

Sustainability Report

2 0 1 3
KOWEPO
Sustainability
Report

World Best 3E Creator
Energy | Eco-Future | Expertise

2013 Sustainability Report Focus & Align



 KOREA WESTERN POWER CO., Ltd.
www.westernpower.co.kr

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[Purpose of publication]

KOWEPO Sustainability Report has been published to be disclosed about activities and performance that we are carrying forward to uphold our social responsibility to various stakeholders such as shareholders, government bodies, investors, inside customers, cooperators, local communities and civic groups. To increase the overall reliability of the report, it contains a qualification report reflecting examination opinions of outside experts in each area – economic, social and environment.

[Standard of Report preparation]

This report has been prepared with application of Sustainability Reporting Guideline (G3.1) and Electric Utility Sector Supplement of GRI. Assurance level of this standard can be referred to GRI Indicators Chart.

[Scope and period of Report]

This report has been prepared targeting the Headquarter in Seoul and 6 domestic power facilities. It adopted meaningful performances and activities as of from 2010 to 2012, and for partial performance, suggested one up to June 2013.

[Application level of GRI G3.1 Guideline]

To improve its accuracy and reliability, KOWEPO Sustainability Report has been verified by an independent third party verification engine, and confirmed that it meets the application level of GRI G3.1 Guideline as A+.

[Characteristics of Report, Difference from previous report]

2013 KOWEPO Sustainability Report, the fifth publication, contains value-based management, respecting culture of employees, fulfillment of social responsibility and fulfillment as an eco-friendly company centered on top priority issues deducted from stakeholder's opinions, inside/outside influence and importance as well.

[Data measurement and standard of estimation]

Financial performance, among contents of this report, follows the business account standards, and environmental and social performance follows the related regulations or internal data and estimation standards.

[Contact for Report and further information]

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This report has been made with FSCTM certified eco-friendly paper that guarantees sustainable forest management.

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Report preparing organization and postscript

As the fifth publication of a Sustainability Report, it reports matters of interest of stakeholders from each area – economic, social and environment – and the top priority issues of the organization so that it can show better results than the previous one. Sustainability Report Publication T/F consists of the manager of the Strategy & Planning Team and working group of each area, under the direction of the Planning Department, responsible for sustainability management. Team members were offered continual training for preparing the report and workshops so that they could obtain a better understanding of and immersion in it. In addition, in relation to the basic purpose of this Sustainability Report as a tool of communication with various stakjkeholders, interviews with them have been conducted and their opinions reflected in this report. Reliability verification of the data was also conducted to improve the report's quality, and examination opinions were sought from three independent experts in the economic, social and environment areas. For further publication of an efficient report, it will make important issues clear based on construction of a more enhanced sustainable management system.

Sustainability Report Publication T/F

Classification		Team member
Director		Song, Jae-Seob Director of Planning Department
T/F General manager		Hong, Shin-Gi Manager of Strategy & Planning Team
T/F Group leader	General stakeholder analysis and its preparation	Kim, Seong-Heon, Assistant Manager of Strategy & Planning Team
	Value-based management	Gu, Nam-Hee, Assistant Manager of Power Generation Planning Team
	Respecting culture for employees	Jang, Hyeon-Min Assistant manager of Labor Welfare Team
	Fulfillment of social responsibility	An, Woo-Sun, Assistant Manager of Cultural Promotion Team
	Eco-friendly business	Hwang, Soo-Yeon, Assistant Manager of Climate Change & Environment Team

Footprints in Sustainability management promotion



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Sustainability Report

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CEO Message

Dear Honorable stakeholders,



We would like to sincerely thank you for your constant attention and love that enable KOWEPO's ongoing development.

KOWEPO's will for sustainable management started with joining the UN Global Compact in May 2006, and has been leading to steady publication of the Sustainability Report in accordance with the Global Reporting Initiative (GRI) report standard in 2007. This Fifth Report partially reflects the GRI G4 Reporting framework to be newly introduced, so that it can show the initiating effort KOWEPO is making as a representative public company to advance sustainable management.

Since its separation from KEPCO on 2 April, 2001, to improve public service with management efficiency of the power generation industry, KOWEPO keeps developing remarkably year by year and achieved various performances in economic, social, and environmental areas in 2012.

Above all, the major economic performance is that KOWEPO reached ₩5,967.9 billion of revenue and ₩118.3 billion of current net profit. This is a performance increase of 15 percent and 164 percent, respectively, compared to 2011. Also, it's a result of ceaseless efforts that all the employees have made to supply stable electric

power, by reducing management cost with introduction of a company-wide emergency management system, reducing purchase cost of bituminous coal by 7 percent compared to last year through optimal risk management, and operating optimal facilities at the same time

Furthermore, KOWEPO has been steadily trying to develop new projects to expand the future growth power. With various overseas projects, including power plant operation projects in Laos, Myanmar, and India and the USA Nevada Solar Power project, KOWEPO is spreading its capability around the world. We are also creating constant performance domestically by securing the largest new construction project since our foundation, including Tae'an Units 9 and 10, and Tae'an IGCC.

In the social area, KOWEPO is fulfilling social responsibility, practicing a variety of activities continuously systematic social contribution activity through volunteer work and customized local support projects, improvement of employee satisfaction through the "Lifecycle Welfare System", settlement of a co-prosperous labor-management culture through the trust and communication, settlement of a fair and ethical contract culture through compliance with regulations and

ethical management, creation of a healthy company ecosystem-atmosphere through accompanied growth with partners and small and medium-sized businesses, and job creation in accordance with social equity which led to hire high school graduates accounted for 21 percent of new employees in 2012.

Meanwhile, in the environmental area, KOWEPO is promoting a new renewable energy project with Clean Development Mechanism (CDM) and actively participating in the Renewable Portfolio Standard (RPS) policy in accordance with KOWEPO's basic environmental plan, Eco-Power 3G (Green, Good, Great), in response to enhanced carbon emission regulations. KOWEPO fulfills its responsibility for global warming prevention – registration of Sejong city and Yeongam F1 Solar Power Plants in CDM in 2012, creation of profit from emissions, and obtainment of Renewable Energy Certificate (REC), and at the same time, we are also doing our best with risk management in future environmental areas.

KOWEPO's organization and employees are rapidly becoming younger with the largest number of new employees and new construction projects since its foundation. Young & Dynamic KOWEPO indicates the "young and dynamic new organization culture" in which the regulations are thriving based on a flexible and open culture, and KOWEPO keeps improving the executive ability of management strategy through constant promotion of that culture. Moreover, as all the employees – from new employees to management – became of one mind and implemented empathetic management of communication and trust, and creative management, KOWEPO achieved the AAA rating of KoBEX SM™, as well as being awarded the prime minister's citation for national productivity, presidential citation for establishing new times for high school graduates, and the best public company for sustainable management, in recognition of KOWEPO's performance.

Honorable stakeholders,

The current management environment of the power industry is increasingly viewed as poor due to enhancement of carbon emission regulations, intensified competition of electric power markets, and entry into the times of low-growth, and it is changing faster than we think and move. KOWEPO, however, is going to overcome the current situation wisely and actively deal with the changes of the future with better ideas and ways than any time before. Furthermore, we, KOWEPO, promise to return stakeholders' expectations as a public company that receives trust and love, by practicing future-oriented responsible management combined with economic value creation, fulfillment of social responsibility, and protection of environmental ecology.

We would like to ask for your continued support.

We will also continue to communicate with stakeholders through various activities and listen to your valuable opinions in the years ahead.

Thank you,

CEO, In-Kook Cho

September, 2013
Korea Western Power Co., Ltd.

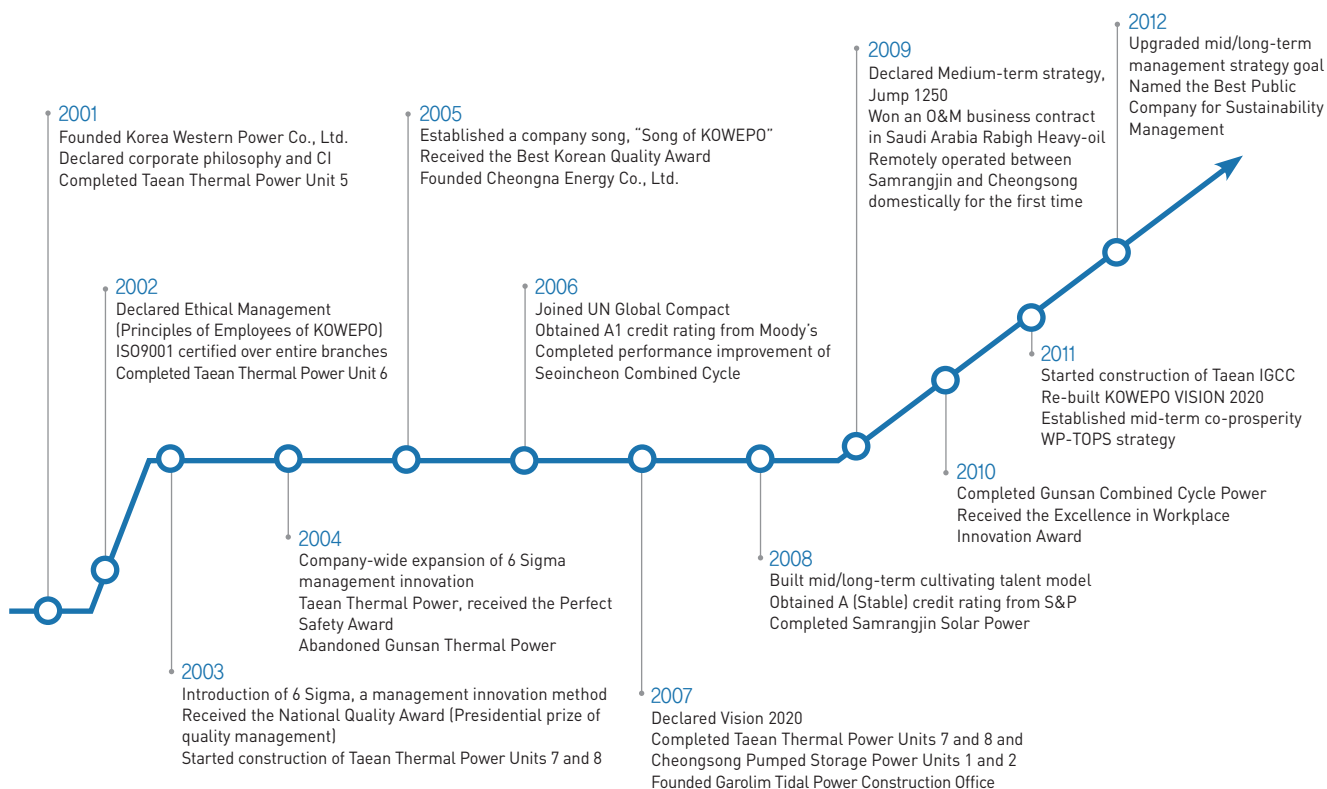
About KOWEPO

Introduction of KOWEPO

KOWEPO has been separated from KEPCO (Korean Electric Power Corporation) and established to improve the nationwide service quality with management efficiency of the power generation industry on 2 April, 2001. As a power generation-specialized public company that is generating 56,091GWh of electricity, accounting for around 11% of the gross domestic generation, it holds and operates 8,409MW of facilities in six power facilities, such as Taejeon, Pyeongtaek, Seoincheon, etc., as of December 2012.

With KOWEPO's vision of 'World's Best 3E (Energy, Eco-Future, Expertise) Creator,' toward the world's first power generation company, all employees unite into one under three main philosophies, which include best energy, eco-future, and expertise, and do our utmost to create values that the nation can grow continuously through stable operation of electricity, its efficient advancement and securing of ability to supply.

◎ History of Company (2001~2012)



◎ General status

Type of industry	Power generation, Power development, Supervision	Main products	Electric power
CEO	Kim, Moon-Duk	Capital	₩0.1589 trillion
Establishment date	April, 2, 2001	Size of assets	₩5.7166 trillion
Number of employees	1,844	Revenue	₩5.9679 trillion
Dominant stockholder	Korean electric power corporation (KEPCO)	Equity ratio	100%
Credit rating	S&P: A+, Moody's: A1, Domestic: AAA		
Address	Gangnam Finance Center, 152, Teheran-ro, Gangnam-gu, Seoul, Korea		

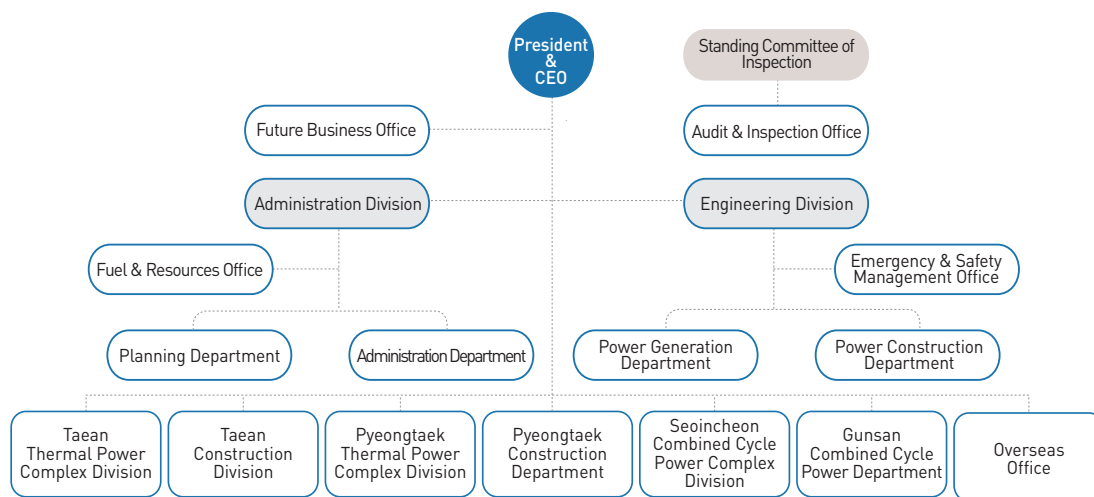
(As of 2012)

Organization

HQ and Power facilities

KOWEPO has been actively responding to the rapidly changing management circumstances through systematic management of organization. As part of this, "Pyeongtaek Construction Department" has been newly built for smooth promotion of large-scale construction projects in 2012, and "Emergency & Safety Management Team" reorganized and was elevated to "Emergency & Safety Management" Office, and "Information Promotion T/F" reformed as "System Management Team" belonging to the Planning Department. Meanwhile, organization of headquarters consists of two Divisions, four Departments, two Offices and one other Office, for power facilities, on the other hand, four Divisions, two Departments and one Office.

