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KEPCO KPS Sustainability Report 2012

# **BRINGING THE LIGHT** OF DREAMS AND HOPES









# **ABOUT THIS REPORT**

# Reporting Boundary and Scope This report contains the according see







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## 2011~2012 Highlight

KEPCO KPS shapes a world where all of us are happy with sustainable growth and development. The material sustainability management issues of KEPCO KPS during 2011 and 2012 are as follows:



1,006,609,423,499

#### **Achieved KRW 1 Trillion in Sales**

For the first time since it was established,
KEPCO KPS posted KRW 1.0066 trillion in sales in 2012.
This has enhanced the possibility of realizing our long-term goal,
Vision 2020, to take off anew as a global top-tier company
by recording KRW 3 trillion in sales by 2020.



# **GRAND SLAM**

#### **Grand Slam in Quality Management Innovation**

KEPCO KPS won the Grand Prize in the Korea Quality Awards in 2009.

We were also inducted into the 2011 National Quality Competitiveness best company hall of fame and the Korea Service Awards hall of fame.

With all these, we recorded a grand slam in the quality management innovation sector.



# 8 Years in a row

#### Realized Defect-Free Maintenance for 8 Years in a Row

We have contributed to stable power supply, realizing defect-free maintenance with zero outage for 8 consecutive years.
We created a construction substitution effect of 351MW in 2012 through construction period reduction for planned outage maintenance projects.



# **GRAND PRIZE**

# Awarded a Grand Prize in the SBS Hopeful Tomorrow Sharing Awards

KEPCO KPS received the Grand Prize in the corporate sector of the 1st Hopeful Tomorrow Sharing Awards organized by SBS in December 2011.

Under the slogan "World becomes one with love to share," we signed an agreement with the Children Foundation, which has a nationwide network, and developed "Building Hope Ground," a CEO's social contribution program, in November 2009. Likewise, we have been operating the program at the enterprisewide level.



# Management and labor Cooperation

# Selected as an Excellent Company in Labor-Management Social Responsibility

In January 2012, we were named excellent company in labor-management social responsibility by the Ministry of Employment and Labor, and KIRA in recognition of our new employment creation and joint practice of social responsibility between labor and management.



# **DJSI KOREA**

# Chosen as the Best Company of DJSI Korea for 4 Years in a Row

We were chosen as the best company in the support service industry sector of DJSI Korea for four consecutive years since 2009. With this, our sustainability management performance has been recognized internally and externally in both non-financial and financial aspects.



# USD 1,000 Million

# Won USD 1 Billion O&M Project for Jordan IPPs Diesel Power Plant

We signed a USD 1 billion O&M contract for the Jordan IPP 600MW diesel power plant with AAEPC, a KEPCO consortium, in Jordan.



# **Best HRD**

# Re-Certified the Best HRD Institution

We reassured our status as a leading company in talent fostering through re-certification as the best HRD institution co-awarded by the Knowledge Economy Ministry, Education Ministry, Science and Technology Ministry, Employment and Labor Ministry, and Small and Medium Business Administration in September 2011.



# Win-Win Growth

#### Externally Certified as Performance Sharing System-Adopting Company

We operate a performance sharing system to pursue win-win growth with small and medium businesses (SMBs) and create mutual profits.

Actually, we were confirmed as a performance sharing-adopting company by the Large and Small Business Cooperation Foundation in November 2012.



# ISO 9001&14001

Operate the GHG Emissions Reduction Target Established, Head Office/GT Maintenance Technology Center Acquired Integrated Certification of ISO 9001 & 14001

We operate the greenhouse gas (GHG) emissions reduction target we have established to embody low carbon, green growth. In July 2011, our Head Office/GT Maintenance Technology Center acquired integrated certification of ISO 9001 & 14001 systems.



KEPCO KPS will take off anew as a global company through Sustainable growth management.



# To our valued stakeholders: Thank you for your unwavering encouragement and support for KEPCO KPS.

KEPCO KPS is a power generation facility maintenance company established for the efficient maintenance and management of power generation facilities – the core of national economic development – in 1974. We have been contributing to national convenience enhancement through incessant technology development and talent fostering for more than 40 years now. Furthermore, KEPCO KPS has been continuously challenging itself, taking pride in contributing to human society and development of the national economy.

KEPCO KPS has set "Sustainable Growth Management" as a management policy. All our employees and management are doing their best to become a company that respects customers and markets, considering humans first, placing importance on the environment, fulfilling its social responsibilities, and enjoying the trust of stakeholders by pursuing the vision of world's top-tier company, putting importance on customers and markets, enhancing communication and collaboration, and fulfilling its social responsibilities.

Publishing the fourth sustainability report following 2007, 2009, and 2011, KEPCO KPS saw many changes and various types of performance during the reporting period 2011~2012.

Concerning management performance, we maintained steady growth in top line (sales) and bottom line (net income) by posting KRW 1.0066 trillion in sales and KRW 117.9 billion net income in 2012 following our 2011 performance of KRW 925.5 billion in sales and KRW 104.7 billion net income in 2011. In particular, our 2012 sales performance of KRW 1.0066 trillion has symbolic meaning, i.e., our sales surpassed the KRW 1 trillion mark for the first time since our establishment. This can be attributed to our efforts to upgrade our maintenance technology to the world's top-tier level through relentless advanced technology development and global talent fostering since our company's establishment. I also believe it is the result of the faithful practice of sustainability management, based on communication and collaboration with various stakeholders.

Having said that, we have been recognized in various fields of sustainability management in view of our selection as the best company of DJSI (Dow Jones Sustainability Indexes) for four consecutive years, induction into the Korea Service Awards hall of fame, induction into the hall of fame as Excellent Company in Quality Competitiveness, selection as Outstanding Company in Labor-Management Social Responsibilities, and receipt of the grand prize in the SBS Hopeful Tomorrow Sharing Awards. We are committed to taking off anew through practice in each field as follows by using these awards as impetus to contribute further to the sustainable development of human society instead of resting on our laurels:

#### We will realize continuous growth management through core capability consolidation.

KEPCO KPS declared Vision 2020 as its mid- and long-term strategic management plan to respond to the rapidly changing management environment and for sustainable development in 2010. At the end of 2011, we reset strategic tasks through an analysis of the management environment and internal capacity, adjustment of sales and human resource (HR) size reflecting the business environment change, and coordination of action plan to secure strategy implementation capability. Based on mid- and long-term targets of KRW 3 trillion sales, 16 percent operating profit ratio, and 40 percent overseas sales by 2020, KEPCO KPS seeks to grow as a global business partner leading the green energy service industry. Toward this end, we will bolster our core capabilities by securing cutting-edge maintenance technology and fostering global talents.

#### We will become a company that respects customers and markets.

We will carry out business based on customer and market needs and do our very best for customer satisfaction by meeting those needs. With our unique and differentiated services, we will enhance brand value and strive to improve customer satisfaction. Through external business expansion and overseas market development, we will relentlessly create new growth engines and diversify our business portfolio that is impervious to management environment change.

#### We will become a company that puts humans first.

KEPCO KPS respects the dignity and value of employees, who are the source of its competitiveness, and lets them pursue pride and happiness within workplace. Based on human-oriented management, we will develop new welfare policy, embody fair human resource (HR) policy, establish a safety culture at the workplace, and flourish as a company respecting autonomy and creativity.

#### We will become a company that puts importance on the environment.

To conserve the environment, the ground of the future generation's life, we are committed to mitigating greenhouse gas (GHG) emissions, building an environmental management system and acquiring certification, and minimizing environmental impacts and developing eco-friendly maintenance technology through the optimum maintenance of power plant facilities. We will spearhead low carbon, green growth through renewable technology development and business development for green growth.

#### We will become a company that fulfills its social responsibilities and enjoys the trust of stakeholders.

We will enhance management transparency with strict business dealing and information disclosure based on ethical management. We will establish win-win cooperation through the active performance of sharing management, consolidation of partnership with stakeholders, and activation of support for small and medium businesses (SMBs). All in all, we will strive for win-win growth with our partner firms.

KEPCO KPS joined the UN Global Compact in September 2007 to fulfill its social responsibilities and embody sustainability management. We have manifested our support for 10 principles in four fields: human rights, labor, environment, and anti-corruption of the UN Global Compact. All our employees and management pledge to comply with these principles faithfully.

We at KEPCO KPS are committed to grow into a leading global sustainability management company by fulfilling our economic, social, and environmental responsibilities to all our stakeholders worldwide.

Thank you.

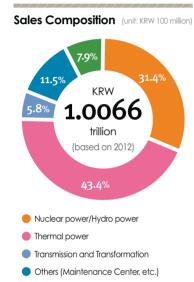
CFO Tae Suna-eur

Sungen Tole



#### **KEPCO KPS Profile**

KEPCO KPS is a power generation facility maintenance company and we are doing our utmost for stable supply of electric power.



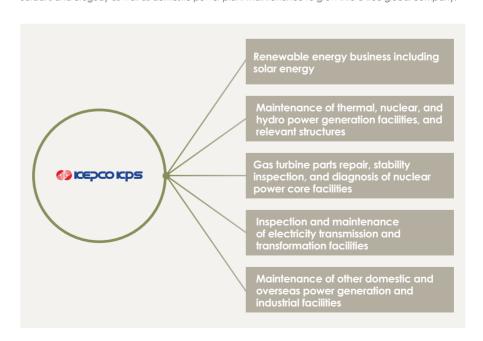
#### **General Status**

KEPCO KPS is the world's best general plant service company offering maintenance services for overseas power generation facilities, not to mention domestic power generation and industrial facilities including thermal power, nuclear power, hydro power, and electricity transmission and transformation. We also operate technology research centers developing comprehensive maintenance systems and core technologies for core parts repairs of power generation facilities. In addition, KEPCO KPS engages in the renewable energy business such as solar photovoltaic and wind power generation.

Trend in Sales			(unit: KRW 100 million)
Category	2010	2017	2012
Sales	8,385	9,255	10,066
Trend in Overseas	Business		(unit: KRW 100 million)
Category	2010	2011	2012
Sales			

#### **Business Areas**

KEPCO KPS was established to contribute to the stable supply of electric power through the specialization of power generation facility maintenance technologies. Toward this end, we operate the following businesses and enhance brand values, reinforce corporate competitiveness, and improve technological prowess through overseas O&M (operation & maintenance) business in India, Philippines, Pakistan, Madagascar, Jordan, and Uruguay as well as domestic power plant maintenance to grow into a true global company.



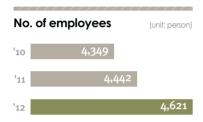
#### Seoincheon Thermal Power Plant

Overseas



#### **Wolseong Nuclear Power Plant**





# View of the KEPCO KPS Head Office



Bird's-eye view of new company building of KEPCO KPS

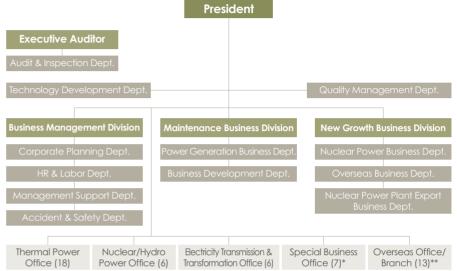


View of company building to be relocated (May 2013)



#### **Organizational Structure**

With its headquarters in Bundang-gu, Seongnam-si, Gyeonggi-do, KEPCO KPS has three divisions and 12 departments at the head office, 37 domestic offices, and 13 overseas offices.



- \* Special Offices: Maintenance Technology Center (2 centers), Training Center (2), Renewable External Center, Hwaseong Office, Technology R&D Center
- \*\* Overseas offices (10) / branches (3): Vemagiri, Chanderiya, Jharsuguda, Balco, Wardha, Ilihan, Daharki, Ambatovy, ACC Wadi, Norte/India, Indonesia, Saudi Arabia

#### History (Y/M)



#### Status of Relocation of Company Building to Provincial Area

KEPCO KPS plans to relocate its head office to Naju City in Jeollanamdo according to the public agencies' company building relocation plan to provincial areas. The new company building will rise on a 52,894m² area, with floor area of 36,956m² and 1 floor underground and 19 floors aboveground. The building will realize energy savings and operate an intelligent, eco-friendly building system (IBS).

As of the end of May 2013, the construction process rate of the new company building was about 20 percent, and the building is slated to be completed in the second half of 2014. As a relocation measure, we are securing residential houses for employees (231 households) for their residential stability, with the financial source to be procured using our own cash and money from the sale of the company building.

Meanwhile, KEPCO KPS has contributed to local economic activation by carrying out mandatory contracts (40%) for companies located in Gwangju and Jeonnam, and regional restriction bid under the Enforcement Ordinance of the National Contract Act and Strategy Finance Ministry's notice in contracting the new company building construction.

#### KEPCO KPS Sustainability Report 2012



# Management Performance and Goals

KEPCO KPS has generated KRW one trillion in sales for the first time since KEPCO KPS was established. We are doing our best to achieve our long-term strategic management plan "VISION2020", which aims KRW three trillion and 14.7 billion in sales, 16 percent of operating and net income on sales, and 40 percent in sales from overseas sales.

#### Major Financial Performance Compared to the Previous Year

Financial Sta	atus	(unit: I	(RW 100 million)
Category /	2011	2012	Change ratio
Assets	6,724	7,562	12.5%
Liabilities	1,782	2,247	26.1%
Shareholders' equity	4,942	5,315	7.5%

Business Performance (unit: KRW 100 million)				
Category /	2011	2012	Change ratio	
Sales	9,255	10,066	8.8%	
Operating income	1,171	1,422	21.4%	
Net income	1,047	1,179	12.6%	

Financial Ratios (unit: %)					
Category /	2011	2012	Change ratio		
Operating income to sales ratio	12.6	14.1	1.5%p		
Net income to sales ratio	11.3	11.7	o.4%p		
Net income to total assets ratio	15.4	16.5	1.1%p		
Net income to net worth ratio	22.6	23.0	o.4%p		

<sup>\*</sup> Assets and shareholders' equity are the average of the beginning and ending balances. Net income has been added to or deducted from shareholders' equity.

#### 2012 Management Performance

Sales in 2012 stood at KRW 1.0066 trillion, up KRW 81.1 billion or 8.8 percent, surpassing the KRW 1 trillion mark for the first time since KEPCO KPS was established. This is attributable to overseas sales increase and maintenance/repair project increase including Nuclear Power Maintenance Technology Center. In keeping with the management rationalization plan of KEPCO affiliated companies, we have continued to cut operating expenses; thus, operating income and net income stood at KRW 142.2 billion and KRW 117.9 billion, respectively, up by KRW 25.1 billion or 21.4 percent and by KRW 13.2 billion or 12.6 percent, respectively, compared to the previous year.

#### Status of 2012 Management Performance

(unit: KRW 100 million)

Category	2010	2011	2012	Increase rate compared to 2011 (%)
Sales	8,385	9,255	10,066	8.8
Gross margin	1,211	1,705	2,026	18.8
Operating income (operating income ratio)	742 (8.8%)	1,171 (12.6%)	1,422 (14.1%)	21.4 (1.5%p)
Net income	641	1,047	1,179	12.6

#### Performance in Each Business Sector

(unit: KRW 100 million)

Category	2010	2011	2012	Increase rate compared to 2011 (%)
Thermal power	3,346	4,100	4,372	6.6
Nuclear/Hydro power	3,142	3,045	3,158	3.7
Electricity transmission and transformation	610	635	586	▲ 7.7
Maintenance technology center	642	906	1,133	25.1
Others (overseas)	645 (608)	569 (551)	817 (796)	43.6 (44.5)
Total	8,385	9,255	10,066	8.8

**The thermal power sector's** sales stood at KRW 437.2 billion, up 6.6 percent compared to the previous year, thanks to increases in routine maintenance and large-scale planned outage maintenance projects.

**The nuclear/hydro power sector's** sales rose 3.7 percent compared to the previous year, following an increase in routine maintenance work from Shinwolseong Power Plant and an increase in carried-forward planned outage maintenance from the previous year.

**The electricity transmission and transformation sector's** sales declined 7.7 percent to KRW 58.6 billion, due mainly to sales decline in routine maintenance following the unit price decrease of commissioned maintenance.

**The Maintenance Technology Center sector's** sales were pegged at KRW 113.3 billion, up 25.1 percent thanks to an increase in high-temperature parts recycling maintenance stemming from the thermal power planned outage maintenance by GT Maintenance Center and increases in large-scale maintenance/ repair including maintenance service for Uljin units # 3 and 4 steam generator heat pipes by the Nuclear Power Maintenance Technology Center.

Other sector's sales stood at KRW 81.7 billion, up 43.6 percent compared to the previous year, following an increase in overseas sales (KRW 24.5 billion) after winning KRW 1 trillion worth of overseas projects.

#### Mid- and Long-term Business Prediction System



#### Adjustment of Mid- and Longterm Sales Targets

#### Dividend Status

Category ///	2010	2011	//2012/
Total dividend (KRW 100 million)	495	729	648
Dividend per share (KRW)	1,100	1,620	1,440
Dividend ratio (%)	550%	810%	720%

#### Mid- and Long-Term Financial Plan Rolling

KEPCO KPS has re-implemented mid- and long-term financial prospects through the 2012 mid- and long-term management prediction system to cope actively with internal and external management environment changes, inspect Vision 2020's financial goal feasibility, and reflect the business environment changes. We fortified the public company's fundamental functions through the simultaneous pursuit of public benefit and profitability and set – as the basic direction of mid- and long-term financial plans – the sharing of financial accountability in the public sector in line with the government policy direction as well as financial soundness fortification through non-borrowings management.

The targeted sales and operating income ratio in 2020, which were re-set in 2012, are KRW 3.0147 trillion (overseas sales ratio: 42.8%), and 16.2 percent, respectively.

Describing the sales target adjustment in detail, we slightly lowered sales targets in nuclear power/hydro power and electricity transmission and transformation as well as each domestic and overseas business field by reflecting the conversion of joint construction for pumped storage power plants to foster private companies, decline of ordinary successful bid rate for electricity transmission and transformation, and reflection of fierce competition trend in the power generation maintenance industry according to private companies' entry in the market. We also raised sales targets in new and overseas businesses by reflecting the sales target in the thermal power business by considering the annual performance upward trend and 5th revised power supply portion, order expansion in the renewable energy business including huge amount of solar photovoltaic business, and large-scale overseas business orders such as winning the Jordan O&M project.

#### Mid- and Long-Term Financial Plan

(unit: KRW 100 million)

Category	<b>2011</b> (performance)	2012 (performance)	2013	2015	2018	2020
Sales	9,255	10,066	11,034	14,304	21.712	30,147
Operating income	1,171	1,422	1,479	2,031	3,300	4,884
Net income	1,047	1,179	1,270	1,738	2,833	4,181
Net income ratio (%)	11.3	11.7	11.5	12.2	13.0	13.9
Debt to equity ratio (%)	36.1	42.3	34-4	29.8	29.2	28.7

#### **Economic Value Creation and Achievement Distribution**

KEPCO KPS generated KRW 1.0066 trillion in sales through power generation facility maintenance in 2012; interest income stood at KRW 11.5 billion based on financial asset operation.

Interest expense. KEPCO KPS has been maintaining non-borrowings management since 2001.

**Dividend.** Total dividend paid by KEPCO KPS in 2012 was KRW 64.8 billion, down KRW 8.1 billion compared to KRW 72.9 billion in 2011. Dividend per share was KRW 1,440 in 2012, down 11.1 percent compared to 2011.

**Labor cost.** Labor cost in 2012 was pegged at KRW 418.4 billion; excluding serverance pay(KRW 29.8 billion), it was KRW 388.6 billion.

**Taxes.** The corporate income tax specified in the balance sheet was KRW 36.4 billion, up 40.0 percent compared to the previous year.

**Donations.** Donations in 2012 stood at KRW 1.4 billion including donations to help unfortunate neighbors and contribution to the operation of KEPCO INGS, down KRW 500 million compared to the previous year.

#### **Government Subsidies**

For the power business's continuous development and power demand and supply stability, we have implemented power industry and nuclear power research projects commissioned by the government and received government subsidies. In 2010, we received KRW 500 million in relation to wind power generators suitable for forebay. In 2011, we received KRW 2.3 billion for the development of foreign substance inspection/removal system for nuclear reactor and its coolant system. We were also awarded KRW 2.4 billion for the development and international certification of the next-generation system for the automatic non-destruction test of the exported nuclear reactor. As of the end of 2012, the donation balance was KRW 1.4 billion, and five development projects are underway.



## Vision and Strategy

To meet our long-term strategic management plan "VISION 2020", KEPCO KPS established four strategic directions and ten strategic tasks under the vision of "Global business partner leading the green energy service industry"

#### **Business Philosophy**

"We contribute to human society by creating the highest customer value" is our business philosophy. "Highest customer value creation" involves creating and offering customer value by identifying customer needs with cutting-edge technology and new solutions. "Contribution to human society" entails offering the best services through customer value creation and management innovation and helping make human society more enriched and contributing to its further prosperity.

#### **Core Values**

Our core values are satisfying customers, pursuing innovation, placing importance on technology, fostering talent, and pursuing world-class. Customer satisfaction means offering top value to customers, placing high priority on customers. Pursuing innovation pursuit involves actively responding to environmental changes – such as competition introduction – with innovative thinking and behaviors. Putting importance on technology entails offering the world's top-tier services and securing core technologies that can lead global markets. Fostering talents means discovering and fostering global talents equipped with passion as well as the highest expertise and professionalism in their job. Finally, pursuing world-class involves pursuing the world's top level in the business field, talent fostering, technology development, and business type as the target of all these values.

#### Vision

Our vision is "Global business partner leading the green energy service industry." The green energy service industry means offering services across all energy business fields including parts design, manufacture, and consulting as well as operation and maintenance; thus covering the green energy field. Global business partner means not only placing KEPCO KPS as a global market leader from the business and technical standpoints and delivering business performance at the level of overseas advanced companies but also working as an equal business partner by offering specialist services in customer's business operation.



# Goals of sustainability management Transparency Become world's top company with continuous growth management Ozone-friendliness

#### Strategy for Implementing Sustainability Management

KEPCO KPS operates the practice system it has built, such as values reflecting the CEO's robust commitment as well as economic, social, and environment aspects required by sustainability management, aiming at becoming the world's top company with continuous growth management for sustainability management.

#### Strategy for Implementing Sustainability Management



#### **Enactment of the Code of Sustainability Management**

We enacted a code pledging the following in July 2008: All our employees contribute to national, social, and human sustainable development by helping fulfill the social responsibilities of KEPCO KPS as a leading company in power facility maintenance. We also grow into a global business partner leading the green energy service industry.

#### **Sustainability Management Organization**



#### **KPI of Sustainability Management**

KEPCO KPS manages the KPI it has deduced as follows in each sector of sustainability management – i.e., economic, social, environmental, and human aspects – to inspect periodically the goals and strategies of sustainability management and feedback.

Category	KPI name	// Unit	//2010/	2011	2012
Economic	Economic Sales		8,385	9,255	10,066
	Value-added productivity per person	KRW 1 million	118	116	123
	R&D investment ratio (to sales)	%	4.7	5.0	5.0
	Defect-free maintenance	Case	0	0	0
Social	Integrity enhancement	Point	9.76	9.86	9.73
	Customer satisfaction enhancement	Point	95.4	95.6	96.5
	E-procurement ratio expansion	%	96.3	96.5	97-5
	SMBs' product purchase ratio	%	82.8	84.5	82.8
	Amount of social contribution activity	KRW 100 million	13	11	11
Environmental	Energy use reduction	%	-	7.5	6.7
	Reduction of total greenhouse emissions	%	-	7.5	6.7
	Sales of renewable energy business	KRW 100 million	49	24	50
	Green product purchase amount	KRW 100 million	28	29	30
Human	Accident rate	%	0.01	0.03	0.05
	Employee satisfaction	Point	77.8	80.1	80.2
	Turnover rate	%	1.0	1.6	1.4
	Education/Training hours per person	Hrs	71.5	81.8	75-5

#### **UN Global Compact support**



#### **UN Global Compact**

KEPCO KPS joined the UN Global Compact in September 2007 to fulfill its social responsibilities and realize sustainability management. We declared support for 10 principles in such four fields -- human rights, labor, environment, and anti-corruption -- and presented Communication on Progress (COP) in November 2008. We actually reconfirm our support declaration annually.

# Selected as the best company in DJSI



#### Incorporated into DJSI, Selected as the Best Company

We have been incorporated into DJSI (Dow Jones Sustainability Management Indexes) for 4 years in a row since 2009. We were also selected as the best company in the support service field, and our sustainability management performance was certified externally. KEPCO KPS cyclically inspects the economic, social, and environmental responsibility implementation levels and improves the insufficient aspects continually.

#### **Code of Sustainability Management**

All our employees pledge to contribute to social, national, and human sustainable development by practicing sustainability management in the economic, environmental, social, and human aspects, helping fulfill the social responsibilities of KEPCO KPS as a leading power facility maintenance company and valuing all stakeholders. Likewise, we promise to grow continually and develop into the world's top comprehensive plant service company.

- One, we will search for new growth engines, enhance profitability, and boost corporate value through sound financial structure.
- One, we lead maintenance engineering technology development with incessant technological innovation.
- One, we improve management efficiency and secure competitive edge with routine and autonomous management innovation practice.

Economic
Continuous
growth
Continuous

Code of sustainability management

Environmental Eco-friendliness

Human Valuing humans

- One, we will enhance management transparency with strict business handling and openness based on ethical management.
- One, we will fulfill corporate social responsibilities through active sharing management.
- One, we will pursue the enhancement of values through partnership consolidation with all stakeholders.

One, we will practice eco-friendly facility maintenance through the application of technology that values the environment.

- One, we will contribute to energy problem solving by pursuing renewable energy technology development.
- One, we will conserve the environment by coping with climate change jointly with KEPCO affiliated companies.

