	2016
R&D Cost	63,378	72,356	61,856
R&D Cost Ratio against Sales (%)	7.5	11	12.2
Number of Patent Applications and Registrations (Domestic)	24	26	32
Number of Patent Applications and Registrations (Overseas)	11	15	9
Number of Participation in Domestic R&D Projects	25	26	26

### Level of Technological Independence in Nuclear Decommissioning Design

(As of the end of 2016)



In order to secure a basis for advancing energy technologies to achieve the goal of becoming a “Global Leading Energy Solution Partner” under Vision 2025, KEPCO E&C actively pursues the development of technologies for the stable supply and demand of electric power and new growth. With a focus on diversifying technology and building a core basis to strengthen safety-related power plant design technologies, enhance quality reliability, and build new growth capacity, the Power Engineering Research Institute and technology groups under each division play a central role in carrying out various core independent technology development tasks.



### Efforts to Develop Nuclear Decommissioning Technologies

With the advent of the nuclear-free era beginning with the decision to permanently shut down nuclear power plant Kori-1, KEPCO E&C is making diverse efforts to achieve complete technological independence in nuclear decommissioning design and secure decommissioning execution ability by 2021. In December 2015, the company signed decommissioning technology development and project participation MOU with PEL Germany and Westinghouse USA. KEPCO E&C also signed a long-term cooperation system for acquiring technology through, for example, consultations with technology experts and technology transfer education. It also continues its efforts to develop its own technologies.

### Government R&D Project

As part of the 5th five-Year Nuclear Research and Development Project by the government, we led the development of the core technology for i-Power/SMR\* making contributions to the nation's technological innovation in the nuclear industry. In 2016, we were recognized for our technological expertise in the PAFS\*\* (Passive Auxiliary Feed-water System) and it was designated as the nation's core technology.

\* i-Power: Innovative and safe light-water reactor / SMR: Small modular reactor

\*\* PAFS (Passive Auxiliary Feedwater System): A technology that allows safe cooling of nuclear reactors without the need for control by an operator, enabled by a natural driving force mechanism even in the case of power outage in a nuclear power plant

### Efforts to Secure Eco-friendly Technologies

In an effort to help achieve the national greenhouse gas reduction target and respond to rising national concerns over micro dust, KEPCO E&C actively pursues the realization of clean thermal energy and development of new & renewable energy design technologies. The company is working toward commercializing carbon capture and storage (CCS) technology through the development of CCS-related design technology and patent applications. Beginning in 2016, the company has played a leading role in developing technologies to optimally reduce fine particles in Korea by starting the development of design technology for fine particles reduction equipment in power plants. At the same time, the company actively pursues technological development for wind, biomass, and solar power.

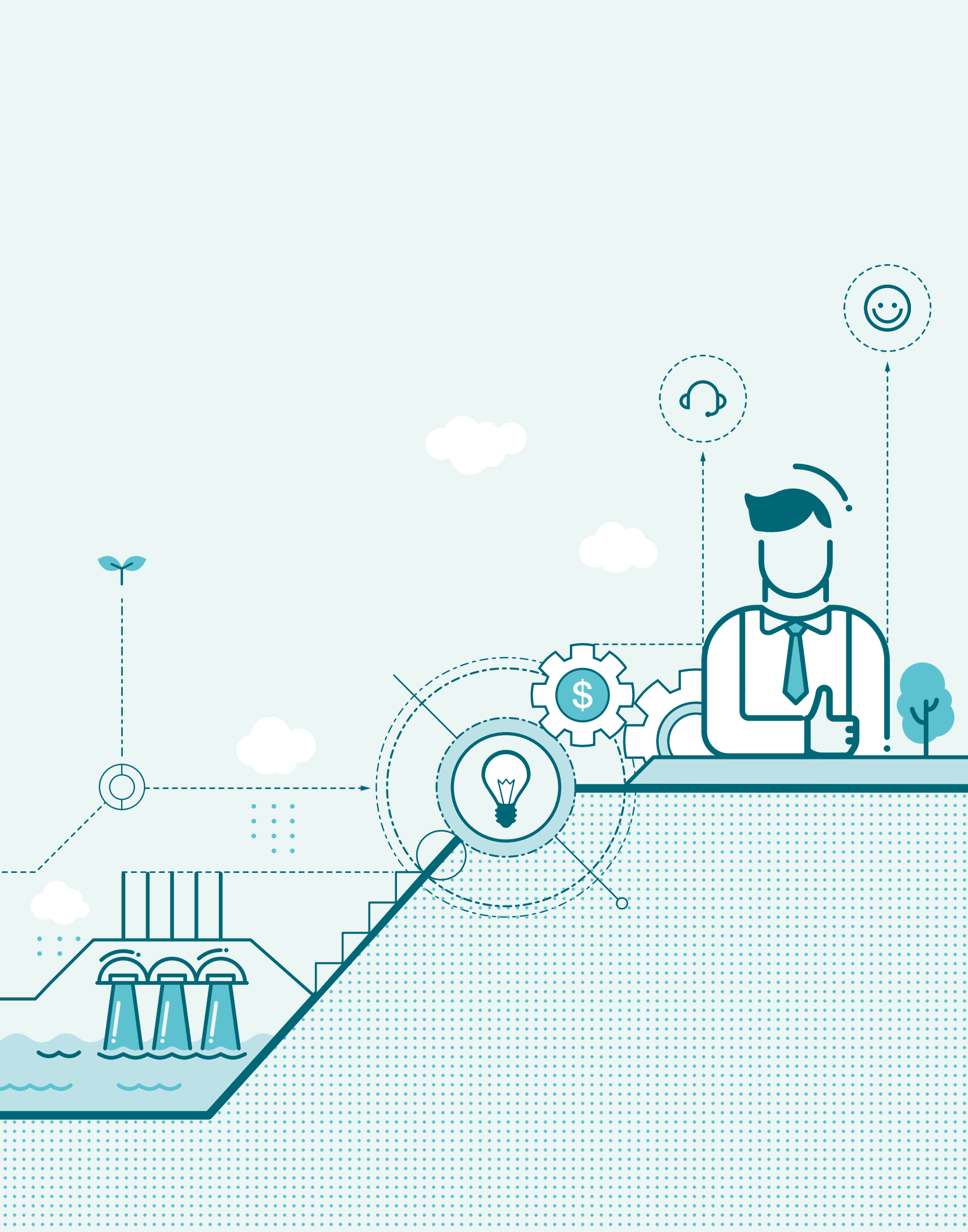
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# SUSTAINABILITY & HUMAN RIGHTS PERFORMANCES