© Organization of HQ and Power facilities



Power plant status



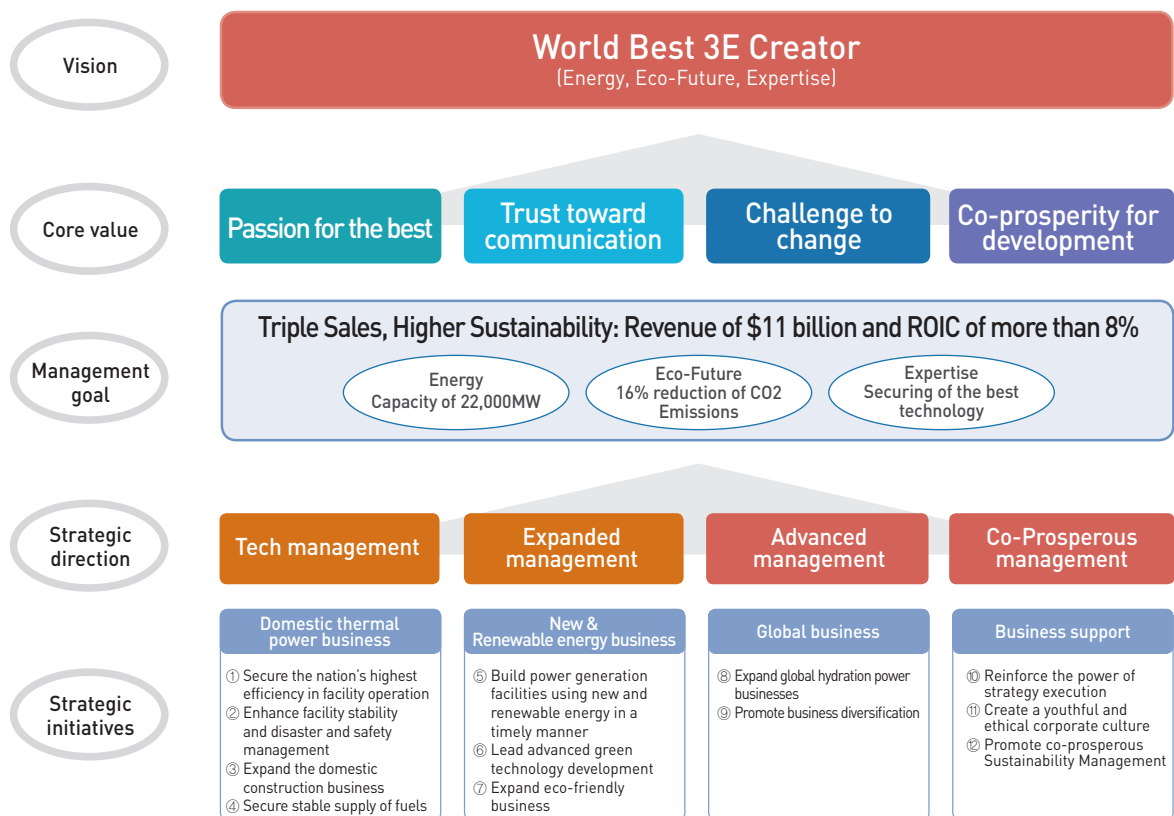
Sustainability Management of KOWEPO

Vision and Strategy of KOWEPO

Construction of sustainable management strategy system

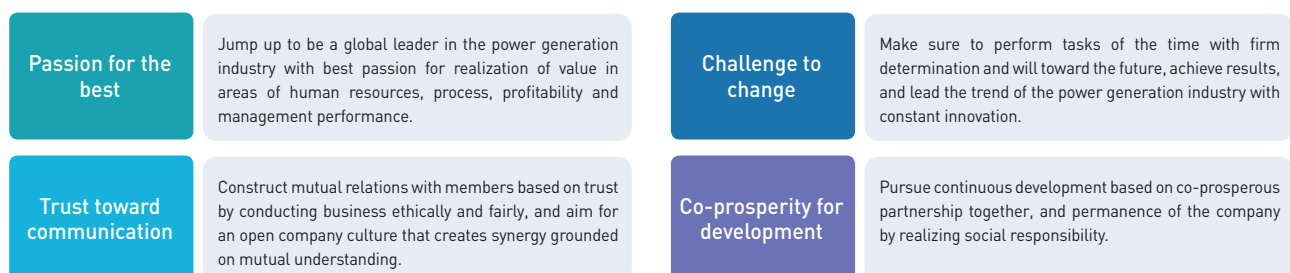
In 2012, KOWEPO updated [KOWEPO Vision 2020], which was a re-constructed management strategy system in 2010, reflecting environmental change, and braced up the system for promoting sustainable development through business goal achievement. Moreover, it expanded and reconstructed the existing employees' motto, "Top & Trust [aim for the best, trust first of all]", into a core value that gathers together team members' minds as one in 2011. Meanwhile, in 2012, [Young & Dynamic 3S Project] was established as a company culture strategy for maximizing execution of the core value and promoted so that KOWEPO could refocus as young and dynamic company.

© KOWEPO Vision 2020 Strategy system



© Core value

KOWEPO has been creating a sustainable organization culture by internalizing its vision-related core value as employees' standard of action.



Roadmap to Realize the Vision 2020

Main changes of management strategy system [KOWEPO Vision 2020] in 2012, compared to the last 2011 are shown below, and its details are described in the Roadmap to realize the Vision 2020.

New business reflection, Upgrade of management goal

Securing additional Generating unit construction projects both domestically and overseas, goals of revenue and capacity have been upgraded 10%, from \$10 billion (₩11.7 trillion) to \$11 billion (₩13.2 trillion), and from 20,000MW to 22,000MW, respectively.

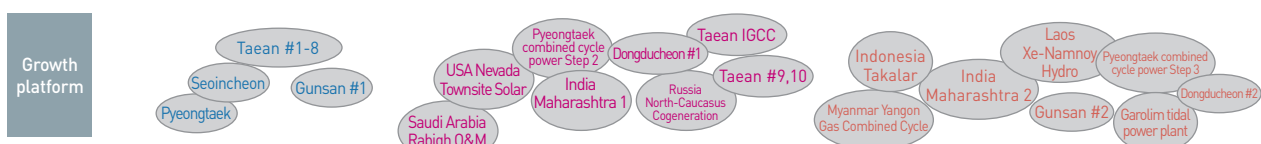
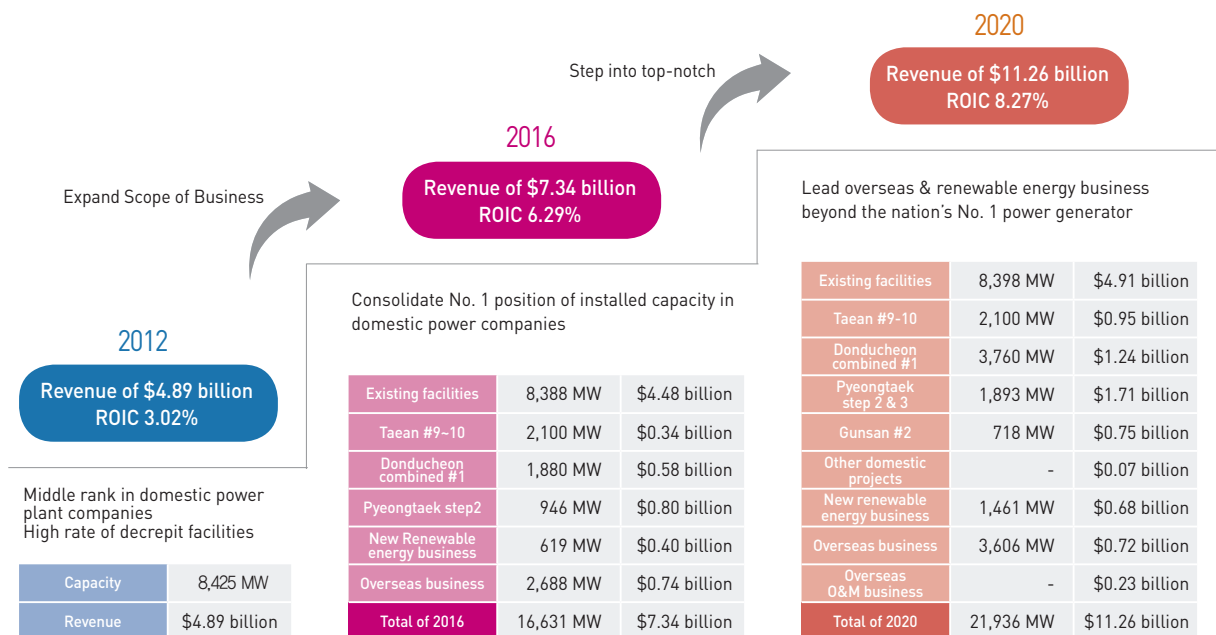
Aggressive management goal setup

ROIC (Return on Invested Capital) has been upgraded from 7% to 8% through active risk management on operating domestic and overseas business as well as selective implementation of high-yield business. In addition, the goal for CO₂ reduction, which is the most typical greenhouse gas, also upgraded from 14% to 16% compared to 2020 BAU (Business as Usual) to bring the creation of an eco-friendly future forward.

Adjustment of 12 strategic projects

After 9/15 when a massive blackout occurred, forced outage of a power plant by a disaster or human errors have become serious influences in society, and the importance of ethical practice as a public company has been emphasized more and more. KOWEPO actively accepted this demand and partially adjusted the strategy project. KOWEPO has ① reduced overseas businesses from three to two, ② added the project for "Enhancement of facilities' stability to prevent disaster and enhance safety", ③ decided to put ethical value first by emphasizing ethical company culture with the project of company culture construction.

© Roadmap to Realize the Vision 2020



KOWEPO Sustainable Management System

Sustainable Management Vision System

KOWEPO's sustainable management slogan is "Higher Sustainability for People, Society & the Environment". This is the slogan that emphasizes the sustainable management philosophy of KOWEPO's vision toward becoming the world's first class of power generation company, [World's Best 3E Creator], and the management goal, "Triple Sales, Higher Sustainability". It contains KOWEPO's will to promote sustainable management by regarding the balance of environment as its top value.

KOWEPO has set up four promotion directions to achieve this vision of sustainable management, deducted the main issues to realize them, and selected major promotion projects by issue. This report contains main issues by four promotion directions and contents of promotion projects and their performance.

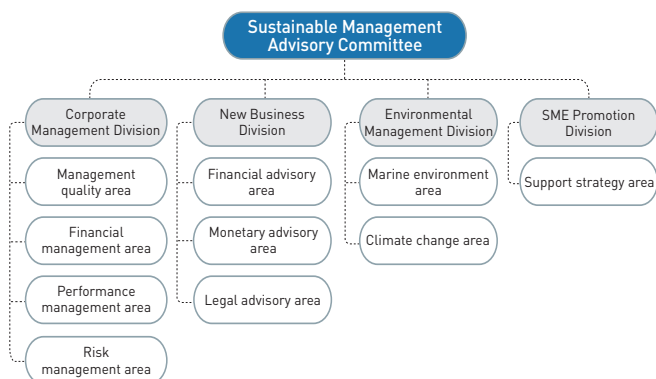
© Sustainable Management Vision System



Sustainable Management Advisory Committee

KOWEPO is operating a "Sustainable Management Advisory Committee" that gathers the opinions of experts in various fields for enhancement of the sustainable management system. The Sustainable Management Advisory Committee is composed of advisory committee members who are appointed to four subcommittees and 10 areas. They maintain constant relations with the CEO and sustainable management council so that they can gather various professional opinions for more efficient company management and proper policy establishment. In 2012, the ninth sustainable management advisory committee, with a total of 31 times of advisory service, including financial advice for the USA's Nevada Solar power, has been conducted.

© Ninth Sustainable Management Advisory Committee and its Results



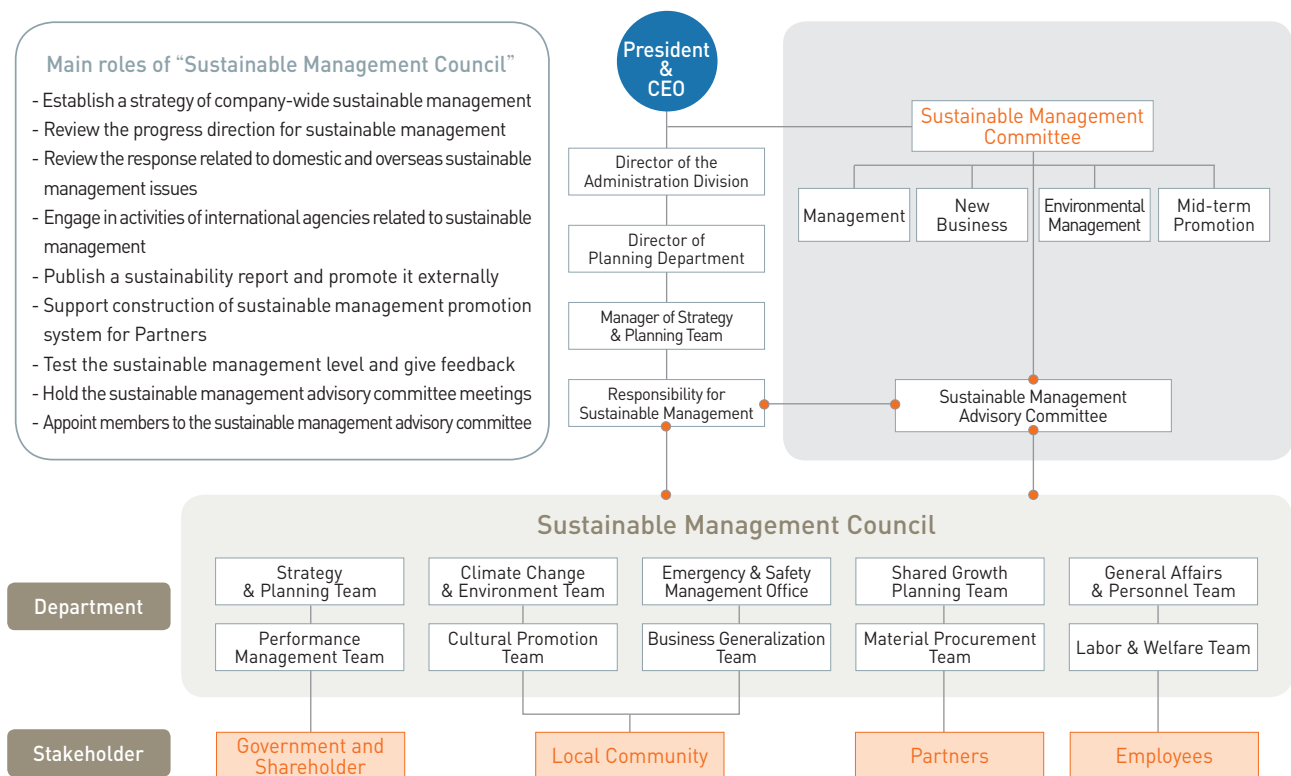
Advisory area	Advisory results
Finance	Three times, including financial advisory service for USA's Nevada Boulder City Solar Power business
Law	14 times, including legal advisory service for The Philippines' Kanan Hydro power business
Management quality	One time, review and evaluation for BP(Best Practice) cases at innovation festival
Risk management	One time, advisory service for generation operating business economic analysis and its evaluation in 2012
Performance management	Five times, including management directions for nonmetric indicators of management evaluation in 2011
Financial management	Four times, including advisory service for quarterly exchange risk management
Oceanic environment	Two times, including review of report on fishing industry damage related to operation of Taean plant units 5-8
Mid-term Promotion	One time, guest lecture about the philosophy of shared growth, policy and company's response

Sustainable Management Map

KOWEPO designated the sustainable management department in charge within the Planning Department to implement sustainable management tasks efficiently, so that it can make integrated and systematic responses to issues that arise.

Apart from the establishment of sustainable management plans and examination of promotion status and its performance, KOWEPO has especially concentrated company-wide efforts to solve issues by organizing and operating the "Sustainable Management Council" with relevant team members who can deal with collected opinions from stakeholders.

◎ Sustainable Management Map



Since all employees of KOWEPO, from regular employees to executives, have become united and practiced sustainable management since 2012, KOWEPO was awarded a AAA (Triple A) grade, the top grade of sustainable management, which was as a result of KoBEX SM™ (Korea Business Ethics indicators Sustainability Management). It won the excellent sustainable management award for public company as well, achieving foreign recognition for its performance.



Won the 2012 excellent sustainable management award for public company

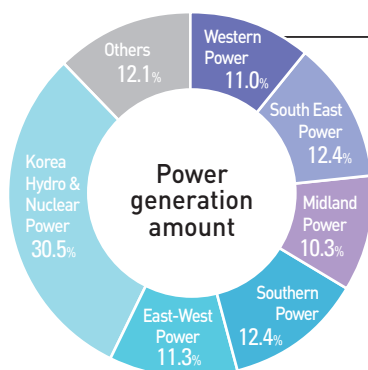
Risk management

Characteristics of Electric Power Industry

For stable supply of electric power that cannot be stored, it is essential to secure an optimum level of standby power. It also requires very careful judgment to establish a construction plan since long-term construction of an electric power plant requires a massive investment, and it is hard to take action immediately for increasing change in demand during construction and decreasing demand after construction. Therefore, KOWEPO has checked the government's Basic Plan for Electricity Supply and Demand every two years and made a continuous effort to secure the optimum reserve rate for stable electric power supply by establishing an electric power plant construction plan.

Structure and Form of Electric Power Industry

According to the basic plan on restructuring of the electricity industry in April 2001, the generation area of KEPCO was separated into six power generation companies. Because of this, a competition system has finally been adopted to the power generation area. As domestic competitors, there are not only six other power generation companies but also private companies such as Korea Water Resources Corporation, POSCO, GS Power, GS-EPS, SK E&S and MPC.



◎ Power generation amount by competitor

Name of Power Generation Company	Power generation amount in 2012 (hundred thousand kWh)	Share (%)
Western Power	561	11.0
South East Power	634	12.4
Midland Power	524	10.3
Southern Power	634	12.4
East-West Power	576	11.3
Korea Hydro & Nuclear Power	1,554	30.5
Others	613	12.1
Total	5,096	100

Regulations related to Electric Power Industry

The Electricity Business Act is comprehensively applied to the operation and construction of power plants and regulations for power market operation and detailed operation standards for electric power transaction. Although emission of air and water pollutants is strictly regulated by the Clean Air Conservation Act as well as the Water Quality Conservation Act, KOWEPO set even stricter internal regulations to minimize negative effects on the environment. Furthermore, the safety of all operating plants, such as power plants, high-pressure gas facilities, fire-fighting facilities, harmful chemical substances, dangerous facilities and disaster facilities, has been carried out with regular and occasional inspections monthly and annually.