One, we will strive to foster global talents possessing creativity and professionalism.

One, we will strive to establish win-win labor-management culture and improve employee's quality of life continually through welfare enhancement.

One, we will realize human rights management including employees' accident prevention, health enhancement, improvement of treatment of the socially underprivileged, and compliance with the prohibition on various forms of discrimination.



# **Corporate Governance**

KEPCO KPS operates the board of directors (BOD) it has organized to decide important issues and matters in accordance with the Commercial Law and articles of incorporation. We supervise management execution and pursue transparent and independent corporate governance through an independent, professional board.

#### **BOD Composition System**



#### Shareholder

The shareholders of KEPCO KPS consist of KEPCO (70%) and general shareholders (30 percent including employee stockholders' association). According to the government's third-phase Advancement Plan of Public Agencies (Oct. 10, 2008), KEPCO's 20 percent stake in KEPCO KPS was additionally promoted for sale (from 80 percent to 60 percent); thus, KEPCO's stake fell from 80 percent at the time of our listing on the stock market (December 2007) to 70 percent.

#### **Board of Directors (BOD)**

KEPCO KPS has organized the board under the articles of incorporation. The board carries out decision making on key management issues and matters as the supreme decision-making body. Major issues/ matters to deliberate on and decide include business goals, annual business plans, budget and closing accounts, major company rules, and key asset changes. Moreover, the board reports -- during the board meeting -- overall sustainability management including mid- and long-term management plans, major new business implementation, key HR system change, and material issues/matters of the labor-management policy. The board consists of eight members: four executive directors (execution of management policies) and four non-executive/external directors (control/surveillance of management). The external directors' ratio is 25 percent, with the president serving as board chairman. The tenure of a director is three years, and the external director system was introduced for the first time during the regular general shareholders' meeting in 2008 after our company was listed on the stock market; thus, two external directors were appointed. The CEO operates the CEO Recommendation Committee to appoint appropriate persons possessing expertise and sound ethical view in the power or energy field. The committee carries out independent activities with the majority participation of non-executive directors (excluding government-appointed director), external director, and private members. For executive directors, we appoint those with expertise and experiences in the power and energy industries for efficient policy execution. Non-executive/external directors with ample knowledge, experience, and expertise in each field such as law, management, economy, and power industry are appointed for proper balance and control. They actually contribute to the company's continuous growth through policy suggestions and management advisory.

#### **Process of BOD operation**



#### **BOD Meeting**

	·9							
Category	No. of meetings held	Total of agenda items	Original items	lte Revised items	ems to decide Approval withheld	le Rejected	Subtotal	Items reported
			passed	passed	wiinideid			
2010	6	37	27	1	1	0	29	8
2011	9	32	25	2	0	0	27	5
2012	5	22	15	0	0	0	15	7

#### **Director Appointment Procedure and Management's Remuneration**

The CEO of KEPCO KPS is appointed at the CEO Recommendation Committee's recommendation and based on the resolution of the general shareholders' meeting. The executive directors and non-executive/external directors except the CEO are appointed by the resolution of the general shareholders' meeting. Officer's compensation consists of basic pay, performance-based pay, and severance pay. Annual basic pay is paid within the compensation scope of executive directors and auditors approved by the general shareholders' meeting; performance-based pay is paid, according to business performance evaluated at the beginning of each year as per the Management Contract.

#### **Efficient Operation System of BOD**



Plan Establish annual board activation plan

Do Execute detailed operation objectives

- Efficient holding of board meeting

Check Check the difference between plan and execution

- Cause analysis and own assessment

**Act** Feedback

- Reflect on plan for the following year

# Explanation of agenda items by prior visit



#### **Onsite BOD**



#### **Board Meeting Opening and Resolution**

The board meeting is declared open with the attendance of majority of the current board members; resolution is made based on the consent of majority of the directors present at the meeting. Note, however, that any director with interests in the agenda items cannot vote. For an item of interest to the chairman in particular, we have an institutional vehicle wherein a director representing the largest shareholder plays the role of temporary board chairman. In this manner, we balance interests within the board.

#### **Board Activation and Role Consolidation**

For the efficient operation of the board, an annual board operation plan is established, and a support system is established and operated. The assessment of the operation performance is made, and the assessment result is reflected on the board meeting the following year. All in all, such improvement program is in place in KEPCO KPS. The board operation assessment is conducted biannually; assessment is based on metric assessment criteria such as director's attendance rate, non-executive director's speech ratio, and number of reported agenda items. The insufficient aspects are improved through feedback. Moreover, we conduct an individual assessment of the individual director's activity performance at year-end and notify the person concerned of the results so that non-executive and external directors can actively attend the board meeting. In this manner, we use such assessment to motivate directors. Through director appointment independent from management, we have reinforced the board's supervising function and professionalism in management's business execution. By raising non-executive/external directors' understanding of the company, we hold an onsite board meeting periodically to activate the board and offer management information through email. We also award the right to access the corporate Intranet management information system to those directors. Non-executive/External directors not only deliberate on agenda items but also present policy suggestions, advise management by attending various committees within KEPCO KPS, act as judge for various contests within KEPCO KPS, deliver management lectures to employees, and contribute to KEPCO KPS newsletters on key issues and policies. All in all, their roles are strengthened through active engagement in corporate management.

#### **BOD Composition**

(All male directors as of June 2013)

DOD COMPOSITION			(All male directors, as of June 2013)		
Position	Name	Birth date	Education/Career	Tenure (Y/M/D)	
CEO (Board chairman)	Tae Sung-eun	1951. 9	Dept, of Physics of Kyungpook National University; Former Wolseong Nuclear Power Plant Division Head of Korea Hydro & Nuclear Power	10.8.31~ 13.8.31	
Executive director (Business Management Division head)	Choi Yeu-geun	1953. 2	Public Administration Dept. of Dongguk University; Former Labor Dept. Head of KEPCO	10.11.12~ 13.11.12	
Executive director (Maintenance Business Division head)	Kim Oh	1956. 3	Dept. of Electricity of Incheon Industrial College; Former Hydro and Nuclear Dept. Head of KEPCO	11.5.30~ 14.5.30	
Executive director (New Growth Business Division head)	Kang Jae-yuel	1954. 2	Dept. of Physics of Sungkyunkwan University; Former Yeonggwang Nuclear Power Division Head of Korea Hydro & Nuclear Power	11.5.30~ 14.5.30	
Non-executive director	Park Sung-taek	1969. 2	Dept. of Public Law of Seoul National University; Current Power Industry Dept. Section Chief of the Trade, Industry, and Energy Ministry	13.3.29~ 16.3.29	
Non-executive director	Cho In-kook	1954. 8	Dept. of Economics of Hanyang University; Former Domestic Vice President of KEPCO	11.3.29~ 14.3.29	
External director	Ahn Se-young	1953. 1	PhD in Industrial Engineering, Wayne State University; Current Professor of the International Graduate School of Sogang University	11.3.29~ 14.3.29	
External director	Yoo Wang-jin	1961. 9	PhD in International Economy, University of Paris; Current Professor at the Dept. of Industrial Engineering of Konkuk University	11.9.20~ 14.9.20	



# **Risk Management**

KEPCO KPS measures various risks occurring in the management activities in real time and operates the ERM system to manage the risks in an integrated manner at the enterprise-wide level.

#### 

#### Financial risk



#### **Business environment risk**



#### HR risk



#### Enterprise Risk Management (ERM) System

We made a list of first-phase risk factors through strategy and business analysis, interviews with employees, and benchmarking of best practices of other companies to deduce risks. In this manner, we deduced the core risks in four areas: business environment risk, financial risk, HR risk, and maintenance business risk. We have drawn up a two-dimensional scale risk map assessing probability and magnitude and assessed and subsequently confirmed that business environment change risk, financial risk, HR risk, and maintenance business risk are the most important risks.

Business environment change risk is an indicator for monitoring the possibility of deviation by a major client and acceleration of the competition environment. For this, we manage affiliated companies' sales composition ratio, sales increase ratio, and private contract ratio. Financial risk is an indicator for managing the volatility of forecast sales and forecast cost of sales; we monitor the liquidity indicator through which we can identify the company's short-term liquidity risk. In particular, for the risk of exposure to various exchanges according to overseas business expansion, we measure and monitor the exchange risk using the VaR analysis technique. For exchange risk management, we set the maximum loss scope to three percent and five percent based on our operating income; this standard is managed by regulating based on exchange risk management guidelines. On the other hand, HR risk involves managing the technology qualification ratio, non-natural retirement ratio, and prescribed number of employees/current number of employees ratio in linkage with the ERP system.

#### **Project Risk**

KEPCO KPS is promoting the achievement of the ambitious overseas and external business sales targets it has set to realize Vision 2020. We have actually established a process to prevent and manage various risks that may arise in each business stage and to promote systematic strategic business.

#### **New Business Risk Management Process**



#### **PRM Deliberation Committee**

Category	Details
Object	<ul> <li>All developers accompanying investments (JV, M&amp;A, equity investment)</li> </ul>
	Large-scale long-term projects (Overseas O&M)
Deliberation	Business implementation's basic direction and strategy     Key issues in business implementation structure and contracting
	Investment size, financing measures and risk

#### e-Audit System



#### Internal Control Assessment Network



#### **Internal Audit**

KEPCO KPS independently operates the internal audit organization it has organized as per the Act on Public Audit. The Audit & Inspection Dept. audits key executions or closing accounts and improves the business process through consulting audit. In this manner, we enhance corporate management efficiency and ensure reliability. The built audit infrastructure consists of internal control system, ethical management system, and e-audit system to prevent risks in advance, and we have built an institutional vehicle to ensure the auditor's independence and professionalism. To prevent irrationality, we analyze audit information in various manners including internal accounting system assessment and result feedback, prior checking of notice documents and follow-up check, prior audit of key duties and budget execution, main accident investigation, e-complaint reporting center operation, and routine inspection. Through all this, we identify risk factors and prevent risks in advance. In this manner, we help respond to crises and contribute to transparency enhancement.

#### **Internal Control System**

KEPCO KPS runs an internal control system to ensure transparency and reliability in the process of drawing up financial reports as per the Act on External Audit. It announces the operation status annually through business reports by reporting to the board and auditors on the operation status. For transparent management through efficient operation of the internal accounting system and voluntary risk control activities, we have carried out assessment management and certification using the Internal Control Assessment Network (ICAN).

#### **ICAN (Internal Control Assessment Network)**

- System building: December 2005
- Enterprise-wide inspection procedure and monitoring system
- Optimal operation of the international accounting management system based or Model Internal Accounting Management System Standards

#### Improved Matters and Actions on Internal Control Assessment

Through the assessment of the internal accounting management system in 2012, we corrected and complemented 48 control activity cases and expanded overseas workplaces to two considering the local features of the overseas sites. As a result, four cases of insufficient aspects were confirmed, and we completed corrective actions on all those cases in 2012. By spreading those corrective action cases to all departments of the head office and all other offices, we promoted the prevention of recurrence of the same mistakes. Through continual inspection, dissemination, and training on the internal accounting management system, we enhance the job capacity of the staff concerned.

#### Results of Assessment of the Internal Accounting Management System

Category	2010	2011	2012
Findings	4	4	4
Improvements	4	4	4

# Building the Internal Accounting Management System According to the International Accounting Standards

We rebuilt the internal accounting management system jointly with KEPCO affilated companies based on international accounting standards and posted it to ICAN. In this manner, we actively cope with accounting environmental change including change in model internal accounting management system standards and introduction of International Financial Reporting Standards (IFRS).



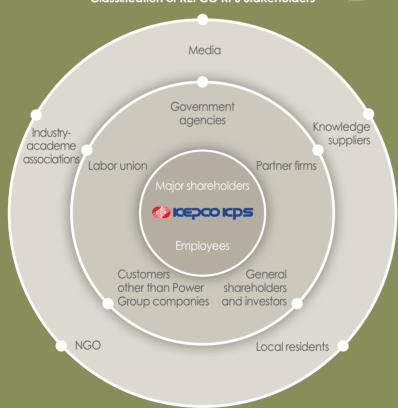
# Stakeholder Engagement

KEPCO KPS identifies stakeholder needs through communication with various stakeholders and reflects the deduced issues on the sustainability report.

#### Stakeholder Identification and Classification

KEPCO KPS deduces the stakeholder pool based on influence, accountability, and representation to examine internal and external stakeholders systematically. We actually classify stakeholders according to influence as follows to augrantee their systematic engagement:

#### Classification of KEPCO KPS Stakeholders



# Communication Channel by Stakeholder

#### Employees/Labor union

- Extended officers meeting
- Various strategic meetings
- Nationwide office/Overseas office meetings
- Open dialogue
- Labor-Management Council

#### **Customers/Shareholders**

- General shareholders' meeting
- IR activities
- Customer satisfaction activities
- Business collaboration consolidation workshop
- Customer Advisory Committee

#### Government/KEPCO

- CEOs' meeting (KEPCO affiliated companies)
- Consultation on pending policies and business reporting
- Reflection of board's policy suggestion

#### Partner firms/Citizens

- Various consultation meetings and social gatherings
- Integrated notice
- Management notice
- Press release
- Sustainability report
- Company newsletters, magazines



# **Materiality Test**

KEPCO KPS selected material issues and used them for decision making according to the GRI detail definition regulations and procedure specified in ISO 26000 to review the material issues deduced in 2011 and 2012 and identify new issues.

#### 1. Recognition of Social Responsibilities

Media analysis. We analyzed 751 articles regarding social responsibilities: - 354 articles and 397 articles reported in the press in 2011 and 2012, respectively. Generally, topics on the general economy, fair operation and practices, and community engagement and development recorded a high reporting ratio.

Analysis on the relevant company's reporting index. We comparatively analyzed our sustainability performance reporting level with power generation companies and power generation facility maintenance companies at home and abroad. After reviewing the relatively lower index items, we have complemented the reporting level.

Diagnosis of sustainability management implementation level. We diagnosed the sustainability management implementation level in 2012 following 2011. We identified the strengths and weaknesses in the process and performance sections and used them to improve sustainability management.

#### 2. Stakeholder Identification and Engagement

#### Identification

 Major stakeholders are identified according to the ISO 26000 standard.

#### In-depth interview

 In-depth interview targeting representative figures in each core stakeholder group of KEPCO KPS

#### Questionnaire survey

 We conducted an online questionnaire surve among stakeholders for 7 days beginning May 6, 2013, and 506 people participated.

#### 3. Materiality Test

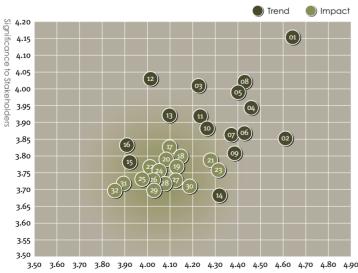
#### **Relevance Assessment**

By assessing which issues are related to KEPCO KPS, we screen them based on the first- and second-stage analysis results.



#### **Materiality Test**

Assign priority considering the relevant issue's importance to KEPCO KPS and stakeholders.



Significance to KEPCO KPS

Ç¢	re issues	Compared with 2010  [ranking change]
01	Increase in the need for independence of power generation maintenance's core technology	^(1)
02	Opening of power generation/maintenance markets	V (1)
03	Increase in the need for active overseas business	New
04	Increase in the need for new business related to power generation	New
05	Nuclear power plant's stability issue expansion	_
06	Saturation of domestic power generation/maintenance markets	<b>v</b> (1)
07	Increase in the need for corporate transparency	-
80	Product liability expansion	<b>~</b> (5)
09	Increasing expansion of regulations and costs of responding to such	^ (10)
10	New market expansion (BRICs)	_
11	Globalization and mutual relevance increase	_
12	Increase in demand for win-win growth with partner firms	^(1)
13	Actualization of electricity rate	^(9)
14	Increase in importance of employees' rights and roles	_
15	Increase in substitute goods' threat with technology conversion	_
16	Climate change (global warming)	-
17	Expertise, technology development, and contribution to community	_
18	Product and service labeling (customer satisfaction)	^(6)
19	Customer's personal information protection	<b>v</b> (13)
20	Customer health and safety	<b>^</b> (5)
21	Workplace health and safety	<b>~</b> (14)
22	Environment-related expenses	_
23	Employee education/training (enhancement of capabilities)	-
24	Community (social contribution)	<b>∨</b> (6)
25	Effort to support community's social investment	_
26	Competition-disrupting activity (fair competition)	_
27	Prohibition of discrimination	_
28	Social responsibility promotion within the corporate influence sphere	_
29	Stakeholder engagement	_
30	Strategy to respond to external environment	-
31	Compliance with regulations related to marketing	
32	Energy use (effort to mitigate climate change)	-







# COMPETITIVENESS CONSOLIDATION OF EXISTING BUSINESS





Our main businesses are thermal, nuclear, and hydro power plants maintenance business and electricity transmission and transformation facility maintenance business. With the domestic maintenance market competition expected to intensify in the future, KEPCO KPS promotes the consolidation of existing business competitiveness by selecting strategic tasks to secure its competitive edge.





#### interview



As a leading company fortifying the competitiveness of Korea's power generation maintenance market, KEPCO KPS boasts of top-tier technologies and technicians/engineers. Currently, we are seeing the trend of power generation facility expansion considering the lack of power generation facilities worldwide.

Diverse efforts are required to respond to the opening of the power generation maintenance market and to capture opportunities for future growth engines and earnings creation. In addition, KEPCO KPS needs to localize core maintenance technologies, ease the dependence on overseas technologies, and increase the overseas business ratio actively, according to emerging economies' growth trend.

Above all, I expect KEPCO KPS to fulfill its social responsibilities by contributing to stable electric power supply through outstanding maintenance technologies based on the purpose of establishment of KEPCO KPS as a public company.







# Competitiveness Consolidation of the Power Generation Maintenance Business

The competitiveness of the domestic maintenance market is predicted to be enhanced in the future. KEPCO KPS is implementing response measures to consolidate competitiveness by selecting strategic tasks to secure competitive edge.

#### **Material Issues**

#### Domestic

- Competition acceleration is forecast according to the introduction of competition to the thermal power plant maintenance market after 2013
- Business area expansion due to the arrival of domestic power generation facility's retrofit cycle
- Fierce maintenance technology competition with shift in maintenance paradiam (manual work—automation)

# Building recovery service operation system

- Emergency and unexpected breakdown/outage (quick accident dissemination)
   Ex.) TBN, GEN, boiler tube rupture
- 24-hour operational system operation:
   Shift work
- Maintenance Dept.'s specialist area support
- Solution center technology support
- Building collaboration in special areas (welding, scaffold)
- Support in construction design and budget
- Securing laborsaving equipmen
- Timely procurement of emergency
   materials

#### **Construction Period Reduction of Planned Outage Maintenance**

Planned outage maintenance makes up the bulk of KEPCO KPS's maintenance work. By shortening the construction period of planned outage maintenance through the convergence of systematic process management and productivity-improving technology, the effect of replacing about one unit of 351MW generator was realized in 2012. Thus, we contribute to environmental impact minimization through construction substitution. Customer's facility operation can increase according to the reduction of construction period – for example, applying KRW 90.32/kWh of average unit price in 2012, we contributed to about KRW 184.8 billion earnings increase for customers.

#### Status of Planned Outage Maintenance Period

Category	///////2010/	////////2011/	///////2012/
Operating unit (no. of units)	105	102	105
Reduced days	96	185	290
Reduced effect (MWh)	955,779	1,483,882	2,045,974
Average unit price (KRW/kWh)	73.09	79.69	90.32
Reduction effect (KRW 100 million)	699	1,183	1,848

#### Offering Recovery Service for Unexpected Accidents within the Shortest Time

Given the uptrend of unexpected and emergency recovery construction according to worn-out power generation facilities, KEPCO KPS operates the operation system it has set up and to offer the shortest-time recovery service ranging from initial-stage response to recovery completion. In this manner, we realize customer satisfaction through facility use rate improvement.

#### Turbine/Generator/Welding/Axial-Flow Fan

#### Technical/Administrative suppor

- Initial-stage analysis and
- Construction design support
   Organizing and operating
   excellent designers' T/E of offices.
- Supporting emergency budget
- Support to secure labor reduction equipment
- Timely procurement of emergency materials

#### Core HR

- Team leader/Lead expericoncerned
- Solution center expert group
- Professional Maintenance Dep (Level III)
- Global Service Dept
- Networking personnel:
   Maintenance personnel
   (Levels II , III )



#### **Recovery Service Provision Case**



Emergency recovery construction of Seo Incheon #95



Emergency recovery construction of Samrangjin #1

#### **Competitiveness Consolidation** of Existing Business

Horizontal/Vertical Diversification of Related Industries

Establishment of Enabling System

Sharina Value Expansion

Appendix

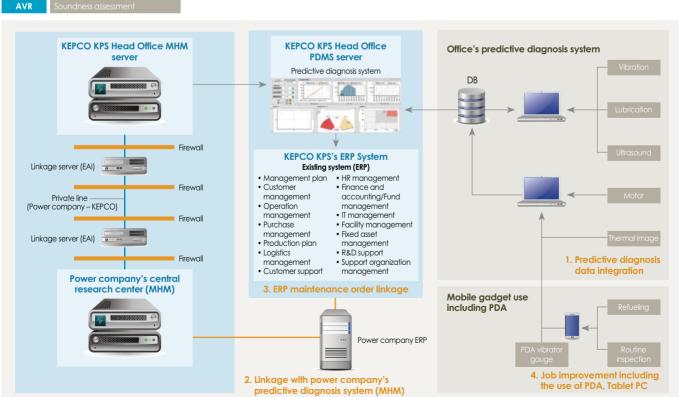
#### Offering Power Generation Facility Performance Diagnosis and Improvement Service

KEPCO KPS provided power generation facility diagnosis service wherein factors affecting decline in performance were diagnosed and analyzed through prior performance diagnosis and removed in cooperation with customers during grade A planned outage maintenance. Starting with Dangjin unit #2 in 2012, we offered services in the ten core facilities sectors including turbines by inputting in-house solution center experts and site experts of offices, targeting Boryeong unit #6 and 8 in 2012.

#### Enhancement of Power Generation Facility Reliability Through Integrated **Predictive Diagnosis System** KEPCO KPS has managed data such as refueling, routine inspection, and vibration with predictive

diagnosis system by integrating predictive diagnosis data for failure prevention for power generation facility since 2007. The predictive diagnosis system is designed to handle the ERP maintenance orders of power companies, generate data, and subsequently create reports on the predictive diagnosis inspection result and comprehensive reports automatically. This way, we strive to enhance job efficiency with work simplification, share all data between head office experts and offices to share technologies, and improve technological capabilities.

We present the future maintenance direction through interpretation via maintenance method decision by interpretation with computer simulation and reliability analysis. All this has been done from the basic process of the first-generation breakdown recovery in 2007 and second-generation preventive maintenance, third-generation predictive diagnosis maintenance, and fourth-generation prior maintenance. KEPCO KPS's integrated predictive diagnosis system will contribute to the reliability enhancement of power generation facilities with accident prevention, breakdown/outage reduction, and maintenance efficiency improvement in linkage with power companies' predictive diagnosis system.



#### Category Details Turbine

Generato Boiler Vibration diagnosis Main pipe

Predictive

#### KEPCO KPS Sustainability Report 2012



# Competitiveness Consolidation of the Electricity Transmission and Transformation Business Sector

Given the increasing incidence of power supply emergency situations each year, preventing electricity transmission facility breakdown becomes even more important. KEPCO KPS implements measures to consolidate its competitiveness by selecting strategic tasks through which it can secure competitive edge.

# Live wire maintenance (replacement of insulators)



# Differentiation of Breakdown/Outage Prevention Service with Air Transmission Line

To prevent breakdown of the 13,174km air transmission lines scattered nationwide, we operate a breakdown prevention patrol team consisting of some 80 personnel. We carry out sophisticated facility inspection using various high-end, cutting-edge pieces of equipment such as inferior voltage resistance insulator detectors and image cameras. We also adopt and manage the mapping system of breakdown risk openings by line. In this manner, we offer unique breakdown/outage prevention service. We also have two new electric power technologies including measuring technology of air transmission line using spatial vector. KEPCO KPS continually conducts R&D for electricity transmission maintenance technology such as live wire installation method of transmission line and live wire equipment.

# Temporary recovery work following the steel tower destruction in 2012



# Offering the Shortest-Time Recovery Service for Unexpected Accidents such as Steel Tower Destruction and Power Line Disconnection

When failure such as steel tower destruction due to various accidents and disasters, occurs, KEPCO KPS operates temporary recovery teams in three regions nationwide for prompt recovery. We offer the shortest-time recovery service from breakdown occurrence to recovery completion.



# HVDC conversion facility's thyristor valve inspection



#### **Business Diversification**

As the only HVDC conversion facility maintenance company in Korea, KEPCO KPS has accumulated ample experiences and maintenance technologies in carrying out the first-phase commissioned HVDC conversion facility maintenance project between Haenam and Jindo. In 2013, we won the project for the second-phase commissioned HVDC conversion facility maintenance project between Jindo and Jeju. In this way, we have earned trust among our clients. We are also performing similar conversion facility, SVC (Static Var Compensation), and FACTS (Flexible AC Transmission System) planned outage maintenance (OH). In the future, we expect to expand business through our top-level, exclusive maintenance technology in view of the forecast expansion of conversion facility installation.

We promote power business diversification by expanding the electric train track and power facility projects and steel tower safety diagnosis.

# Competitiveness Consolidation of Existing Business

Globalization Expansion

Horizontal/Vertical Diversification of Related Industries

Establishment of Enabling System

Sharing Value Expansion

Appendix



# Quality Management Fortification

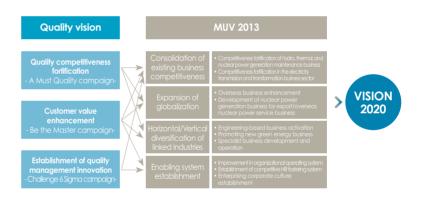
As a global electric power facility maintenance master, KEPCO KEPCO KPS is making the best effort to provide masterpiece maintenance services. We also promise that we will carry forward our effort to reinforce safety of nuclear facility by propelling and managing nuclear power safety culture system continuously.