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- 55 Economic Performance
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# Economic Performance

December 31, 2016 and 2014

## Statements of Financial Position

	(Unit : KRW)		
	42 <sup>th</sup> Period	41 <sup>th</sup> Period	40 <sup>th</sup> Period
<b>Assets</b>			
Current assets	270,553,473,741	341,559,413,770	355,292,163,952
Cash and cash equivalents	21,451,507,884	15,287,585,438	76,277,879,110
Current financial assets	2,986,850,119	7,483,937,095	1,493,767,807
Trade and other receivables	64,075,156,476	141,778,770,529	87,860,981,506
Due from customers for contract work	137,622,731,067	130,197,478,236	164,162,822,779
Income tax assets	5,257,387,747	0	0
Inventories	0	0	1,599,450
Current non-financial assets	15,887,046,536	23,538,848,560	25,495,113,300
Non-current assets held for sale	23,272,793,912	23,272,793,912	0
Non-current assets	516,042,270,043	513,596,307,541	422,320,285,937
Non-current financial assets	42,676,540,241	37,717,859,086	12,742,339,585
Long-term trade and other receivables	18,507,953,303	16,423,243,737	5,121,910,547
Property, plant and equipment	328,118,688,933	337,840,858,872	290,233,461,485
Intangible assets	57,277,122,849	46,190,828,007	42,675,767,028
Investments in associate and joint venture	5,818,036,445	8,059,998,552	12,741,705,357
Deferred income tax assets	58,993,814,264	62,434,873,115	54,581,036,821
Non-current non-financial assets	4,650,114,008	4,928,646,172	4,224,065,114
Total assets	786,595,743,784	855,155,721,311	777,612,449,889
<b>Liabilities</b>			
Current liabilities	286,443,757,114	342,314,683,563	315,766,213,721
Trade and other payables	88,273,920,532	150,834,515,233	167,168,407,260
Due to customers for contract work	57,574,596,652	76,219,499,091	85,857,469,098
Current financial liabilities	91,810,000,000	58,365,000,000	88,309,694
Current provisions	42,276,877,950	38,715,521,050	42,117,235,130
Income tax liabilities	0	7,055,950,503	13,189,718,297
Current non-financial liabilities	6,508,361,980	11,124,197,686	7,345,074,242
Non-current liabilities	78,232,410,286	96,055,979,295	54,715,728,811
Non-current trade and other payables	1,007,834,000	0	0
Non-current financial liabilities	0	30,010,000,000	3,845,000,000
Defined benefit liabilities	56,843,032,595	57,991,687,618	45,480,578,953
Non-current non-financial liabilities	10,054,496,623	5,677,592,718	3,307,486,475
Provisions	10,327,047,068	2,376,698,959	2,082,663,383
Total liabilities	364,676,167,400	438,370,662,858	370,481,942,532
<b>Equity</b>			
Paid-in capital	7,644,000,000	7,644,000,000	7,644,000,000
Share capital	7,644,000,000	7,644,000,000	7,644,000,000
Retained earnings	424,410,254,775	419,287,176,546	409,640,299,313
Legal reserve	3,822,000,000	3,822,000,000	3,822,000,000
Voluntary reserve	407,856,475,546	383,943,283,938	360,547,650,887
Unappropriated retained earnings	12,731,779,229	31,521,892,608	45,270,648,426
Other equity components	(10,134,678,391)	(10,146,118,093)	(10,153,791,956)
Treasury shares	(10,300,328,600)	(10,300,328,600)	(10,300,328,600)
Accumulated other comprehensive income	165,650,209	154,210,507	146,536,644
Total equity	421,919,576,384	416,785,058,453	407,130,507,357
Total liabilities and equity	786,595,743,784	855,155,721,311	777,612,449,889