Operation of Electric power market

According to the Electricity Business Act and Electricity Market Rule, the electric power business market is classified into three markets – market operation, system operation and business operation. KOWEPO meets the electric power business only through the electricity market in accordance with Article 31 of the Electricity Business Act.

◎ Electric power market

Business area	Customer classification	Value standard	Customer requirements
Power generation industry (Production and sales of electricity)	Market operation	Profitability	Stable transaction of inexpensive electricity
	System operation	Reliability	High-quality electricity supply
	Business operation	Fairness	Fair market operation (observance of rules)

Risk Management System

KOWEPO removes or minimizes possible risk in the rapidly changing domestic and overseas situations so it can cope with the uncertainty of the future and continue efforts to develop continuously with upgraded company value.

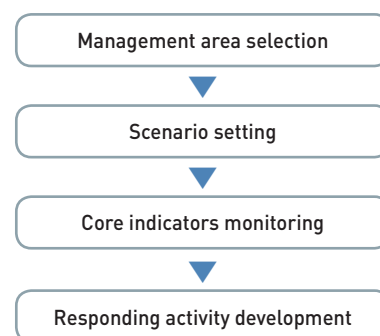
Company-wide risk management system

For risk factors that have an effect on management of a company, 15 core risk indicators have been selected in nine areas, such as fuel, finance, power generation operation, etc. Selected possible risks are all reviewed and corresponding responding scenarios are deducted. Monitoring is also conducted at all times to catch the signs of risk by setting up a risky period by core risk indicator. Furthermore, at the company-wide risk management committee meeting, which is held quarterly, a feedback system has been constructed to analyze its performance, and establish and report the counterplans.

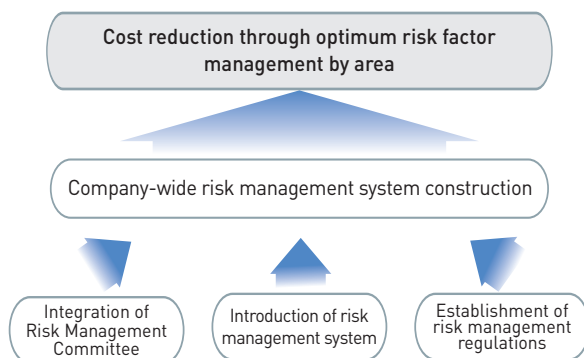
The RM (Risk Management) department was newly established in 2008 for company-wide risk management, and integrated and controlled risks centering the responsibility of company-wide risk management instead of the situation in which risk was controlled by each function and department unit.

Experts composed of assistant managers of each area grasp the risk factors in each area and report the responses to address them to the committee after quantifying the risk size. Meanwhile, the Director of Administration Division plays the role of chairman. The company-wide risk management committee composed of assistant managers considers the agenda and votes on it.

◎ Risk management process



◎ Risk management map



◎ Composition of the company-wide risk management committee



Business risk operation management

When promoting new business domestically and overseas, KOWEPO verifies its details of business risk through deliberation on the phased business verification process.

At the initial stage of business (①, ②), KOWEPO decides whether the business would be promoted based on feasibility study result from internal verification tools and external professional institution. And as final stage of risk management, at the business verification and confirmation stage (③, ④, ⑤), it reviews the risk of relevant business, such as investment in new business and establishment of an SPC (Special Purpose Company) one more time, and the RM (Risk Management) department conducts periodical monitoring and occasional economic analysis (14 businesses domestically and overseas in 2012) for ongoing business. In 2012, KOWEPO secured investment economics towards newly promoted business such as reduction in construction expenses (Yeongam F1 Solar Power, ₩3.6 billion) and building cost reduction (Indonesia Overseas Shipment Terminal, ₩2.1 billion). It also reduced risk in business promotion through an active Exit Plan, such as disposal of business rights, against the project that is under the optimum earnings rate (The Philippines Kanan Hydro Power).

◎ Qualification process when promoting a new business



Governance structure

KEPCO (Korean Electric Power Corporation) holds a 100 percent stake in KOWEPO. KOWEPO was appointed as a market-style public company in January 2011, and since then, it has expanded this body based on autonomous and responsible management, operates an audit committee and enhances its role as non-standing director so that it can strengthen management transparency and improve company management structure.

Board of directors

Authority and Responsibility

According to relevant law, the Korean Commercial Law, and company regulations of KOWEPO, important matters related to company management such as management goals, budget and investment are passed through the consideration and decision procedure by the board of directors. It deliberates and decides on matters defined by legislation and articles of association, or important matters related to basic policy of company management and execution of operation. For the past three years, the board members' attendance rate has reached 98-100%, and it will continue to improve overall conditions to make the board of directors be even more active. The board of directors is valid a majority attendance of board members and it voted for the majority of agreement about the agenda. Furthermore, according to the regulation of the board of directors, the board member who has an interest in a bill cannot participate in voting so that it can maintain ethical operation.

Composition

Board of directors consists of four standing directors and five non-standing directors, nine in total, including the CEO and standing auditor. The CEO is appointed by the president with recommendation from the minister of the Ministry of Trade, Industry and Energy, after passing through the executive recommendation committee's recommendation, operating committee of public institutions and a decision made by the general meeting of shareholders. Then, the CEO appoints standing directors with the decision made by the general meeting of shareholders, and for the standing auditor, the president appoints that position with recommendation from the minister of the Ministry of Strategy and Finance after passing through the executive recommendation committee's recommendation and a decision made by the general meeting of shareholders. On the other hand, non-standing directors are appointed by the minister of the Ministry of Strategy and Finance after passing through the executive recommendation committee's recommendation and a decision made by the general meeting of shareholders.

The term of CEO is three years, and other directors' two years, they can serve a second term. And to guarantee the independence of the board of directors, senior non-standing directors among outside directors act as chairman at the meeting.

Moreover, experts in each area are appointed as non-standing directors. Though there are all male directors as of the end of June 2013, KOWEPO make efforts to secure optimum female manpower through managing a list of female experts for the executive recommendation committee and senior non-standing director candidates, and recommending female candidates for director to government.

© Webpage for board of directors only

2013년도 전문위원회 운영현황					
예 · 결산전문위원회	경영전략전문위원회			투자사업전문위원회	
개최회수	사전심의 안건 수			심의결과	
	소계	의결안건	보고안건	이사회상정	재검토(보류)
1	3	3	0	3	0

© Composition of board of directors

	Position	Name	Career	-
Standing	CEO	Kim, Moon-Duk	Vice-president of Korean electric power corporation (KEPCO)	-
	Committee of inspection	Nam, Dong-u	Chairman of Cheongju City Council	-
	Director of Administration Division	Nam, Hyo-Seok	Managing Director, Group Management Support Department, KEPCO	-
	Director of Engineering Division	Kim, Sang-Tae	Managing Director of Power Generation Department, KOWEPO	-
Non-standing	Chairman	Shim, Jae-Joong	Former Marketing Director, Korea Investment & Securities Co., Ltd	Professional field
	CEO	Kim, Dae-Young	Former Manager of the Headquarters for Protection, PSS	Investment Analysis
		Jung, Dae-Hwa	Member of the Legislation Committee, Seoul Bar Association	Human Resources
		Lee, Jang-Woo	Professor at the School of Business for Kyungpook National University	Law
		Kim, Chong-Young	Executive Vice President, Power Technology & Engineering Div.(KEPCO)	Management & Accounting

[at the end of June, 2013]

Operation

The board meets on a monthly basis, and its members can invite other experts and relevant people and listen to them if needed. KOWEPO also holds presentations beforehand to let the non-standing directors state their in-depth opinions about the agenda.

Furthermore, there is a systematic support system for the non-standing directors such as plant site visits, webpage operation for board members only, and provision of management information. Considering their expertise, an expert committee of management strategy, budget/settlement and investment business is established and operated, so that KOWEPO expands its management proposal and activates its management advisory service – it creates management performance through enhancement of the board.

◎ Board of directors-affiliated expert committee status

Classification	Management strategy	Budget /Settlement	Investment business
Member (person)	Non-standing(2), Standing(1)	Non-standing(2), Standing(1)	Non-standing(3), Standing(1)
Considered bills	Management goal/ strategy (management goal, innovation, etc)	Budget/Settlement, operation of funds (budget, issue of bonds, etc)	Construction/ Investment business (construction, investment, etc)
Number of opening board meeting in 2012	1	5	3

Operational activation effort

Detailed information related to the board's operation is posted on the webpage for the KOWEPO board of directors only, opened for disclosure of ethical information and activation of communication with customers, www.iwest.co.kr/directors/main.asp. KOWEPO makes various efforts for activation of the board operation such as improvement of its process.

◎ Major effort for board operation activation

Classification	Details	Notes
Improvement on board operating process	Implementation of AMP(Agenda Management Program) for the board (Report the present condition of previously settled matters to the board of directors)	Just-in-time feedback on major business
	Improvement of accessibility to management information for the non-standing directors (Improvement of the board's webpage, establishment of a guidebook for performance of duty)	Just-in-time provision of management information
Expansion of non-standing director engagement	Active use of non-standing directors' expertise in company policy	Enhancement of management control mechanism

Status of opening board meeting

Conference of directors was held 11 times in 2012, and the number of proposed deliberations are 32 in total – corporation establishment and investment for India Gas Combined Power Plant Project (idea) in the economic area, special-purpose corporate investment for Daegu Solar Power Project (idea) in the social area and SPC establishment and investment for Seonamhae Offshore Wind Power joint development project. It also reported to the board about 16 other important matters in addition to proposed deliberations.

◎ Number of opening board meeting

Classification	2010	2011	2012
Number of opening board meeting (#)	13	12	11
Number of items (decision, report)	45 (31, 14)	63 (49, 14)	48 (32, 16)
Revised · conditional decision (#)	2	4	4
Rate of presence	100	98	98

Evaluation and Compensation

KOWEPO fairly evaluates management performance of the management including the CEO and compensates for what they have achieved to realize responsible management. The CEO should make a management contract with the appropriate Ministry about the management goals he must achieve during his term and major pending problems, and the performance result is evaluated annually by government. Standing directors besides the CEO should set the management goal with the CEO annually in accordance with the Law on Management of Public Bodies, and their performance is evaluated after making a management contract in relation to it. Salary for standing directors including the CEO is paid based on regulations of board members' annual income, and for the non-standing directors, based on regulations of the board, a monthly salary is paid.

Audit committee

The audit committee has been established and operated to conduct the audit for company work and accounting since June 2011. The audit committee consists of three auditors, and for securing independence and expertise of the board, two of them are non-standing directors and a non-standing director is appointed as the chairman. Moreover, one of the auditor positions is appointed to accounting or financial expert in accordance with relevant regulations. The audit committee met a total of eight times in 2012, and the committee voted for seven agenda items, such as the "2012 annual audit plan" and took over nine reports including "2011 result of inspection and its corrective measures". In particular, an advanced prevention system against corruption, which occurred due to the re-employment to relevant company of retired employee, has been established to improve monitoring functions for policy implementation. Meanwhile, the government evaluates management performance of standing auditors, propriety of audit activity and its performance.

Stakeholder engagement

Stakeholder communication

There are various stakeholders in management activities and they are affected by each other. KOWEPO considers construction of mutual trust among stakeholders first to practice sustainable management. It has constructed and maintained various communication channels to understand stakeholders' needs and respond to them. These needs that are understood through the channels are periodically analyzed and controlled by sustainable management activities.



© Expected value and communication channel among stakeholders

Classification	Expected value	Main communication channel
Government & Shareholder	Maximized management performance, management innovation, stable supply for high-quality electricity	General meeting of stakeholders(annually), conference of directors (monthly) Meeting of power generation company presidents Council by business National Assembly, Ministry of Industry, Notification of ALIO management (regular/nonscheduled official notice) Disclosure of information, Webpage, Webzine, VOC, Electric Power Public Information Hall
Employees	Employment stability, welfare improvement, self realization	CEO Hotline, Lunch meeting with CEO Town meeting, Joint labor-management conference (four times a year), Joint labor-management meeting (nonscheduled), Difficulty treatment system, Survey for employee welfare satisfaction, Proposal system, Presentation for pending management issues of power facilities, Company newsletter "Energy Family"
Partners	Ethical management, fair competition, co-prosperous cooperation, shared growth	Integrity survey, Meeting with Partners, Meeting for business promotion, Process meeting, P-CRM, Special support policy for small and medium-sized businesses
Local Community	Contribution to local community	Environmental monitoring board meeting (quarterly), Meeting of local government and local residents, Deliberative committee for local support business, Meeting of chairmen of organizations, Social contribution activities by region

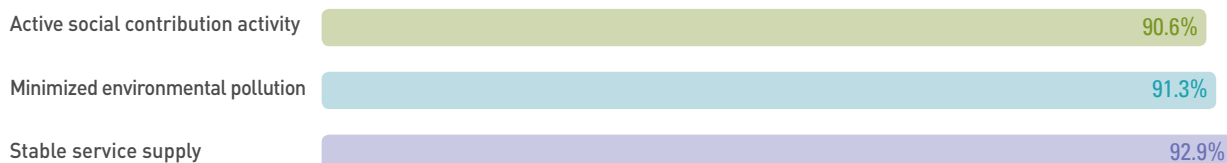
Survey targeting stakeholders

KOWEPO has conducted a survey targeting all employees, cooperating companies and local community to understand the stakeholders' needs and their present condition of communication. Stakeholders' opinions are going to be gathered continuously in the years ahead so that KOWEPO can grasp what the stakeholders view as KOWEPO's sustainable management and needs. And through listening to their opinions about further directions, KOWEPO will continue to practice ethical and true sustainable management.

Sustainable management survey result targeting employees

As a result of survey regarding sustainable management targeting employees, it shows that efforts for sustainable management of KOWEPO are most active in stable service supply, minimization of environmental pollution and active social contribution activity. KOWEPO will continue to make efforts for steady implementation of sustainable management, considering social contribution and environment based on stable electric power supply.

◎ Survey on perception level of sustainable management among employees



Survey result targeting partners

As a part of sustainable management, a survey on the satisfaction level of support and co-prosperity for partners, targeting partners has been conducted. As a result, it shows high satisfaction in R&D support for co-prosperity, technical development promotion and management innovation support. KOWEPO will continue to develop plans for co-prosperity and cooperation with partners and make great efforts to realize co-prosperous cooperation between KOWEPO and all partners.

◎ Survey on satisfaction level of support and co-prosperity among employees



Survey result targeting local community

A survey on satisfaction level of social responsibility and operation of KOWEPO targeting the local community surrounding power generation plants has been conducted. As a result, it shows that the communities are satisfied with KOWEPO's efforts for development of local culture, implementation of social responsibility and activation of local economy. KOWEPO will continue to prepare plans to improve the satisfaction level of the local community and fulfill its social responsibility in balance and harmony with local community participation.