#### **Quality Management Innovation Strategy**

KEPCO KPS set a quality policy containing the Vision 2020 and a management policy to respond to the rapidly changing business environment, and customer needs. It operates the mid- and long-term quality management plan it established, the Quality Management Master Plan. The company undertakes the ABC campaign as a means of implement the master plan by establishing detailed implementation strategy aiming at quality competitiveness consolidation, customer value enhancement, and establishment of quality management innovation system through the set innovation direction focusing on customers and performance.

#### **Quality Management Master Plan**





#### Steps of KEPCO KPS-Way TPM



#### 5s activities



#### **Unique Quality Management Innovation**

To lead domestic and overseas power generation facility maintenance markets, we operated 5-step KEPCO KPS-Way TPM activities considering the features of a maintenance company without facilities beyond the existing TPM concept. We let all employees complete the mandatory TPM education/training to pursue the continual improvement of problems and systematize them as they appear in each step course. We also establish and operate mid- and long-term plans to let them take HR system-linked training courses and develop an in-house qualification system.

In particular, we wage the M-Area campaign (M: Maintenance Area, My Machine Area, My Area) as a specialist activity for KEPCO KPS's unique TPM. This is a campaign to set the work area in maintenance work and carry out responsible maintenance and 5S activities. By operating the real-name system of responsible maintenance, in addition to 5S activities, we respond to the power environment in the low reserve rate age by ensuring facility stability.

KEPCO KPS does its part as a company trusted by citizens by contributing to the stable supply of electric power and enhances customer value as well as its own company value through perfect maintenance services. For eight years in a row, we recorded zero breakdown/outage caused by reasons attributable to us, thanks to such systematic maintenance system operation. With construction period reduction through planned outage maintenance, we recorded only 290 days of work period (performed maintenance for 105 units) and realized a 351MW power plant construction substitute effect in 2012. Moreover, KRW 184.8 billion earnings increase for customers was attributable to the increase in facility operation according to the reduced construction period.

#### View of Shingori units #1 and 2



#### Role in Nuclear Power Plant Maintenance

The nuclear power generation business is gradually losing trust among citizens because of the recent Fukushima Nuclear Power Plant accident, frequent domestic nuclear power plant accidents, and supplyrelated irregularities. With nuclear power generation accounting for more than 40 percent of Korea's total power generation, the rebirth of the nuclear power generation business is clearly necessary through safetyoriented nuclear power generation and plant operation.

KEPCO KPS has grown into a leading power generation maintenance company in Korea boasting of the world's top-level maintenance technological prowess with accumulated experience and continual maintenance technology improvement and investment in technology development for 35 years starting with the commercial operation of unit 1 of Gori Nuclear Power plant.

Nuclear power generation facility maintenance involves maintaining power generation facilities in optimal state during its lifetime so that facility function can be retained and design operation performance can be realized. Such maintenance is a key axis in power generation facility operation along with power plant operation, enabling the continually safe operation of nuclear power generation facilities.

KEPCO KPS's technology level is 95 percent or higher compared to advanced countries; the company can perform maintenance of all types of facilities without the manufacturers' engagement. Still, we relentlessly reinforce R&D for complete source technology independence in some technical areas and foster a human factor safety culture.

#### **Business Status in the Nuclear Power Generation Sector in 2012**

Category		\$tatus
Routine maintenance	Machinery and electrical facilities	89% (18 units: 100%) 5 units (Uljin units #5 and 6: 62%, Shingori units #1 and 2, Shinwolseong unit #1: 51%)
	Instrumentation and control	17% (2 power plants: Yeonggwang units #5 and 6/ Wolseong units #3 and 4)
Planned outage maintenance		Carried out planned outage maintenance for 14 units
Commissioning maintenance		Shinwolseong unit #2, Shingori units #3 and 4: Currently carrying out maintenance of 3 units

#### **Advanced Maintenance Management System Diagram**

# Prior preparation

#### Minimization of Nuclear Power Generation Safety Risks

Accounting for more than 40 percent of Korea's total power generation, nuclear power generation contributes to Korea's power supply stabilization as a major power generation source. For eight consecutive years, we recorded zero breakdown/outage caused by reasons attributable to us thanks to efforts to minimize risks focusing on continual prevention in advance including the establishment of advanced management system such as prior preparation for perfect performance of maintenance, post-maintenance feedback and creation of maintenance records DB, breakdown/outage preventive activities consolidation, and human error prevention training activation, technology sharing, and mutual support system building.

#### Trend in Nuclear Power Generation Breakdown/Outage for the Past 5 Years

Category	//2008/	//2009/	//2010/	//2011/	//2012/
No. of units operated	20	20	20	21	23
Breakdown/Outage (cases)	7	6	2	7	9
Breakdown/Outage per unit (cases)	0.4	0.3	0.1	0.3	0.4
Breakdown/Outage caused by KEPCO KPS (cases)	0	0	0	0	0



# Competitiveness Consolidation of Existing Business

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Appendix

#### Nuclear Power Plant Safety Consolidation System

Stable Nuclear Power Plant Operation and Safety Enhancement

Contribution to zero breakdown/outage through perfect maintenance

Fortification of social responsibility awareness

Consolidation of maintenance personnel's capacit

Systematization of maintenance system

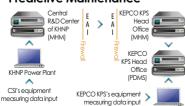
Bolstering human error prevention activities

#### Photo of ROSA III





# Concept Flowchart of Integrated Predictive Maintenance



KEPCO KPS Office

#### Operation of the Nuclear Power Plant Safety Culture System

KEPCO KPS relentlessly strives to re-establish a safety culture by reviewing the basics of fundamental structural improvement and implementing innovation measures for the nuclear power generation industry. As the world's top-tier maintenance company performing perfect maintenance for the safe operation of nuclear power plants, we actively comply with the relevant laws and regulations, recommendations of regulatory agencies, and nuclear power plant operator's safety culture policy. We review and check the insufficient aspects in the maintenance field to ensure safety in nuclear power plants and shape the environment to be equipped perfectly with maintenance personnel, procedures, equipment, and management system as the most important factors in maintenance.

**Top-level maintenance personnel**. To foster top-level maintenance personnel from among new employees, we continuously invest in them. For mindset enhancement, prevention of human errors, and workmanship improvement, we have developed human error prevention procedures, human error cases, re-work cases, and human error prevention technique use and video materials and offered regular training. In this manner, we foster a culture of fundamentally removing human error-based factors, find out weaknesses, and improve them. To instill safety awareness, we wage a safety culture campaign; thus, we hold the "Nuclear Power Plant Safety Inspection Day" event every month. KEPCO KPS is building a sustainable safety culture system for safety culture regarding nuclear power plant operation to be established in all nuclear power generation workplaces.

**Standard maintenance procedure.** We cyclically conduct an effectiveness review on maintenance procedures that have huge effect on facility maintenance reliability and improve the quality of maintenance procedures through feedback on problems deduced in maintenance and reflection of new technologies and up-to-date information.

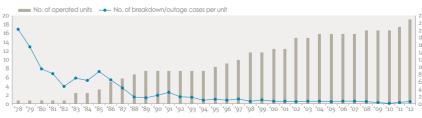
Introduction of maintenance equipment and special tools and apparatuses. For the protection of maintenance personnel from radiation and optimal maintenance within the shortest time within the radiation zone, we develop and apply high-end equipment with special functions for maintenance or introduce technologies from advanced technology-possessing companies and develop remote-controlled equipment through joint technology development. In this manner, we are doing our best to improve maintenance quality reliability and prevent safety accidents at the maintenance sites.

Fortification of maintenance management system. To prevent the unexpected failure of nuclear power plants, we operate a maintenance management system consisting of seven items (best practice study of overseas nuclear power plants, site maintenance experience application, maintenance procedures based on government regulatory agencies' guidelines, establishment of guidelines for basic maintenance items, work package, PJB, computerization management of maintenance records, running of expert group by facility, and integrated predictive maintenance). In other words, we ensure that people, procedures, and equipment are organically well operated in line with the maintenance management system to enable nuclear power plants to have the best maintenance system.

# Minimization of Workers' Exposure to Radiation through Radiation Safety Management

The goal of radiation safety management of nuclear power plants is to protect workers from radiation, minimize the outflow of radiation materials to the external environment, and consequently minimize impacts on nearby residents and surrounding environment. To achieve such goal, we carry out mock drills sufficiently under the same conditions as the sites to reduce maintenance time and re-work cases in a highly radioactive area. Through the development and use of special tools and apparatuses such as Remotely Operated Service Arm III (ROSA III), which can be remote-controlled, we are doing our very best to mitigate exposure to radiation and improve maintenance quality.

#### No. of Cases of Korean Nuclear Power Plants' Breakdown/Outage and No. of Operated Units



(source: Korea Hydro & Nuclear Power homepage)

#### KEPCO KPS

Sustainability Report 2012



# Fortification of Customer **Satisfaction Management**

KEPCO KPS lays great emphasis on customers and market to achieve customer satisfaction, an essential element of sustainable company. By developing various activities that help customers to succeed, KEPCO KPS is providing new benefits and values to our customers.

#### **CS Management Strategy**

KEPCO KPS operates the customer satisfaction (CS) management system it has set up to link what direct customers – such as KEPCO and power generation companies – and other unspecific customers want with our company vision and quality policy by identifying such customer needs in real time. Indeed, we offer one-stop service in real time by reflecting the identified needs on our CS strategy.

Toward this end, we have established a service implementation system, and we practice the customer charter we declared as a pledge of our commitment to customers. By setting "Feel the Master's Touch" as Service Identity (SI), we contribute to corporate image and reliability enhancement with emotional appeal to enable customers to experience our prestigious master's maintenance service based on our sophisticated workmanship.

#### **Service Identity**



#### Service Implementation Standard



# Core services (matters related to the following)

#### **Customer-facing service** (matters related to the following)

#### **CS Management System**

#### Corporate Future Image

Service Identity
Feel the Master's Touch! (Feel the difference of master's maintenance)



# Competitiveness Consolidation of Existing Business

Globalization Expansion

Horizontal/Vertical Diversification of Related Industries

Establishment of Enabling System

Sharing Value Expansion

Appendix

#### **Establishment of Customer Service Implementation Standard System**

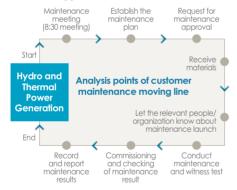
KEPCO KPS's customer response system consists of the full text of customer charter, core service implementation standards, and customer-facing service standards. To make the system specific, the core implementation standards contain our promise to offer perfect services to customers with matters related to maintenance quality, technology quality, contract, and customer service.

For customer-facing service, we establish and operate a system to practice together with customers from their position including basic manners (image making, communication skills, and basic etiquettes), customer-facing attitude (manners at the Moment of Truth (MOT), business manners), customer engagement and opinion presentation, and MOT service standard (MOT system, standard guidelines by MOT) as well as how to handle wrong service and compensation.

In particular, we let our employees carry out MOT service activities by business type. This is aimed at solving problems by offering response methods to customer needs, customer impression points, things requiring caution, and service tips through the provision of methods of responding and standard guidelines for customer needs by setting problems and complaint situations with the set customer maintenance moving line from work commencement to end time. In this manner, KEPCO KPS maintains top-level CS as a public agency by proposing our opinions and offering CS to customers.

Drawn up based on service implementation standards, the service quality manual improves use accessibility to the MOT site and sets forth matters that all employees need to observe. These are inspected in linkage with quality audits, and the implementation capability is maximized. Meanwhile, the smartphone applications we developed are used by our employees according to the real-time situation of MOT.

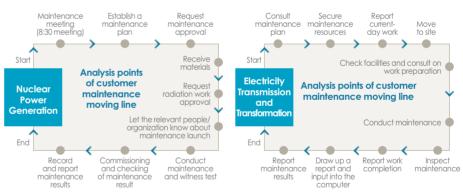
# MOT Service System by Business Type



#### Create Application on Smartphone







#### **Creative CS activities**

KEPCO KPS is well-known as a high quality service-providing company. We set master's maintenance as our quality policy, cognizant of the fact that quality is felt by customers; we also set as our quality goals quality competitiveness consolidation, quality management system establishment, and customer value enhancement. We wage a "Be the Master" campaign through service quality certification as part of efforts to enhance customer value.

The "Be the Master" campaign seeks to enhance our own value and customer value through perfect maintenance service. Toward this end, we carry out -- through the Customer Advisory Committee -- activities such as improving customer relations and reflecting customer needs through open management practice, Joint Customers Workshop to enhance customer value through creation of culture of communication/collaboration with customers, and improvement of pending issues, CS Quick-Win Tasks Improvement to launch customer value-oriented innovation activities and spread the enterprise-level CS activity base, CS Master Fostering campaign to enhance all employees' CS mindset, and consolidate MOT maintenance service activity. As a result, there were 2,358 cases of VOC handling results in 2012, joint customers' workshops numbering 25 cases, and 258 cases of CS Quick-Win Tasks Improvement. We have realized KRW 3.520 billion of tangible effects, taking pride in top-level service in industrial sites through our unique customer service.

#### **Certification as Best Service Quality Company**



#### Recording a Grand Slam in Quality Management Innovation



#### **CS Management Innovation Achievement**

KEPCO KPS recorded a grand slam in the quality management innovation sector by winning the grand prize in the Korea Quality Awards in 2009, induction into the hall of fame as excellent company in the 2011 National Quality Competitiveness, and induction into the Korea Service Awards hall of fame as the first public corporation in industrial sites and in Korea to do so. We consistently garnered 95.8 points in CSI and 9.58 points in SQI on average for the past three years in the CS activity index, and this is considered the top level in the industrial sites. Aware that CS activities are not achieved in a short period of time, we relentlessly make efforts to fulfill our role as a benchmark company in line with the mantra "KEPCO KPS leading CS management innovation."

#### Be the Master Campaign



#### **CS Masters Fostering**

An activity to foster onsite CS masters who can lead personnel with solid mindset while enhancing customer value by leading activities at MOT

#### **Customers Joint Workshop**

An innovation activity of practicing open management and maximizing improvement synergy through the mutual solution of problems between the customers and our company

#### **CS Quick-Win Tasks Improvement**

An activity to enhance CS and build the CS base through the enterprise-wide improvement of short-term success tasks reflecting customer needs and pursuing corporate development

#### **Customer Advisory Committee**

An activity enhancing CS and relationships by identifying customer needs through regular CS meeting operation with customers and sharing and improving management issues between the customer and KEPCO KPS

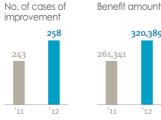
#### **VOC Handling Results and Joint Customers' Workshop Results**

320,389

Category	/////2010/	/////2011/	/////2012/	/// Average/
VOC handling (cases)	2,475	2,547	2,358	2,460
Holding workshop (times)	15	22	25	21
Tangible effect (KRW thousand)	586,950	101,000	316,000	334,650

CS

#### **CS Quick-Win Tasks Improvement Results**







# Competitiveness Consolidation of Existing Business

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#### Cover of Standard Maintenance Procedure



#### Patent Certificate



# Perfect Maintenance Service Maximization with Standardization of Maintenance Procedures

KEPCO KPS has developed its own maintenance procedures and use site maintenance to offer perfect maintenance service as the world's top-tier maintenance company. Note, however, that the existing procedures were of the description type, and the content was cumbersome. It was hard to use the procedures at the sites, and there were about 4,636 types of thermal power plant maintenance procedures; hence the insufficient control of the thermal power plants.

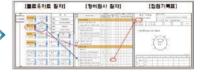
Since power generation companies required a quality level equivalent to that of a nuclear power plant, the development of global-level maintenance procedures was necessary for easy understanding and compliance by everyone, for more perfect maintenance service offering. Consequently, we developed unit type-centered flow chart-type procedures into just 100 types out of the existing 4,636 equipment-centered types of description-type procedures by grouping the procedures used at the sites and developing a standard maintenance procedure based on the grouping. We reduced the time for drawing up a technology statement of accounts from three months to less than one month by attaching the standard maintenance procedure to the technology statement of accounts. By linking the checklist used in offices with the flow chart-type procedure, we have established a one-package type of procedure compliance system that enables real-time recording of maintenance details at the site.

We explained the purpose of and need for standard maintenance procedure targeting customers so that it can be used at all thermal power plants and held the Joint Customers' Workshop and Site Presentation to form a bond of sympathy. We also took time to debate on enhancement methods for standard maintenance procedure use. Despite the many favorable opinions, there were also many who commented that the flow chart-type procedures are to cope with the existing procedures' exposure. In this context, we developed a procedure reflecting customers' opinions by preparing improved procedures to accommodate customers' needs. After making the final improved procedure, we consulted with customers for the final approval means by holding the Thermal Power Generation Maintenance Quality Council. Yun Hyun-woong, our Quality Management Dept. head, toured the 22 thermal power generation offices and held presentations on the final approval of the standard maintenance procedure and use methods. Simultaneously, we completed obtaining approval by each power plant. The current standard maintenance procedure is used, earning raves among our customers. As a result, we realized about KRW 5.4 billion labor cost savings effect, and the patent for the standard procedure has been registered in recognition of its excellence.

#### **Before improvement**



#### After improvement



#### 2011 Joint Customers' Workshop



# Thermal Power Generation Maintenance Quality Council







KEPCO KPS is actively carrying out overseas businesses as one of new growth engines based on mid- and long-term strategies and vision to grow into the world's top plant service company. Through systematic marketing, we have preoccupied more diversified overseas markets with long-term business workplaces in South America and Middle East.

Expansion of new markets

Participation in UAE
Nuclear Power Plant project

Winning a project on Mexico Norte routine
maintenance; first long-term workplace in South America

Bangladesh Magna Hat O&M

O&M contracting for Uruguay's combined cycle
thermal power plant; first consortium with EPC

Contracting with Jordan IPP3 Diesel O&M; first longterm contracted workplace in the Middle East

#### interview



KEPCO KPS needs to cope actively with energy markets with huge interest in the change of energy markets. Although the government promotes the additional building of nuclear power plants, advanced countries have not built nuclear power plants 30 ~ 40 years ago due to citizens' objection. In view of the weak power generation facility increase in the low economic growth phase of Korea, KEPCO KPS needs to search for business opportunities in overseas markets. For KEPCO KPS to continue to grow, it should secure power generation maintenance orders in developing countries by actively pioneering Asian markets. KEPCO KPS also needs to expand market-friendly disclosure activity that meets shareholders and investors' needs. I hope KEPCO KPS enhances corporate value by ensuring global capabilities with active investment in human resources.



#### KEPCO KPS

Sustainability Report 2012



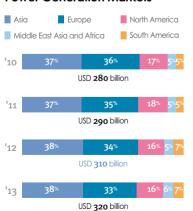
### Enhancement of Overseas Business

KEPCO KPS is endeavoring to become a leader of green energy service industry and to increase overseas sales by structuring overseas business infra and implementing aggressive overseas marketing strategy.

# Building customer and business operation information



#### Status and Prospect of World Power Generation Markets



#### Overseas Business Strategies and Goals

#### Mid- and Long-term Goals of Overseas Business Toward Becoming a Global Leader

Year///	2013////////////////////////////////////	/2014~2019//////////	2020
Strategy	Substantiation of overseas business	Fostering specialist personnel for overseas business	Stable O&M performance through equity investment
	Build a nuclear power plant export business system.	Overseas business diversification	Searching business opportunities

KEPCO KPS vigorously carries out overseas business as a new growth engine based on mid-and long-term strategies and vision to grow as the world's top plant service company. As propulsion strategy, first, we analyze national risks through market and data analyses and judge the possibility of penetration. Second, we review the power generation market and develop a business model suitable for the market characteristics. Lastly, we balance stably quantitative expansion and qualitative improvement by selecting and managing forecast risks by project.



#### Consolidation of Market Analysis Function and Marketing Capacity

KEPCO KPS operates overseas business with systematized system by classifying the operating process into marketing, sales, and service stages for new market development. We establish business development strategies based on thorough market analysis as part of marketing activity, build potential market customers and business operation information network, and carry out full-blown sales activities. With successful overseas business, we realize customer satisfaction, form win-win partnership with customers, enhance our reputation in overseas markets, and lay the foundation for additional orders.

#### **Market Analysis by World Region**

Region	Attraction	(Trend
Asia	^	Unwavering electric power demand increase given the high economic growth rate in Asia     Continuous operation consolidation based on the technological advantage of KEPCO KPS
North America	>	<ul> <li>Promote the construction of the second biggest number of power plants next to Asia.</li> <li>Market barrier is high considering the countries' advanced technologies.</li> </ul>
Central and South America	^	<ul> <li>Power generation capacity expansion is proceeding rapidly due to the high growth in this region.</li> <li>Operating activities consolidation with ensured price competitiveness</li> </ul>
Europe	>	New renewable facilities' continuous increase     Market barrier is high considering the countries' advanced technologies.
Middle East Asia	>	Gas-fired power generation demand increase centered on oil-producing countries     Operating activities consolidation focusing on price competitiveness
Africa	٦	Promote the building of an integrated power network for stable electricity supply     Continual operation consolidation through technology advantage of KEPCO KPS

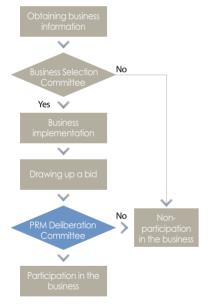
### **Globalization Expansion**

Horizontal/Vertical Diversification of Related Industries

Establishment of Enabling System

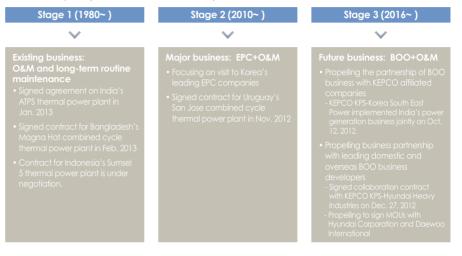
Sharing Value Expansion

Appendix



# **Business Model Diversification**

KEPCO KPS is developing new business models to respond to rapidly changing overseas power generation markets. Currently, the main trends in overseas power generation markets are new EPC+O&M type and BOO+O&M type of orders preferred by developing countries and some other nations with limitation in investment capability. KEPCO KPS strives to diversify business models in line with such trends.



# Risk Factors Minimization with Risk Management Fortification by Project

Having established Project Risk Management (PRM) operation standards in January 2012, KEPCO KPS inspects and manages each project's business hazard factors for internal stability according to overseas business arowth.

# PRM Deliberation Committee Purpose: Decide business propulsion considering the business preconditions. - Corporation establishment, client's financial status Committee chairman: Business department head concerned Target: All overseas businesses PRM Deliberation Committee Purpose: Risk review on capital-injected business - Equity investment, JV, M&A, etc. Committee chairman: Business division head concerned Target: Investment business, fuel supply O&M

## **Engagement in the UAE Nuclear Power Plant Business**

Starting the construction of four units of APR1400 (1400MW) in Barakah, UAE in 2011, we target the completion of unit #1 in May 2017. By 2020, the four units of nuclear power plants will be completed with one-year interval each.

Our main business areas are commissioning maintenance, routine maintenance, and planned outage maintenance. Currently, we are performing work by signing a training service business contract for ENEC maintenance personnel with Korea Hydro and Nuclear Power (KHNP). We are also under negotiations with (KHNP) for a contract on UAE Nuclear Power Plant commissioning maintenance.

To prepare for Long-Term Maintenance Agreement (LTMA) for routine maintenance, and planned outage maintenance, after completion of four units in UAE in the future, we are holding consultations with KEPCO and KHNP for business collaboration measures. We dedicate ourselves to foundation building for business performance including the establishment of international-level training and qualification granting system for our maintenance personnel to be sent to the local area, development of career path by maintenance personnel for injected personnel selection criteria and fostering, and setup of Abu Dhabi branch.

### KEPCO KPS Sustainability Report 2012



# Overseas Service Business Development

We promise that KEPCO KPS will become a global top company through aggressive overseas marketing strategy and subsequent overseas market expansion.

# Bird's-eye view of Jordan IPP3 O&M



# Signing the contract for Jordan IPP3 O&M



# Signing the contract for Uruguay combined cycle power plant O&M



# Status of KEPCO KPS' Entry into Main Countries for Global Business

KEPCO KPS has preoccupied more diversified overseas markets with long-term workplaces in South America, Middle East, and Oceania regions thanks to thorough market analysis and systematic marketing; our overseas markets focused on India, Philippines, and Australia. To develop new markets, we opened branches and corporations in Saudi Arabia, South Africa, and Philippines; thus, we now have 5 branches and corporations including the existing branches in India and Indonesia.

### Status of Long-Term O&M Contract Business

Host country	Project name	Project duration (Y/M)	Contract amount (KRW 100 million)	Facility size
India	Chanderiya O&M	2004. 10 ~ 2013. 09	395	248MW
	Jharsuguda O&M	2008. 02 ~ 2015. 01	736	1,215MW
	Wardha O&M	2009. 12 ~ 2020. 07	765	540MW
	Wadi O&M	2011. 09 ~ 2017. 01	364	125MW
	ATPS O&M	2013. 02 ~ 2028. 01	910	250MW
Pakistan	Daharki O&M	2009. 02 ~ 2027. 09	822	175MW
Madagascar	Ambatovy O&M	2009. 08 ~ 2017. 02	440	135MW
Philippines	Ilijan Maintenance	2002. 06 ~ 2014. 06	438	1,200MW
Guam	Cabras Maintenance	2010. 06 ~ 2015. 06	12	8oMW
Mexico	Norte Maintenance	2012. 10 ~ 2018. 05	68.3	433MW

# **Global Business Performance**



\*The Uruguay combined cycle thermal power plant O&M is the first project won through a consortium with construction companies for the first time; it will run for six years, and it is expected to play a role in developing the South American market. Jordan's IPP3 O&M project not only records the largest order size of KRW 1.1 trillion since our foundation; it will also play the role of a bridgehead in the Middle East market. These two projects are full O&M including materials supply. Thus, they have been upgraded from simple O&M project. Likewise, these two projects are forecast to be the cornerstone enhancing our overseas business competitiveness.