Years Ended December 31, 2016 and 2014

## Statement of Comprehensive Income

(Unit : KRW)

	42 <sup>th</sup> Period	41 <sup>th</sup> Period	40 <sup>th</sup> Period
Sales	506,012,235,393	657,603,284,844	841,917,292,827
Service	469,011,054,329	481,765,162,581	491,097,544,074
Construction	37,001,181,064	175,838,122,263	348,574,986,253
Other	0	0	2,244,762,500
Cost of Sales	319,625,983,408	496,010,874,854	669,739,244,055
Service	287,205,726,701	329,093,479,042	332,180,634,099
Construction	32,420,256,707	166,917,395,812	335,649,055,187
Other	0	0	1,909,554,769
Gross profit	186,386,251,985	161,592,409,990	172,178,048,772
Selling, general and administrative expenses	180,440,434,532	126,905,523,209	105,625,922,866
Operating profit (loss)	5,945,817,453	34,686,886,781	66,552,125,906
Finance income	10,781,121,506	2,805,959,172	5,463,970,930
Finance costs	2,448,303,480	1,015,475,428	1,246,592,817
Other income	14,779,678,133	7,142,338,671	8,741,417,857
Other expenses	2,355,950,527	3,992,805,803	1,218,866,265
Other income (loss), net	(1,072,236,864)	1,555,201,319	(5,374,520,752)
Share of loss of associate	(2,212,175,863)	(4,671,121,716)	(2,258,294,643)
Profit before income tax	23,417,950,358	36,510,982,996	70,659,240,216
Income tax expense	5,622,343,393	5,463,737,044	15,900,240,955
Profit for the year	17,795,606,965	31,047,245,952	54,758,999,261
Other comprehensive income (loss) for the year, net of tax	(5,052,388,034)	482,320,519	(9,484,507,411)
Items that are or may be reclassified subsequently to profit or loss	11,439,702	7,673,863	3,843,424
Unrealized net changes in fair value of available-for-sale financial assets, net of tax	10,604,041	7,673,863	3,843,424
Share of comprehensive income of joint venture	835,661	0	0
Items that will never be reclassified to profit or loss	(5,063,827,736)	474,646,656	(9,488,350,835)
Remeasurements of the defined benefit liability, net of tax	(5,039,443,892)	482,670,153	(9,488,350,835)
Share of remeasurements of the defined benefit liability of associate	(24,383,844)	(8,023,497)	0
Total comprehensive income for the year	12,743,218,931	31,529,566,471	45,274,491,850
Earnings per share			
Basic and diluted	468	816	1,439

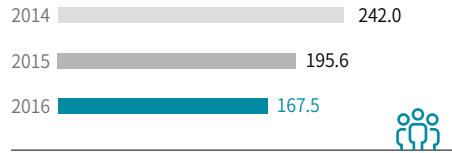
# Environmental Performance

\* Please note that KEPCO E&C's environmental performance data show highly fluctuating values after the relocation of the headquarters to Gimcheon Innocity in 2015.

## Development of Eco-friendly Technologies

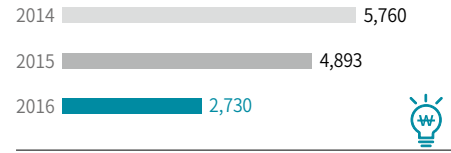
### Eco-friendly R&D Personnel

(Unit: M/M)



### Eco-friendly R&D Cost

(Unit: KRW million)



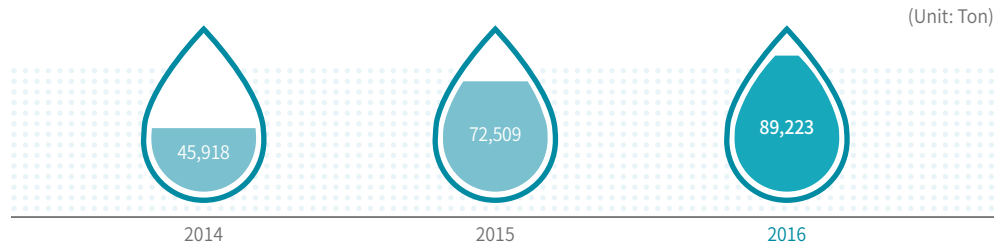
\* 2014 data have been adjusted following the reestablishment of calculation standards in 2015

## Greenhouse Gas Emissions and Energy Consumption

Category	Unit	2014	2015	2016
GHG Emissions	tCO <sub>2</sub> eq	3,324.15	6,167.95	7,274.02
Direct Emissions	tCO <sub>2</sub> eq	685.58	813.70	945.00
Indirect Emissions	tCO <sub>2</sub> eq	2,638.57	5,354.25	6,329.02
Gas Consumption	m <sup>3</sup>	160,381	261,982	284,619
Electric Power Consumption	MWh	5,659	11,494	13,574