◎ Survey on satisfaction level of social responsibility and operation

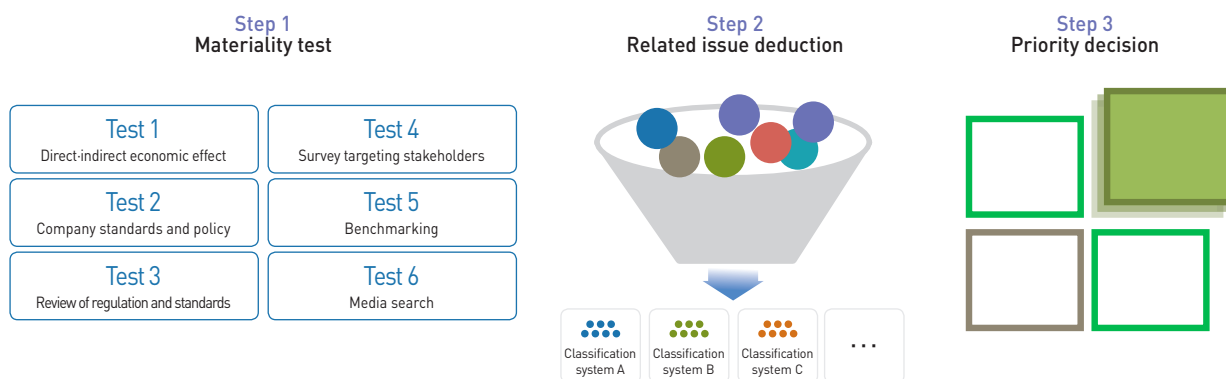


Materiality test and Material Issues

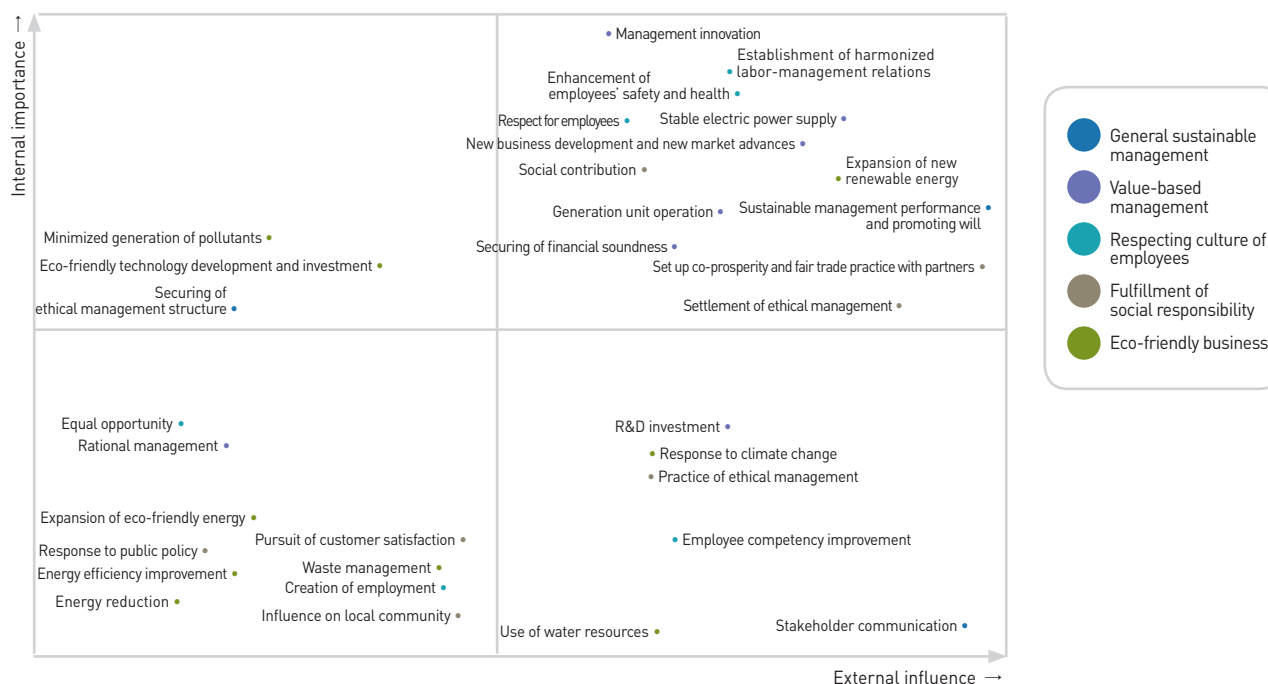
Materiality test process and result

To deduct major issues around KOWEPO that are important to stakeholders, for the past year, 2012, KOWEPO has enhanced the importance evaluation process, determined 31 relevant issues and classified them into three groups – High, Medium and Low. Six importance evaluations¹⁾ are conducted including direct/indirect economic effect, company regulation and policy, review of relevant and international regulations, survey targeting internal/external stakeholders, benchmarking of companies in the same industry or leading ones of sustainable management and media search, and relevant issues are generated from them. Then, the importance evaluation result is finally determined reflecting importance and influence. KOWEPO's 2013 Sustainability Report is written with the top priority issue as the center, among deducted 32 issues, and allows stakeholders to understand the performance of 2012 more easily.

© Material issue deduction process



© Main issue



1) Method for sorting the priority issues from among all issues with high interest of stakeholders after understanding important information

Material issues contained in report

Material issues contained in this sustainability report are shown below. The material issues are classified into Most significant and Middle-low, and their separate details are shown below as well.

Contents of report			Issue	Page	Importance	
					Most significant	Middle-low
CEO Message			Sustainable management performance and promoting will	2	<div></div>	
About KOWEPO						
Stakeholder engagement			Stakeholder communication	14		<div></div>
Management structure			Securing of transparency of governance structure	12		<div></div>
Risk management			Risk management	11	<div></div>	
Importance evaluation			Sustainable management performance and promoting will	18	<div></div>	
DMA						
Value-based management	Efforts for stable electric power supply		Stable electric power supply	22	<div></div>	
			Generation unit operation	22	<div></div>	
	Pursuit of management's efficiency of innovation and creation		New business development and new market advances	24	<div></div>	
			Securement of financial soundness	60	<div></div>	
			Management innovation	28	<div></div>	
			Rational management	11		<div></div>
Respecting culture of employees	Respect for employees		Enhancement of employees' safety and health	37	<div></div>	
	Construction of harmonized labor-management relations		Establishment of harmonized labor-management relations	36	<div></div>	
	Enhancement of employees' safety and health		Respect for employees	34	<div></div>	
Fulfillment of social responsibility	Social contribution		Social contribution	42	<div></div>	
	Co-prosperity with cooperating companies and realization of fair trade		Co-prosperity with partners and realization of fair trade	46	<div></div>	
	Ethical management		Settlement of ethical management	49	<div></div>	
Eco-friendly business	New & renewable energy		Expansion of new renewable energy	54	<div></div>	
Performance	Economic performance		R&D investment	62		<div></div>
	Social performance	Employees	Employee competency improvement	65		<div></div>
			Equal opportunity	63		<div></div>
			Creation of employment	63		<div></div>
			Pursuit of customer satisfaction	67		<div></div>
		Local community	Response to public policy	67		<div></div>
			Influence on local community	45		<div></div>
			Practice for ethical management	48		<div></div>
	Environmental performance		Use of water resources	75		<div></div>
			Response to climate change	68		<div></div>
			Minimized generation of pollutants	73		<div></div>
			Eco-friendly technology development and investment	72		<div></div>
			Energy efficiency improvement	22		<div></div>
			Energy reduction	69		<div></div>
			Waste management	76		<div></div>
Appendix			78			

DMA(Disclosure on Management Approach)

Economy

Major performance in 2012

Area	Indicators	Plan	Performance	Performance analysis	Department
Economic value creation	Revenue	₩5721.4 billion	₩5967.9 billion	Sales increasing due to performance improvement and facility efficiency	Planning Department Administration Department
	Current net profit	₩13.8 billion	₩118.3 billion	Business profits improvement through sales increase and cost reduction	
Creative management	Innovation activity promotion	₩220 billion	₩351.8 billion	60% surplus achievement with performance of CEO responsible project	Planning Department
Stable electric power supply	Compliance with deadlines of plant construction	100%	102.3%	Implementation of National Electricity Supply and Demand with perfect compliance with construction deadlines	Power Construction Department
	Improvement rate of fuel cost per calorie	3.39%	4.99%	Reduction of more than ₩61.5 billion with purchase of combustion portfolio	Fuel & Resources Office
Creation of future growth power	Industrialization rate of R&D	25%	27%	Early industrialization promotion for R&D results	Power Generation Department
	Starting of overseas facility construction capacity	798MW	798MW	Goal achievement with active efforts in negotiation	Future Business Office
	Order of new construction business	3	3	Goal achievement with development of neighboring area around the growth base	

Plan for 2013

For economic performance, KOWEPO makes various efforts to operate mid/long-term financial management plans corresponding to the changing management environment both domestically and overseas, and improve the contract method for budget reduction. In addition, it will maintain the lead of professional technology through steady technology development and innovation activities, and create steady profits by completing plants under construction on time and purchasing electric generator fuel economically, and make a great effort toward facility construction completion on time for expanding the future growth power.

Society

Major performance in 2012

Area	Indicators	Plan	Performance	Performance analysis	Department
Respect for employees	Internal communication indicators	80 points	87 points	Performed communication promotion led by CEO	Planning Department
Practice of sympathized management with trust	Implementation rate of activation of new organization culture	80%	100%	Practiced activation of a youthful and dynamic company culture	
Social contribution and local community support	Community satisfaction	80%	81%	Increase of 5% compared with 2011 (76%)	
Harmonized labor-management relations	Labor-management satisfaction	83%	84%	Improved labor-management cooperation by declaring advancement strategy for labor-management relations	Administration Department
Shared growth	Evaluation of shared growth performance	Excellent	Excellent	Selected as the 2012 Best shared growth practicing company	Power Generation Department
Ethical management	Evaluation level of anti-corruption and integrity	II-grade	II-grade	Advanced audit and protection of whistleblowers	Audit & Inspection Office

1) Shared growth performance grade [Evaluation agency: Ministry of Trade, Industry and Energy]: 'Classified into four grades - Excellent, Good, Average and Poor

2) As the 2012 Best Shared Growth Practicing Company selected by the Ministry of Trade, Industry and Energy, it was selected to receive a presidential citation in October 2013.

Plan for 2013

KOWEPO will develop local community business through social contribution activities and fair and ethical cooperative relations with small and mid-sized companies so that it can create a healthy company ecosystem environment. KOWEPO will also steadily maintain a culture of trust and respect by constantly implementing a new internal company culture, as well as promoting strong ethical management through anti-corruption and integrity activity, and adopting a citizen watch system.

Environment

Major performance in 2012

Area	Indicators	Plan	Performance	Performance analysis	Department
New & Renewable energy development	New & Renewable energy development capacity	30MW	75MW	Operation of Tae'an organic solid fuel power	Future Business Office Power Generation Department Power Construction Department
	CDM business registration	18MW	18.9MW	Registration of Solar Power Plant in Sejong city and Yeongam F1	
Atmospheric environment protection	Greenhouse gas reduction	10%	13%	Support for low-carbon management system construction through carbon partnership support	Power Construction Department
	Energy reduction	10%	11%		
Minimization of waste discharge	Recycling rate of waste	30%	43.3%	Increasing recycling rate such as desulfurized gypsum	
	Recycling rate of coal ash	100%	114.5%	Exceeded 100% with recycling reclamation coal ash	

1) CDM: Clean Development Mechanism

Plan for 2013

KOWEPO will respond to the enhanced environmental regulations and implement construction of new & renewable energy and investment to it steadily to meet the supply rate of RPS. An increased waste recycling rate, water quality improvement and environmental protection activities are going to lead the environmental prevention. Furthermore, KOWEPO continues to make efforts for the establishment of a low-carbon management system.



KOWEPO practices Sustainable Value-Based Management.





Value-Based Management

Efforts for stable electric power supply • 22

Pursuit of Management efficiency with innovation and creation • 24

Efforts for stable electric power supply

Electric power, an essential energy for modern industry and people's lives, is impossible to store or reproduce, and has the feature that its amount increases along with the growth of national income and economic development. Energy security in regard to electric power, is a capital-intensive national base industry requiring massive plants and long-term investment. Moreover, it makes assurance for stable operation of power plants, efficiency improvement and the securing of supply capacity to respond to the risk of demand and supply of electricity that has lasted since 9/15 when a circulation blackout occurred.

Generation unit operation

KOWEPO generated 10% (8,409MW) of the national generation unit and 11% (56,091GWh) of the amount of that. Power plants increased 22.8% from 6,846MW, in 2001 to 8,409MW in 2012, and the amount of that also increased 116% from 25,965GWh, in 2001 to 56,091GWh in 2012.

◎ Power plant and change of power generation amount

[Unit: Power plant(MW), Power generation amount(GWh)]

Classification	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Generation unit (growth rate, %)	6,846	7,346 (7.3)	7,346 (0.0)	7,280 (-0.9)	7,280 (0.0)	7,880 (8.2)	8,884 (12.7)	8,885 (0.0)	8,885 (0.0)	9,604 (8.1)	8,404 (-12.5)	8,409 (0.1)
Power generation capacity (growth rate, %)	25,965	37,457 (44.3)	38,430 (2.6)	37,783 (-1.7)	37,729 (-0.1)	38,447 (1.9)	48,728 (26.7)	46,955 (-3.6)	45,728 (-2.6)	53,033 (16.0)	54,815 (3.4)	56,091 (2.3)
Economic growth rate (%)	3.8	7.0	3.1	4.7	4.2	5.0	5.0	2.8	0.8	6.1	3.6	2.0

※ Partial pumping equipment was transferred to Korea Hydro & Nuclear Power company on 1, Jan, 2011, so that capacity in 2011 decreased by 8,404MW.

Facility operation system

In 2012, it completed 100% of the domestic standard thermal power by developing an integrated control system for the thermal power plant and succeeding in the verification test conducted at Taean Thermal Power Plant unit 1 for the first time in the nation. In addition, for stable operation of the plant, best condition of plant, in accordance with the preventive maintenance plan, is maintained, and failure recovery system in which the protective device is fully equipped is also operational to be stopped the plant stably when a spreading accident caused by the power system occurs.

Furthermore, it enhances the development operation technology ability through overseas benchmarking. And with facility diagnosis and exchange of technology using EPRI experts in the U.S., performance of the plant and its reliability would be secured. Moreover, KOWEPO makes an effort to stably supply inexpensive and high-quality electricity by establishing a preventive maintenance system based on basics and maintaining the best condition of the power plant.

Facility operation performance

KOWEPO achieved 41.66% of thermal efficiency of the power plant through optimum distribution and use of management resources, improvement of power plant operation system with use of 6 Sigma, a method for management innovation, and development of combustion technology. This is 1.18% higher than the average level of a domestic power company, 40.48%, in 2012.

◎ Forced outage rate and thermal efficiency

[Unit: %]

Classification	2010	2011	2012
Forced outage rate	1.602	0.598	0.333
Thermal efficiency	41.71	41.46	41.66

KOWEPO has contributed to the stable electric power supply through forced outage prevention that comes from the result that KOWEPO achieved zero-failure in boiler tubes among domestic power companies in 2012, responding to changing the boiler combustion environment with systematic reinforcement of a boiler facility that can cause long-term outage and development of detection technology for a leak point on a boiler tube. Moreover, with constant technology development, the use rate of the plant is also increasing annually, so the use rate of all the plants increased 11.4%, from 64.6% in 2010 to 76.0% in 2012.

◎ Use rate of plant

[Unit: %]

Classification	Taean Thermal Power	Pyeongtaek Thermal Power	Pyeongtaek Combined Cycle Power	Seoincheon Combined Cycle Power	Gunsan Combined Cycle Power	New Renewable Energy	Total
2010	93.0	25.7	35.5	75.4	71.4	17.5	64.6
2011	96.3	21.3	35.0	76.0	79.7	17.2	74.5
2012	93.2	29.3	36.3	79.7	88.8	16.1	76.0

Generation unit construction

KOWEPO has been implementing various new construction projects to prepare for a rapid increase of electric power demand and solve the short supply. In particular, as a solution for the 2013 summer electric power supply, Pyeongtaek Combined Cycle Power Plant Step 2 construction was started rapidly and completed a gas turbine in the world's shortest time on 7 July, 2013 (11months). Through further phased completion of construction, the power plant will be expanded by 8,726.5MW by 2020.

◎ Power plant undergoing (or scheduled for) construction

Classification	(Estimated) Completion Date	Fuel for use	Capacity (MW)	Notes
Pyeongtaek combined cycle power Step 2	2014. 10	LNG	946.5	Construction in the shortest time
Dongducheon Combined Cycle	2014. 12	LNG	1,880	SPC establishment
Taeon IGCC	2015. 11	Bituminous coal	380	Nation's first construction
Taeon Thermal Power Unit9	2016. 6	Bituminous coal	1,050	-
Taeon Thermal Power Unit10	2016. 12	Bituminous coal	1,050	-
Pyeongtaek combined cycle power Step 3	2017. 11	LNG	900	-
East Haslar Coal Thermal Power Plant	2019. 12	Bituminous coal	2,000	Co-development with private companies
Garolim tidal power plant	2020. 5	Tidal power	520	-
Total			8,726.5	

※ As reflected in the sixth Basic Plan on Electricity Demand and Supply

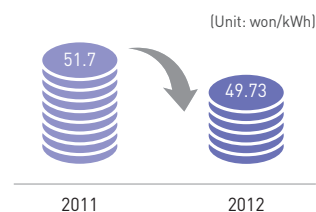
Fuel supply and demand

KOWEPO puts a stable supply of fuel for power generation first as well as stable operation of the plant and its construction for the stable supply of electric power.

Consideration of fuel purchasing economics

Fuel for power generation has a high level of dependence on overseas, so not only is it vulnerable to an external obtaining environment, but also it is involved with the risk of variable cost in accordance with changing cost of raw materials. Therefore, KOWEPO is avoiding the risk of changing costs by constant dispersed purchases, and operation of a differentiated management plan by risk factor through adaptation of customized risk management method in the financial market for the first time. Furthermore, it operates an integrated analysis system in the fuel area specialized on price forecast and risk management and improves market analysis ability, leading to the enhancement of the risk management plan for fuel purchase. As a result, the calorie-unit price of fuel for power generation could be decreased more than 3% from 51.7 won/kWh in 2011 to 49.73 won/kWh in 2012.