### **Globalization Expansion**

Horizontal/Vertical Diversification of Related Industries

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# **Best Practices of Global Business**

KEPCO KPS won a planned outage maintenance project of the Philippines Bataan Combined Cycle Power Plant (capacity: 600MW; manufacturer: Alstom) including materials supply in June 2012. This is the first case of KEPCO KPS entering the Philippines as a non-OEM company with manufacturer Alstom monopolizing the power generation maintenance market. Starting with the Malaya planned outage maintenance in 1996, we have carried out responsible maintenance and improved our status within the Philippines. By winning the project, we have proven our technological prowess once more.

Our high technological capability and unique, differentiated maintenance service were proven in Indonesia as well. Through successful planned outage maintenance for Tanjung Jati B Steam turbine (capacity: 660MW; manufacturer: Toshiba), which started in December 2012, we realized shorter project period and quality improvement. In fact, the client, which was very satisfied with our quick work handling and technological capabilities, sent an appreciation letter. Thanks to such compliment, a contract for the other unit's planned outage maintenance is underway.

The Jharsuguda O&M Office in India, one of the flagship countries of our overseas business, received an Excellence Award in 2011 and the Grand prize in 2012 in the energy conserved thermal power generation field organized by India's Central Electricity Authority. Winning the awards is significant since such was realized based on our incessant efforts and hard work in the Jharsuguda O&M workplace starting 2008. In India's power generation market where the competition becomes fierce due to low price bids from China and local companies, winning such awards has provided an opportunity for our technological competitiveness to be recognized abroad.

Having penetrated Australia starting with the Bayswater coal-fired thermal power plant in 1999, KEPCO KPS has been performing planned outage maintenance for the Eraring Thermal Power Plant since 2000; it engaged in the performance remodeling project for the first time in Australia. In this manner, we have improved our status in overseas markets. In Australia's combined cycle power generation market, which depends on Long-Term Service Agreement (LTSA) with manufacturers only, we received an order for the Pelican Combined Cycle Power Plant (capacity: 480MW; manufacturer: Alstom) planned outage maintenance in May 2011 as the first non-OEM company to do so. We actually took the first step in Australia's combined cycle power generation market with 9,525MW capacity and some 200 power plants and laid the foundation for additional order winning in Australia in the future.

# Client's appreciation letter for the Tanjung Jati OH project



# Jharsuguda Office received the Grand Prize in the thermal power generation field in 2012.





# HORIZONTAL/VERTICAL DIVERSIFICATION OF RELATED INDUSTRIES

KEPCO KPS pursues business area diversification through activation of engineering-based business, propulsion of new green energy business, and development and operation of specialist business.

PROGRESS

Gas turbine parts recycling/manufacturing business consolidation

Activation of nuclear power plant maintenance support automation service business

Retrofit system building for the extension worn-out power generation life

KEPIC Qualification certification acquired

# interview



KEPCO KPS has improved Korea's technological prowess as a leading company in technology, size, and follow-up management in Korea's power generation maintenance market. We are satisfied with their efforts for customer satisfaction. I believe the social responsibility of KEPCO KPS is to contribute to stable power supply by improving quality through responsible maintenance. Furthermore, I expect KEPCO KPS to expand and develop its power generation maintenance business area to maintenance/ repair of renewable energy field — including solar photovoltaic and bio gas — in line with the energy trend.

### P







# **Engineering-based Business Activation**

KEPCO KPS is operating the shop-based engineering service system it built to improve technology independence and cope with the future market by building the engineering business base at the early stage, and to preoccupy markets at the initial stages of competition in the sectors of generators and speed regulators.

# Expansion of the GT Maintenance Technology Center



# **Business Goal**

# Building the engineering business expansion base

Secure professional engineering facilities (propelling hydropneumatic, generator engineering business)

Engineering
technology business
development,
business expansion
(R&D, specialist personnel
fostering, relevant business
expansion)

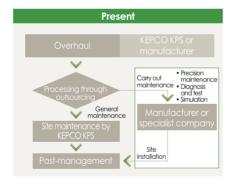
Income source creation linked with parts supply (securing main parts development and supply capability)

# **Generator Engineering Shop**



\* About 792 pyeong (160 pyeong for generators). Hydropneumatic engineering shop between GT Maintenance Technology Center # 1 and 2 plants within the Seo Incheon Power Plant

# **Business Direction**





# Hydro-pneumatic engineering shop



\* About 1,619.84 m² in size (Office: 132 m², Shop: 1,488 m²). Paltan-myeong, Hwaseong-si, Gyeongg-do

# **Major Business Details**

### Category Hydro-pneumatic • Precision maintenance and shop test (simulation) of turbine values including engineering shop MSIV. MSV. and CV • Maintenance and test of turbine protection devices, main water supply pumps, and high-pressure values · Localization development and supply of hydraulic actuators, main parts Generator engineering • Replacing the rotator coil of the power company (60 tons or less) shop Replacing the rotator and stator coil of the private company • Simultaneous performance of shop + field service (link with solution center and routine business workplace) Comprehensive technology service offering linked with rotation facilities and engineering field

Globalization Expansion

# Horizontal/Vertical Diversification of Related Industries

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# **Building the Engineering Service Business Expansion Base**

KEPCO KPS secured clean shop for the hydro-pneumatic facility and generator for engineering service business expansion. Through this, we can offer highly reliable maintenance service by executing overhaul, diagnose the processing and performance of damaged goods, and deliver certified facilities. With reverse-design technology, we have laid the foundation for expansion to the parts supply business through core parts development and manufacturing technology. To foster specialist personnel, we operate our own programs – which we have developed — including generator and hydro-pneumatic conferences and specialist fostering training for speed regulators.

# **Major Achievements**

# Winning the Generator Coil Replacement Project

(unit: KRW 100 million)

9		(01111111111111111111111111111111111111
Year ///	Project name	/// Amount/
2011	Coil Replacement of the Main Generator (56MW) at the STX Energy Banwol Power Plant	23
	Coil replacement of POSCO Power GT Units #10~12 (100MW)	80
2012	Ilsan GT Rotor Balancing and Electrical Test	1
	Recoiling of Honam GS Caltex Unit #1 G/T rotator	1
	Recoiling of Seo Incheon S/T Reserve Rotator	1
2013	Recoiling of Bundang G/T units #7 and 8 Generator Rotators	8
	Recoiling of Daesan MPC Unit #2 CTG Generator Rotator	5
	Recoiling of Gumi STX Main Generator Rotator	11

# Winning the Hydro-Pneumatic Shop Maintenance Project

(unit: KRW 100 million)

Year///	Project name	///Amount/
2011	Precision Maintenance of Yeosu Thermal Power Plant Unit #2 Hydraulic Actuator	1
	Hydraulic Actuator Technology Service of Samcheonpo units #4 and 5	1
	Two cases including Performance Diagnosis Project of Dangjin Units #1 and 2 Turbine Protection System	1
	Technology Service of Bundang Combined Cycle GT Units # 3, 5, and 8 speed regulators	2
	Speed Regulator Technology Service of Seoul Thermal Power Plant Unit #4	1
2012	GOV Overhaul of Yeongheung Unit #3 and 15 other cases	4

# Large-Scale Rotator Maintenance

# **Generator Maintenance**



# KEPCO KPS's 2020 Mid- and **Long-term Technology Development Plan**



# Role of R&D to Realize Vision 2020



# Core Parts of Gas Turbine





prototype

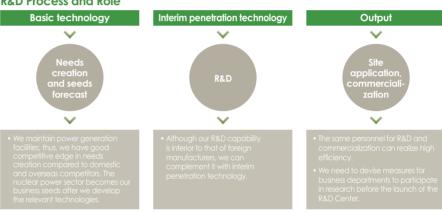
KEPCO KPS's 2020 Mid- and Long-term Technology Development Plan

KEPCO KPS strives to enhance power generation facility maintenance technologies, activate engineeringbased business, and grow as a leading company of future technologies by carrying out the following: consolidation of gas turbine parts recycling/manufacture; activation of nuclear power plant maintenance support automation service; power generation facility retrofit system establishment, and; strategic R&D for specialist business development and operation in linkage with the vertical/horizontal diversification of business areas under our mid- and long-term strategic management plan, i.e., Vision 2020.

# **R&D Direction and Strategy**

KEPCO KPS is doing its very best for technology development, playing the role of business seeds through maintenance period reduction, site application, and selection of technologies with high applicability to sites and commercialization by implementing R&D according to needs creation capabilities and interim entry strategies.

# **R&D Process and Role**



# Development of Gas Turbine Maintenance Technology and **Major Achievements**

KEPCO KPS has developed a high-temperature parts recycling maintenance technology for single crystal gas turbine together with KEPCO affiliated companies and secured the substitution base of new products made by manufacturers abroad. With the manufacturing technology development of 501F first- and second-stage blades and vanes, we have secured the localization base of parts. Through task execution, the collaboration system was bolstered among the Power Group companies, and win-win development with private companies was promoted. With the localization of maintenance technology, KRW 20 billion in foreign currency savings are expected annually.

## **Engagement Status of KEPCO KPS in R&D**

_			
jory	Recycling maintenance technology of single crystal gas turbine high-temperature parts  KEPCO Research Institute, Korea Midland Power	501F first- and second-stage blades and vanes manufacturing technology Korea Lost-Wax, Sungkyunkwan University	
pers	Canada NRC	Rollod 2001 Francisch gryonikwan onivolsity	
2010	Parts reverse-design technology development	Damage type analysis	
2011	Coating program development	Precision processing of blades/vanes	
2012	Prototype manufacture, thermal barrier coating     Assessment of prototype assembly attribute     Process standardization and procedures development	Thermal barrier coating and life assessment     Development of specifications and process sheets	
	opers 2010 2011	crystal gas turbine high- temperature parts  KEPCO Research Institute, Korea Midland Power, Canada NRC  2010  Parts reverse-design technology development  Coating program development  Prototype manufacture, thermal barrier coating Assessment of prototype assembly attribute  Process standardization and procedures	

# Foreign Currency Savings Effect

- Forecast amount of single crystal gas turbine
- Forecast amount of foreign currency savings from 501F core parts  $\text{KRW 400 million/(Set, Yr)*6 sets = KRW } \textbf{2.4} \text{ billion/Yr} \\ \text{KRW 1.4 billion per unit*17 units = KRW } \textbf{17.68} \text{ billion/Yr}$

Globalization Expansion

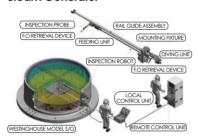
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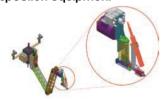
# Automatic foreign object retrieval for the secondary side of the Steam Generator



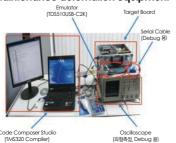
# New Excellent Technology (NET) certificate



# Baffle former bolt automation inspection equipment



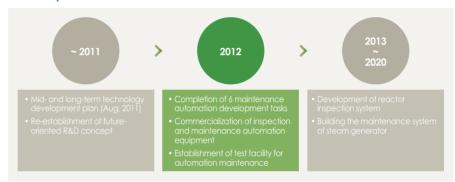
# Test facility for the development of maintenance automation equipment



# R&D on Nuclear Power Plant Maintenance Automation and Achievements

KEPCO KPS performs the task of nuclear power plant maintenance automation to ensure the safety and reliability of the operated nuclear power plant by applying Korean-style robots and developing maintenance automation equipment. Following the site application of development-completed equipment and its commercialization, we received KRW 85.6 billion of orders in 2012 and built an independence base for new growth engines and high value-added technologies via nuclear power plant operation rate improvement, core technologies, and New Excellent Technology (NET) certification.

# Roadmap for Nuclear Power Plant Automation



# **R&D** of Nuclear Power Plant Automation Equipment

Research project name	Development period
Establishment of test facility for the development of maintenance automation equipment	2010. 06 ~ 2012. 05
Development of Inspection Robot for Reactor Baffle Former Bolt	2011. 10 ~ 2012. 12
Development of Mech' UT System for APR1400 using SUPREEM	2011. 04 ~ 2012. 12
Development of foreign object retrieval in Reactor and RCS	2009. 09 ~ 2012. 11
Applied Korea Technology for ROSAIII Robot System	2009. 07 ~ 2013. 02
Automatic foreign object retrieval for the secondary side of the Steam Generator	2008. 11 ~ 2012. 05
	Establishment of test facility for the development of maintenance automation equipment  Development of Inspection Robot for Reactor Baffle Former Bolt  Development of Mech' UT System for APR1400 using SUPREEM  Development of foreign object retrieval in Reactor and RCS  Applied Korea Technology for ROSAIII Robot System  Automatic foreign object retrieval for the secondary side

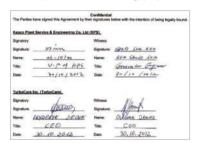
# Order Amount of Nuclear Power Plant Automation Business in 2012

Category	Order Amount (KRW 100 million)	Details
Reactor	20	Gori units # 3 and 4
Steam generator	836	11 cases including Yeonggwang (Hanbit)

# Signing technical cooperation MOU for securing insufficient technology



Turbine Equipment Retrofit MOU, GE Energy (12.2)

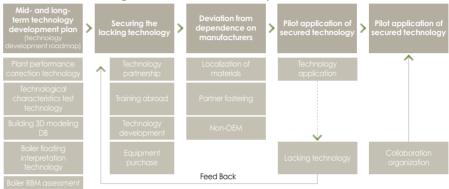


Conclusion of non OEM generator Retrogit technical cooperation agreement

# Building the Retrofit System to Extend the Service Life of Worn-out Power Generation Facilities

KEPCO KPS has secured a turning point in the high value engineering business from the maintenance business to design-based diagnosis and interpretation by carrying out technology development in the diagnosis/assessment field and interpretation-based technology development as a means of responding to environmental change from the new construction of power generation facilities to the improvement of worn-out ones.

# Infrastructure-Securing Process to Build Retrofit System



# **Retrofit System Business Performance**

We generated KRW 27 billion of business profit through retrofit in five fields including boiler, generator, and insulation diagnosis. Actually, we proved our differentiated technological prowess compared to private maintenance companies.

# **Retrofit Business Performance**

Category	Order amount (KRW 100 million)	Details of performing retrofit
Boiler	30	13 cases including STX Banwol
Generator	223	20 cases including Bundang combined cycle
Insulation diagnosis	3	4 cases including Bucheon combined cycle
Control technology	2	5 cases including Muju Pumped Storage
Performance diagnosis	12	6 cases including Korea District Heating Corp.
Total	270	

# Acquiring Korea Electric Power Industry Code (KEPIC) Qualification Certification

KEPCO KPS acquired qualification certifications in four fields to secure participation qualification in the installation, replacement, and improvement of nuclear power plant facilities during the KEPIC criteria-applied new or operation of nuclear power plant, expand the business area and ensure public confidence. In this manner, we contribute to corporate status fortification and improvement of nuclear power plant safety.

# **KEPIC Qualification Certificates**









Globalization Expansion

Appendix

# Horizontal/Vertical Diversification of Related Industries

Establishment of Enabling System Sharing Value Expansion

# Construction of Geogeum Solar Energy Power Plant



Construction site



Bird's-eye view



Module installation



# New Green Energy Business

In addition to fortifying competitiveness of existing electric power generation maintenance business, KEPCO KPS is striving for evaluating new growth engines by promoting renewable energy business.

# Importance of Green Energy Business

The planet crisis, i.e., global warming, climate change, and resources depletion, is gradually becoming a reality. As the global mandatory greenhouse gas (GHG) emissions reduction becomes a serious issue, and instability of fossil fuel energy markets persist, the importance of renewable energy grows. In this context, international competition to preoccupy the renewable energy-related technology and business becomes flercer; thus, the Korean government spurs the activation of the renewable energy business.

# Roadmap for the Renewable Energy Business

KEPCO KPS plans to achieve its sales target of KRW 64.9 billion by 2020 through business diversification, such as penetration into the fuel cell business based on existing business and power generation facility O&M business including renewable energy like solar photovoltaic facility EPC, wind power, and small hydro power by reflecting new business implementation on Vision 2020, our mid- and long-term strategic plan.

# Status of Renewable Energy Business Implementation

KEPCO KPS endeavors to expand and diffuse green energy facilities based on existing maintenance technological prowess. We are doing our very best to lead low carbon, green growth. We are currently building a supply system for all stages ranging from the planning, design, review, and construction/installation of renewable energy (solar photovoltaic, wind) facilities to inspection and maintenance/repair. In addition, we acquired a patent for the solar photovoltaic power generation system and method for output control in April 2007 based on technology accumulated through many years of experience. We have actually secured the equipment required for business performance including system design program and system protection test equipment.

# **Solar Photovoltaic EPC Business**

To preoccupy the market from the spreading stage of Korea's renewable energy business, we are comprehensively propelling the design, procurement, construction, operation, and maintenance/repair of MW-class large solar photovoltaic business. We are also reviewing various matters including many profitable businesses, business sites, and equity investment.

# Major Achievements of the Solar Photovoltaic EPC Business



# Maintenance of Yangyang wind power generation facilities



# IGCC Business Consortium Agreement



# **Bio Green Fund Agreement**



# MOU for solar photovoltaic RPS market business collaboration



# Wind Power Facility Installation and O&M

In view of Korea's topographic and environmental features, Korea's wind power generation companies prefer large-scale wind power projects. Our government spearheads clean energy development and dissemination to cope actively with domestic and international environmental regulation consolidation and climate change pacts by building test beds to develop wind power generation. KEPCO KPS relentlessly propels wind power generation construction, technology development required for O&M composition, and system development in line with the low carbon, green growth paradigm. We are carrying out the Yangyang 3MW Wind Power plant (1,500KW x 2 units) O&M.

# Penetrating the Integrated Gasification Combined Cycle (IGCC) and Substitude Natural Gas (SNG) Businesses

KEPCO and KEPCO Group companies signed a business agreement in the IGCC and SNG fields with Germany's Udhe due to an increase in the need for  $CO_2$  reduction in response to electricity demand surge, continual coal use, and climate change. The government has secured general design and operation technologies; it plans to develop Korea's own technology, localize core parts, and secure hybrid IGCC technology through the combination of SNG. Through all this, KEPCO KPS strives to penetrate the IGCC and SNG businesses and position itself as a leader in the relevant equipment maintenance field.

# Participation in Bio Green Energy Fund

Korea's 19 public and private agencies including KEPCO KPS signed an agreement to procure KRW 750 billion bio green energy fund in May 2011 and decided to invest in energy recovery including biomass and GHG emissions mitigation. KEPCO KPS expects to realize economic effects by systematically responding to domestic and international GHG emissions mitigation projects using the bio green energy fund.

# Research and Development (R&D)

KEPCO KPS makes efforts to bolster the competitiveness of each energy source with parts development R&D including product development, manufacture, and sales through industry-academe partnership. We not only ensure competitiveness in technology, production, and sales expenses using small and medium businesses (SMBs) in the case of parts manufacture; we also fulfill our social responsibilities faithfully as a public corporation in terms of SMB support.

## **Business Collaboration**

KEPCO KPS propels strategic business collaboration on core technology and business development in the renewable energy field including signing an MOU for the solar photovoltaic Renewable Portfolio Standard (RPS) market in 2011. Through this, we will maximize the synergy effect for sustainable growth by securing the foundation for the expansion of the renewable energy business area.

# Yearly Renewable Energy Business Performance

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Category (sales)	2010	2011	2012	Total			
Solar photovoltaic (EPC)	4,775	2,209	4,675	11,659			
Wind power	20	43	74	137			
Small hydro power	115	122	216	453			
Total	4,910	2,374	4,965	12,249			

(, mile VDM/ mailliam)

Globalization Expansion

### Horizontal/Vertical Diversification of Related Industries

Establishment of Enabling System

Sharing Value Expansion

Appendix



# **Specialized Business Development** and Operation

In 2012, KEPCO KPS acquired general construction business license, and thereby set the foundation for expanding our business to large construction sector, which requires a comprehensive construction management.

# **Construction business** registration certificate



# **Implementation Direction**

As a power generation maintenance service provider, KEPCO KPS strives to develop specialized business for business area expansion, not to mention the consolidation of the existing business competitiveness in the rapidly changing competitive environment.

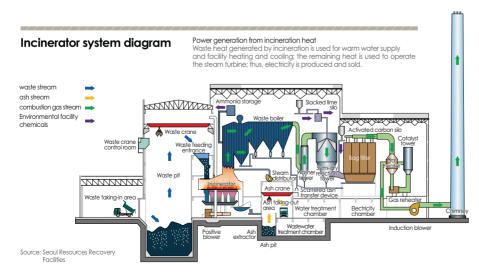
We acquired an industry and environment facility construction business license -- a new construction business license – in 2012, and we have laid the foundation for expanding the business area ranging from electricity construction business and large-scale construction project requiring power plant environment facility demolition and relocation.

# Implementation Status

KEPCO KPS won an order to construct the largest-scale solar photovoltaic power plant in all its years since its foundation. The company is building it as part of the linked business's horizontal/vertical diversification, one of the four strategic directions of its long-term strategy - Vision 2020 -- and in line with the national policy to foster the renewable energy industry and reduce GHG emissions. We also received an order for Incheon Resources Environment Center's power generation business from incineration heat, an EPC project, through equity investment.

# Construction of Yeongwol Solar Photovoltaic Power Plant





# **Major Performance Highlights**

 $\cdot$  Construction amount: KRW 66 billion



 $\cdot$  Construction amount: KRW 31.3



# ESTABLISHMENT OF ENABLING SYSTEM

We perform strategic organizational operation to be reborn as a competitive organization and operate a systematic HR fostering system to fortify global competitiveness and enhance HR capabilities. We also carry out diverse accident prevention activities and endeavor to activate communication between labor and management for win-win labor-management relations, mitigate GHG emissions, and perform eco-friendly maintenance.



# interview



Public opinion on nuclear power generation is negative in general after the Fukushima Nuclear Power Plant accident in Japan. KEPCO KPS is the top-rated general power generation facility maintenance company having outstanding maintenance technological prowess in Korea. Despite KEPCO KPS's long years of maintenance experience, however, trivial errors sometimes occur due to conventional job handling.

Technological competitive edge is the future of KEPCO KPS; thus, the company needs to foster experts steadily through HR development. Likewise, KEPCO KPS should strive to secure perfect maintenance quality with systematic prevention activities and persistent training. I hope KEPCO KPS grows together with communities by striving for win-win growth together with local residents around nuclear power and thermal power plants.

Song Sang-hyeong Senior Manager / Plant Engineering & Management Department, Korea Hydro & Nuclaer Power



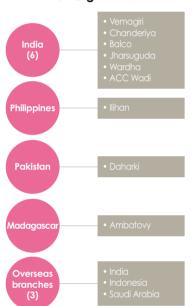




# Improvement of Organizational Operation System

KEPCO KPS is promoting an efficient management of organization structure and human resource in order to obtain global competitiveness through strengthening core capabilities of the organization.

# Overseas Business Workplaces and Branch Organization



# Building an Efficient, Aligned Organizational Structure Linked with Management Strategies

We reshuffled organizations under divisions to solve the imbalance in business size between divisions and operate organizations efficiently. Likewise, we expanded personnel for overseas and specialist businesses to expand the growth engine business and create HR operation synergy. We also made the Technology Development Dept. an independent organization for R&D capability fortification as part of productivity increase and job efficiency enhancement between departments. We transferred the control of the Nuclear Power Generation Maintenance Technology Center and Nuclear Power Plant Export Business Dept. to the Nuclear Power Business Dept. for the efficient operation of the nuclear power generation field.

# Organizational Improvement Suitable for Business Capacity Consolidation, Securing a Business Strategy Driving Force

KEPCO KPS newly set up the Construction Management Team of the Power Generation Business Dept. to bolster business competitiveness and competence consolidation. In the hydro power field, we newly formed the Hydro Power Technology Team of the Nuclear Power Business Dept. We also established the Yecheon Pumped Storage Branch as an organization for the perfect maintenance of new orders, smooth support, and efficiency enhancement of HR operation. By newly setting up and operating the Construction Team as a mobile organization at the Cheongpyeong Office, we strengthen business-performing competency as well as the business strategy's driving force.

# Organizational Operation to Propel New Business and Fortify Overseas Business

We newly established a Renewable External Center Plant Team to set up organizations for the competency consolidation of domestic and external businesses (Paju Branch, Hwaseong Branch) and to facilitate order taking in the domestic plant business. As organizations for overseas business competency consolidation, India ACC Wadi Office and Saudi Arabia Branch established. In this manner, we expanded new and overseas business organizations, reinforcing their performing competencies.

# Organizational Efficiency Fortification through Regular Organization and HR Diagnosis

KEPCO KPS regularly undergoes organization and HR diagnosis through external consulting every two years. Through this diagnosis, we reorganize inefficient organizations and HR and build and operate organizations and HR suitable for our future vision and strategies.