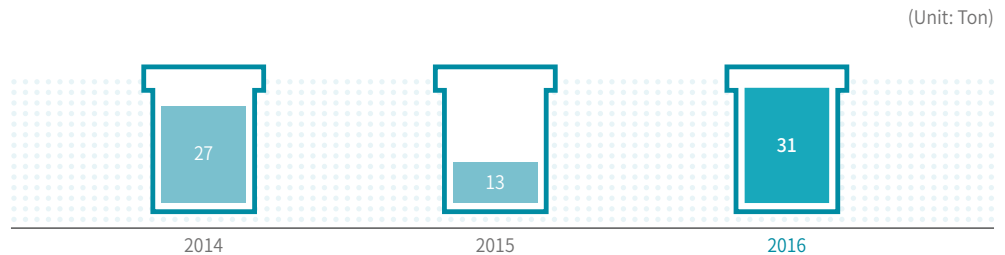
\* Increase in greenhouse gas emissions in 2015 is the result of emissions being comprehensively managed in the relocated headquarters in Gimcheon Innocity with a plottage that is 3.5 times larger than the former headquarters in Bundang, Jukjeon Office, and Daejeon Office combined, in which emissions were separately managed prior to relocation

## Water Consumption (Water and Wastewater Consumption)



\* Water consumption is comprehensively managed without separating water and wastewater.

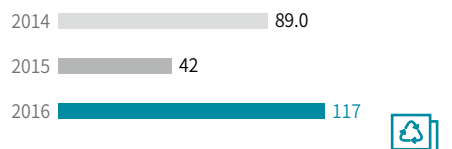
## Municipal Waste Output (Gimcheon)



## Waste Paper Recycling and Waste Acid Treatment

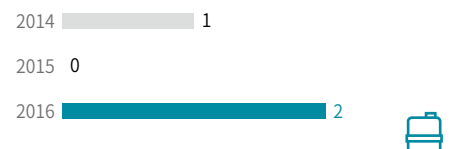
### Waste Paper Recycling

(Unit: Ton)



### Waste Acid Treatment

(Unit: Ton)



# Social Performance

## Talent Management Performance

Category	Unit	2014	2015	2016	
Total	Permanent	Persons	2,200	2,204	2,216
	Temporary	Persons	102	67	50
	Male	Persons	2,072	2,039	2,027
	Female	Persons	230	232	239
	Total	Persons	2,302	2,271	2,266
Disabled Employment Rate	%	3.00%	2.99%	2.99%	
New Recruitment	Persons	120	86	72	
Retirement	Persons	81	83	59	
Turnover	Persons	29	26	13	
Education Hours per Person	Hours	118	101	88	
Industrial Accidents	Disaster cases	0	0	2	
Labor Union Membership	Persons	1,502	1,483	1,501	

- \* 2014 data have been modified from previous reports according to adjusted calculation standards.
- Permanent employees: In the 2014 documents, 27 (5 executives, 20 indefinite-term contract employees, 1 emergency planning employee, and 1 reserve forces commander) were excluded
  - Temporary employees: In the 2014 documents, 20 indefinite-term contract employees were categorized as permanent employees
  - Male employees: In the 2014 documents, 5 (male) executives were excluded
  - Total: In the 2014 documents, five executives were excluded
  - Retirement: In the 2014 documents, 4 retired executives were excluded
  - Resignation: In the 2014 documents, dismissal and early retirement were included in resignations but in 2017 only voluntary resignations were included

## Shared Growth Performance

Category	Unit	2014	2015	2016
Government (MOTIE) Assessment	-	Average (Level 3)	Average (Level 3)	Excellent (Level 1)
Private-sector Job Creation	Persons	6,055	6,091	5,214
Technology Education for Suppliers' Employees	Persons	726	964	561
Joint Project Development	KRW 100M	808(Contract Amount)	-	-
	KRW 100M	1,478 (Completed Amount)	1,198 (Completed Amount)	275 (Completed Amount)
	cases	3	5	8
Shared Benefit Registered/ Confirmed Tasks	cases	0/0	0/0	2/3

- Job creation and contract performance decreased due to changes in management conditions and the completion of headquarters relocation.

Category	Unit	2014	2015	2016	2017(Target)	
Social Purchasing	Disabled Persons Enterprises	KRW 100M	6	5	4	21
	Technology Development Products	KRW 100M	33	222	12	25
	Small and Medium-sized Enterprises		2,998	2,656	1,319	1,763
Public Procurement	%	65.1	69.5	80.3	82.0	

- Public procurement: Ratio of cost spent in purchasing SME products out of the total annual product purchasing cost (According to the Act on Facilitation of Purchase of Small and Medium Enterprise-manufactured Products and Support for Development of Their Markets, 50% of total purchasing cost is the mandatory ratio)
- Public procurement has steadily increased due to efforts to fulfill KEPCO E&C's social responsibility as a public enterprise and actively respond to government policies.
- From 2014 to 2015, the purchase of CCTVs and generators (those certified as technology development products) sharply increased due to the relocation of the headquarters, and the purchasing amount normalized in 2016.