◎ Power generating cost of bituminous coal



Improvement of fuel supply stability

KOWEPO constructs a stable supply support system and operates it for stable securement of fuel for power generation by upgrading the days of optimum inventory of bituminous coal, adjusting long/short-term purchase contract rates of fuel for power generation, and implementing a diversified supply line.

Also, to prepare for urgent situations in which fuel for power generation is in short supply, KOWEPO has been trying to improve supply stability by enhancing the cooperation system through support for supply exchange among five domestic generation companies and building up a cooperation system for urgent supply and demand with China and Japan overseas.

◎ Support system for stable electric power supply

Classification		2011	2012	Notes
Maintenance of optimal inventory	Peak period	3 months	3.5 months	Extended 15 days
	Days of optimum inventory	18 days	19 days	Added 1 day
Early response for urgent situation of supply and demand	Domestic	Cooperation of supply support among five domestic power generation companies		As is
	Overseas	Cooperation for international urgent situation of supply and demand		Expanded
Fuel contract portfolio		Adjustment of long-short term rate in accordance with supply and demand situation		Adjustment of long/short-term rate in accordance with supply and demand situation
Various sources of supply		Australia, Indonesia, Russia, U.S.A., etc		Expanded

Support for stable operation of power plant with provision of optimal mixed coal information

Integrated analysis system of fuel combustion controls overall process from adopting bituminous coal to its combustion. All real-time operational information of the power plant, including coal-fired power plant, is monitored to improve the stability of plant operation, while it also determines the optimal mixed rate by different type of coal and reports it to relevant departments in advance, so that it can support economic combustion and stable operation of the power plant.

Pursuit of management efficiency with innovation and creation I – Overseas business

KOWEPO has been promoting the business development strategy of “selection and concentration” to make a leap forward as Asia’s Major IPP (Independent Power Plant) company and create constant growth power for the future, and the overseas new business development based on its excellent technology of plant operation. In addition, as it develops an independent business model for diversified business, KOWEPO makes various opportunities for profit creation through expansion of the business area, overcoming environmental restriction, which is a slowdown in the increase rate of national electric power demand.

Overseas new business development

KOWEPO is promoting overseas new business development for expansion of growth power for the future. Along with the generation business conducted in Laos, Myanmar and India, it goes into the USA’s Nevada Solar Power business and boasts its capability to the world. It also carries out overseas resource development business for stable supply of bituminous coal, the main fuel.

India Maharashtra Gas Combined Cycle (388MW)



Construction of India Maharashtra Gas Combined Cycle

Maharashtra Gas Combined Cycle, under construction in India where the growth potential is significant, is expected to solve the electric power supply problems in Maharashtra, which experiences the greatest shortage of electricity, and it is also expected to get ₩120 billion of revenue and ₩22 billion of divided income. There will be additional revenue of ₩15 billion through the plant operation.

Myanmar Yangon Gas Combined Cycle (500MW)



MOA Contract with Myanmar for Yangon Gas Combined Cycle

KOWEPO made a contract of Myanmar Yangon Gas Combined Cycle Project for the first time in the world as a private power generation company, with active efforts of the CEO, it became a representative example that he reduced political and financing risk by drawing quota engagement of the Myanmar government. It is expected ₩174 billion of revenue annually after completion of construction in 2015 by selling over 85% of the generated electric power with a condition of ‘Take or Pay’.

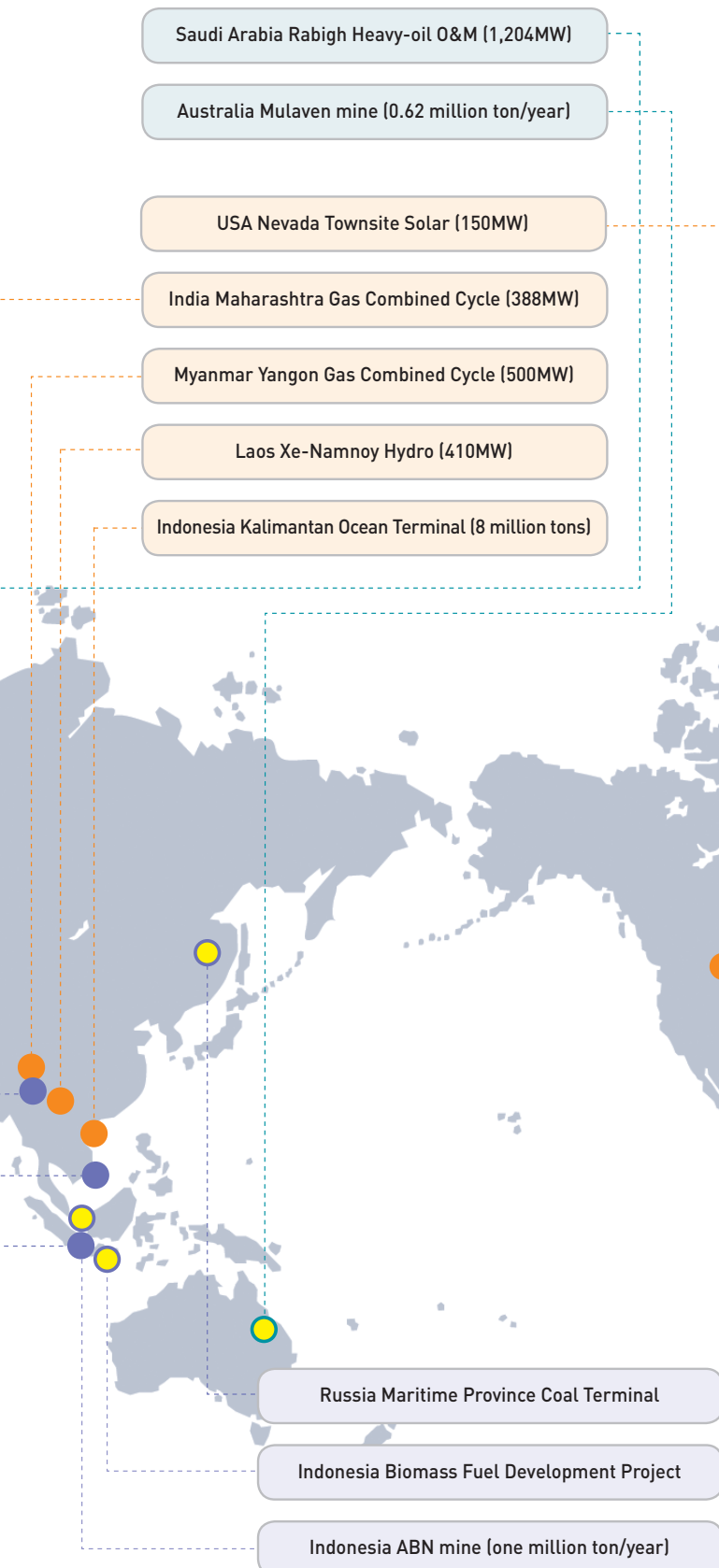
© Present condition of overseas business (as of June, 2013)

- Russia North-Caucasus Cogeneration (50MW)
- Laos Xe-Namnoy1 O&M (65MW)
- India Maharashtra Step2 (388MW)
- Vietnam PVN Long Phu 1 Coal Thermal Power Plant (1,200MW)
- Nigeria Egbin O&M (1,320MW)
- Indonesia Kaltim2 Coal Thermal Power Plant (200MW)
- South Africa Coal Power Plant (420MW)

- Ongoing business
- Confirmed business
- Ongoing business development
- Resource development business

© Situation of phased overseas business

Phase	Ongoing business	Confirmed business	Ongoing business development	Total
Number of businesses	2	5	10	17



USA Nevada Solar Power Plant (150MW)



Site for USA Nevada desert Solar Power Project

USA Nevada Solar Power Plant project, which reduces \$30 million of capital investment, using the PF (Project Financing) method and investor tax credit system provided by the U.S. government, is expected to have a divided revenue of ₩20.4 billion annually after 2015, and also it plays an important role for the North American market as an advance for the future.

Laos Xe-Namnoy Hydro (410MW)



Conclusion of a contract of business rights for Laos Xe-Namnoy Hydro Power Plant

KOWEPO made a concession agreement with the Laos government in 2012, then, for the Laos Xe-Namnoy Hydro Power Plant Business, which made a contract with Laos Electricity Board and Thailand Electricity Board in 2013, the financial agency of Thailand has been promoting PF (Project Financing) for this project. It is expected that electric power and plant operational profits would be around ₩45 billion annually after completion of this plant in 2019.

Australia Mulaven mine (0.62 million ton/year)

KEPCO and five other public power generation companies have co-acquired 5% of shares in Mulaven mine for the stable supply of bituminous coal and secured 0.62 million tons annually. Above this, through various resource development activities such as Russia Maritime Province Coal Terminal and engagement in Indonesia Mine Development, it has tried to stably supply fuel and create new investment income.

Pursuit for management efficiency with innovation and creation II – Domestic business

Starting construction of Taeon IGCC Power Plant (11. 2011), KOWEPO has been conducting a large-sized construction business at the same time - Dongducheon Combined Cycle Plant, Pyeongtaek Combined Cycle Power Step 2, and Taeon Thermal Power Units 9, 10. KOWEPO does its best to construct high-capacity and high-efficiency power plants, under construction now, in good time. Its process rate of construction exceeds the scheduled plan as of June 2013.

Domestic business development

Domestic business has been promoted continuously to expand the future growth power through business diversification and stably supply electric power to the domestic market, and there are 17 ongoing projects in total as of June 2013.

© Present condition of domestic business (as of June, 2013)

Dongducheon Combined Cycle construction project



Bird's-eye view of Dongducheon Combined Cycle Plant

The newest high-efficiency construction project with 1,880MW of capacity is conducted for stable electric power supply to the capital area. It is expected that funds supply through risk hedging and PF (Project Financing) would contribute to financial burden mitigation and profit creation.

Taeon Thermal Power Units 9, 10 construction



Bird's-eye view of Taeon Thermal Power Units 9, 10

As a high-capacity and high-efficiency power plant with 1,050MW of capacity, which is twice as much as the existing Taeon Bituminous coal Power Plant with 500MW capacity Units 1-8, it is expected to contribute to the stable supply of domestic electric power.

Dongducheon Combined Cycle (1,880MW)

Gyeonggi-do Ansan Solar Power Plant (2.5MW)

Pyeongtaek Global Planned District Group Energy
(445Gcal/h)

Pyeongtaek Combined Cycle Power Step 2 (946.5MW)
and Step 3 (900MW)

Poseung Biomass (60MW)

Garolim Tidal Power Plant (520MW)

Taeon Thermal Power Plant Units 9 & 10 (2,100MW)

Taeon Korean IGCC Demo Plant Construction (380MW)

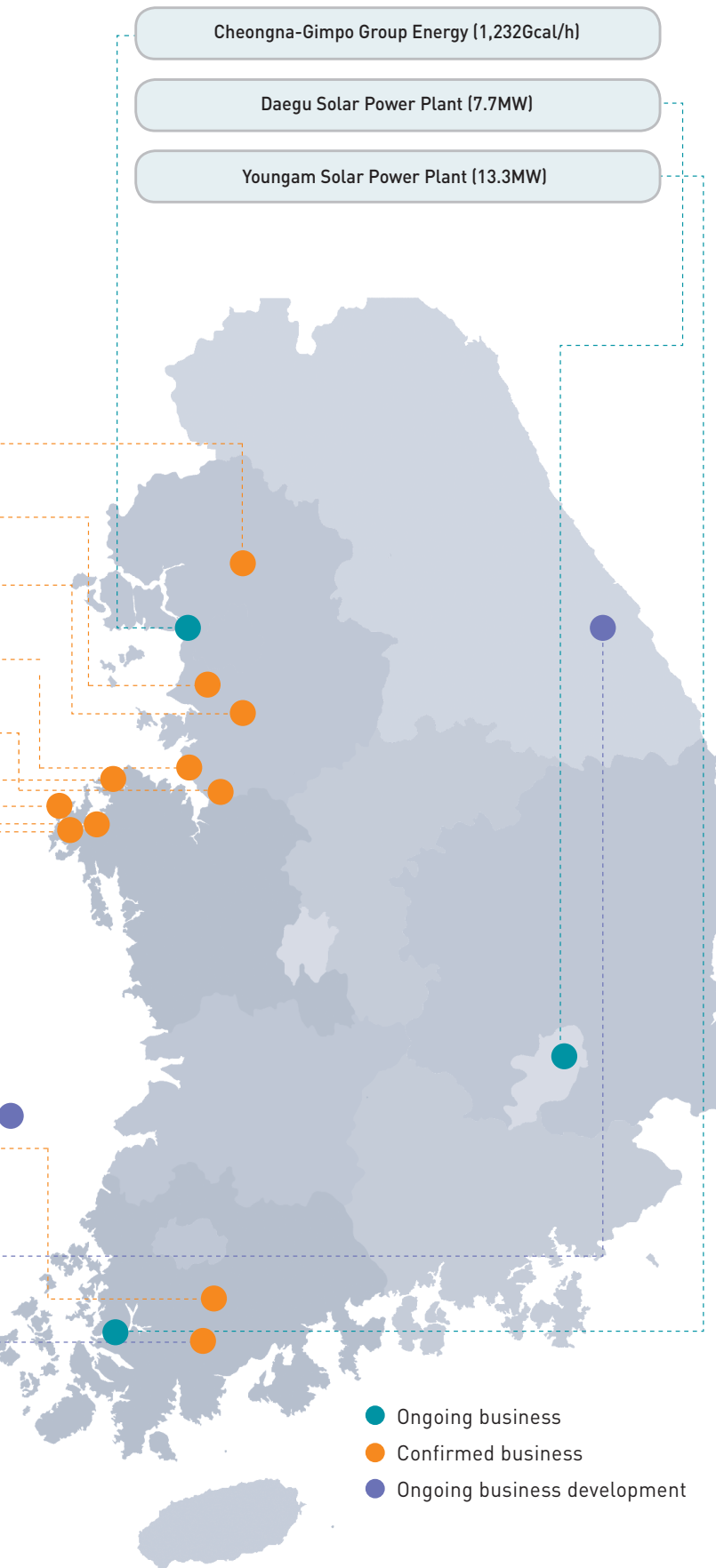
New construction of Taeon Thermal No. 3 Berth
(0.2 million tons)

Hwasun Wind Power Plant (20MW)

East Haslar Coal Thermal Power Plant (2,000MW)

Seonamhae Wind Power Plant

Jangheung Wind Power Plant (20MW)



Pyeongtaek Combined Cycle Power Step 2 construction project



Bird's-eye view of Pyeongtaek Combined Cycle Power Step 2

Pyeongtaek Combined Cycle Power, a Gas Combined Plant with 946.5MW of capacity, is expected to contribute to the stable electric power supply in the summer and winter seasons 2013, by completing a gas turbine on 7 July, 2013, in advance. When its entire construction is completed in October 2014, it is going to contribute to the stable electric power supply with a high rate of operation and rapid electric power supply.

Pyeongtaek Global Planned District Group Energy Project



Bird's-eye view of Pyeongtaek Global Planned District

As a business that conducts heat supply using arrangement of Pyeongtaek Thermal Power Plants, it is the most energy-saving business in the country, satisfying expansion of group energy supply by the government. It will supply electric power to households of Pyeongtaek global planned district when it is completed in 2017.

© Situation of phased domestic business

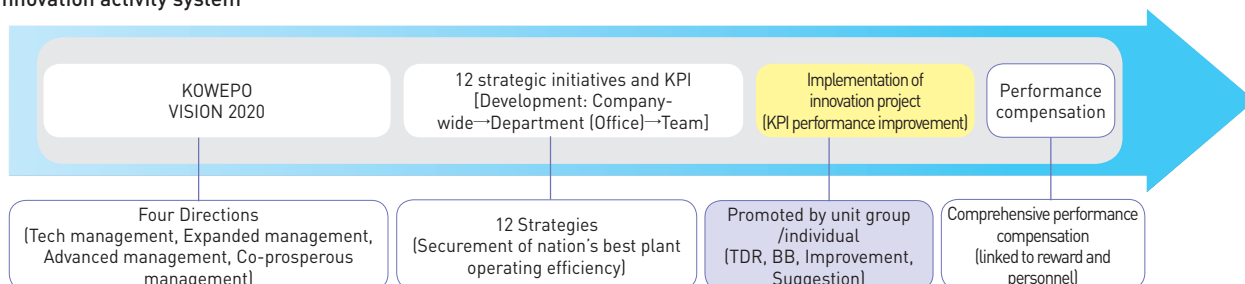
Phase	Ongoing business	Confirmed business	Ongoing business development	Total
Number of businesses	3	11	3	17

Pursuit of management efficiency with innovation and creation III – Management innovation

Management innovation activity system

KOWEPO is promoting company-wide management innovation activities to achieve the management goal through creation of continuous performance and realize an increase of company value. All employees, from CEO to champion (manager and assistant manager), team leader and individuals, use 6 Sigma which makes all members implement and take charge of projects, conduct innovation activities, quality circles, and suggest activities as a problem-solving roadmap. It also supports spontaneous engagement in innovation activity, operating a comprehensive performance compensation system for employees. Furthermore, it promotes innovation activity with small and mid-sized companies for realization of shared growth and actively conducts industrial innovation movement 3.0.