# Mid- and Long-term HR Operation Plans for Growth Business Fortification

Category	Existing business	Overseas business	Linked business	Others
2012	3,772	103	395	388
	~	~	~	~
2015	4,234	324	533	388
2020	4,817	1,090	1,179	374

Globalization Expansion

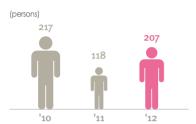
Horizontal/Vertical Diversification of Related Industries

### **Establishment of Enabling System**

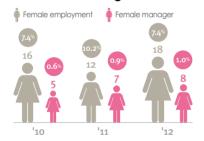
Sharing Value Expansion

Appendix

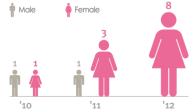
# No. of People Employed Yearly



# Female personnel employment and female manager ratio



# Status of maternity leave



- \* Calculation standard: Based on the application date
- \* Reinstatement rate and retention rate: 100%

   Reinstatement rate: No. of reinstated people after the end of maternity leave / No. of applicants for maternity
- Retention rate: Current office holders among employees taking maternity leave (based on Dec. 31, 2012) / No. of applicants for maternity leave



# **Building a System for Fostering Competitive Human Resources**

KEPCO KPS values our employees. Therefore, we build competitive manpower training system such as maintaining the best working environment, offering a variety of benefit plans, and running diverse talent developing programs.

# Respecting Employees' Dignity

KEPCO KPS practices human respect management based on the mantra of "respecting individual employee's dignity and value and embodying fair HR system and premier welfare as ethics for employees." We treat individual employees as dignified human beings, abide by human rights protection standards declared internationally, respect individuality, and refrain from discriminating in employment, training, and relocated assignment by sex and disability. We also award fair opportunities according to individual capabilities.

Under such systematic foundation, we pursue the following: open recruitment system that completely disregards education background, age, and sex; customized education/training system to meet the individual's career growth needs and maximize potential capabilities; fair compensation system based on individual performance; objective and transparent assessment system, and; transfer/appointment based on competency and performance creation. In this manner, we pursue HR operation for win-win growth between individuals and organizations across all HR fields.

# **Status of Employees**

As of the end of December 2012, the number of KEPCO KPS employees was 4,621, and the average number of years of service was 16.9 years; turnover rate was 1.4 percent.

Category	///2010/	///2011/	////2012/
Employees (person)	4,349	4,442	4,621
Average number of years of service (years)	17.0	17.1	16.9
Turnover rate (no. of voluntarily resigning people/No. of employees)	1.0%	1.6%	1.4%

# **Human Rights Protection and Gender Equality**

We comply with the child labor and forced labor prohibition regulations of the Labor Standard Act and International Labor Organization (ILO) and regularly conduct sexual harassment prevention education for all employees semiannually to protect employees' human rights. We also increase the female manager ratio through continual employment and fostering of female personnel. In addition, we pay the same level of salary to male and female newcomers without gender discrimination based on the amount regulated as the legal minimum wage.

# Status of Employees in Each Business Sector

Category	Regu Male	olar position Female	Contrac Male	tual position Female	Male	Total Female
Head office	272	36	23	8	295	44
Thermal power	1,563	31	151	16	1,714	47
Nuclear power/ Pumped storage	1,741	26	102	14	1,843	40
Electricity transmission and transformation	353	2	10	1	363	3
Special	454	14	170	14	624	28
Others	124	-	6	-	130	-
Total	4,507	109	462	53	4,969	162
		4,616		515		5,131

<sup>\*</sup> Excluding 5 officers. Special: Training Center, Maintenance Technology Center/ Others: Overseas sites, labor union

<sup>\*</sup> Regular intern workers are not included in the number of employees in 2010. \* The number of non-voluntary retirees, such as regular retirement, is excluded in calculating turnover rate.

# Average Pay of Male and Female Employees

(unit: KRW thousand)

Category	Male	2010 Female	Male	2011 Female	Male	2012 Female
Officer	186,242	-	186,762	-	201,464	-
Employee	65,167	43,114	72,350	48,159	73,873	50,982

Note) Officer: Based on full period of service

# **Open Recruitment**

We operate an open recruitment system that does not discriminate by sex, education, major, and age to select the best human resources. We also implement the policy of expanding the employment of high school graduates using various channels. For employed personnel, we foster them systematically through inhouse college, etc., and spearhead good-quality job creation.

# **Expansion of Disabilities employment**

To expand employment opportunities for disabled people as a weaker class than normal people, we continually increase the employment of disabled people in newcomer employment by giving them additional points. The rate of employing disabled people in KEPCO KPS increases each year, currently exceeding the mandatory legal ratio of 2.5%.

Category	//////2010/	//////2011/	/////2012/
No. of employees with disabilities (person)	155	154	154
Disabilitiy employment (%)	2.88%	2.68%	2.91%

Mandatory rate of employing disabled people in 2012; 2.5%/Casual and contractual positions are included in the calculation of the rate of employing disabled people

# **Appointing Provincial Area Talents**

We do not discriminate provincial area talents but uphold the ability-based employment principle. Of the employed in 2012, 70 percent or 145 people are from non-Seoul Metropolitan Areas. To cope with our head office's relocation to the provincial area, we make an effort to activate the employment of provincial area talents by participating in joint employment presentations for public agency relocation to Gwangju and Jeonnam public innovation cities.

# **Supporting Retirees**

We endeavor to improve the satisfaction of employees by supporting their new life design after retirement through the operation of the retirement preparation program. By offering education/training on reemployment, startup, and self-development, we vigorously support retirees' second life design. Through the Senior Master system operated since 2009, we have re-employed excellent people with technological capabilities among retired people to maximize HR utilization, instill pride as a family of KEPCO KPS into their minds, and assist them in leading stable post-retirement lives.

/Year///////////////////////////////////	//////2010/	//////2011/	//////2012/	///////Total/
No. of retired person	58	52	65	175
No. of re-employed person	34	32	41	107

# **Protection of Irregular Workers**

We strive to improve rational employment and expand the welfare of irregular positions (temporary positions) by executing various system improvements including conversion of unlimited contract positions (33 people in 2012), performance-based pay (KRW 900,000 annually), and selective welfare points granting (KRW 300,000 annually).

# Newcomer's average pay

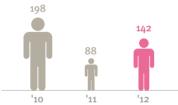


# Status of socio-equitable HR employment

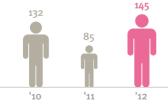
Employees with disabilities

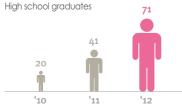


Natural sciences and engineering majors



Talents from non-Seoul Metropolitan Area





There is no pay difference between male and female employees for work of equal value. Note, however, that women's cumulative pay is relatively smaller than men's because of the smaller number of years of service of women compared to men.

Globalization Expansion

Horizontal/Vertical Diversification of Related Industries

### **Establishment of Enabling System**

Sharing Value Expansion

Appendix

# The right people of KEPCO KPS



- Globally Advanced
   Secure competitiveness ahead of the world with continual innovation.
- Customer-Centered
   Think from the customer's standpoint in advance and meet customer needs.
- Expert

Secure top-tier expertise and professionalism in the plant service field with incessant learning and technology polishing.

# Re-certification as the best HRD agency



- The Ministry of Trade, Industry, and Energy, Ministry of Education, Ministry of Employment and Labor, and Small and Medium Business Administration jointly award certification to agencies with excellent HR management and HR development system.
- Certification period: Sept. 8, 2011 ~ Sept. 4, 2014

# Yearly training performance

- Annual training expense (KRW million)Annual average training hours per person
- 7,116 8,424 7,290

  71.5 81.8 75.5

# **Right People**

KEPCO KPS established Global ACE (globally advanced customer-centered expert) in 2007 to search and foster global talents possessing passion and expertise and professionalism in work. The right people of KEPCO KPS are those who secure competitiveness ahead of the world with continual innovation, think from the customer's standpoint in advance, meet customer needs, and possess top-tier expertise and professionalism in the plant service field with incessant learning and technology polishing.

# Mid- and Long-term Training Plans

We re-establish mid- and long-term training plans in linkage with corporate strategies by analyzing the training status, and deducing things to improve; we also make annual training plans and execute them based on mid- and long-term technology development plans and HR operation plans in addition to the training demand survey.

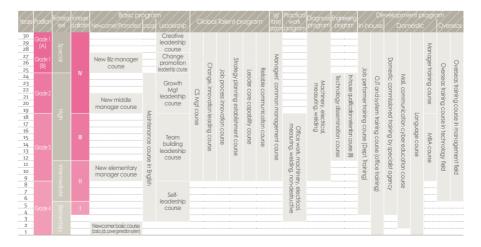
# Systematic HR Fostering System

KEPCO KPS systematically links and operates the training system, in-house qualification system, and career development system to reinforce global competitiveness and enhances HR competencies to cope with the future management environment.

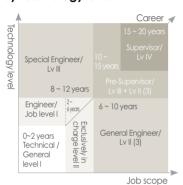


# I. Training System

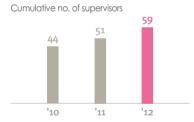
KEPCO KPS operates training programs linked with the in-house qualification system through the in-house training center to foster professional technicians for successful business. We actually run 390 courses by classifying them into basic programs, practical work programs, diagnosis programs, engineering programs, and development programs.



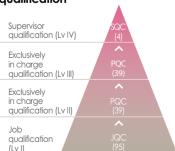
# Capability improvement system by technology level



## Yearly supervisor fostering results



# JQC (Job Qualification Card) qualification



# **II. In-House Qualification System**

KEPCO KPS has introduced the government-accredited in-house qualification system, operating it in linkage with the training for maintenance quality and systematic fostering of maintenance personnel through the job performance of qualified personnel by power generation facility.

### In-House Qualification Requirements by Grade

Grade	Lower qualifica- tion		Career require- ments		Training OJT	factors  Training at training center	Physical require- ments	Qualification examination	Years required
Level IV	Leve Leve							Garnering 80 points in screening assessment	15~
Level III	Level II	>	3 years	>	Level III Qualification awarding OJT	Professional program	Eyesight: 0.8	Scoring 70% per question	9~14
Level II	Level I	>	2 years	>	Level II Qualification awarding OJT	Practical work program	Normal physical condition	Scoring 70% on the average	5~8
Level I	Joining the company (trainee)	>	1.5~2.5 years	>	Level I Qualification awarding OJT	Basic program		-	2~3

# III. New Job Qualification Card (JQC) System

We adopted the new JQC system in 2011 to strengthen maintenance professionalism by job, constantly fostering qualified personnel. By segmenting the existing 44 in-house qualifications into 95 job qualifications, we built a system to nurture maintenance personnel equipped with multi-technologies. In the future, we plan to execute the existing qualification holders' conversion into JQC and consequently award new JQC at the enterprise-wise level by introducing a new in-house qualification management system to develop JQC and enhance the existing in-house qualification.

# IV. Career Development System

KEPCO KPS has established a systematic career development system according to positions and jobs. We foster office workers as generalist by allowing them to accumulate various work experiences. As for technical positions, we let qualified personnel perform the relevant job linked with the field requiring inhouse qualification. Technical position holders can become supervisors through the acquisition of in-house qualification. Personnel meeting certain qualification requirements can shift to professional positions or advance to technology manager through promotion.



## Fostering HR to Carry out Overseas Businesses

KEPCO KPS composes and operates an HR pool system possessing capabilities and experiences for overseas business performance to cope with global talent demand according to overseas business expansion. At the end of 2012, our overseas business HR pool consisted of 533 people. We manage the overseas business HR pool CDP we have separately set up and conduct English education on maintenance work, power generation operation training, PMP training, and OJT at overseas offices to enhance job capabilities.

Globalization Expansion

Horizontal/Vertical Diversification of Related Industries

### **Establishment of Enabling System**

Sharing Value Expansion

Appendix

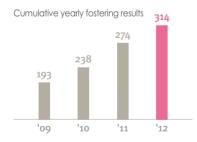
# Yearly status of fostering personnel acquiring ISO 18436 qualification



# Status of global talent fostering

KEPCO KPS people equipped with international competitiveness playing a leading role in realizing the company vision as "the right people of KEPCO KPS."





# EAP service notice



# **Fostering HR Acquiring International Qualifications**

KEPCO KPS actively develops overseas power generation facility maintenance markets to secure a new growth engine and fosters international qualification holders including ISO 18436 (machine status monitoring and diagnosis) and PMP that can be used in said markets.

In particular, we have been recognized as Korea's only ISO 18436 qualification acquisition training agency (category I, II, III) thanks to our training instructors and facilities. As of the end of December 2012, 201 personnel have acquired the qualification.

# **Fostering Global Talents**

KEPCO KPS continuously fosters global talents possessing expertise and technology to consolidate the overseas business driving force and create visible achievements. Global talents are those who play leading roles in realizing the company vision and accomplishing the corporate mission. We divide talents into potential leader group, professional engineer group, and R&D talent group and foster them accordingly. The potential leader group is the group having high potential, with language education and power generation operation training offered by selecting from the overseas business HR pool. On the other hand, as a group consisting of supervisors, certified technical engineers, and specialist personnel having core technical capabilities in maintenance, the professional engineer group is fostered through the in-house qualification system, internal and external training, and professional system operation. Finally, the R&D talent group is the group having new business capacity. Consisting of PhD holders and researchers, they are fostered through professional system, recruitment, and support for master and doctoral degree acquisition.

### **Performance Assessment**

Once a year, KEPCO KPS regularly assesses the annual performance and competency of all employees in October each year. The assessment results are used for promotion, salary increase, and transfer of job to motivate individuals' performance creation and voluntary competency improvement.

# Welfare System Balancing Work and Life

We established the "Comprehensive Welfare System Improvement Plan," a short- and mid-term welfare plan, in December 2012 based on the benchmarking of domestic and international outstanding welfare companies, group interviews, and questionnaire surveys within the company to embody a happy, joyful workplace.

We adjusted welfare items reflecting employees' various needs and improved auxiliary services including point mileage accumulation and gasoline discount linked with the welfare card. We also expanded the partnership service so that our employees can receive better welfare benefits through business partnerships with companies providing discount services such as fitness centers and hospitals without incurring additional expenses. Meanwhile, to promote happy homes and balance between work and life, we actualized the family-friendly welfare system with Happy Family Day (spending time with family after leaving the office every Friday). Likewise, by setting up gyms in the head office and 23 offices, we contribute to employees' physical strength enhancement after work. We also operate nonsmoking clinics as well as a nonsmoking fund. We have adopted Employee Assistance Program (EAP) as well.

In addition, we published a Welfare Guidebook describing the overall welfare system, business convenience, and use method and a Guidebook for Retirees so that retiree candidates can lead a stable life and adopted a retirement pension system to guarantee workers' later years and livelihood stability. In this manner, we improve employees' welfare satisfaction. We also endeavor to offer a better working environment for employees working in remote areas abroad by providing work subsidies, accommodation and commuting vehicles, and more holidays.

# **Retirement Pension System**

Our severance pay system was converted into the retirement pension system in 2011. With the mandatory retention rate of external contributions, we uphold employees' right to receive retirement benefits. Through this system, we have laid the foundation for fund for later years. Since 2012, we have executed a defined benefit retirement pension system and expanded the option (defined benefit, defined contribution) of system operation.

### KEPCO KPS Sustainability Report 2012



# Establishment of Enterprising Corporate Culture

Being rooted in company's own corporate culture "Cooperative employee relations", KEPCO KPS places strong emphasis on continuous communication between management and employees.

# Joint labor-management workshop



# Labor-Management Relationship for Win-Win Partnership

As a typical company responsible for Korea's power generation facility maintenance, KEPCO KPS strives to improve productivity, enhance corporate value, and supply electricity stably through stable labor-management relations.

We abide by all domestic and international labor acts and collective agreements with the labor union including the Standard Labor Act, Labor Union Act, and Labor Relations Adjustment Act. All our employees are guaranteed their right to form a labor union and their freedom of association.

As of May 2013, 3,611 employees or 78.6 percent of the total employees are labor union members. The collective agreement is renewed every two years, and the renewal applies to all our employees.

KEPCO KPS strives to develop continually a win-win partnership between labor and management including the adoption of joint declaration for labor-management harmony, operation of labor-management joint program, and peaceful wage agreement for 11 consecutive years.

We actively guarantee labor union engagement on issues gravely affecting employment. When the no. of personnel needs to be adjusted for inevitable management reasons, we implement the procedure of gaining consent from the labor union. When a union member's status change occurs due to the merger and transfer of the company, the labor union should be notified 90 days in advance; thus, the company needs a consent procedure. In this way, we make all-out efforts for employees' employment stability.

# Holding management issues presentation by visiting



# **Activation of Labor-Management Communication**

We activate various dialogue channels with labor union, form a bond of sympathy on pending management issues, enhance mutual understanding, and cope actively with management environment change through all these.

# **Labor-Management Communication Channels**

# Details Direct communication between labor-management representatives Labor-Management Council - Resolve pending business issues using the reported agenda items - Operation of labor-management meeting by workplace Labor-Management cooperation program - Joint labor-management T/F to solve current issues - Management issues presentation by visiting - On/Offline grievance handling system - Share management meeting data such as extended officers' meeting

Globalization Expansion

Horizontal/Vertical Diversification of Related Industries

### **Establishment of Enabling System**

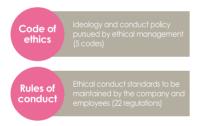
Sharing Value Expansion

Appendix

# Ethical management brand

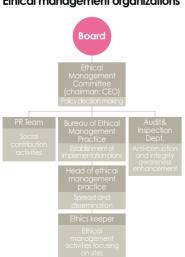


# Ethical norm system





## **Ethical management organizations**





# **Ethical Management** Internationalization

Our employees recognize that the practice of ethical management by the company is a basic responsibility as a corporate citizen and is the most important factor for corporate sustainable development and growth. Thus, we realize world-class ethical management through job ethics and transparent management system establishment.

# **Ethical Management System**

With the ethical management brand "Crystal KPS," we carry out ethical management activities. We have enacted the code of ethics, rules of conduct, and practice guidelines as ethical standards that should be observed by all our employees. To propel systematic ethical management, we operate ethical management organizations. To form a bond of sympathy on ethical management and improve ethical awareness, we systematically execute ethical management education.

### **Ethical Management Education System**

Category //////	<b>G</b> odl	Target///////////
Working-level personnel education	Foster working-level personnel to lead ethical management	Personnel in charge of ethical management
Cyber education	Ethical management concept, importance, and ethical decision making	New employees, promoted employees
HRD institute education	Enhance understanding of ethical management and nurture the related mindset	Subjects of education and job education by hierarchy
Office touring education	Enhance understanding of ethical norms, prevent corruption, and improve integrity	All employees

# Major Activities and Performance in Ethical Management

# Oath to the Ethical Management Practice of CEO and All Employees

The CEO attends the Ethical Management SM Forum dubbed CEO's Oath Ceremony, declares his commitment to ethical management internally and externally, and lets officers sign the job integrity agreement and comply with integrity obligation during their tenure to contribute to the establishment of ethical and transparent management. Through the oath to practice ethical management, all employees strengthen their commitment to transparent management.

# Operation of Ethical Management Homepage and Ethical Management Consulting Center

We operate an ethical management homepage through which both internal employees and general public can easily understand our ethical management policy, ethical norms, results, and status. As part of the active solution to employees' ethical conflict, we run an ethical management consulting center and provide solutions to any breach of ethical management and ethical dilemma. In this manner, we prevent unethical acts in advance and establish job ethics.

# Ethical management SM Forum, **CEO Oath Ceremony**

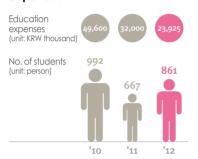


# Ethical management homepage

http://ethics.kps.co.kr



# Cyber ethical management education and education expenses



# Shinmungo



# **Integrity Level Enhancement**

Through education on fostering integrity awareness and ethical management education for all offices, we consolidate employees' integrity awareness. By conducting in-house integrity survey and meetings with customers, we improve areas where we are weak. Likewise, through irregularity prevention activities including inspection and guidance during the anti-corruption week, we were named outstanding company in integrity for five consecutive years.

## **Integrity Index**

Category	2010	2011	2012
Integrity index	9.76	9.86	9.73

# Status of Education on Ethical Management and Anti-Corruption and Integrity

Category	2010	2011	2012
No. of education sessions	214	103	146
Cumulative no. of trainees	8,738	6,754	7,508

# **Anti-Corruption Policy**

KEPCO KPS spearheads anti-corruption activities by introducing ethical management in 2003. Through the enactment of code of ethics, rules of conduct, and practice guidelines, we established corruption standards, with all our employees practicing job ethics. We prohibit giving and receiving of money and valuables related to the job, unjust intervention in rights and interests, arrangement and request, transactions using job-related information, private use of company property and resulting profits, giving and receiving of employee spouse's money and valuables, borrowing of money from job-related person, and insider trading. We also shun favors during job performance and make contracting and performance with integrity mandatory. Our employees can neither offer money and valuables to job-related persons, public officials, or politicians nor donate nor provide illegal political fund to a political party or a politician. In case of a breach of the ethical norms, we operate a punishment system according to reward/punishment regulations. This way, we call the employee's attention to the results of corruption and strive to prevent the recurrence of corruption activities.

By becoming a member of domestic and international anti-corruption organizations such as UN Global Compact, Ethical Management SM Forum, Ethical Management CEO Club, and Korea Ethical Management Association, we have declared our anti-corruption policy; we also search for best practices and use them for anti-corruption activities..

# Reporting System and Results of Actions Taken

We operate the internal tip-off and e-Complaint Center (Shinmungo, Customers/Suppliers' Inconvenience Reporting Center, Irregularity Tip-off Center) as a reporting system for unethical acts and corruption; it can be used by anyone including our employees and external stakeholders. Cases of breach of employees' ethical norm (code of ethics, rules of conduct, practice guidelines) are received by internal tip-off. Shinmungo receives corruption and irregularities cases. On the other hand, the Customers/Suppliers' Inconvenience Reporting Center accepts unfair cases due to irrational system and procedure and ideas for integrity improvement. Finally, the Irregularity Tip-off Center receives customary irregularities reported anonymously.

# **Reporting System Performance**

Category	2010	2011/	//////2012/
Internal tip-off/help line	-	1	1
Shinmungo and complaint phone calls	17	15	30
Handling results	17	16	31
Disciplinary actions	3	1	-

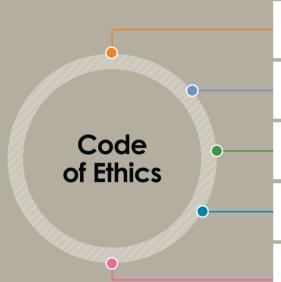
Globalization Expansion

Horizontal/Vertical Diversification of Polated Industries

# Establishment of Enabling System

Sharing Value Expansion

Annendix



# 1. Value creation for customers

We create and offer new value required by customers from the customer's standpoint.

# 1. Maximization of shareholders' profit

We contribute to shareholders' profit by maximizing corporate value through cost savings and productivity improvement.

# 1. Human-respecting management

We respect individual employees' dignity and value and actualize fair HR policy and supreme welfare.

# 1. Becoming a reliable company

KEPCO KPS seeks to be a reliable company with fair job performance based on morality and honesty while maintaining company honor.

## 1. Social responsibility implementation

We respect the basic view of value required by society, abide by various laws and regulations, and contribute to national economy and social development.

# **Ethics toward customers**

- Customer respect
- Customer satisfaction maximization
- Value creation for customers

# **Ethics toward shareholders**

- Profitability enhancement
- Providing transparent information

# **Ethics toward employees**

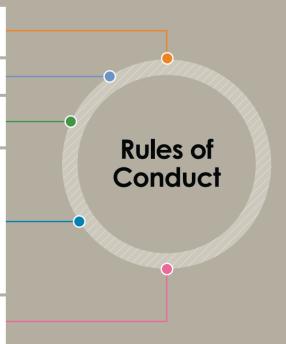
- Respect for employee dignity
- Talent fostering
- Fair HR system and equal opportunity
- Improvement of quality of life

# **Employee ethics**

- Fair job performance
- Prohibition of unfair acts including abuse of one's authority
- Prohibition of trading with establishments operated by an employee
- Prohibition of sexual harassment and gender discrimination
- Labor-management harmony
- Prohibition of giving and receiving money and valuables, entertainment
- Company property protection
- Prohibition of engagement in another company
- Self-development
- Prohibition of unfair trading related to stocks

# **Ethics toward society**

- Social responsibility implementation Prohibition of intervention in politics
- Complying with laws and regulations, pursuing fair trade



### KEPCO KPS Sustainability Report 2012



# Consolidation of Health and Safety Culture

KEPCO KPS is focusing on prevention with various activities to make healthy workplace. In addition all employees do best to establish safe occupational environment with safety training system.

# Safety accident management sector brands



- KEPCO KPS as safe corporation from industrial accidents and disasters.
- KEPCO KPS as a life-respecting company: putting the highest priority on safety
- KEPCO KPS offering master's maintenance service safely

# Standard safety work procedure



Morning gymnastics and chanting



2. Meeting prior to operation (TBM, PJB)



3. Eleven basic health and safety rules

# **Health and Safety System**

We adopted "KOSHA/K-OHSMS18001," an occupational health and safety management system, and we are carrying out various activities for safety. For the establishment of a maintenance culture that puts the highest priority on safety in all workplaces, we execute the standard safety work procedure we have devised. Likewise, by assessing the hazard of each work, we let workers prepare before work starts. We also monitor cyclically whether various safety activities are carried out as planned.

We conduct safety training by hierarchy ranging from newcomers to officers with safety-related programs. KEPCO KPS actively carries out accident prevention activities such as Tool Box Meeting (TBM), Pre-Job Briefing (PJB), safety manager's safety permission system for hazardous and harmful work, and permission system for fire equipment use.

Our Accident Safety Dept. has built a safety package system on our Enterprise Portal (EP) for the efficient implementation of safety activities. We build a support system for health, safety, and accident activities focusing on worksite operations and offer accident breaking news, reports, procedures, various safety-related laws and regulations, and training data (video, PT, Hangul, etc.). At the worksite, safety training materials suitable for the relevant work are used in real time. Finally, we have enacted 11 basic rules for health and safety to secure safety more effectively.