# Human Rights Management

## KEPCO E&C Human Rights Management

KEPCO E&C fully supports the Universal Declaration of Human Rights and does its best to prevent any human rights violations in connection with business management and business relations. The company also strives to comply with the United Nations Guiding Principles on Business and Human Rights (UNGP) as demonstrated in its major performance in human rights outlined below.

### Respect for Diversity and Prohibition of Discrimination

In order to respect diversity and eliminate discrimination based on gender, level of education, race, religion, and other factors, KEPCO E&C makes various efforts to bring about change in people's awareness and improve the related policies. To prevent discrimination based on the form of employment, employees performing work continuing on a permanent basis are considered for permanent employment and are subject to the same salary increase rate and benefit packages as permanent employees. The company fully complies with the Act on the Protection of Dispatched Workers and the Act on the Protection of Fixed-term and Part-time Employees, the number of violations of these laws standing at zero as of 2016. In addition, the company bans discrimination and promotes fairness in human resources management by prohibiting unfair and discriminatory factors such as level of education, solicitation, and regional ties in promotion assessments and operating a performance-oriented HR management.

### Prohibition of Forced Labor and Child Labor

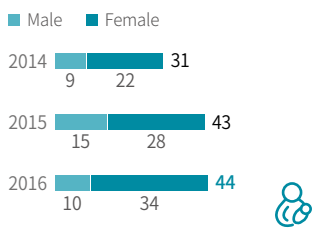
KEPCO E&C prohibits all forms of forced labor such as involuntary servitude and slavery, grave human rights issues that are taking place on a global scale. At the same time, the company also makes systematic efforts to protect the basic rights of the employees of its suppliers, who may be vulnerable to forced labor. All forms of child labor are also strictly prohibited.

### Protection of Motherhood

KEPCO E&C systematically helps its female employees to find a healthy balance between work and home. To make the company's maternity and childcare policies more practical, the company now allows mothers to divide their maternity leave into two time periods and encourages them to take prenatal examination leaves according to their stage of pregnancy. The company has also opened more daycare centers that are able to accommodate a total of 350 children compared to 140 previously. Furthermore, conditions of "maternity rooms" within the workplace have been improved to better support pregnant and nursing employees. As of 2016, 10.5% of KEPCO E&C's employees are women.

### Maternity Leave Status

(Unit: Number of persons)



### Return-to-Work Rate after Maternity Leave

Type	2014	2015	2016
Male	100%	100%	100%
Female	100%	100%	100%
Total	100%	100%	100%

### Strengthening Communication between Labor and Management

KEPCO E&C encourages communication between labor and management through multiple communication channels and various activities. Employees' grievances are settled through the Labor-management Council, in addition to labor-management workshops and collective bargaining to solve issues in a timely manner. In 2016, various issues were settled by holding collective bargaining and workshops on six and two occasions, respectively. Additionally, the company has designated personnel in charge of employee grievance settlements in order to systematically collect and handle employees' opinions. The grievance settlement system is further supported by the Grievance Settlement Committee, Grievance Settlement Counseling Center, and the Voices of Employees.