© Innovation activity system



Management Innovation Activity Development

KPI core indicators / Goal setting

With management environment analysis both domestically and overseas, it has set mid-term management goals and their promotion strategies, and reflected strategic projects, management goals for the year, and KPI as well. KOWEPO reached the expected financial level of ₩351.8 billion by implementing innovation activity from the angle of company-wide profit based creation in 2012.

Activity for 6 Sigma process improvement

KOWEPO has adopted the top-down strategy of 6 Sigma centering on executives and managers since 2003, and the company has been promoting it company-wide.

It has received the Best Innovation Management and the top level of 6th certificate for innovation of public institution in 2007. From 2003 to 2012, with promotion of 785 projects, it created ₩1045.8 billion of the expected performance.

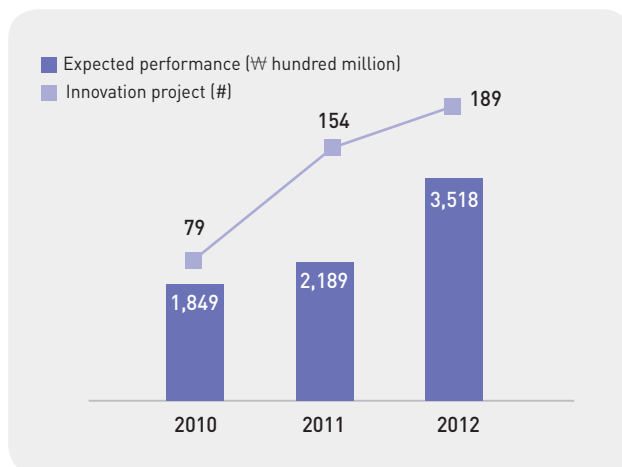
Besides, the belt system (MBB, BB, GB) of 6 Sigma is linked to personnel system, so that KOWEPO can secure internal experts for independent innovation activity, maintain stable basis, and focus on enhancement.

© Core manpower production in innovation area

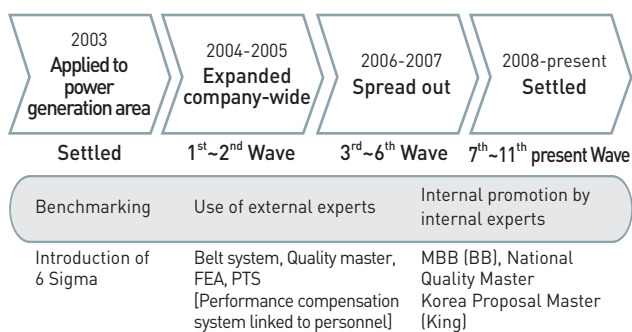
National Quality Master (ranked sixth in the country, ranked No. 1 in public institutions)	Proposal area (ranked second in the country, ranked No. 1 in public institutions)		6 Sigma Belt Manpower			FEA
	Korea Proposal Master	King of Proposal	MBB	BB	GB	
27 people	Five people	Seven people	Six people	51 people	398 people	Six people

(MBB: Master Black Belt, BB: Black Belt, GB: Green Belt, FEA: Finance Effect Analyst)
※ As of the end of 2012

© 6 Sigma promotion project and its expected financial performance



© Status of 6 Sigma management innovation activity promotion



Quality Circles improvement activity

Quality circles activity is a site improvement-oriented small-group activity with a bottom-up approach. It is promoted along with the 6 Sigma innovation activities. Since KOWEPO has received the Korea Best Quality Management award, it has maintained its status as a representative company leading Korea Quality Management by receiving 64 of the presidential awards of the National Quality Contest and producing 27 National Quality Masters.

Proposal activity “Click & Suggest Now”

KOWEPO is operating a web-based proposal control system, “Click & Suggest Now”, which allows employees to conveniently suggest their innovative ideas about projects. By encouraging suggestions from employees, there have been 90,654 recorded suggestion activities since the establishment of the company, and in particular, 13,821 suggestion activities are registered in 2012 alone. KOWEPO became the second most produced Korea Proposal Master (King) in Korea, as a company to be benchmarked, and it also performs a role as a leading company of suggestion activity, passing down the system and method to other companies.

Evaluation of innovation activity and performance compensation

Evaluation and compensation toward promotion performance of innovation activities is integrated and unified in accordance with comprehensive performance compensation regulation, and evaluated objectively and fairly by FEA. By operating a compensation system rewarding up to 1% (₩0.2 billion) of promotion performance, it encourages spontaneous engagement of employees.

Development sequence of innovation activity

- | | | |
|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|
| ① Grand champion briefing session
(Goal setting, Project searching and selection) | ② Implementation of innovation activity
(Innovation academy, Instruction and implementation of project, Interim report) | ③ Innovation festival
(Best Practice contest, Evaluation and compensation) |
|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|



Hosting the innovation activity evaluation meeting, “Innovation Festival 2012”

Development of Industrial innovation movement 3.0 for shared growth

KOWEPO has established a “Cooperating company mileage compensation system” and operated it as well as “Techno-Mento” business using National Quality Master and “6 Sigma innovation activities” using MBB for shared growth with small and mid-sized companies. It is also expanding disclosure of big data regarding innovation activities to realize creative economic policy, and trying to foster a small but strong global company through implementation of industrial innovation movement 3.0. Furthermore, it has made an agreement about sharing innovation activities to promote their execution, and supported construction of the general basis of system operation for expansion of “KOWEPO certified innovation activity company”.



Business agreement about sharing innovation activity with cooperating companies



Support cooperating company's innovation activity for shared growth

Pursuit for Management efficiency with innovation and creation IV – Creative management

Activation of creative economy

KOWEPO has constructed a creative company culture that shares creative ideas of employees and maximizes management efficiency. Centering on R&D activation, it strengthens national technology competition and tries to secure future technology, which can be a new growth power. It also aims to create a company ecosystem for creative economic activation through expansion of shared growth with cooperating companies. Moreover, the creation of a creative culture and efforts to implement it become a foundation to grow as a sustainable company.

Creation of company-ecosystem for activation of creative economy

KOWEPO is trying to promote the balanced development of industry and create a cooperative company ecosystem. In 2012, KOWEPO declared the active will of shared growth inside and outside the company, hosting an event to spread the shared growth culture, and at the same time, played a leading role of culture creation. It also tries to spread the performance sharing system carried out by government and make it settled in the early stage. Furthermore, leading the creation of a healthy company ecosystem, it promotes mainly with R&D support expansion for improvement of technology and productivity of cooperating companies, engagement opportunity expansion for small and mid-sized companies through improvement of the public procurement system, construction of export support for cooperating companies, and practical overseas marketing support linked to overseas business.



Hosted event for spreading the shared growth culture



Declared spread of performance sharing

Enhancement of technical innovation capability through R&D activation

KOWEPO has constructed early industrialization basis of research results by systemization mainly with manual works through construction of an R&D management system, and promoted R&D activation through process improvement such as reconstruction of R&D portfolio and/or upgrade of investment ratio for site technology development from 34% to 40%.

For the great research result, it spreads to other power generation companies and shares its performance. Furthermore, it has been creating various performances that domestic technology is successful in electric control facility, which has thus far depended on those overseas.

© Present condition of major R&D project

Project name	Details	Promotion performance
Localized ECMS for the first time in the country	Development of protective delay (analog→digital)	₩1.5 billion reduction of material cost
Development of 500MW level of thermal power integrated control system	Localized control system of boiler, turbine generator	₩35 billion of import-substituting effect
Securing of coal-drying technology using superheated steam	Spray superheated steam (over 600℃) within coal dryer	53% of moisture reduction, consumption power reduction
Development of bio-coal production technology for mixed use at coal thermal power plant	Promoted mixed use without remodeling existing boiler facility	Acquired patent for bio-coal production process

Development of new company culture activity

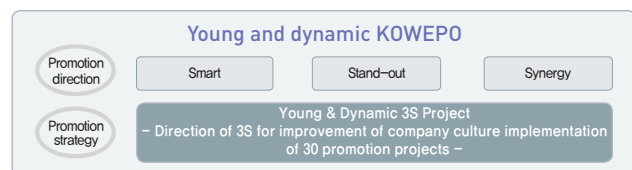


KOWEPO hired 170 new employees, which is over 10% of existing staff in 2012 alone, so that its organization and manpower is becoming younger. This unifies all the employees in one mind and steps forward to develop a new company culture. It has created a promotion system of company culture, "Young & Dynamic KOWEPO", which is full of life and energy.

"Young & Dynamic KOWEPO" Company culture promotion system

"Young & Dynamic KOWEPO" can be defined, based on "passion" and "youth", as 3S - Smart, Stand-Out and Synergy. This company culture selects 30 implementing projects for detailed and actual change, and promotes by phase.

◎ Strategy for Young & Dynamic company culture promotion



◎ Smart

Enhancement of OJT for shift workers has improved implementation rate of self-improvement by about 17%, and 1:1 Q&A is possible online through [the internal Q&A system, "KOWEPO person, knowledge in"]. Besides, it makes an effort to improve the capability of individuals and the organization as well by running 10 programs such as registering 180 work processes to the internal Q&A system with "KOWEPO guide manual event".

◎ Stand-out

In 2012, the "self-directed joining ceremony" designed by a new employee of KOWEPO was the subject of conversation both inside and outside the company.

There are 10 programs that encourage employees in self-esteem and loyalty to the company such as "Integrity Fun Festival" for creation of young and ethical company culture, photo exhibition, "moment of KOWEPO", and ad contest, and "KOWEPO Global expedition", the world explorer expedition.

◎ Synergy

There are 10 programs to settle the company culture of trust and communication such as "storytelling lunch meeting", which is a meeting between teams, "KOWEPO Hue Café", used for communication, "I Love Reply", the online anonymous discussion forum, and "Single Bungle Project" for single employees.



Self-directed joining ceremony

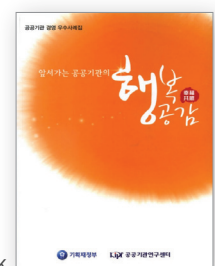


Rest area, "Forest of thinking" café

Promotion performance and further promotion direction

KOWEPO actively promoted activation of the company culture in 2012, so that its internal communication indicators increased by more than 10% compared to the previous year, and in January 2013, KOWEPO was selected as an exemplary case in the "Leadership Area" in "Best Management of Public Institution Case" held by the Ministry of Strategy and Finance, and it became a great chance to gain a good reputation outside the company.

"Young & Dynamic KOWEPO", the company culture, is going to be implemented as three-year plan from 2012 to 2014, and it steadily continues to spread the company culture and internalization activities.



Best Management of Public Institution Casebook

KOWEPO practices Sustainable Management through respect for employees.





Respecting culture of employees

- Respect for employees • 34
- Harmonized labor-management relations • 36
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Respect for employees

Employee benefits package

Status of welfare system building

To improve welfare of employees, various "Welfare systems by lifecycle" have been constructed in accordance with phased lifecycle, from the first year at the company to retirement. In addition, there are many other welfare programs that are operated with the annually reserved Intra-Company Labor Welfare Fund which accounts for 2% of pre-tax net profit in accordance with the Framework Act on Worker's Welfare, such as congratulatory and condolence money, congratulatory money for childbirth, student aid for children of KOWEPO, loan for stability fund, disaster relief fund, national holiday bonus, group insurance and selective welfare system.

◎ Major welfare program

Employee Assistance	Support for childbirth and childrearing	Recreation facilities	Family friendly welfare
<ul style="list-style-type: none"> • Loan for housing purchase • Loan for stability fund • Company house for employees • Medical examination, Medicaid health coverage 	<ul style="list-style-type: none"> • Support for childbirth encouragement • Birth supplies support for mother-to-be • Student aid for children of KOWEPO • Workplace childcare facilities operation 	<ul style="list-style-type: none"> • Summer physical training center • KEPCO Living training institute • Jeju Living training institute • Discount for use of condominium 	<ul style="list-style-type: none"> • Provision of congratulatory and condolence money • Selective welfare system • Funeral support service • Operation of EAP system^{hotel} management

Note) EAP: Employee Assistance Program (Special counseling service for performance of employee's duty and many types of private life support)

Building of welfare system by lifecycle

To boost loyalty to the company and improve will to work, KOWEPO supports early settlement at the company for new employees, balance between work and family for employees in the middle level, student aid and health improvement for mature employees, and life stability after retirement for retirees-to-be, in accordance with the lifecycle.

◎ Benefits package support system by lifecycle

Lifecycle	Promotion direction	Contents of operation
New employees (less than five years)	Support for adaptation to company	One-stop welfare support for early adaptation to company, such as company house support
	Stability support	Loan for stability fund, Loan for housing rental
Employees on middle level (more than 5 years)	Basis of living construction	Loan for housing purchase, Loan support linked to bank and company
	Child-rearing support	Congratulatory money for childbirth, Workplace childcare facilities operation
	Family friendly welfare	Family affairs support such as provision of congratulatory and condolence money, funeral support service Expanded operation of family-engagement program, "KOWEPO Finding Happiness"
Matured employees (more than 20 years)	Child education support	Student aid for children of KOWEPO, KOWEPO-dormitory operation
	Health improvement support	Medical care service support for brain and cardiovascular examination and thorough blood testing

Retirement preparation program operation

Retirement preparation program, the "Outplacement", provides retiree-to-be with optimal career search and life-redesign service through self diagnosis and analysis. It consists of individualized program by area – establishment environment analysis, best job recommendation and farming experience. The survey result shows that the satisfaction from participants of the programs is 95%.

◎ Pre-retirement program using status

(Unit: person)

Classification	First position	Second position	Third position	Under fourth position	Total amount
2012	2	5	0	0	7
2011	3	1	0	0	4
2010	0	3	3	2	8

Realization of best company for childbirth and childrearing

KOWEPO has built a comprehensive support system, ranging from wedding to pregnancy, childbirth and childrearing, so as to implement the government policy faithfully for overcoming low fertility and aging situations, as well as to realize the respectable company for childrearing through motherhood protection.

◎ Welfare system for childbirth and childrearing support

Classification	Details of support	Details of welfare
Pregnancy	Medical expenses support for a couple who has difficulty in pregnancy	Cost support for IVF (in-vitro fertilization) and artificial insemination procedure
	Maternity office supplies	Provision of maternity chair and electromagnetic intercepted apron
	Day off for prenatal diagnosis	Monthly holiday for gynecological exams
Childbirth	Birth supplies support for mother-to-be	Birth supplies support for pregnant employee
	Childbirth grant	First child: ₩0.5 million Second child: ₩1 million Third child: ₩3 million Forth child: ₩10 million
	Guarantee of maternity leave	Guarantee of 90 days for maternity leave
Childcare	Guarantee of child-care leave	Guarantee of one year for child-care leave
	Personnel affairs and education system	Maternal employee - Considered priority in personnel transfers Benefited by considering period for child-care leave as length of service when promoting Childrearing-related education counted as completion of in-company education
	Operation of workplace nursery and lactation room	Workplace nursery: Taeon and Pyeongtaek Lactation room: nursing space in lounge for female employees

Welfare system supporting weddings for unmarried employees

KOWEPO actively promotes a marriage encouragement program, the 'Single Beongle Project', for single employees and puts our family friendly management into practice.

There is a group meeting event for employees who have little opportunity to meet others since the power facilities are located in rural areas such as Taeon, Pyeongtaek, Gunsan and Seoincheon. There is also wedding support system for couples in which both work at KOWEPO to get married, so that a solution to minimize confusion of family moving due to the move of HQ or personnel transfer within power facilities can be prepared.



◎ Marriage support welfare system

Classification	Contents
Congratulatory money and holidays for wedding	Provision of congratulatory money and seven days of holidays for both employees
Wedding support for employees who both work at KOWEPO	Wedding preparation support (Dress, Wedding photos, Make-up) Cost support for rental wedding car Invitation of executives as an officiator at a wedding
Group meeting program	Provision of opportunities to meet amongst unmarried employees

Activation of flexible working

Flexible work system is widely activated to create a family friendly working environment. In 2012, KOWEPO additionally adopted the policy of staggered office hours and selective office hours besides the existing short-time working system, after condition analysis of the flexible work system and its test operation. Moreover, it settles the flexible work system by institutionalizing – establishment of company regulation, additional type of working such as work at one's discretion and remote working.