# Safety Implementation System and Activities

# Zero safety accidents by instilling safety awareness



Consolidate workers' safety awareness
Reinforce management supervisor's safety management mindset

## OHSMS activation

- KOSHA 1800
- Operation of safety

  patrol
- Operation of procedures/safety work standards
- Execution of three strikes-out system
- Safety guidance
   inspection

# Safety training

- Specialist training by hierarchy and power
- Application of training center's practical training on standard safety procedure
- Activation of safety experience training
- Computerization of safety training data

# Safety culture establishment

- Devising safety brand and catchphrase
- Making the 11 basic health and safety
  rules a babit
- TBM/PJB operation
- Observance of Saf Inspection Day
- Team leader's letter
   on safety

### Fortification of accident safety management

- Prevention measure for seasonal accident
- Ensuring preparedness against natural

  diagrature
- Participation in government's emergency training (Safe Korea Training)
- Execution of training to respond to crisis, organized by management

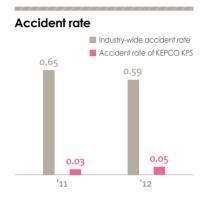
Globalization Expansion

Horizontal/Vertical Diversification of Related Industries

### **Establishment of Enabling System**

Sharing Value Expansion

Appendix



# **Emergency Action System**

We have established an actual system to cope with accidents by season and suitable for the construction period through training to respond to crises to cope with abnormal climate including typhoon and torrential rain. We enhance capability to cope with crises by closely exchanging information with the relevant organizations – such as Ministry of Trade, Industry, and Energy, KEPCO, and power companies – and maintaining a situation reporting system.

# Major Indicators of Industrial Safety

Υeάτ	Industry-wide accident rate	KEPC Accident rate	No. of deaths
2011	0.65	0.03	0
2012	0.59	0.05	0

<sup>\*</sup> Accident rate (Converted accident rate = No. of converted accident victims/Ordinary no. of workers x 100)

# **Industrial Health and Safety Committee**

KEPCO KPS runs the Industrial Health and Safety Committee consisting of nine or less committee members each from labor and management (50 workplaces nationwide). For a small-scale workplace, the labor-management council holds the committee meeting. The Industrial Health and Safety Committee collect suggestions of each workplace and applies them to sites to enhance worker's health and safety. The committee meeting is held quarterly by workplace; preventive plans and accident prevention measures are debated on during the meeting. The committee meeting results are disclosed to employees.

# **Health Management**

We assigned health managers in 21 major workplaces nationwide to enhance employees' health and prevent diseases and for first aid during work. In addition, for workplaces with 50 or more employees, we commission health management to health agencies.

By managing the health trend of each employee, we implement an effective health policy and take improvement measures. We offer general and special medical checkups each year: special health diagnosis for workers working at hazardous workplaces, such as noise-induced hearing difficulty examination for workers working in noisy workplaces, and; liver function and blood cell examination for workers exposed to chemical materials. We assist in the medical expenses so that our employees can receive general medical checkup. For workers at nuclear power generation offices, we conduct radiation disorder and nuclear power-related cancer examination each year.

For those who received a doctor's medical opinions following disease counseling from the company-stationed health manager and health management agency, a health management pocketbook is issued to check one's health status cyclically. To prevent musculoskeletal diseases, we conduct group education on preventing such diseases. Through the body stretching exercise, the musculoskeletal diseases are prevented in advance by increasing muscle flexibility. We also offer precision physical strength measurement for workers to prescribe the exercise suitable for one's physical strength level scientifically and systematically. We appoint a Sports Day each month for sports activities to contribute to employees' physical strength improvement and health management.



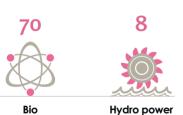
# **Eco-Friendly Operation Expansion**

KEPCO KPS operates power plant environment facilities in an eco-friendly manner through accumulated experiences and technologies. Through optimal maintenance, we minimize the impacts of power plant environment facilities on the environment and focus on safety as well. Likewise, with nuclear power plant maintenance, we contribute to enhancing the power plant use rate and mitigating GHG emissions.

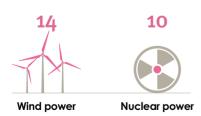
### Life Cycle CO<sub>2</sub> Equivalent **Emissions by Power Generation** Source (unit: g-CO2 eq/kWh)

991 Oil Coal





photovoltaic



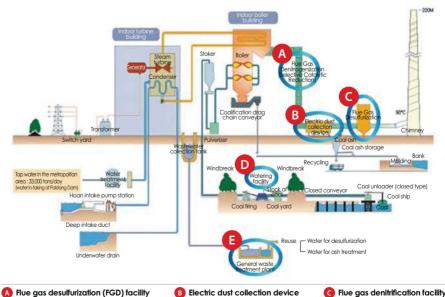
Source: Nuclear Energy Outlook 2008, OECD/NEA

# **Power Plant's Environmental Facility Maintenance**

As a company specializing in power generation and industrial facilities maintenance, KEPCO KPS systematically carries out maintenance, repair, and preventive diagnosis including the following: commissioning maintenance before starting commercial power generation; routine maintenance inspection and management of status of abnormality of facilities in the normal operation of power plants, and; planned outage maintenance testing performance by disassembling, assembling, and inspecting necessary facilities by regularly halting the power plant operation to prevent the facility's unexpected suspension.

Regarding thermal power generation, we contribute to environmental impact minimization of the power generation process through a retention process on environmental pollution facilities such as Flue Gas Desulfurization (FGD) facility, flue gas denitrification facility, electric dust collection device, general wastewater treatment device, and coal scattering prevention. For nuclear power generation, we contribute to raising the power plant use rate through perfect maintenance of all 26 units of nuclear power plants nationwide including 19 PWR, 4 PHWR, and three units of commissioning. Korea's nuclear power generation use rate in 2012 was 81.6 percent, which was much higher than the world average use rate of 73.5 percent. Nuclear power generation's use rate improvement translates into a decrease in fossil fuel operations, and such is expected to contribute significantly to GHG emissions reduction. KEPCO KPS will strive to minimize the environmental impacts of the power generation process, improve the nuclear power plant use rate, increase the fossil fuel substitution effect, and reduce GHG emissions through responsible environmental facility maintenance.

# **Environmental Facility Layout for Thermal Power Generation**



- Coal scattering prevention
- Electric dust collection device
- Flue gas denitrification facility
- General wastewater treatment facilities

Globalization Expansion

Horizontal/Vertical Diversification of Related Industries

### **Establishment of Enabling System**

Sharing Value Expansion

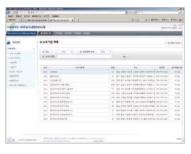
Appendix

# Environmental management system certificate



# National GHG general information system

http://gov.gir.go.kr/index.html









# **Beneficial Effects of Eco-Friendly Maintenance**

KEPCO KPS has minimized environmental impacts and secured power generation facility maintenance reliability by continually carrying out specialist technical manpower fostering and securing cutting-edge test, inspection, and maintenance equipment and reduction of labor. We maintain our reputation as the only comprehensive plant service company that can maintain all facilities of hydro, thermal, and nuclear power plants in the world. For reduction of breakdown/outage and equipment optimization, we have secured an advanced maintenance management system to build a safety operation base of power generation facility maintenance. Through maintenance environment improvement, we have improved the use rate for power generation facility and minimized breakdown/outage. As a result, in 2012, our zero breakdown/outage rate (defect-free maintenance) for one period went up 3.5 percent to 92.6 percent compared to 2010. This actually proves the excellence of our maintenance level.

# Zero Breakdown/Outage Operation Rate (defect-free maintenance) for One Period

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Category	///////2010/	/////////2011/	/////////2012/
Thermal power	88.6	90.4	92.3
Nuclear power/Pumped storage	90.9	100.0	93.8
Total	89.1	92.6	92.6

<sup>\*</sup> Zero breakdown/outage operation for one period (defect-free maintenance): All facilities in a power plant including environmental facilities are continually operated without breakdown/outage until the next planned outage maintenance, after the current planned outage maintenance.

For nuclear power plants, we had 132 sessions of zero breakdown/outage operation for one period from commercial operation start in 1978 until 2012. As a result, we have proven that we have outstanding capabilities in operation, maintenance, and management.

We actually put the highest priority on radiation safety, industrial safety, and facility safety in nuclear power plant fuel replacement and planned outage maintenance by cyclically operating maintenance programs as per the Nuclear Power Act. Thus, we have secured an excellent operation performance record. Based on nuclear power plant operation experiences accumulated for 35 years, we continually improve maintenance competencies, strive to improve weak facilities, and optimize planned outage maintenance. We offer group education to prevent musculoskeletal diseases and prevent such diseases in advance by increasing muscle and joint system flexibility with body stretching exercise. In addition, we carry out the workers' precision physical strength measurement prescribing the exercise suitable for one's physical strength level scientifically and systematically. We also observe the Sports Day each month and contribute to employees' physical strength improvement and health management.

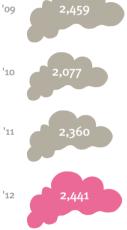
We pursue sustainable development considering the future generation and environment. Toward this end, we strive to enhance environmental management's efficiency and objective reliability by building an environmental management system at the enterprise-wide level and practice environmental management through employee engagement and awareness conversion.

# **Environmental Management System**

Seeking to be a global top-tier maintenance company, KEPCO KPS has set as its company vision "A global business partner leading the green energy service industry." Aside from offering the world's top-level master's maintenance services, it has built an environmental management system to operate eco-friendly business. Although KEPCO KPS is a company without its own facilities, it lets employees regard the customer's facilities as the company's own facilities; thus, we make an effort to fulfill social responsibilities within the value chain. Toward this end, we have built a system focusing on the processing of site waste generated by maintenance. We have set environment guidelines within power plants, treating byproducts strictly. In this manner, we have developed a system of realizing win-win growth together with customers, communicating mutually.

In particular, we develop various activities such as recycling scrap paper, toner handling, separate collection of rubbish, and waste paper collection campaigns in linkage with the corporate culture. GT Maintenance Center – where we have our own facilities – builds and operates an environmental management system, independent from customers, and we have acquired international EMS, ISO 14001 certification for the GT Maintenance Center. Furthermore, we acquired certification for integrated quality environment management system (ISO 9001 & 14001) at the enterprise-wide level to comply with the Low Carbon, Green Growth Basic Act. In this manner, we operate a company-wide environmental system.

# Vehicle GHG emissions index management (unit: tCO2eq)



# **Responding to Climate Change**

International society's continuous interest in climate change and demand for mandatory GHG emissions reduction are on the rise.

With the enactment and announcement of the Guidelines for Public Sector GHG and Energy Target Management System in January 2011, pursuant to the Low Carbon, Green Growth Basic Act, we posted the GHG and energy use amount on the GHG General Information System for the fuel use of all our vehicles and company building for proper management. In addition, we make implementation plans and reflect them on the internal management assessment to achieve our GHG and energy use reduction targets.

Having set the reduction target of GHG emissions of our own vehicles and company building, we make an effort to monitor, manage, and improve the target. Based on three years' mean data (2007~2009), we implement the target we have set, i.e., mitigate GHG emissions by 4 percent each year for five years from 2011 to 2015, for a total of 20 percent by 2015.

Regarding vehicles owned by some 60 workplaces including the KEPCO KPS Head Office, we have 366 diesel cars (passenger cars, vans, cargo trucks, special-purpose vehicles) and 66 gasoline cars. As the business area expands, the vehicles also increase; thus, GHG emissions are on the rise as well. Concerning the company building, fuel use is continually on the decline thanks to energy savings and energy efficiency improvement activities.

# GHG and Energy Use in 2012 (building)

Assessment sector	Workplace	Energy fuel classification	Base amount during the period 2007~2009 (average for 3 years)	Use amount in 2012	Target in 2012 (80 percent applied)	Unit
Applying	Head office,	Electricity	4,475.10	3,750.78	4,117.09	MW
only company	Busan, Daegu, Gwangju	Steam	114.57	20.15	105.40	Toe
buildings'	Transmission	Kerosene	4,939.64	4,917.00	4,544.47	l
owned by KEPCO KPS	Offices, and External Center	LNG	16,530.00	7,895.00	15,207.88	m³

# GHG and Energy Use in 2012 (Vehicle)

Assessment sector	Workplace	Énergy fuel classification	Base amount during the period 2007~2009 (average for 3 years)	Use amount in 2012	Target in 2012 (80 percent applied)	Unit
Head Office (Dept.), Thermal Power (1, 2, 3, 4 groups)	KEPCO KPS	Gasoline	140,412.22	91,798.98	130,919.36	l
Nuclear power (1, 2 groups), Electricity transmission and transformation	KEPCO KPS	Diesel	848,779.33	837,359.51	779,304.61	l

### **GHG Emissions**

Category //////	/Unit///////	//////2010/	///////2011/	//////2012/
Direct GHG emissions	metric tonnes of CO <sub>2</sub> equivalents	2,126.89	2,388.85	2,470.49
Indirect GHG emissions	metric tonnes of CO <sub>2</sub> equivalents	2,265.32	2,049.87	2,005.97

# **Waste and Harmful Substances Management**

The household waste and industrial waste generated by KEPCO KPS are treated according to the legal disposal procedure through volume reduction and separate collection in the waste generation process. When using harmful chemicals, we use them after registering on the Material Safety data sheet(MSDS) from the procurement stage. We also register the remaining volume. In this manner, we practice thorough management according to the control and procedure of environment control personnel. We are fully prepared for harmful substances management by building a 24-hour emergency response and prevention system for emergency situations. As a result, there was no accident of waste, oil, and harmful substances outflow from KEPCO KPS for the past 2 years.

Globalization Expansion

Horizontal/Vertical Diversification of Related Industries

### **Establishment of Enabling System**

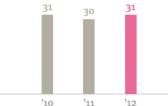
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Appendix



# **Environmental waste treatment** volume

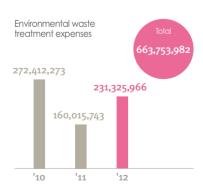
Waste synthetic resin



\* Only company buildings owned by KEPCO KPS — such as KEPCO KPS Head Office and GT Maintenance Technology Center — were applied.

### Status of Environment-related **Expenses Execution** (unit: KRW)





\* KEPCO KPS-wide treatment expenses

# **Raw Materials Use**

KEPCO KPS does not use raw materials it procures separately, since it uses the raw materials provided by customers.

# Scrap Iron Volume and Recycled Volume

KEPCO KPS commissions the recycling of recyclable scrap iron to a recycling company for full resource recovery in terms of the scrap iron generated by its business. We operate a system wherein the materials provided by our customers are returned to them for recycling. Chips or replacement goods for maintenance, processed by our GT Maintenance Technology Center, are recycled as scrap iron.

# **Scrap Iron Volume**

(unit: kg)

Category	2010	2011	2012	Total/
Scrap iron volume	2,200	5,365	4,100	11,665

# **Atmospheric and Soil Pollutants**

KEPCO KPS provides power generation facility maintenance service as its flagship business, targeting 6 power generation companies and privately funded power plants. As a type four atmospheric control workplace, the GT Maintenance Technology Center operates dust collection facility to minimize materials discharged into the atmosphere in the work process. The center systematically measures and controls the working environment semiannually.

# **Air Pollutants Volumes**

(unit: ton)

Category	2010	2011/	2012
Dust	9.88	9.88	9.88
NOx	0.02	0.02	0.02

Regarding, water, there is no water supply source affected by water intake using waterworks; the wastewater discharged by our workplaces is jointly treated in the relevant power plant's water treatment facilities. We neither use ozone-destroying materials such as CFC nor discharge the wastes specified by the Basel Convention. There was no case of violation of environment laws and regulations by KEPCO KPS during the reporting period.

# **Water Resource Use**

(unit: ton)

Category	2010	2011	2012
Use amount	19,098	20,025	19,490

<sup>\*</sup> Water use amount is limited to the KEPCO KPS Head Office and GT Maintenance Technology Center.

<sup>\*</sup> Air pollutant volumes are limited to the GT Maintenance Technology Center, which has its own factory.

\* The volumes during 2010 and 2012 are the values specified in the atmospheric discharge facility installation permit in April 2010, and there had been no facility change including expansion since ther



# SHARING VALUE EXPANSION

KEPCO KPS recognizes the importance of win-win growth through win-win cooperation with small and medium businesses (SMBs) as the main player of creative economy and faithfully fulfills its social responsibilities with various support services for SMBs. Through social contribution programs such as Hanmaum Volunteers, and Building Hope Ground, we practice sharing management together with the underprivileged.



# interview



KEPCO KPS has developed and grown in power generation facility maintenance for the past 30 years, but new strategies are required given the open market. KEPCO KPS can enjoy win-win growth only by focusing on core technology and high value-added technology development and implementation, and developing partner firms' capabilities through technology collaboration and transfer as well as HR fostering.

For safety accidents that can occur in the process of power generation facility maintenance, we hope you offer actual safety training to instill safety awareness among partner firms' employees. I also expect KEPCO KPS to fulfill its social responsibilities, consolidate ethical management for continual development, and maintain fair and sound relations with partner firms.







### KEPCO KPS

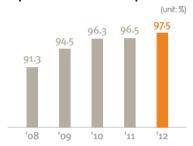
Sustainability Report 2012



# Win-Win Growth Consolidation

KEPCO KPS sufficiently recognizes the importance of win-win growth through win-win cooperation with SMBs as the main player of creative economy and faithfully fulfills its social responsibilities by providing various support services for SMBs.

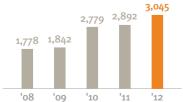
### E-procurement ratio expansion



# Supplier Relationship Management (SRM)



# Records of green product procurement (unit: KRW million)



# **Fair Competition**

We expand the e-procurement ratio to ensure transparency of contract and ensure customer satisfaction, continually improve the contracting system, and strive to enhance ethical awareness and expand the human rights deliberation ratio.

# **Expansion of E-Procurement Ratio**

We execute e-contract when contracting KRW 3 million or more of construction and for service and goods procurement. For a contract involving a contract amount of KRW 5 million or more, we execute competitive bidding. As a result, the e-procurement ratio maintains a steady uptrend.

# **Contract System and System Improvement**

KEPCO KPS continually improves the contract system including the bidding system for Supplier Relationship Management (SRM) fingerprint recognition, partner firms' operation system improvement, and expansion of e-open private contracts as a clean company that engages in transparent and fair contracting.

Execution of bidding system for SRM fingerprint recognition (Oct. 2011) Partner firms'
operation system
improvement,
fair competition

Use of standard subcontract disseminated by the Fair Trade Commission (Nov. 2012)

Expansion of e-open private contracts (Dec. 2012)

# Ethical Awareness Enhancement and Expansion of Human Rights Deliberation Ratio

In assessing partner firms, KEPCO KPS reflects on the assessment factors not only construction records and construction competencies but also human rights deliberation items such as fair transaction violations, safety management status, safety accident occurrence, ethical management practice, delayed payment of employee wages, proper level of labor cost payment, annual HR turnover rate, and HR input rate. Additionally, we assess technology improving efforts (ratios of safety, quality, job training completion, and new personnel acquiring national qualification), findings related to radiation safety management, and site manager's stationing at the site. We listen to employees' difficulties through meetings, operate a unit to deal with those, and improve the system. This way, we have eased entry barrier and expanded SMBs' opportunities to participate in bids. On the other hand, through an incentive system that offers an opportunity of re-contracting via site assessment, we ease the instability of re-employment. For 2013, we plan to adopt an online payment monitoring system and guarantee the human rights of workers in the process.

# **Expansion of Green Products Procurement**

Green products are those specified in Article 2, row 5 of the Low Carbon, Green Growth Basic Act. They are goods contributing to resource savings and reduce environmental pollution compared to other products or services with the same usage.

We relentlessly make efforts to support the acquisition of green product certification and expand procurement through the mandatory procurement of the relevant items. We actually contribute to environmental protection, national health protection, and safety.

Globalization Expansion

of Related Industries

Establishment of Enabling System

### **Sharing Value Expansion**

Appendix

### **Win-Win Cooperation Vision**



- enhance roles
   Enhance corporate
- Improve pow generation facility

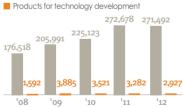
- competencies
  Reinforce technology capabilities
  • Enhance management stability

# **Quality Training of SMBs**

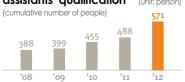


### **Expansion of public products** procurement (unit: KRW million)

■ Products of SMBs



### Awarding results of maintenance assistants' qualification (unit: person)



# **Win-Win Cooperation**

KEPCO KPS sincerely fulfills its social responsibilities for sustainable development by actively implementing win-win growth management. By operating the SMB Support Center, SMB Support Operation Committee, and SMB Support homepage, we pursue win-win cooperation with SMBs, execute various collaboration businesses, and strive to enhance their competitiveness as well as also solve the bipolarization between large corporations and SMBs.

# Win-Win Cooperation Programs and Achievements

# 1. Technology Development Support

• We contribute to technology improvement and competitiveness consolidation of SMBs for the promotion of their technology development and establishment of systematic quality system through collaborative R&D, assistance in intellectual property registration, support for acquisition of certification for preferential procurement products, and support for rental system use.

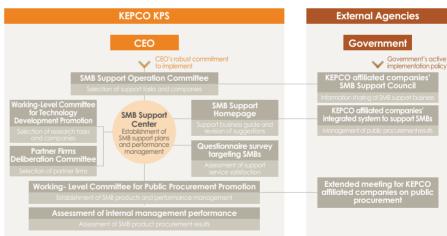
### 2. Sales Channel Assistance

• For SMBs' management stability, we support various exhibits and presentation of SMBs' products in those exhibits so that they can be procured preferentially and excellent goods can be promoted. For overseas market development for SMBs, we contribute to the enhancement of their international competitiveness through partners' entry into overseas markets.

# 3. HR Fostering Support

• For the consolidation of SMBs' technological capability and stability of power generation facility, we operate a nuclear power plant maintenance assistant qualification system. Likewise, we offer maintenance technology improvement and quality training for partner firms and conduct job training commissioned to specialist training agencies for SMBs.

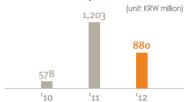
# Win-Win Cooperation System



### **Yearly Details of Win-Win Cooperation**

### Introduction period Establishment period Dissemination period · Establish win-win cooperation system · Consolidate win-win cooperation system Newly establish organization in charge of SMBs Form SMB support procedure Support SMBs support procedure Disseminate best practices of win-win cooperation Build successful win-win cooperation model • Form bond of sympathy for win-win · Expand performance sharing system and preferentially treat companies implementing the system • Expand SMBs' HR fostering support Introduce and establish performance Bolster site-focused support Expand sales channel support • Execute maintenance technology training and technology transfer • Execute joint entry for overseas business • Increase financial support for SMBs nent of quality assurance · Expand partners' entry in overseas business

# Loan results for partner firms



# Certification as a company adopting the performance sharing system



# Agreement-signing ceremony for win-win growth with partner firms



# 4. Financial Support

• We operate the prepaid money system to enhance SMBs' management stability and make efforts to solve companies' funding difficulties through support in the form of loans for SMBs including investment in win-win cooperation funds, network loans, public procurement loans, and loans to partner firms.

# 5. Support for Management Capability Consolidation

 We support management consulting and quality certification acquisition to fortify SMBs' ability to spread and reinforce quality competitiveness.

# **Results of Support for Quality Certification Acquisition**

(unit: case, KRW thousand)

Category	2010	2011	/2012/	
No. of support cases	5	2	3	
Support amount	15,000	6,000	9,000	

# 6. Execution of Performance Sharing System

• We were confirmed as a company adopting the performance sharing system by the Large and Small Business Cooperation Foundation in 2012, having operated the performance sharing system such as development-selection goods appointment and preferential procurement, technology transfer and commercialization support to pursue win-win growth with SMBs, and generation of mutual profits. For the preferential procurement of excellent products in particular, when products are developed by signing technology transfer contracts with SMBs for performance sharing, we promote SMBs' new product development and ensure maintenance quality. We transfer effective technologies, assist in SMBs' product commercialization, and promote mutual technology collaboration.

# 7. Communication Activation

• KEPCO KPS has built a system for smooth mutual communication with SMBs, continually improving unfair practices and systems. We form partnerships for win-win cooperation through presentations, contract-signing ceremonies, and meetings and questionnaire surveys for win-win growth with SMBs.

# **Future Plans**

We have laid the system foundation for win-win growth. We will contribute to SMBs' competitiveness consolidation by laying the foundation for SMBs' growth engines via additional search for various win-win cooperation programs. We will endeavor to be a company fulfilling its social responsibilities so that sustainable cooperative relations can be sustained.

# **Consolidation of Win-Win Growth with SMBs**



# Diffuse the performance sharing system

Establish performance sharing system operation standards

Confirm companies adopting the performance sharing system Execute technology transfer-type performance sharing Carry out technology collaboration performance sharing Competitiveness Consolidation of Existing Business

Globalization Expansion

Horizontal/Vertical Diversification of Related Industries

Establishment of Enabling System

#### **Sharing Value Expansion**

Appendix

#### **Hanmaum Volunteers**

Hanmaum Volunteers 58 service corps
No. of corps members: 5,076 people

**Director**[CEO/Labor union president)

Assessment group (labor-management cooperation) Bureau (PR Team of Planning Dept.)

Head Office (Deputy head of HR & Labor Dept. / Chapter committee chairman)

Offices ffice head / Chapter ommittee chairman)

#### **Emblem of Hanmaum Volunteers**



#### Talent Donation (Pro-bono)



We actively search for various pro-bono talent donation activities and practice them to overcome budget and environmental limitations and activate Hanmaum Volunteers as social contribution activities utilizing expertise for public benefit.

# Electricity safety training for children





# Community **Engagement**

Based on the company's catchphrase "World that becomes one with love to share", KEPCO KPS is practicing sharing management together with the underprivileged though social contribution programs such as Hanmaum Volunteers and Building Hope Ground.