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# APPENDIX

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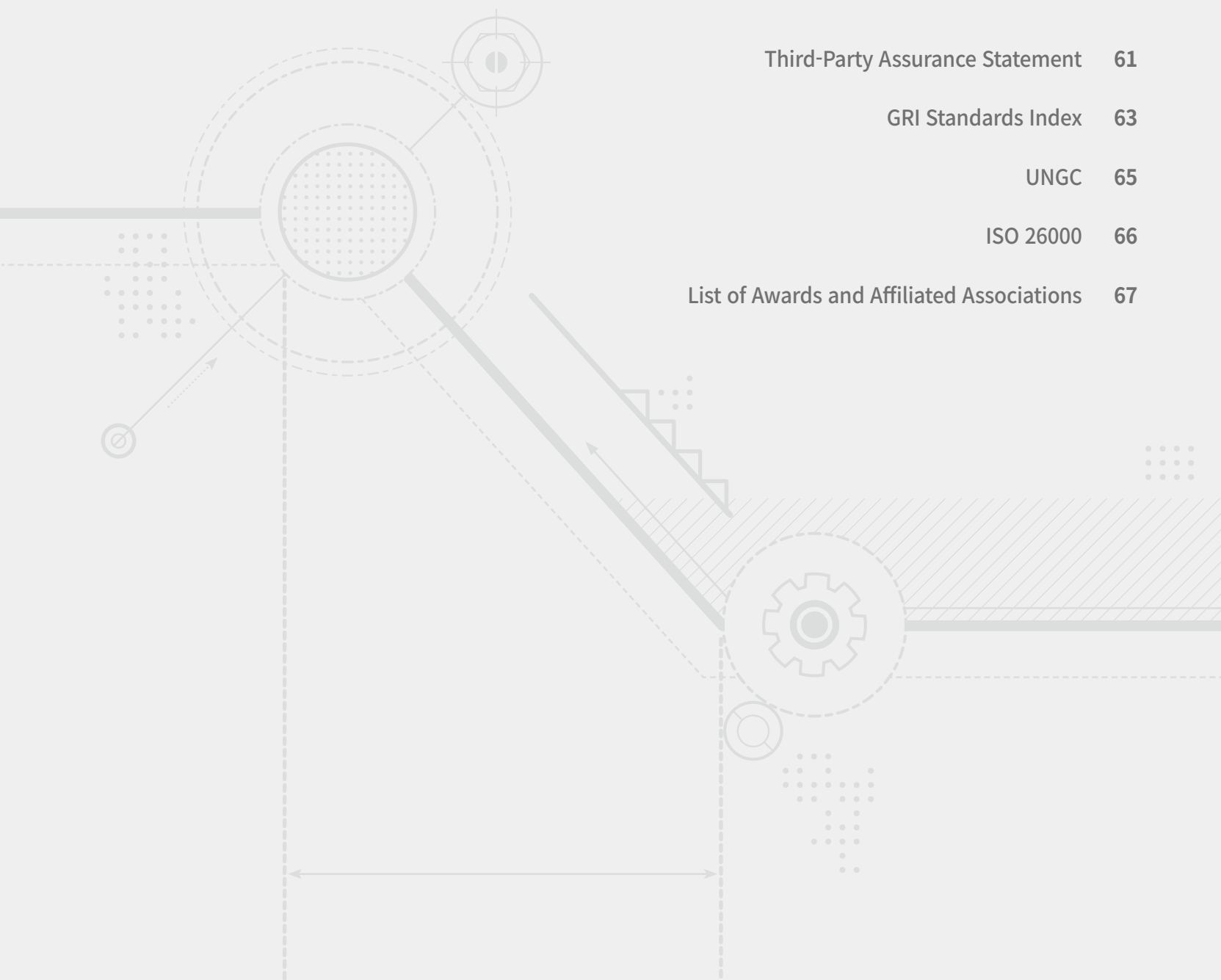
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GRI Standards Index 63

UNGC 65

ISO 26000 66

List of Awards and Affiliated Associations 67



# Third-Party Assurance Statement

## To The Stakeholders of KEPCO E & C

### Preface

KFQ was engaged by KEPCO E&C to provide limited assurance on the '2016 KEPCO E&C Sustainability Report' (further 'the Report'). Our responsibility is to perform a limited assurance engagement and to express a conclusion based on the work performed. KFQ conducted its assurance based on completeness of the data and information provided by KEPCO E&C. KEPCO E&C is responsible for all contents within the Report including the reporting principles and standards.

### Independence

KFQ is not involved in the preparation of any part of the Report, other than providing an assurance opinion, and there has been no interest between KEPCO E&C and KFQ. KFQ has no biased opinion on stakeholders of KEPCO E&C.

### Assurance Standards

KFQ has designed and implemented assurance according to the following standards.

- AA1000 Assurance Standard 2008
- AA1000 Accountability Principles Standard 2008
- GRI Standards
- ISO 26000: Social Responsibility Standard

### Assurance Scope

KFQ identified the followings as its scope:

- KEPCO E&C' sustainable management activities and performances of the headquarter and all business establishment (domestic and overseas) described in the Report
- Compliance with the guidelines according to GRI Standards Core Option
- GRI Standards compliance assessment regarding contents of the Report and assurance principles of reporting quality
- Application of Type 1 assurance approach according to AA1000 APS 2008 and AA1000 AS 2008 to assess compliance with inclusiveness, materiality and responsiveness principles and reliability of sustainability performance information. The term 'Moderate Assurance' used in AA1000 AS is designed to be consistent with 'Limited Assurance' as articulated in ISAE 3000.
- Core subjects in ISO 26000

### Assurance Procedures

KFQ designed procedures to have reasonable assurance of the Report's critical errors or inappropriate information. KFQ verified the reliability of the contents, processes and systems of data generation and report preparation.

#### • Document Review

We reviewed the reliability of non-financial data in respect of the 'Sustainability' by cross-checking the Report with GRI Standards, quantitative data of KEPCO E&C, and internet & media research information. We also confirmed whether or not the financial information mentioned in the Report was correctly derived from internal documents and the audited financial statements from business report on Financial Supervisory Service Dart System (<http://dart.fss.or.kr>).

#### • On-site Verification

KFQ visited KEPCO E&C headquarter and conducted on-site verification to confirm reliability of the sustainability activities and performance data contained in the Report and to evaluate the effectiveness of the reporting process. We performed verification in the accuracy topic of the aggregated data from KEPCO E&C. These procedures included the following:

- Materiality assessment process, stakeholders inclusiveness, key issues, internal response procedures, and etc.
- Assessment of data analysis and descriptions and sustainable management performance in the Report
- Consistency between the financial data contained in the Report and the audited financial statements 2016
- Interviews with relevant staff responsible for providing information in the Report

#### • Resolution of Findings

KFQ confirmed that some errors, inappropriate information, and ambiguous expressions found during on-site visit were properly reflected in the final Report.