139 employees of KOWEPO used the flexible work system only in 2012, and there are many other programs steadily operated such as "Trial run of flexible work system", "Trial run of smart work", and "Experience record sharing of the flexible work system".



Promotion pop-up for activation of flexible working

Harmonized labor-management relations

Labor Union and Labor-Management Council

Status of labor union

The total number of KOWEPO employees is 2,024, including two temporary and/or part-time employees, as of June 2013. Employees can join the labor union with their free will since it has adopted an "open shop" instead of "union shop", and now there are two labor unions – KOWEPO labor union which was established on 1 July, 2011, and Korea Industrial Development Labor Union, which was established on 24 July, 2001.

The number of members who joined both labor unions is 1,255 in total and it enjoys a 62% unionized rate. With the introduction of the comp time system based on Article 24 of the Labor Union And Labor Relations Adjustment Act, it provides 8,200 hours annually to employees. KOWEPO also acknowledged the position of Bargaining representative union (Article 1 of the collective agreement) by going through a single bargaining channel, and at the same time, provided an institutional strategy for stable settlement of many labor unions.

If it threatens employment stability of union members or causes results in their position change due to cessation and closure of business or partition, transfer, relocation and conversion of business, KOWEPO has notice to the labor union 50 days in advance that leads to zero labor trouble for last three years.

Operation of Labor-management council and Grievance system

KOWEPO has operated a Labor-management council and Grievance system and made an effort to release difficulties of group and individuals as well based on Act on the Promotion of Worker's Participation and Cooperation. The labor-management council formed at four power facilities, solving difficulties of group at site unit. If it is a company-wide matter that cannot be solved at the site, the quarterly labor-management council, which consists of nine panels from employee and employer, discusses it and contributes to labor-management relations of engagement and cooperation.

In addition, there is a Grievance system to resolve more personal issues such as violation of human rights, discrimination and work problems. There is one grievance settlement committeeman appointed at all four power facilities and they receive complaints from employees and provide rational solutions.

Human rights in workplace

Office hours are in principle eight hours a day, 40 hours a week and five days of working. It is restricted for pregnant employees and under 18 to work at night and holidays unless there is prior consultation from the manager of corresponding department, so that it can root out irrational labor practices.

There is education held annually for all the employees to prevent sexual violence at work as well as to improve working conditions of gender equality. Furthermore, through the reformation of systems related to childbirth and childrearing for motherhood protection, KOWEPO tries to make a good working environment in which female employees are encouraged to enter into society and don't have to worry about childbirth, providing 90 days of maternity leave and an entire year of child-care leave and also unstinting supporting congratulatory money for childbirth, workplace nursery, motherhood protection system. As a result, KOWEPO was chosen as the 13th best company providing Equal Employment Opportunity in 2013 and received the citation from minister of the Ministry of Employment and Labor.



Selected as the 13th best company providing Equal Employment Opportunity and received the citation from minister of the Ministry of Employment and Labor

Enhancement of employee's safety and health

Guarantee of employee's safety

Security of employee's safety and health is the most fundamental subject of employee rights. KOWEPO is well aware of that all work should be done based on safety and health.

An occupational health and safety management system has been established and operated under the principle that every necessary matters related to disaster prevention should come first before anything else in budget, manpower and system. Furthermore, KOWEPO spreads and distributes the occupational health and safety management system to partners through safety management activity inspection and safety instructions.

Operation of Top-Safety Global Management System

KOWEPO built the first occupational health and safety management system in the public development section domestically in 2003, and obtained OSHAS18001 and KOSHA18001, which are international and domestic certifications, respectively. In 2009, advanced systems were applied including management and re-certification for safety business places certification. It also built an Emergency Operations Center at Taean Thermal Power Complex Division and Seoincheon Combined Cycle Power Complex Division which are main facilities of KOWEPO to optimize operation of fire protection facilities and actively prepare against disasters. With the result of these efforts, there has been no industrial disaster during working hours for the last three years, from 2010 to 2012.



Taean Emergency Operations Center

Safety consciousness improvement and promotion of injury record

According to the Industrial Safety and Health Act, all employees should complete legal safety education and enhance consciousness and capability of safety management through special education on commission in the safety area. For all construction and maintenance work operated within a company, safety procedures should thoroughly follow the safety management plan, especially since 2012, the "safety check for unsafe work" system has been operated that allows high-risk work only after site inspection by a safety supervisor.

In addition, since its completion of safe place at all power facilities in February 2013, all employees as well as those from partners should complete the safety empirical education and attach confirmed stickers on safety helmets, which lead to enhance the safety awareness. Also, it regulates that more than 30% of resident employees from partners and subcontractors (over 20 days of engagement in construction that costs over ₩40 million) should be obligated to complete the safety and health education, and in 2012, 696 employees from subcontractors completed the safety and health education.

Furthermore, for more safe work of inside of a large boiler for electric power generation, which is done annually, wire rope type of scaffolding is used so that it can prevent industrial disaster. As a result, Taean Thermal Power Complex Division exceeded zero-disaster more than 18 times, and for Gunsan Combined Cycle Power Department more than 11 times, and all power facilities are trying to do their best to achieve zero-disaster.

◎ Industrial hazard rate for last three years

(Unit: %)

Classification	2010	2011	2012
All power facilities of KOWEPO (Taean, Pyeongtaek, Seoincheon, Gunsan)	0	0	0
Same line of business (Electric, Gas and Water system)	0.16	0.16	0.18

※ Industrial hazard rate = Number of industrial disaster victims / Number of employees X 100 ※ Source: Korea Occupational Safety and Health Agency

Operation of Occupational Safety and Health Committee

According to the Industrial Safety and Health Act, a collective agreement with the labor union contains following contents – obligations of company regarding safety & health and industrial disaster compensation, rights to employee's health and subjects of discussion with labor union. The Occupational Safety and Health Committee, which consists of nine panelists from the employee and employer side, is held at six power facilities quarterly.

If it is a company-wide matter that cannot be solved at power facilities, the quarterly meeting of the company-wide Occupational Safety and Health Committee deliberates and votes for basic plan on occupation safety and health, industrial disaster prevention plan, employee safety and health education, working environment measures plan and health management plan, and all the decided agenda is applied to the overall company.

Moreover, to improve employee's health conditions, a health manager appointed to Taeon, Pyeongtaek and Seoincheon, the large power facilities, and for other power facilities are on consignment. In addition, there are honorary industrial safety supervisors appointed at each power facility for industrial safety, so that it can make full preparation for safety

◎ Frequency rate of closure for last three years

Classification	2010	2011	2012
Annual working hours (time)	4,583,888	5,028,688	5,075,916
Number of industrial accidents occurrence (#)	0	0	0
Frequency rate of closure (%)	0	0	0

※ Frequency rate of closure = Number of industrial accident occurrence/Million of annual working hours of a company (safety measurement indicators)



Safety supervisor-resident centre

Establishment of emergency response system preparing for disasters

To secure the stability of electric power supply from various disasters, which can cause damage to employees and local residents, and improve its nationwide service, a joint Emergency Management Agency of power generation companies is being operated to prevent, prepare, respond to, and recover from various disasters as well as to manage other disaster safety. It also has set up an operation system of independent operations room for disaster response and recovery to cope with occurred disasters, such as major power plant accidents, unstable power supply and natural disasters, promptly and effectively.

There are two manuals – one is a response manual to the disaster crisis to prepare for damage from storm and flood and earthquake (tsunami), and the other is instructions to take measures at a site to prepare for five areas, rapid increasing demand, human disaster, power system failure, strike and cyber terror. Each power facility has virtual scenarios for fatal accidents and develops its ability to cope with crisis management through constant simulation training and its validity evaluation.

◎ Performance of safety management in 2012

Classification	Contents
2012. 2	Reestablishment of safety management organization and enhancement of its operation - Newly built Disaster safety office functioning as Control Tower and upgrade of its status
2012. 5	Enhancement of advanced prevention and preparation capability against accidents with establishment of comprehensive management policies against oil pollution accidents
2012. 6	Building of disaster management system and Emergency Operations Center for integrated management of disaster and safety with fire protection
	Tightened scoring of performance indicators from inside evaluation for internalization of safety management
	Improvement of basic safe environment with 3M activities of power plant - 3M: Visual Management, Safety Management, Lighting Management
2012. 7-8	Joint activity with labor and management to remain accident-free and trouble-free - Campaign for safety promotion by both executives and labor, implementation of safety inspection
2012. 8	Drawing safety instructions and installation manual after standardization of scaffolding installation and dismantlement work of boiler
	Settled permanent safety system at a power plant construction site with "Full charge of daily safety supervision system" of technical supervisor for the first time among power plants
	Earthquake accelerometer installation and earthquake sensing system building at all braches, and then, linkage to integrated management system of the National Emergency Management Agency
	Improvement of safety consciousness of partners with strengthened diagnosis of safety management system for partners
2012. 10	Optimized confrontation strategies against disasters by power facilities through the evaluation of disaster risk by location of power plant
	Prior cancellation of safety hazard by enforcement of compulsory confirmation system from department in charge of safety against risky working of subcontractors
	Enhancement of monitoring for vulnerable area to safety inspection through development of a real-time monitoring system for working in enclosed space
Annual	Development of new concept wire rope-type scaffold and its demonstration test for safety improvement of in-core scaffold of boiler

Employees health management

Provision of individualized health improvement program

KOWEPO tries to secure the healthy life of employees and their families by supporting various health improvement programs. It annually provides all employees and their families with discounted medical service that is not covered with the national health insurance system by concluding an agreement with the best domestic medical institutions. In addition, group indemnity insurance is offered to employees and their spouses to support family health service.

For health improvement of employee's, it supports health management both at the work place and home through prevention of musculoskeletal disorders, improvement steps through a survey on stress degrees of special employees, and daily life counseling and healing program for employees.

© Health improvement program

Programs for healthy life

- Settlement of agreement with best medical examination organization
 - Five medical examination centers including KEPCO medical centre
- Thorough blood test support for all employees
 - Support once every two years when having medical examination
- Support of group indemnity insurance
 - Fully covered with expenses of mortality, cancer diagnosis, and hospital medical treatment
 - spouse also covered with this insurance
- Special medical examination support
 - Shift employees and employees of special departments in environment and chemical area
- Building of emergency rescue system at all power facilities
- Agreement for discount of medical service for those not covered by health insurance
 - Ophthalmic clinic, dental clinic, dermatology, and oriental medicine
- Medical expenses support for a couple who has difficulty in pregnancy

Health improvement support activity

- WHP (Workplace Health Promotion) activity
 - Development of various health improvement programs and their implementation
- Obesity and smoking clinics
 - Implementation of programs linked to local health center and medical institutions
- Activities for musculoskeletal disorders prevention
 - Research and prevention for diseases through regular survey
 - Stretching exercise program by company broadcasting
- Permanent medical treatment support at work places and company houses
 - Internal diseases such as cold and digestive troubles
- Survey on stress degrees of shift employees
 - Corrective and preventive action for health disturbance
- Daily life counseling and healing program for employees
 - KOWEPO Finding happiness: counseling for worries about work and children



KOWEPO Finding happiness



Proclamation ceremony for non-smoking workplace

KOWEPO practices sustainable management by fulfilling social responsibility





Fulfillment of social responsibility

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- Co-prosperous cooperation • 46
- Fair trade • 48
- Ethical management • 49

Social contribution and Local community support

Due to the nature of power plants, in that they influence the local community, KOWEPO devotes local community support by building various infrastructures for co-prosperity. In August 2004, it launched KOWEPO Social Volunteer Corps made up of eight centers and 76 teams, with the slogan of "Happy energy, warm neighbor", and it is still going strong. Also, it developed and implemented various contribution programs to fulfill its social responsibility as a public company, so that it practices true love for neighbors by co-existing with the local community.



Promotion system for social contribution

Three major areas of social contribution

KOWEPO has been developing systematic social contribution activities in three major areas – "Love for humans", focused on social welfare and disaster aid activity, the environmental-protection-oriented "Love for nature", and "Love for culture", mainly about cultural arts and academic exchange.

◎ Activity of social contribution in three major areas

Classification	Activity	Major activities
Love for humans	Child independence and education support	KOWEPO Kkumnamu Didim-ssiat bankbook support (for 480 children in the area surrounding the power plant annually, 2011-2013) Operation of community child center, "Wipischool" (for students from forth to sixth grade, 2011-2013) Support for North Korean students school (Yeomyeong school) Operation of first-class program for local school (Woni Middle School, chosen as the best middle school in Chungcheong province two years in a row, 2011-2012)
	Various events including Respect for the Elderly Day	Support for various events including Kimchi preparation
	Blood donation event	Contribution of blood donor card and support money for pediatric patients with leukemia
	Home repair	Improvement of residential environment for low-income families (Lover for power corps, social volunteer corps of university students)
	Making a gentle world	Red Cross-linked support for the less fortunate near the power plant
Love for nature	Cultural experiences for multicultural families	Provision of opportunity to experience culture for multicultural families
	Volunteer work for one river (mountain) for each power facility	Help with rice planting, harvest of agricultural products, and village environmental cleanup
	Environmental improvement and Environmental campaign	Activity of energy environmental improvement for university students with Habitat
	Environmental cleanup event, "World Water Day"	Joint environmental cleanup event between power facility and partners
	Conservation efforts at Mt. Daemo	Environmental cleanup activity at Mt. Daemo with forest guide
Love for culture	Emergency aid for flooded areas and Environmental cleanup event	Vinyl greenhouse removal, replacement of electric equipment, drinking water supply
	"Energy Day" event and Women's environmental solidarity	Participation in events and support
	Education business	Sponsoring a scholarship and educational material
	Support for Love for Power Marathon	Physical activities support
	Cultural performance support and Seat donation	Support of cultural activities and holding an Energy-sharing charity concert with CEO



Mountain-climbing with multicultural families



Volunteer work at welfare facility for the disabled

Customized co-prosperity support

Co-prosperity promotion through customized volunteer work

Social volunteer corps by power facilities takes a central place and develops sharing activities for the local community periodically and continually. These volunteer corps have set up relationships with 43 rural villages and each social welfare organization where the power facilities are located so that they can conduct localized volunteer work making the most of a local community's characteristics and power generation business, and promote co-prosperity with the local community. Love for power corps has steadily lasted to improve deteriorated electric installations and replace existing lighting with a high efficiency alternative, for the vulnerable low-income class (50 times in 2012). Since the launch of social volunteer corps of university students in 2011, it has selected 55 more people and executed activities for environmental improvement and energy-efficient house repair in areas surrounding the power plant such as Taean, Pyeongtaek, Seoincheon and Gunsan. Furthermore, for children of alienated classes, five community child centers, "Wipischool" are operated to foster the future generation with green energy education and various programs. KOWEPO also sponsors Didimdol-ssiat bankbook for ₩48 million annually as independent support money for 400 students of low-income families. Along with these, it took a first step towards global contribution activity by donating 272 units of disused computers and peripherals to Indonesia, Laos and Myanmar.

◎ Status of relationship and cooperation with social welfare organizations

Partner organization	Contents of Cooperation
Seoul power facility of Habitat Korea	Operation of KOWEPO social volunteer corps of university students, "Good hope power plant": 50-60 students/year
Social welfare council	Sponsorship for saving money for low-income child independence: 400 students under age 18
Education strategy 21 for youth	Operation of community child center, "Wipischool" : customized education and mentoring (five centers including Taean, for low-income children)
IT Welfare Promotion Institute	Overseas donation of disused computer for business use
Korea National Red Cross	Blood donation campaign, volunteer work both at home and abroad and donations, Support for 1,004 households of vulnerable social groups in areas surrounding the power plant
Caritas Korea	Volunteer work for free meals and its sponsorship at Caritas Korea (twice a month)
Seongnae Social Welfare Center	Volunteer work for elderly people living alone and sponsorship for them
Shinawon and Central sanatorium	Volunteer work of promoted persons, disability understanding education and Disabled experimental activity, support for daily life
Health maintenance organization, Iwon, for severely disabled persons	Labor service and support for daily necessities
Taeon-gun Welfare Center for the Disabled	Support of daily necessities for the disabled
Children's Saemteo (Group home for children intertwined with KOWEPO)	Mentoring for alienated class and learning support

Record of volunteer work by area

Employees of KOWEPO participate in various all-year volunteer activities to fulfill its social responsibility toward the local community. Total hour of volunteer work in 2012 reached 26,759 hours, and hours of volunteer work per person are around 21 annually.