#### **Social Contribution**

KEPCO KPS is a power generation facility maintenance company carrying out high-quality, responsible maintenance on domestic and international power generation facilities and electricity transmission and transformation and industrial facilities. We contribute to the enhancement of national convenience through incessant technology development and HR fostering for the efficient maintenance and management of power facilities as the core of national economic advancement.

To fulfill our corporate social responsibilities and roles more actively, we are putting social contribution activity strategy into practice and spearheading efforts to create a "World that becomes one with love to share" by using angel funds and matching grant funds as voluntary donations along with the operation of labor-management's joint Hanmaum Volunteers to disseminate sharing management.

### Strategy for Social Contribution Activity

# Contributing to community development through social responsibility



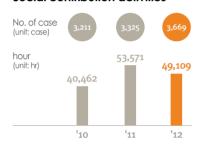
#### Hanmaum Volunteers creating a "World that becomes one with love to share"

This catchphrase contains the Corps' commitment to create a warm world for the underprivileged and the community.

#### **Major Activity Types**

Company specialization (talent donation)	Talent donation activities using technological capability in power generation facility maintenance, equipment, and manpower; we operate a social contribution program dubbed "Building Hope Ground" and perform maintenance/repair of Dokdo Lighthouse power generation facilities
Educational and cultural activities	Electricity safety education for children, one-day teacher of nuclear power, scholarships for the underprivileged, power plant experience and learning support, book support for children in remote islands
Community activities	Forging sisterhood relations with welfare facilities protecting the elderly, disabled, and children surrounding workplaces and rural villages, and supporting them; partnership volunteer service activities for community integration and development including local governments' volunteer service centers
Ecosystem restoration activities	Campaign on preventing forest fire caused by electricity transmission lines wherein the general public's access is difficult, sea, mountain, and river protection activities including waste collection, trap-removing activities in mountains and fields, feeding wild animals and birds in winter, and wildlife protection activities using surplus materials
Sponsorship activities	Financial assistance activities that can contribute to solving the economic problems of the local residents and the underprivileged using our employees' donations for welfare facilities, local governments' volunteer service centers, rural villages, and schools (angel fund, matching grant, fun donation)

# Social contribution activities



#### Social contribution brands

Yuhan Kimberly	Making our beautiful land
Hyundai Motor	World moving together
LIG	Hope plus
NH Nonghyup	Growing love
KEPCO KPS	Building Hope ground

#### **Quality training for SMBs**



#### Talent donation (Heart service - Call)



In-house nurse's health care activity for the elderly living alone, facility inspection by technical personnel, and residential environment improvement volunteer services

#### **Results of Social Contribution Activities**

(unit: case, person, hr. KRW thousand)

Category	//////2010/	//////2011/	//////2012/
No. of activities case note 1)	3,211	3,325	3,669
No. of people in action note 2)	13,457	15,535	14,995
Activity hours note 2)	40,462	53,571	49,109
Activity hours (Service Corps member)	8.5	10.9	9.7
Activity amount (KRW thousand)	1,287,837	1,138,420	1,137,721

Note 1) The number of activity cases rose, thanks to the activation of talent donation and small-scale practice and diversification of volunteer

Service durings.

Note 2) Reduction in cumulative persons and hours according to compliance with the government's guidelines for maintenance personnel emergency standby to cope with power failure

#### Building Hope Ground, a Typical Social Contribution Program

As a typical social contribution activity based on the engineering company's characteristics, the activity aims at improving the residential environment of children.

#### **Talent Donation Activities of Selection and Concentration**

KEPCO KPS conducts selective and concentrated social contribution activities through which it can actively search for and practice talent donation areas, such as quality training for SMBs, inspection of Dokdo Lighthouse and Coast Guard power generation facilities, and heart service dubbed "Call," a volunteer service of taking care of the elderly living alone in medically unprivileged areas.

### Activity Map of the Building Hope Ground of KEPCO KPS

#### Seoul Metropolitan Area

**Head Office** Environmental improvement of Hansol Local Children's Center Seoul Branch Lighting installation of Samdong Local Children's Center

Ilsan Branch Environmental improvement of Hanbit Local Children's Center

Bundang Branch Toilet repair of Clean Spring

Seoul Electricity Transmission and Transformation

Environmental improvement of Green River Local Children's Center Anyang Branch Heating installation of Iruri Local

Children's Center **Bucheon Branch** Sink installation and many others for Bucheon Neighbor Loving Local

#### Chungcheong Region

Parang Local Children's Center

al improvement Boryeong Office Furniture replacement of

Daejeon Aeyukwon
Taean Office Family environment
improvement activities for the

Jecheon Electricity Transmission and

Transformation Sink replacement of Seton Children Group Home Renewable Energy External Center

Remodeling and many others for Bokdongsan Local Children's Center

#### Jeolla Region

Yeonggwang Office Environmental improvement of Dandy Local Children's Center Honam Office Environmental improvement of Hyeoncheon Local Children's Center Gunsan Office Family environmental improvement activities for undersident improvement activities for underprivileged

Gwangju Electricity Transmission and Transformation Replacement of boilers for Yongsan Local Children's Center

Muju Branch Environmental improvement and many others for Muju Gold Light Local Children's Center

### **Gangwon Region**

**Donghae Branch** Environmental improvement of New Power Local Children's

Yangyang Branch Desks and chairs replacement and many others for Dream and Green Local Children's Center

#### **Gyeongsang Region**

Busan Office Desks and chairs replacement of Holy Tree Local Children's Center Samcheonpo Office Environi improvement of Duryang Local Children's

Wolseong Office Environmental

Ulsan Office Environmental improvement and many others for Guibok Local Children's

Gori Office Environmental improvement and many others for Haewoondae-gu Banyeo Eoggaedongmu Local Children's Center

#### Results of Building Hope Ground



Jeju Region

Jeju Office Environmental improvement of Bongareum Local Children's Center Recovery from typhoon damage and many others for Hansarang Local Children's Center

Competitiveness Consolidation of Existing Business

Globalization Expansion

Horizontal/Vertical Diversification of Related Industries

Establishment of Enabling System

#### **Sharing Value Expansion**

Appendix

#### Global maintenance business site



# Status of foreign employees at overseas offices

(as of December 31, 2012)

India	Pakistan	Madagasear	Philippines	Total
975	53	138	21	1,187

# Local sports event of Daharki workplace



#### Received the Grand Prize in the SBS Hopeful Tomorrow Sharing Awards



#### **Global Social Contribution Activities**

KEPCO KPS enhances Korea's technological status by penetrating India, Pakistan, and Madagascar based on years of know-how and accumulated technological prowess in the power generation facility maintenance field. Through the employment of local people in the penetrated foreign countries, we help solve the relevant countries' employment problems and contribute to the creation of economic value. With global social contribution activities suitable for the host countries' features and by respecting the local culture, we communicate with heart and form a bond of sympathy beyond race and language. This way, we deliver the warm heart of KEPCO KPS. We will spearhead global sharing management and communication management, inspiring hope and courage among the underprivileged worldwide.

### Global Social Contribution Activity Cases for Regional Integration

#### Daharki, Pakistan

In November 2011, the Daharki Office held a ping pong tournament participated in by KEPCO KPS employees and local residents and had a valuable festival and integration opportunity for the community. The ping pong games were conducted in tournament fashion by mixed team composition, helping improve mutual cooperation between the two camps. After the tournament, a reception with Korean foods such as Kimchi prepared by KEPCO KPS employees and local foods was held, serving as an opportunity for cultural exchange.

#### Vemagiri, India

In July 2012, the Vemagiri Office visited India's local Janani Institute for the challenged and offered community volunteer service through internal facility inspection and repair. The Janani Institute for the challenged is a protection agency that accommodates disabled adolescents, supports livelihood, and carries out mental and physical treatment for them. The event we sponsored was featured in a community newspaper in India; this enabled the locals to learn about our company's customer value leading management and global social contribution activities.

## Other Global Social Contribution Activities

India's Jharsuguda Workplace motivated local children to develop their future by sponsoring Chamunda Children's House, and Bolangir, a remote school. In addition, the Balco workplace participated in charity events held by the community. In 2012, which marks India's 66th independence anniversary, we completed the construction of convenience buildings including toilet and provided learning supplies to Madhavarayu Palem School. In this manner, KEPCO KPS practiced global social contribution activities and consequently fulfilled its responsibility as a member of the community, putting sustainability management as an accountable global engineering company into practice.

# **Social Contribution Activities Achievements**

For the constant performance of Hanmaum Volunteers for community integration and fulfillment of its corporate social responsibilities, KEPCO KPS received the SBS Hopeful Tomorrow Sharing Grand Prize and Security and Public Administration Minister's Award in 2011. We also received a plaque of appreciation from Children's Foundation in 2012. In other words, our efforts to fulfill our corporate social responsibilities faithfully were recognized.



Indian local newspaper reporting the global social contribution activities of KEPCO KPS

#### KEPCO KPS

Sustainability Report 2012

# **APPENDIX**

Third-Party Assurance Statement ISO 26000 Diagnosis Report GRI-ISO 26000 Link Table Awards and Membership of Organizations Glossary

Réaders' Ópinion Questionnaire

# **Third-Party Assurance Statement**

# To the Management and Stakeholders of KEPCO KPS:

#### Introduction

The Korean Standards Association ("KSA") has received a request for independent assurance of the KEPCO KPS Sustainability Report 2012 ("the report") from KEPCO KPS ("KPS"). Therefore, KSA reviews data, performance results, and evidence and feasibility of the relevant systems as contained in the report drawn up by KEPCO KPS to offer an independent third-party assurance opinion. KEPCO KPS is responsible for collecting, analyzing, and organizing the information required to generate the report and all the claims made therein.

#### Independence

KSA is independent and autonomous from any influence of KEPCO KPS and its stakeholders, other than offering third-party assurance on the report.

#### **Assurance Standards and Level**

KSA has performed the assurance by applying GRI G3.1 guidelines and ISO 26000, focusing on AS1000AS 2008 assurance standards. According to the assurance requirements of AA1000AS (2008), KSA has checked the scope of adopting the inclusivity, materiality, and responsiveness and reliability of the information contained in the 2012 report. The credibility of the information in the KEPCO KPS Sustainability Report has been verified with a moderate level of assurance.

#### **Assurance Type and Scope**

KSA has performed assurance that falls under Type 2 in compliance with AA1000 assurance standards (AA1000 AS). Type 2 assurance means that the accuracy and quality of the claims of KEPCO KPS and performance information in the report have been assessed in accordance with the principle of reporting responsibility set forth in AS1000 assurance standards 2008. The assurance scope has been based on the period Jan. 1, 2011 ~ Dec. 31, 2012. KSA has carried out assurance focusing on systems and activities such as sustainability management policy and goal, business, standard, and performance. Likewise, KSA has conducted assurance on environmental and social data and financial data on economic performance in a broad sense. The intervention of the assurance provider (KSA) in stakeholder engagement has been limited to reviewing the materiality test process.

#### Methodology

KSA has collected the necessary information, data, and evidence related to the assurance scope and performed assurance using the following methods:

- investigation and analysis of reported media articles with regard to the sustainability management of KEPCO KPS for the past two years
- visit to KEPCO KPS head office, interview with staff in charge of sustainability management and issue manager
- review of the management system and process used for improving sustainability management performance and drawing up the report
- review as to whether the audit report and disclosure data match with regard to financial performance data and financial statements
- track review of internal documents and basic data

#### Findings and Opinions [on the assurance principle/process dimension]

KSA has reviewed the draft report and presented opinions on it, with the report revised as necessary. Major errors or inappropriate descriptions have not been found in the details of the report, based on our assurance activities. KSA presents the following opinions on the KEPCO KPS Sustainability Report:

#### Inclusivity

# Has KEPCO KPS included stakeholders in the strategically responding process on sustainability?

KSA has checked and found that KEPCO KPS recognizes the importance of core stakeholder engagement in implementing sustainability management and makes an effort to build the engagement process. KEPCO KPS is considered to be very good, having conducted benchmarking of the relevant companies, media analyses, and questionnaire surveys among employees consistent with 2011; thus identifying the issues that stakeholders are interested in. KSA recommends that KEPCO KPS build a governance system wherein the issues raised by stakeholders can be more actively reflected on internal routine management activities.

#### Materiality

#### Does the report contain material issues for the wise judgment of stakeholders?

KSA judges that KEPCO KPS has not omitted or excluded information material to its stakeholders. KEPCO KPS has identified the issues of stakeholders through internal and external environmental analyses. Based on the analyses, KEPCO KPS has ded

Appendix

# Responsiveness Has KEPCO KPS properly responded to stakeholders' demand and interest?

KSA has confirmed that KEPCO KPS has conducted various activities to respond appropriately to issues related to sustainability management. In particular, "Building Hope Ground," a social contribution program that has properly harmonized the agency's characteristics and the needs of members of society, has been recognized for its contribution to the residential environment improvement of children, a weak class. Moreover, highlighting talent donation activity based on the commitment of management and employees is assessed to be excellent. KEPCO KPS is deemed to require building organizations and strategies to manage the sustainability management strategy field continually including continuous growth and responsibility management as well as putting importance on humans together with clear data control in the future.

#### Opinions in Each Area and Recommendation for Improvement [Execution Results/Issues]

KSA recommends a review of the following so that KEPCO KPS can lay the foundation to respond consistently to issues through the consolidation of sustainability management strategies at the enterprise-wide level:

#### **Economic Area**

Companies face various risks that may occur in the management activities in the energy markets where the economic environment rapidly changes. The enterprise risk management (ERM) system's reporting on financial and business environments and human resources under the economic environment describes the company's risk management capacity well. Nonetheless, KSA recommends disclosing specific means of achieving such in the report rather than grand mid- and long-term financial plans and target achievement.

#### **Environmental Area**

Despite being an energy service company rather than a manufacturer, KEPCO KPS is considered to be outstanding, having reported various achievements in the environmental sector by collecting environmental data. KSA actually recommends specifying sustainability management-based eco-friendly strategies and development of linked activities as well as performance for better improvement, including expanding the environmental data scope such as energy use amount.

#### Social Area

The efforts of KEPCO KPS to promote social responsibility within the value chain -- including small and medium businesses support and agreements to help the underprivileged -- and establish social contribution activity strategies are highly notable since KEPCO KPS links specialist sectors with social contribution activities and emphasizes fair competition and win-win growth, which are drawing attention nowadays. Nonetheless, KSA recommends maintaining reporting balance by reporting negative issues exposed to the media such as unfair acts and corporate response and means of improvement in the future.

#### **GRI Application Level**

Based on G3.1 Guidelines, this report's application level is confirmed to be A+.

June 2013 KSA Chairman & CEO





# ISO 26000 Diagnosis Report

#### Standard

KSA has developed a checklist to diagnose the social responsibility implementation level based on an international standard, ISO 26000, for social responsibility as part of the project undertaken by the Korean Agency for Technology & Standards affiliated with the Ministry of Knowledge Economy. This diagnosis report is the result of diagnosing the seven core themes in KEPCO KPS's sustainability management processes and performance according to KSA's diagnosis checklist.

#### Scope

KSA has diagnosed processes and implementation performance with regard to the social responsibilities of KEPCO KPS. Toward this end, KSA has diagnosed

the mid- and long-term strategies and activities, stakeholder engagement, and social responsibility activities.

#### **Methods**

KSA has conducted the following activities to collect appropriate data based on standards for ISO 26000 implementation level diagnosis:

- review of mid- and long-term strategies, management performance reports of KEPCO KPS
- interview with the staff in charge of each sector of sustainability management, review of performance documents of KEPCO KPS
- identification of sustainable issues that can affect the stakeholders of KEPCO KPS

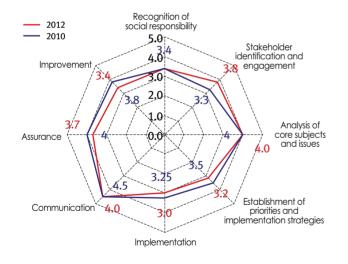
#### Diagnosis Results of Each ISO 26000 Social Responsibility Program

The diagnosis results in the process sector do not show huge difference from those in 2010. All employees recognized that realizing the organizational establishment goal -- "Contribution to stable supply of power through power generation facility maintenance specialization" -- is in fulfillment of the company's social responsibilities. KEPCO KPS makes diverse efforts to strengthen organizational competitiveness throughout power generation facility maintenance by establishing the "Global business partner leading the

green energy service industry" corporate vision.

Meanwhile, recognition of more active social responsibility beyond organizational business goal achievement is lacking. KSA recommends that KEPCO KPS complement the strategy system for sustainability management that can be integrated and realized within corporate-wide strategies. Moreover, KEPCO KPS needs to reflect sustainability on the main policies so that organization members can recognize the importance of social responsibilities.

#### **Diagnosis Results of Each Social Responsibility Process**



Review the current status of organization based on the top management's commitment Stakeholder identification and engagement Analysis of core subjects and issues Review stakeholders' interests and needs and establish an engagement strategy Draw up a dispute list based on dispute review and analysis of organizational internal capacity Establishment of priorities and implementation strategies Establish priorities of disputes to be resolved, goals, and implementation plans considering the organizational Execute strategies, goals, and plans and cyclically monitor social responsibility performance Communicate with stakeholders by drawing up a performance report Activities and report to enhance reliability of performance Cyclically review performance and link it with continual

#### Diagnosis Results of Seven Core Subjects of ISO 26000

**Organizational Governance** The reorganization of the sustainability management system, goal setting, and performance inspection activities are required as is the case in 2011. KEPCO KPS needs to practice sustainability management governance at the enterprise-wide level so that sustainability management can be realized in the organization's major decision making.

**Human Rights** KEPCO KPS propels entry into overseas markets actively to respond to increasing demand for power generation facility maintenance alongside emerging economies' rapid economic growth. KEPCO KPS is required to reflect standards for corporate social responsibility on project risk

management for the prevention and control of human rights risks that may arise in implementing overseas projects. Likewise, KEPCO KPS needs to conduct social responsibility-based due diligence and identify and manage actual and potential impacts on stakeholders.

**Labor Practices** The work of KEPCO KPS carries small- and large-scale safety accident risks in the workers' maintenance process of heavyweight power generation facilities with enhanced and specialist technologies. The health and safety issue at work has been a hot issue in terms of employees' interest. KEPCO KPS needs to strive continually to foster a healthy workplace by carrying out thorough safety management applied to both partner firms and KEPCO KPS.

Appendix

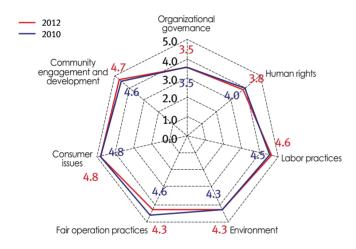
**Environment** The impacts of exposure to harmful chemicals in the workplace on workers and community are severe; hence the need for strict management. Amid the increasing social interest in and concern over the recent harmful chemicals outflow, KSA suggests reinforcing harmful substances control with environmental education on the processes of procurement, use, treatment, and disposal of harmful chemicals.

**Fair Operation Practices** KEPCO KPS carries out various activities including inhouse integrity index survey, cyber and tour education/training, and receipt of ethical violations through Shinmungo to fortify ethical management. KSA expects KEPCO KPS to enhance ethical awareness continually with specialist ethical education programs to internalize ethical management. Likewise, KEPCO KPS needs to activate the reporting of ethical violations with various incentive and reward systems and disseminate an organizational culture founded on integrity.

**Consumer Issues** Although the direct customers of KEPCO KPS are power generation companies, the end customer of power generation facility maintenance will be the Korean people who receive stable power supply. KSA suggests that KEPCO KPS increase communication with stakeholders through corporate recognition-enhancing activity consolidation, enhance the information accessibility of the people with the provision of transparent and precise business information, and promote sustainable consumption with regard to electric power use.

**Community Engagement and Development** KEPCO KPS carries out various social contribution activities such as community educational and cultural activities, including professional volunteer service that offers specialist engineering technology services like power generation, electrical, and machinery together with community engagement. KSA expects KEPCO KPS to make contributions to global community development by analyzing the social contribution needs through overseas workplaces' identification of community issues and by actively carrying out social contribution activities.

#### Diagnosis Results of Social Responsibility Performance



Organizational governance

Human rights

Labor practices

Livionimen

Fair operation practices

Consumer issue:

Community engagement and development

Activities that uphold social responsibility principles and integrate them into existing systems, policies, and practices

Activities that respect, protect, and realizing human rights within the organization and organization's sphere of influence

Policies and practices affecting workers' labor environment targeting KEPCO KPS and partner firms

Activities carried out in an integrated manner considering the organization's decisions and activity's meaning to reduce the organization's impacts on the environment

Activities promoting ethical acts between KEPCO KPS and other organizations such as KEPCO KPS and partners and suppliers

Consumer rights protection activities including consumer education, fair and transparent marketing information and contracting, sustainable consumption promotion

Activities aimed at recognizing, respecting community rights and maximizing support and opportunities

#### Conclusion

As a result of diagnosing the ISO 26000 response level of KEPCO KPS, the company scored 258 points out of a total of 360 points in the process aspect and 517 points out of a total of 640 points in performance. With total score of 775, KEPCO KPS has been assessed to fall under SR III level.

The social responsibility of KEPCO KPS, which contributes to essential service offering with enhanced and specialist technologies on power generation equipment, is closely related to its business execution. KSA recommends that KEPCO KPS recognize social responsibility within the organization's influence sphere, systematically adopt sustainability management, and integrate it into the organizational operation to develop into a recognized and reliable company among citizens.

June 2013
KSA Chairman & CEO Chang Ryong Kim



The Korean Standards Association is a special corporate body established pursuant to the "Law of Korean Industry Standardization" enacted in 1962. As an intelligence service institution that supplie and expands industrial standardization, qualify management, sustainability management, and KS ISO accreditation to companies, KSA is also a national administrative organization for ISO 26000 a designated educational institution for GRI guidelines, an AA1000 assurance institution, and at operational institution of the Korean Sustainability Index (KSI). It is an organization that runs the Ut CDM, an assurance institution that controls the objective systems for greenhouse gas energy; is other words, it is an institution that fosters our society's sustainable development.