#### • Limitations

The Report has been prepared solely for KEPCO E&C in accordance with the terms of our engagement. We do not accept or assume responsibility to anyone other than KEPCO E&C for our conclusions we have reached in the statement. Completeness and responsiveness of sustainability performance information presented in the Report have inherent limitation due to their nature and the methodology used for determining, calculating and estimating such data.

### Opinion

Based on the verification activity stated herein, KFQ confirmed that the Report meets the GRI Standards 'Core Option'. According to the principles of AA1000 APS 2008 and AA1000 AS 2008, inclusiveness, materiality and responsiveness, sustainability performance information were assessed and KFQ could secure reasonable grounds to provide Type 1 level of assurance with the following confirmation:

1. (Stakeholders Inclusiveness) KEPCO E&C subdivided nine stakeholders into three groups related to the major issues of sustainable management. To hear any concerns and opinions from them, KEPCO E&C had a customized communication strategy for each stakeholder group and reflected their responses and opinions to its sustainable management activities.
2. (Sustainability Context) In terms of sustainability, KEPCO E&C continues to actively respond to the economic, environmental and social effects that stakeholders requires based on the core issues. These sustainable management activities and performances were properly contained in the Report.
3. (Materiality) KEPCO E&C established issue pools and reviewed by internal guidelines and external assessment criteria (GRI Standards guideline, DJSI, ISO 26000, media coverage, benchmark, and issue analysis) incompliance with the materiality assessment process. We are not aware of any material topics concerning its sustainability performance which have been excluded from the Report.
4. (Completeness) KEPCO E&C applied reporting scope, boundary and temporal criteria. We confirm that the Report is suitable for stakeholders to assess sustainability performance.

### Recommendation for Improvement

For further advanced sustainable management, KEPCO E&C is expected to monitor sustainability performance index for corporate social responsibility in a systematic way, reflect those required improvements on its management activities by setting up medium to long-term plans. In addition, KFQ recommends KEPCO E&C to set up continuous management improvement measures for the key issues evaluated by their importance and mainly focus on them when generating future reports.

August 2017  
Seoul, Korea

CEO Nam Dae Hyun  
Korean Foundation for Quality (KFQ)



*Nam Dae Hyun*

# GRI Standards Index

## Gri Standards Universal Standards (GRI 100)

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	102-3	Location of headquarters	5	
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	102-7	Scale of the organization	5-6	
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	102-11	Precautionary Principle or approach	1	
	102-12	External initiatives	1, 59, 65-66	
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<b>GRI 102 : Governance</b>	102-18	Governance structure	11-12	
<b>GRI 102 : Stakeholder Engagement</b>	102-40	List of stakeholder groups	15	
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	102-43	Approach to stakeholder engagement	15	
	102-44	Key topics and concerns raised	15	
<b>GRI 102 : Reporting practice</b>	102-45	Entities included in the consolidated financial statements	5-6	
	102-46	Defining report content and topic Boundaries	13-14	
	102-47	List of material topics	13-14	
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	102-49	Changes in reporting	1	
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## UNGC

Since joining the UN Global Compact in 2007, KEPCO E&C has complied with the ten major principles in the four areas of human rights, labor, environment, and anti-corruption. The company will strive to be a leading Korean company in global sustainable management by respecting international standards in sustainable management and fulfilling its social responsibility.

Major themes	Principle	Page
Human Rights	1. Businesses should support and respect the protection of internationally proclaimed human rights.	59
	2. Make sure that they are not complicit in human rights abuses.	59
Labor	3. Uphold the freedom of association and the effective recognition of the right to collective bargaining.	51
	4. Eliminate all forms of forced and compulsory labor.	59
	5. Abolish child labor effectively.	59
	6. Eliminate discrimination in respect of employment and occupation.	48, 59
Environment	7. Support a precautionary approach to environmental challenges.	29-30
	8. Undertake initiatives to promote greater environmental responsibility.	29-30
	9. Encourage the development and diffusion of environmentally friendly technologies.	33-34
Anti-Corruption	10. Work against corruption in all its forms, including extortion and bribery.	44-45

# ISO 26000

ISO 26000 is an international standard published by the International Organization for Standardization (ISO), providing guidance on integrating social responsibility into a company – more specifically, the seven core issues of organizational governance, human rights, labor practices, the environment, fair operating practices, customer issues, and community involvement and development. Through various efforts to comply with the ISO 26000, KEPCO E&C will strive to be a sustainable company.