# GRI G3.1 and ISO26000 Index

\* Reporting level: ● Fully Reported, • Partially Reported, • Not Reported, - Not Applicable

	GRI Index	1SO26000 Index	ISO 26000 Core subjects and issues	Reported	Page / Remarks
The princip	ole of stakeholder engagement		//////////////////////////////////////	, copolica	
ne princip Boundary p		6.8.2	Community involvement Promoting social responsibility in the value chain	-	18 Front Cover
	and Analysis	0.0.5	Tromosing social responsibility in the value of fair		110111 00101
1.1	Statement from the most senior decision-maker of the organization.	6.2	Organizational governance	•	4, 5
1.2	Description of key impacts, risks, and opportunities.	6.2		•	10, 11
Organizat	tional Profile				
2.1	Name of the organization.			•	6
2.2	Primary brands, products, and/or services.  Operational structure of the organization, including main divisions, operating companies,				6
2.3	subsidiaries, and joint ventures.	6.2	Organizational governance	•	7
2.4	Location of organization's headquarters.			•	7
2.5	Number of countries where the organization operates, and names of countries with either major operations or that are specifically relevant to the sustainability issues covered in the report.			•	7
2.6	Nature of ownership and legal form.			•	14
2.7	Markets served (including geographic breakdown, sectors served, and types of customers/ beneficiaries).			•	6, 18
2.8	Scale of the reporting organization.  Significant changes during the reporting period regarding size, structure, or ownership.			•	6-7
2.9	Awards received in the reporting period.			•	14 84
eport Pa					
3.1	Reporting period (e.g., fiscal/calendar year) for information provided.			•	Front Cover
3.2	Date of most recent previous report (if any).			•	Front Cover
3-3	Reporting cycle (annual, biennial, etc.)			•	Front Cover
3.4	Contact point for questions regarding the report or its contents.			•	Front Cover
3.5	Process for defining report content.			•	19
3.6	Boundary of the report (e.g., countries, divisions, subsidiaries, leased facilities, joint ventures, suppliers). See GRI Boundary Protocol for further guidance.  State any specific limitations on the scope or boundary of the report (see completeness			•	Front Cover
3.7	principle for explanation of scope).  Basis for reporting an joint ventures, subsidiaries, leased facilities, outsourced operations,			•	Front Cover
3.8	and other entitles that can significantly affect comparability from period to period and/or between organizations.  Data measurement techniques and the bases of calculations, including assumptions and			•	Front Cover
3.9	techniques underlying estimations applied to the compilation of the Indicators and other information in the report. Explain any decisions not to apply, or to substantially diverge from, the GRI Indicator Protocols.			•	Front Cover
3.10	Explanation of the effect of any re-statements of information provided in earlier reports, and the reasons for such re-statement (e.g.,mergers/acquisitions, change of base years/periods, nature of business, measurement methods).			•	Front Cover
3.11	Significant changes from previous reporting periods in the scope, boundary, or measurement methods applied in the report.			•	Front Cover
3.12	Table identifying the location of the Standard Disclosures in the report.			•	82-83
3.13	Policy and current practice with regard to seeking external assurance for the report.	7-5-3	Assurance	•	78-79
Governar	nce, Commitments & Engagement				
4.1	Governance structure of the organization, including committees under the highest governance body responsible for specific tasks, such as setting strategy or organizational oversight.	6.2	Organizational governance	•	14-15
4.2	Indicate whether the Chair of the highest governance body is also an executive officer.	6.2		•	14
4.3	For organizations that have a unitary board structure, state the number and gender of members of the highest governance body that are independent and/or non-executive	6.2		•	14-15
4.4	members.  Mechanisms for shareholders and employees to provide recommendations or direction to the highest governance body.	6.2		•	15, 56
4.5	Linkage between compensation for members of the highest governance body, senior managers, and executives (including departure arrangements), and the organization's	6.2		•	14
4.6	performance (including social and environmental performance).  Processes in place for the highest governance body to ensure conflicts of interest are	6.2		•	15
4.7	avoided.  Process for determining the composition, qualifications, and expertise of the members of the highest governance body and its committees, including any consideration of gender and other indicators of diversity.	6.2		•	14-15
4.8	Internally developed statements of mission or values, codes of conduct, and principles relevant to economic, environmental, and social performance and the status of their implementation.	6.2		•	11, 13, 59
4.9	Procedures of the highest governance body for overseeing the organization's identification and management of economic, environmental, and social performance, including relevant risks and opportunities, and adherence or compliance with internationally agreed standards, codes of conduct, and principles.	6.2		•	12, 14-15, 57-58
4.10	Processes for evaluating the highest governance body's own performance, particularly with respect to economic, environmental, and social performance.	6.2		•	11, 14-15, 17
4.11	Explanation of whether and how the precautionary approach or principle is addressed by the organization.	6.2		•	16-17
4	Externally developed economic, environmental, and social charters, principles, or other	6.2		•	12
4.12	initiatives to which the organization subscribes or endorses.				
	Memberships in associations (such as industry associations) and/or national/international advocacy organizations in which the organization: "Has positions in governance bodies; "Participates in projects or committees;" Provides substantive funding beyond routine	6.2		•	84
4.12	Memberships in associations (such as industry associations) and/or national/international advocacy organizations in which the organization: "Has positions in governance bodies; "Participates in projects or committees;" Provides substantive funding beyond routine membership dues; or "Views membership as strategic.	6.2		•	84
4.12	Memberships in associations (such as industry associations) and/or national/international advocacy organizations in which the organizations: *Has positions in governance bodies; *Participates in projects or committees; *Provides substantive funding beyond routine membership dues; or *Views membership as strategic.  List of stakeholder groups engaged by the organization.  Bosis for identification and selection of stakeholders with whom to engage.			•	
4.13	Memberships in associations (such as industry associations) and/or national/international advocacy organizations in which the organization: " Has positions in governance bodies; " Participates in projects or committees; " Provides substantive funding beyond routine membership dues; or " Views membership as strategic.  List of stakeholder groups engaged by the organization.	6.2		•	18

		* Reporti	ng level: • Fully Reported, • Partially Reported	d, ○ Not R	eported, - Not Applicable
	GRI Index	1SO26000 Index	ISO 26000 Core subjects and issues	Reported	Page / Remarks
conomi	c Disclosure on Management Approach			•	
EC1	Direct economic value generated and distributed, including revenues, operating costs, employee compensation, donations and other community investments, retained earnings, and payments to capital providers and governments.	6.8/6.8.3/ 6.8.7/6.8.9	Community involvement and development/ Community involvement/Social investment/ Social investment	•	8-9
EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change.	6.5.5	Climate change and mitigation	•	45-46, 63-64
EC3	Coverage of the organization's defined benefit plan obligations.	6.4.4/6.8	Conditions of work and social protection/ Community involvement and development	•	55
EC4	Significant financial assistance received from government.		Commonly intervenient and development	•	9
EC <sub>5</sub>	Range of ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation.	6.4.4/6.8	Conditions of work and social protection/ Community involvement and development	•	52
			Promoting social responsibility in the value		
EC6	Policy, practices, and proportion of spending on locally-based suppliers at significant locations of operation.	6.6.6/6.8/ 6.8.5/6.8.7	chain/Community involvement and development/Employment creation and skills/ Social investment	•	68-70
EC <sub>7</sub>	Procedures for local hiring and proportion of senior management hired from the local community at significant locations of operation.	6.8/6.8.5/6.8.7	Community involvement and development/ Employment creation and skills/Social investment	•	52, 73
EC8	Development and impact of infrastructure investments and services provided primarily for public benefit through commercial, in-kind, or pro bono engagement.	6.3.9/6.8/6.8.3/ 6.8.4/6.8.5/6.8.6/ 6.8.7/6.8.9	Economic, social and cultural rights/Community involvement and development/Community involvement/Education and culture/Technology development and access/Social investment/Social investment	•	71-73
EC9	Understanding and describing significant indirect economic impacts, including the extent of impacts.	6.3.9/6.6.6/6.6.7/ 6.7.8/6.8/6.8.5/ 6.8.6/6.8.7/6.8.9	Economic, social and cultural rights/Promoting social responsibility in the value chain/Respect for property rights/Access to essential services/Community involvement and development/Technology development and access/Technology development and access/Wealth and income creation/Social investment	•	8-9
Environm	ental Disclosure on Management Approach			•	
EN1	Materials used by weight or volume.	6.5/6.5.4	The environment/Sustainable resource use	•	No occurrence, due to industry characteristics.
EN2	Percentage of materials used that are recycled input materials.			•	No occurrence, due to industry characteristics.
EN3	Direct energy consumption by primary energy source.			•	63-64
EN4 EN5	Indirect energy consumption by primary source.  Energy saved due to conservation and efficiency improvements.			•	63-64
EN6	Initiatives to provide energy-efficient or renewable energy based products and services, and reductions in energy requirements as a result of these initiatives.			•	45-46
EN <sub>7</sub>	Initiatives to reduce indirect energy consumption and reductions achieved.			•	63-64
EN8	Total water withdrawal by source.			•	65
EN9	Water sources significantly affected by withdrawal of water.			•	65, No affected water source
EN10	Percentage and total volume of water recycled and reused.			•	65
EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.	6.5/6.5.6	The environment/Protection of environment, biodiversity and restoration of natural habits	•	No operation site with high biodiversity value area is existed due to industry characteristics.
EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.			•	No impact on biodiversity is existed due to industry characteristics.
EN13	Habitats protected or restored.				
EN14	Strategies, current actions, and future plans for managing impacts on biodiversity.			_	
EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.			•	No operation site in areas
EN16	Total direct and indirect greenhouse gas emissions by weight.	6.5/6.5.5	The environment/Climate change and mitigation	•	64
EN17	Other relevant indirect greenhouse gas emissions by weight.			•	64
EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved.	6,1/1 = 2	The environment/Provention of nellytion	•	63-64 65, No ozone-depleting
EN20	Emissions of ozone-depleting substances by weight.  NOx, SOx, and other significant air emissions by type and weight.	6.5/6.5.3	The environment/Prevention of pollution	•	substances
EN20	Total water discharge by quality and destination.			•	65 65
EN22	Total weight of waste by type and disposal method.			•	64-65
EN23	Total number and volume of significant spills.			•	64
EN24	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the Basel Convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally.			•	65
EN25	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the reporting organization's discharges of water and runoff.	6.5/6.5.4/6.5.6	The environment/Sustainable resource use/ Protection of environment, biodiversity and restoration of natural habits	•	65, co-operation within powerplants
EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation.	6.5/6.5.4/ 6.6.6/6.7.5	The environment/Sustainable resource use/ Promoting social responsibility in the value chain/Sustainable consumption	•	62-63
EN27	Percentage of products sold and their packaging materials that are reclaimed by category.	6.5/6.5.4/6.7.5	The environment/Sustainable resource use/ Sustainable consumption	•	No packaging material used.
EN28	Monetary value of significant fines and total number of non-monetary sanctions for non- compliance with environmental laws and regulations.	6.5	The environment	•	65, No fines or sanctions
EN29	Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce.	6.5/6.5.4/6.6.6	The environment/Sustainable resource use/ Promoting social responsibility in the value chain		64
EN30	Total environmental protection expenditures and investments by type.	6.5	The environment	•	65

# GRI G3.1 and ISO26000 Index

\* Reporting level: ● Fully Reported, ● Partially Reported, ○ Not Reported, - Not Applicable

	GRI Index	1SO26000 Index	ISO 26000 Core subjects and issues	Reported	Page / Remarks
abor Dis	closure on Management Approach			•	
LA1	Total workforce by employment type, employment contract, and region, broken down by gender.	6.4/6.4.3	Labour practices/Emplyoment and employment relationships	•	52
LA2	Total number and rate of new employee hires and employee turnover by age group, gender, and region.			•	51
LA <sub>3</sub>	Benefits provided to full-time employees that are not provided to temporary or part-time employees, by major operations.	6.4/6.4.3/6.4.4	Labour practices/Emplyoment and employment relationships/Conditions of work and social protection	•	51, 55
LA4	Percentage of employees covered by collective bargaining agreements.	6.4/6.4.3/6.4.4/ 6.4.5/6.3.10	Labour practices/Emplyoment and employment relationships/Conditions of work and social protection/Social dialogue/ Fundamental principles and rights at work	•	56
LA <sub>5</sub>	Minimum notice period(s) regarding significant operational changes, including whether it is specified in collective agreements.	6.4/6.4.3/ 6.4.4/6.4.5	Labour practices/Emplyoment and employment relationships/Conditions of work and social protection/Social dialogue	•	56
LA6	Percentage of total workforce represented in formal joint management-worker health and safety committees that help monitor and advise on occupational health and safety programs.	6.4/6.4.6	Labour practices/Health and safety at work	•	61
LA <sub>7</sub>	Rates of injury, occupational diseases, lost days, and absenteeism, and number of work- related fatalities by region and by gender.			•	61
LA8	Education, training, counseling, prevention, and risk-control programs in place to assist workforce members, their families, or community members regarding serious diseases.	6.4/6.4.6/6.8/ 6.8.3/6.8.4/6.8.8  Labour practices/Health and safety at work/ Community involvement and development/ Community involvement/Education and		•	61
LA9	Health and safety topics covered in formal agreements with trade unions.	6.4/6.4.6	culture/Health  Labour practices/Health and safety at work	•	61
LA10	Average hours of training per year per employee by employee category	6.4/6.4.7	Labour practices/Human development and training in the workplace	•	53
LA11	Programs for skills management and lifelong learning that support the continued	6.4/6.4.7/6.8.5	Labour practices/Human development and training in	•	52
LA12	employability of employees and assist them in managing career endings.  Percentage of employees receiving regular performance and career development reviews, by aender.	6.4/6.4.7	the workplace/Employment credition and skills  Labour practices/Human development and training in the workplace	•	55
LA13	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity.	6.3.7/6.3.10/ 6.4/6.4.3	Discrimination and vulnerable groups/ Fundamental principles and rights at work/Labour practices/Emplyoment and employment relationships	•	15, 51
LA14	Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation.	6.3.7/6.3.10/6.4/ 6.4.3/6.4.4	Discrimination and vulnerable groups/ Fundamental principles and rights at work/Labour practices/Emplyoment and employment relationships/Conditions of work and social protection	•	52
LA15	Return to work and retention rates after parental leave, by gender		Discriminatiohn and vulnerable groups	•	51
	ght Disclosure on Management Approach  Percentage and total number of significant investment agreements and contracts that include	6.3/6.33/	Human rights/Due diligence/Avoidance of complicity/	•	
HR1	clauses incorporating human rights concerns, or that have undergone human rights screening.	6.3.5/6.6.6	Promoting social responsibility in the value chain  Human rights/Due diligence/Avoidance of	•	51, 68
HR2	Percentage of significant suppliers and contractors that have undergone screening on human rights and actions taken.	6.3/6.3.3/6.3.5/ 6.4.3/6.6.6	complicity/Emplyoment and employment relationships/Promoting social responsibility in the value chain	•	51, 68
HR3	Total hours of employee training on policies and procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained.	6.3/6.3.5	Human rights/Avoidance of complicity	•	58
HR4	Total number of incidents of discrimination and actions taken.	6.3/6.3.6/6.3.7/ 6.3.10/6.4.3	Human rights/Resolving grievances/ Discrimination and vulnerable groups/ Fundamental principles and rights at work/ Emplyoment and employment relationships	•	51, No Violation
HR5	Operations and significant suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and actions taken to support these rights.	6.3/6.3.3/6.3.4/ 6.3.5/6.3.8/ 6.3.10/6.4.3/6.4.5	Human rights/Due diligence/Human rights risk situation/Avoidance of complicity/Civil and political rights/Fundamental principles and rights at work/Emplyament and employment relationships/Social dialogue	•	56, freely
HR6	Operations and significant suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor.	6.3/6.3.3/6.3.4/ 6.3.5/6.3.7/6.3.10	Human rights/Due diligence/Human rights risk situation/Avoidance of complicity/ Discrimination and vulnerable groups/ Fundamental principles and rights at work	•	51, Compliance with ILO Standard, no risk for incidents of child labor.
HR7	Operations and significant suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor.		Human rights/Avoidance of complicity/ Emplyoment and employment relationships/ Promoting social responsibility in the value chain	•	51, Compliance with ILO Standard, no risk for incidents of forced labor.
HR8	Percentage of security personnel trained in the organization's policies or procedures concerning aspects of human rights that are relevant to operations.	6.3/6.3.5/ 6.4.3/6.6.6	Human rights/Resolving grievances/ Discrimination and vulnerable groups/ Fundamental principles and rights at work/ Emplyoment and employment relationships	•	58, All members
HR9	Total number of incidents of violations involving rights of indigenous people and actions taken.	6.3/6.3.6/6.3.7/ 6.3.8/6.6.7	Human rights/Resolving grievances/ Discrimination and vulnerable groups/Civil and political rights/Respect for property rights	•	No operation site with significan potential or actual negative impacts on local communities
HR10	Percentage and total number of operations that have been subject to human rights reviews and/or impact assessments.		Due diligence/Human rights risk situation	•	58
HR11	Number of grievances related to human rights filed, addressed and resolved through formal grievance mechanisms.		Resolving grievances	•	58
Society D	isclosure on Management Approach			•	
504	Percentage of operations with implemented local community engagement, impact	6.3.9/6.8/6.8.5/	Economic, social and cultural rights/Community		
S01	assessments, and development programs.	6.8.7*/6.6.7	involvement and development/Employment creation and skills/Social investment/Respect for property rights		72
S0 <sub>2</sub>	Percentage and total number of business units analyzed for risks related to corruption.  Percentage of employees trained in organization's anti-corruption policies and procedures.	6.6/6.6.3	Fair operating practices/Anti-corruption	•	68 58
S0 <sub>4</sub>	Actions taken in response to incidents of corruption.		5	•	58
S0 <sub>5</sub>	Public policy positions and participation in public policy development and lobbying.	6.6/6.6.4/6.8.3	Fair operating practices/Responsible political involvement/Community involvement	•	46, 71-73
S06	Total value of financial and in-kind contributions to political parties, politicians, and related institutions by country.			•	58, No controbution to pollitical parties
S0 <sub>7</sub>	Total number of legal actions for anti-competitive behavior, anti-trust, and monopoly practices and their outcomes.	6.6/6.6.5/6.6.7	Fair operating practices/Fair competition/ Respect for property rights	•	No legal actions
S08	Monetary value of significant fines and total number of non-monetary sanctions for non- compliance with laws and regulations.	6.6/6.6.7/6.8.7*	Fair operating practices/Respect for property rights/Social investment	•	No fines and sanctions
509	Operations with significant potential or actual negative impacts on local communities.		Community involvement and development	•	no negative impacting operation
S010	Prevention and mitigation measures implemented in operations with significant potential or actual negative impacts on local communities.		Community involvement and development	•	60-61

\* Reporting level :  $\bullet$  Fully Reported,  $\bullet$  Partially Reported,  $\circ$  Not Reported, - Not Applicable

	GRIIndex	1SO26000 Index	ISO 26000 Core subjects and issues	Reported	Page / Remarks
roduct Re	esponsibility Disclosure on Management Approach			•	
PR1	Life cycle stages in which health and safety impacts of products and services are assessed for improvement, and percentage of significant products and services categories subject to such procedures.	6.3.9/6.6.6/ 6.7/6.7.4/6.7.5	Economic, social and cultural rights/Promoting social responsibility in the value chain/Consumer issue/Profecting consumers' health and safety/Sustainable consumption	•	26-27, 62-63
PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning health and safety impacts of products and services during their life cycle, by type of outcomes.			•	No occurrence, due to industry characteristics.
PR <sub>3</sub>	Type of product and service information required by procedures, and percentage of significant products and services subject to such information requirements.	6.7/6.7.3/6.7.4/ 6.7.5/6.7.6/6.7.9	Consumer issue/Fair marketing, fatual and unbiased information and fair contractual practices/Protecting consumer's health and safety/Sustainable consumption/Consumer service, support, and complaint and dispute resolution/Education and awareness	•	26-27
PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes.			•	No occurrence, due to industry characteristics.
PR <sub>5</sub>	Practices related to customer satisfaction, including results of surveys measuring customer satisfaction.	6.7/6.7.4/6.7.5/ 6.7.6/6.7.8/6.7.9	Consumer issue/Protecting consumer's health and safety/Sustainable consumption/ Consumer service, support, and comploint and dispute resolution/Access to essential services/ Education and awareness	•	12, 28-30
PR6	Programs for adherence to laws, standards, and voluntary codes related to marketing communications, including advertising, promotion, and sponsorship.	6.7/6.7·3/ 6.7.6/6.7.9	Consumer issue/Fair marketing, fatual and unbiased information and fair contractual practices/Consumer service, support, and complaint and dispute resolution	•	34, 36
PR7	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship by type of outcomes.			•	No Violation
PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data.	6.7/6.7.7	Consumer issue/Consumer data protection and privacy	•	No Violation
PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services.	6.7/6.7.6	Consumer issue/Consumer service, support, and complaint and dispute resolution	•	No Violation

# **Declaration of GRI G3.1 Application Level**

GRI application levels are classified into A, B, and C.

KEPCO KPS has drawn up this report in accordance with the GRI G3.1 international guidelines for drawing up sustainability reports, and we rate this report's application level as A+.



UN Global Compact	Principle	//Page//
CIOBAL COL	Human Rights  Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and  Principle 2: make sure that they are not complicit in human rights abuses.	5, 12, 5, 12, 56
AHL PCT	Labour Standard  Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;  Principle 4: the elimination of all forms of forced and compulsory labour;	56 51
	Principle 5: the effective abolition of child labour; and Principle 6: the elimination of discrimination in respect of employment and occupation.	51 51
WE SUPPORT	Environment  Principle 7: Businesses should support a precautionary approach to environmental challenges;	62-64
In September 2007, KEPCO KPS joined the UN Global Compact, the UN-led international agreements on	Principle 8: undertake initiatives to promote greater environmental responsibility; and Principle 9: encourage the development and diffusion of environmentally friendly technologies.	63 62
corporate social responsibility and is fully complying with its ten principles in the four areas of human rights, labour standard, environment and anti-corruption.	Anti-Corruption  Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.	58

# **Awards and Membership of Organizations**

# Status of External Awards Received and Qualifications Acquired

Date	Details	Institution
Jun. 2011	Inducted into the Korea Service Awards hall of fame	Korea Standard Association
Dec. 2011	Received the Grand Prize in the corporation sector of the 1st SBS Tomorrow Hopeful Sharing Awards	Seoul Broadcasting System
Jan. 2012	Named outstanding company in labor-management social responsibilities in 2011	Ministry of Employment and Labor
Apr. 2012	Won the Grand Prize in the Global Quality Entrepreneur Awards	Korea Society for Management
May 2012	Acquired construction business permit for industrial environmental facility	Ministry of Land, Transport and Maritime Affairs
May 2012	Selected as an excellent company in KS-QEI (Quality Excellence Index)	Korea Standard Association
Aug. 2012	Received Gold Prize in the Nationwide Quality Work Group Contest	Ministry of Knowledge and Economy
Aug. 2012	KEPIC qualification certified	Korea Electric Association
Aug. 2012	Certified NET (KTIS: Remote naked eye examination and foreign substance-removing technology at second-stage side of steam generator to reduce radiation exposure dose)	Ministry of Knowledge and Economy
Sep. 2012	Selected as the best company of DJSI Korea for 4 years in a row	Korea Productivity Center
Nov. 2012	Named excellent company in quality competitiveness for 14 consecutive years	Korea Standard Association
Nov. 2012	Received the Silver Pagoda Industrial Medal in the 38th National Quality Management Convention	Korea Standard Association
Nov. 2012	Won the Labor and Employment Minister's Prize in the labor-management cooperation sector during the 2012 Korea Sustainability Management Awards	Korea Standard Association

# **Membership of Organizations and Associations**

Year of membership	Society/Association name	Purpose of membership
1984	Korea Electric Association	Propelling promotion and development in the electricity business
1984	Korea Atomic Industrial Forum	Knowledge and information exchange on nuclear power generation
1996	Korea Co-Generation Association	Order taking increase and new business expansion through information exchange of combined cycle thermal power plant facilities
2004	Korea District Heating Association	Contribution to the government's embodiment of collective energy industry policy including energy savings and environmental conservation
2005	Korea New and Renewable Association	Exchange of information on intellectual property market needs and trends
2006	Business Ethics and Sustainability Management for Top Performance	Ethical management dissemination and corporate culture establishment through learning from best practices of ethical management
2008	Korea Powerplant Maintenance Association	Research on measures to consolidate the power generation maintenance industry's competitiveness
2011	Korea Nuclear Association for International Cooperation	Analyses of Korean-style nuclear power plant export and overseas nuclear power plant trends; mutual collaboration and information exchange in the nuclear power generation industry
2012	Korea Atomic Equipment Advancement Association	New technology information exchange and training engagement related to nuclear power generation materials and equipment

# Glossary

#### • Flue gas desulfurization system

Facility reducing SO2 from the flue gases discharged from power plants

#### • Flue gas denitrification system

Air treatment facility removing NOx and dioxin discharged from various discharge facilities (incinerator, boiler, smelting furnace)

#### APR1400 (Advanced Power Reactor 1400)

1400MW new type of light water reactor

#### • BOO (Build, Own, Operate)

As a type of power generation project using private companies abroad, this is a mode through which execution is done from construction to operation. Actually, facility transfer is not carried out even if the contract expires.

#### • EPC (Engineering, Procurement, Construction)

Blanket bid; a form of turnkey mode through which a contractor carries out engineering, material procurement, and construction as well

### • ERM (Enterprise Risk Management)

A new risk management mode to minimize corporate losses by integrating tangible/intangible management risks at the enterprise-wise level

#### • FACTS (Flexible AC Transmission System)

A power transmission mode through which the improvement of largescale power transmission and system stability can be simultaneously conducted by actively controlling electricity flow using semiconductor element

#### • GT (Gas Turbine)

Gas Turbine

### • HVDC (High Voltage Direct Current)

#### • IGCC (Integrated Gasification Combined Cycle)

Integrated gasification combined cycle power generation

#### • IPP (Independent Power Producer)

Independent Power Producer

#### • JV (Joint Venture)

Overseas investment mode through which two or more countries' companies, private sector, and government agencies are jointly engaged in a specific company operation

#### • LTSA (Long-Term Service Agreement)

Long-Term Service Agreement

#### • MSDS (Material Safety Data Sheet)

Material health and safety data sheet containing the necessary information to use and control chemicals safely

#### • MSIV (Main Steam Isolation Valve)

Main Steam Isolation Valve

#### MSV (Main Stop Valve)

Main steam stop valve

#### CV (Control Valve)

Control Valve

#### O&M (Operation & Maintenance)

Operation & Maintenance

#### • PJB (Pre-Job Briefing)

Briefing (meeting) before work starts

#### Retrofit

Construction to replace and reinforce main equipment so as to increase output, improve efficiency, extend life, or convert the fuel of power generating facilities to recycle a power plant

#### • RPS (Renewable Portfolio Standard)

Mandatory quota system of renewable energy

### • SNG (Synthetic Natural Gas)

Synthetic Natural Gas

### • SVC (Static Var Compensator)

Static type of reactive power compensator

### UN Global Compact

Declarative compact wherein UN has appealed to world-class large corporations to cope actively with various problems accompanying economic globalization

#### VaR (Value at Risk)

Estimated amount of the maximum loss that may be incurred in case a risk occurs under certain conditions

# Reader's Opinion Questionnaire

We welcome your invaluable feedback on our Sustainability Report 2012.

Rest assured that your opinions and suggestions are reviewed and fully reflected on our next sustainability report.

You can e-mail (sustainability@kps.co.kr) or fax us to present your candid opinions.

То	Fax number: 82-3	31-710-7174	KEPCO KF	PS Business Ma	nagement Te	eam			
From	Name	Gen	der	Occupation	on				
1. To w	hich of the follov	ving group	s do you b	elong?					
□ Cus	tomer	□ Investors	s/Sharehold	lers [	□ Business Pa	rtners		al Citizens	
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	vernment Officials				□ Media Out		□ Othe		)
2. How	ı did you learn al	oout KEPC	O KPS Sust	ainability Rep	oorts?				
□ KEP	CO KPS Corporate	Website □	Seminars/L	ectures/Exhibi	ts □ Ne	ewspapers/M	lagazin	nes	
□ Oth	er Websites		KEPCO KP	S Employees	□ Ot	hers (	)		
3. Whic	ch of the followin	g did you f	ind most i	nteresting in t	his report?				
□ Abc	out This Report		□ C	ompetitivenes	s Consolidati	on of Existing	Busine	:SS	
□ Glob	oalization Expansio	n	□ Ve	ertical/Horizon	tal Diversifica	tion of Relate	ed Indu	ustries	
□ Esta	blishment of Enabl	ing System	□ Sł	naring Value Ex	(pansion				
4. Whi	ch of the followin	g do you t	hink shoul	d be improve	ed in this rep	ort?			
□ Abc	out This Report		□ C	ompetitivenes	s Consolidati	on of Existing	Busine	ess.	
□ Glob	oalization Expansio	n	□ Ve	ertical/Horizon	tal Diversifica	tion of Relate	ed Indu	ustries	
□ Esta	blishment of Enabl	ing System	□ Sh	naring Value E	(pansion				
5. How	do you evaluate	e this repoi	<b>†?</b>						
Ease of	f Understanding	☐ Highly So	atisfactory	□ Satisfactory	√ □ Average	□ Dissatisfo	actory	☐ Highly [	Dissatisfactory
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6. Pled	ise feel free to gi	ve your co	mments a	bout the KEP	CO KPS Sust	ainability Re	eport.		
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