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	Technology development and access	6.8.6	
	Creation of wealth and income	6.8.7	
Health	6.8.8		
Social investment	6.8.9		

## Awards and Membership in Associations

### External Evaluations and Awards

Award	Year	Organization
Minister of Defense Appreciation Certificate for "One-company, One-barrack" program	2015	Ministry of Defense
President of the Korean Red Cross Appreciation Certificate for establishing customized CSR	2015	Red Cross Gyeonggi Branch
2015 Korea Nuclear Technology Award – Group Award for Nuclear Design and Equipment Production (Development BG) - Distinguished Service in the Area of International Cooperation in Nuclear Power (Ha Jae-hong, Head of Department and Lee Seong-myun, Head of Department)	2015	Korea Atomic Industrial Forum
Sustainability Report Award - LACP 2015 Spotlight Awards Gold	2015	LACP (League of American Communications Professionals)
ITER Business Forum 2015 - 'Invest in Provence Award'	2015	Provence Foreign Investment Promotion Agency, Marseille Chamber of Commerce and Industry
Korean National Quality Award, Presidential Award	2016	Korean Standards Association
2016 Dream Start Performance Report Appreciation Certificate	2016	Gimcheon Innocity
2016 Korea Green Architecture Competition, Grand Prize	2016	Presidential Commission on Architecture Policy

## Membership in Associations and Groups

### Memberships to Organizations

Korea Listed Companies Association (Auditor)	Gimcheon City (registration license fee)	Korean Association of Environmental Impact Assessment
Public Corporation Audit Forum	Gyeonggi Branch Office of Korea Construction Association	Korea Management Association
Institute of Internal Auditors Korea	Korea Association of Surveying and Mapping	Korea Electronic Document Industry Association
Korean Standards Association	Korea Construction Technology Management Association	Korea Productivity Center
Seoul Bar Association	Korea International Trade Association	Korea Industrial Technology Association
NY State Office of Court AD.	Korea Fire Facility Association	Korean Association for Industrial Technology Security
Korea Listed Companies Association	Korea Fire Safety Association	Korea Nuclear Association for International Cooperation
Emergency Safety Planner, Ministry of Trade, Industry and Energy	Korea Engineering Promotion Association	Korea Plant Industries Association
Chamber of Commerce and Industry	Korea Electric Works Corporation Gyeonggi-do	Plant EPC Committee
Seoul Office of Korea Exchange	Korea Institute of Electrical Engineers	Association of Overseas Infrastructure Development
CFO Academy	Korea Information and Communications	Council of the Heads of Daeduck R&D Special Institutions
Korean Network on Anti-Corruption & Transparency	International Contractors Association of Korea	Daedeok Innopolis
Korean Academy of Organization and Management	Korea Association of ESCO	Korea Special Library Association
Korea Construction Engineers Association	Korea Architects Registration Board	
Gyeongbuk Metropolitan Government (registration change notification fee)	Korea Personnel Improvement Association	

### Memberships to Technology-related Organizations

Korea Construction Engineers Association	Korea Electric Engineering Association	Korea Engineering & Consulting Association
Korea Electric Association	Korea Nuclear Industry Council	Korean Nuclear Society
Korea Industrial Technology Association	International Electrical Research Exchange (IERE)	Korea Energy Foundation (WEC Korea Committee)
Korea Electrical Engineering & Science Research Institute	Korea Engineers Club	AESIEAP
Energy Future Forum	Korea Forum of Chief Information Officers	Korea Institute of Information Security and Cryptology
Korea Atomic Equipment Advancement Association	Society for Women in Nuclear Power	Korea Association for Fusion Energy and Accelerator Technology
Women in Nuclear Korea	The Korean Radioactive waste Society	Korean Association for Radiation Protection
Korean Society of Mechanical Engineers	Korean Society for Mechanical Engineers (Energy and Power Engineering)	Korea Institute of Fire Science and Engineering
Computational Structural Engineering Institute of Korea	Power Standard Operating Council	ASME
The Korean Society for Noise and Vibration Engineering	IEEE (Institute of Electrical & Electronics Engineers)	The Korean Institute of Electrical Engineers
The Korean Institute of Electrical Engineers, Council	Korea Instrument and Controls Professional Engineers Association	The Institute of Electronics Engineers of Korea
The Ergonomics Society of Korea	Korea Concrete Institute	International Systems and Automation (ISA)
Korean Society of Civil Engineers	The Geological Society of Korea	Korean Society of Steel Construction
Earthquake Engineering Society of Korea	ACI(American Concrete Institute)	Korea water Resources Association
The Korean Society of Engineering Geology	The Korean Structural Engineers Association	Architecture Institute of Korea
ASTM-D33 Technical Committee	Korean Institute Of Construction Engineering and Management	Korean Institute of Landscape Architecture
Korea Project Management Association (KPMA)	The Corrosion Science Society of Korea	ASME PVP
Korean Society of Pressure vessels & Piping	Computational Structural Engineering Institute of Korea	RANDEC (Radwaste & Decommissioning Center)
CICIND(International Committee on Industrial Chimneys)	The Korean Institute of Electrical Engineers-Studies Association	Korean Geotechnical Society
Korean Institute of Navigation and Port Research	Korean Association of Environmental Impact Assessment	Korea Smart Grid Association
Korea CCS Association (Korea Carbon Dioxide Capture and Storage Association)	WNA(World Nuclear Association)	Korea wind Energy Industry Association
Korea New & Renewable Energy Association	Korea Institute of Plant Engineering & Construction	Korean Standards Association
Korea Institute of Quality Management	Korean Society of Project Management (KSPM)	Korean Association of Ocean Science and Technology Societies
Korean Energy Climate Environment Council		



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