◎ Participation status of volunteer work

Classification	Year	Love for humans		Love for nature	Love for culture			Total
		Social welfare	Disaster aid	Environment conservation	Cultural arts	Academic education	Sports promotion	
Total number of activities (times)	2012	382	12	91	20	0	0	505
	2011	541	6	94	9	1	3	654
	2010	477	38	56	17	0	4	592
Total number of participants (people)	2012	2,744	128	2,270	375	0	0	5,517
	2011	3,962	26	1,734	43	0	33	5,798
	2010	3,719	475	1,362	101	0	5	5,662
Total time for volunteer work (time)	2012	17,224	815	7,455	1,265	0	0	26,759
	2011	17,254	220	4,635	180	0	177	22,466
	2010	19,402	3,163	3,479	206	0	0	26,250

※ Volunteer work record per person in 2012 : 20.63 times (including 1,297 people of present personnel, except shift workers at the end of 2012)

Development of environmental protection activity suitable for local environment

Clean environment is the most valuable asset of the future that we can pass on to our offspring.

To keep our beautiful natural environment safe and protect the general ecosystem around the power plants, KOWEPO develops an activity for ecosystem protection by performing regular Environmental cleanup, the "One River (Mountain) for each power facility" movement.



Environmental cleanup activity at Yangjaecheon

Cultural benefit support

Mecenat is the activity in which a company provides cultural benefits to resolve a cultural gap between communities. KOWEPO has continuously developed "culture sharing" activities by providing hope and beautiful melodies for alienated classes and citizens through the "Energy-sharing charity concert with the CEO" since 2010. Especially in Taean, KOWEPO supported the musical performance, "Action drawing hero", three times in 2012, so that around 1,900 people were able to enjoy it. KOWEPO actively participates in development of local culture by sponsoring various community cultural festivals, drawing contests and sports promotions.

Medical support for vulnerable social groups

With the title, "Blood donation relay the love for life, Love for pediatric patients with leukemia", KOWEPO has conducted a company-wide blood donation relay annually since 2004. In 2012, 354 blood donor cards were donated to the Pediatric Cancer Association, in addition, KOWEPO supports patients' medical expenses.

Also, through the agreement established with Taean-gun, hospitals and relevant organizations, it supports customized integrated service for local children.



Blood donation event

© Status of appointment of One River (Mountain) for each power facility

Classification	One River (mountain)
Headquarters	Yangjaecheon
Taeon	Neighboring coast (beach)
Pyeongtaek	Namyang-ho
Seoincheon	Gongchoncheon
Gunsan	Kyeongpocheon

© Environmental cleanup record in 2012

Classification	Number of activities	Participants
Headquarters	29 times	430 people
Taeon	24 times	814 people
Pyeongtaek	19 times	484 people
Seoincheon	7 times	184 people
Gunsan	8 times	204 people



The charity concert with CEO

© Status of support for pediatric patients with leukemia

Classification	2010	2011	2012
Number of donated blood donor cards (EA)	192	300	354
Supporting money (₩10,000)	2,000	2,000	1,030
Support for pediatric patients with leukemia (people)	2	Improvement work at resting site for patients	1



Agreement ceremony with related organizations and hospitals

Local community support

Council operation and local residents support

For relocations unavoidably occurring due to construction advancement of new power plants, KOWEPO does its best to minimize the damage through operation of a council and various support policies for local residents. Because of the construction of a new building and company house in Taeon in accordance with the government policy of transferring of public institutions, in 2012, 45 households had to be relocated. KOWEPO is trying to make proper compensation to those households through the council in which relevant local residents play a key role, and the agreement, so that a third party provides investigation service into the damages and rights. Moreover, it provides various benefits such as support for school expenses for moving students and preference to applicants, even after the immigration.

If a local resident living near a power plant applies to the company, he/she can obtain 10% more points, and so far, the number of hired employees with this special treatment is 19 in total from 2004 to 2012. KOWEPO makes full efforts not to cause any damage to local communities by compensating them for the land and general rights that are necessary for plant construction and operation in accordance with the law, however, for unavoidable civil affairs matters, it secures a communication channel using an agreement that is concluded with a local government during business meeting for pending issues and plant construction.



Great debate on Taeon-gun development strategy using cultural tourism resources

Building of infrastructure for local development

Support project is conducted around each power plant area based on the law to construct infrastructure for community development. Following is the status of operating expense by year. The expenses used for community infrastructure construction, including local public facility, reached ₩2.66 billion in total among ₩6.404 billion of total grants in 2012. In addition, KOWEPO supported ₩1.12 billion as facility expenses for the agriculture fishing industry that are used to purchase agricultural machines for a project to increase the income of local residents and install various storage warehouses, and ₩0.37 billion for a project on electricity bills.

◎ Operating expense by year

(Unit: hundred million won)

Classification	2010	2011	2012
Support operating expense	67.7	62.9	64.04

◎ Divided operating expense by power facility in 2012

(Unit: hundred million won)

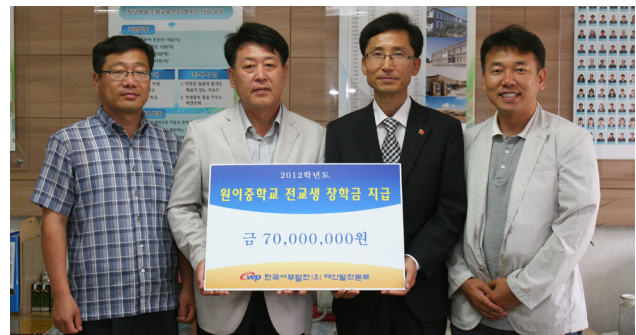
Classification	Taeon	Pyeongtaek	Seoincheon	Gunsan	Total
Total	46.83	4.27	10.8	2.14	64.04

Improvement of educational environment and scholarship project

For a continuing stable scholarship project, each plant is saving a certain amount of money continuously as a scholarship fund out of allocated education business expenses, and during the last full year, 2012, KOWEPO awarded scholarships worth ₩418 million to 1,003 students in total, from elementary school to university students, living around the plant area.

In addition to this scholarship, it also used ₩380 million for the purchase of educational materials, and support for drawing contests and cultural events, so that students living around the plant can enjoy their education in a good environment. Especially in Taeon, there is a first-class program for a local school in which two native-speaking teachers are hired.

Outside of that, it executed ₩2.22 billion for various programs such as experience of foreign culture, construction of dormitories and support for educational materials.



Scholarship for Woni Middle School



Opening "Sejong dormitory"

Co-prosperity with partners and establishment of fair trade I - Co-Prosperous cooperation

Creation of fair and ethical contract culture

KOWEPO has established a "Vision of Co-Prosperous Cooperation" and promoted it to operate Co-Prosperous cooperation with small and medium-sized businesses more systematically. Also, to lead the government's major policy, shared growth, "Shared Growth Strategy (WP-①TOPS strategy)" has been established to set up four major strategy directions - Enhancement of technology competitiveness, Establishment of fair trade order, Enhancement of core management ability, and Creation of co-prosperous cooperation culture. After that, those four strategy directions are materialized to 22 practice projects, so that they can be adopted as a "customized supporting system" to provide them for businesses by stages of growth such as new businesses, promising business, overseas exporting business and leading business.

© Vision of Co-Prosperous cooperation of small and medium-sized businesses



Co-prosperity with partners

Improvement of technology competitiveness with R&D support for small and medium-sized businesses

KOWEPO is very supportive of intensive investment and R&D to secure the technology competitiveness of small and medium-sized businesses. In particular, not setting limits on R&D funding support, it fosters successful model company by setting a virtuous circular structure that goes through "digging out research project → selecting best partner → demonstration supporting → market expansion", through continuous support for research achievement.

In particular, it supports improvement of productivity of partners with management diagnosis and consulting through PMS. Moreover, it did help partners grow, expanding domestic and overseas markets due to the success of development of localized ECMS for the first time domestically, which was the joint research project among KOWEPO, Neopis and Xeonet.

© Status of R&D support for small and medium-sized businesses

Classification		2010	2011	2012	Total
Implementation of cooperation project (new)	Cooperation R&D of small and medium-sized businesses (number of cases)	25	20	12	57
	Conditional purchase and Project for public and private joint technological development (number of cases)	3	7	7	17
	Cooperative Research of Industry-University Relation (number of cases)	-	5	2	7
R&D fund support (₩ hundred million)		59.4	69.5	34.7	163.6

© Status of best R&D cases and awards

Classification	Main contents
Demonstration test for research subjects	Five cases of water level transmitter installation, which is a low pressure feedwater heater system at Taean Thermal Power Complex Unit. 7
Commercialization of research subjects	12 cases of localization of valve promotion, hydraulic standard thermal system
Award	Received the best company award from minister in development of superior materials
	Chosen as "best organization" in result evaluation of shared growth

Benefit sharing

KOWEPO provided small and medium-sized businesses with technology transfer and a market for the products. Going one step further, it executed ₩260 million, created by the Benefit sharing system by refunding part of revenue as technology fee - ₩72 million for returning to 16 cooperating small and medium-sized businesses, ₩100 million for donating to 20 social organizations around the power plant, and ₩88 million for reinvestment to small and medium-sized businesses.

Support for financial difficulty of small and medium-sized businesses

KOWEPO operates fund support and solve the financial difficulties by making payment for production capital for tools and equipment delivery in advance. Also, it blocks unfair trade actions such as delayed payment or non-payment for partners, protects the second and third small and medium-sized businesses by making direct payments to subcontractors, and tries to create a fair trade culture.

◎ Status of support for financial difficulty of small and medium-sized businesses

(Unit: hundred million won)

Classification	Support details	2010	2011	2012
Agreement of co-prosperity Fund donation	Project for public and private joint technological development	72 (from 2010 to 2015)		
Power energy loan	First and second funding for partners	13	19	33
Payment of price	Direct payment of subcontracting cost	-	11	18
	Payment confirmation system	-	150	260

Purchase expansion to products from small and medium-sized businesses

KOWEPO tries to expand the purchase opportunities of products from small and medium-sized businesses through purchase conference between partners and each power facility, reflection of purchase record on internal management evaluation, and SNS (Facebook). Besides, it directly purchases materials from small and medium-sized businesses, separating construction from female-owned company preference system and assigned items from the Small and Medium Business Administration, to activate the purchase of products from small and medium-sized businesses.

◎ Status of Purchase expansion to products from small and medium-sized businesses

(Unit: hundred million won)

Classification	Total purchasing price (A)	Products from small and medium-sized businesses			Technology development product		Products from female-owned business	
		Total purchasing price (B)	Purchasing rate (B/A)	Product purchasing price (C)	Purchasing price (D)	Purchasing rate (D/C)	Purchasing price (E)	Purchasing rate (E/A)
2010	2,570	1,052	40.9	612	82	13.3	50	1.9
2011	2,809	1,244	44.3	768	127	16.6	130	4.6
2012	3,523	1,659	47.1	1,052	210	20.0	160	4.6

Global marketing support for small and medium-sized businesses

KOWEPO tries to expand the export opportunities for products from small and medium-sized businesses by supporting submission for overseas exhibitions, detachment of abroad market finding groups and trade information conferences with invited buyers. Subjecting for cooperating companies, KOWEPO sent the overseas market finding group to the Asia export road show (China and Thailand, in Aug. 2012) and South-East Asia export road show (Indonesia and Vietnam, in Oct. 2012) to operate the council booth. Also, it supported overseas exhibition activities such as WETEX exhibition, MIK exhibition for Korea product, Shanghai exhibition for Korea machinery (China, in July 2012), assisting with new market opening. As a result of these various marketing supports, 578 cooperation companies achieved \$5.7 billion of counsel results and \$360 million of Contract performance in 2012.

◎ Status of marketing support

Classification	2010	2011	2012
Counsel results (\$ million)	1,870	2,061	5,739
Contract performance (\$ million)	204	256	362
Supporting company (number of companies)	526	565	578



17 small and medium-sized businesses engaged in the Asia Export Roadshow



15 small and medium-sized businesses sent to Shanghai Exhibition for Korea Machine

Co-prosperity with partners and establishment of fair trade II – Fair trade

Creation of fair and ethical contract culture

All of employees in KOWEPO make full efforts to create a fair and transparent contract culture. Internally, KOWEPO established a slogan for fair society and declared five action codes of conduct, and also prepared the foundation for fair society culture. Also it not only operated a compliance program of fair trade but also built an internal communication channel, "I Fair" and external one with cooperation companies, "I Fair VOC" to create fair and transparent contract culture so it can enhance the communication with employees and the cooperation companies as well. Meanwhile, the Difficulty settlement deliberation committee solves problems of the cooperation companies and strengthens Co-Prosperous cooperation.

Development of company fairness brand, "I Fair"

"I Fair", the company's own brand of fairness, has been developed and operated since 2012. It is an online communication system that improves fairness awareness of employees and shares it. Also, as it is operated along with "I Fair VOC", the online communication system with partners for prevention of unfair trade, it raises the effectiveness. As a part of "I Fair", KOWEPO held a meeting to determine a fair society promotion system and its strategy in October 2012, conducted exemplary education for enhancement of fairness for 1,557 employees over four times. Furthermore, through these two systems, I Fair and I Fair VOC, 23 complaints and recommendations were reported, and five of them led to corrective action.

◎ I Fair communication channel

Internal communication channel (I Fair)

- Promotion activities including company policy and training materials
- Suggestion and sharing example cases
- Q&A for practice subject and posting the instructions

External communication channel (I Fair VOC)

- Complaints and proposal subjects from partner
- Corrective action against unfair example cases
- Promotion of system improvement and order information

◎ I Fair Operating Process



Promotion of advanced-prevention actions for unfair trade

KOWEPO enhances verification of private contracts, elevates an electric tendering system, and improves fairness of the contract system through preventive actions against unfair tender. A "Clean tendering system" has been conducted, so that the reason for a private contract must be notified to the tendering system in advance. It will disclose the standard of items before the notice of tender, and then it will follow the procedure that gathers opinions for potential bidders and proceeds the tender.

◎ Advanced-preventive action for unfair trade

Classification	Improvements	Performance evaluation
Enhancement of verification of private contract	Obligation to disclose items of private contract and the reasons	15 cases of pre-disclosure, 64 cases of post-disclosure
	Upgrade approval authority by one step: enhancement of review of execution	Establishment of internal guidelines (Oct. 2012)
	Appointed outside member of special contracts deliberation committee	
Use of elevated electric tendering system	Conversion and expansion of handwork to electric tender	0.6% point increase of electric tendering rate
	Enhancement of tender information and the result of opening of the tender	
Preventive action for unfair tender	Damage system for bid rigging	Establishment of conditions for fulfillment of integrity contract
	Improvement of forgery prevention process for quality documents	1,547 cases of enumeration survey on quality inspection document
	Opening of evaluation result of construction - standard amount of construction, bidding amount by construction	2011 (closed) → 2012 (5 cases)

Compliance of law and enhancement of monitoring

Enhancing self-audit system and internal monitoring, KOWEPO enhances preventive actions to prevent unfair trading practice of cooperation companies in advance. Moreover, it has no record of receiving legal corrective action related to fair trade by observing national regulations such as the National Contracts Legislation and Fair Trade Act, rather, it creates a fair trade culture not to permit management discrimination by activating a preference purchasing system for vulnerable members of social including small and medium-sized businesses, small businesses, social companies and female-owned companies.

Ethical management

KOWEPO is a public company that carries the heavy responsibility of electric power supply, a driving force for industry development, and tries to prepare morality and integrity to meet this reputation. Starting with establishment of company ethics charter, "Code of Conduct", in 2002, KOWEPO set up the "Practice Guideline" and "Practice guidelines for ethical management" in 2003 to build a practice system for ethical management. Furthermore, it joined the UN global compact for the first time among power generation companies and fifth among domestic companies in May 2006, and in addition to that, it observes 10 principles in four major areas – human rights, labor, environment and anti-corruption. Since December 2006, an Integrity Pact for management has been implemented, and it has regularized the sanctions in regard to official integrity, duty and responsibility.

Promotion strategy for ethical management

When establishing the 2020 mid/long-term vision of company in 2007, KOWEPO included the ethical management philosophy into the vision system by establishing a vision goal, "Respectable company in top ten", and strategy direction, "Fulfillment of social responsibility". Then, it established a mid/long-term strategy and roadmap of ethical management to achieve the vision goal in 2008. Especially since setting up of the 2020 new vision in 2009, it has closely connected with company-wide strategy and the ethical management strategy as it provides feedback of project achievement of the ethical management strategy and establishes a new goal of ethical management.

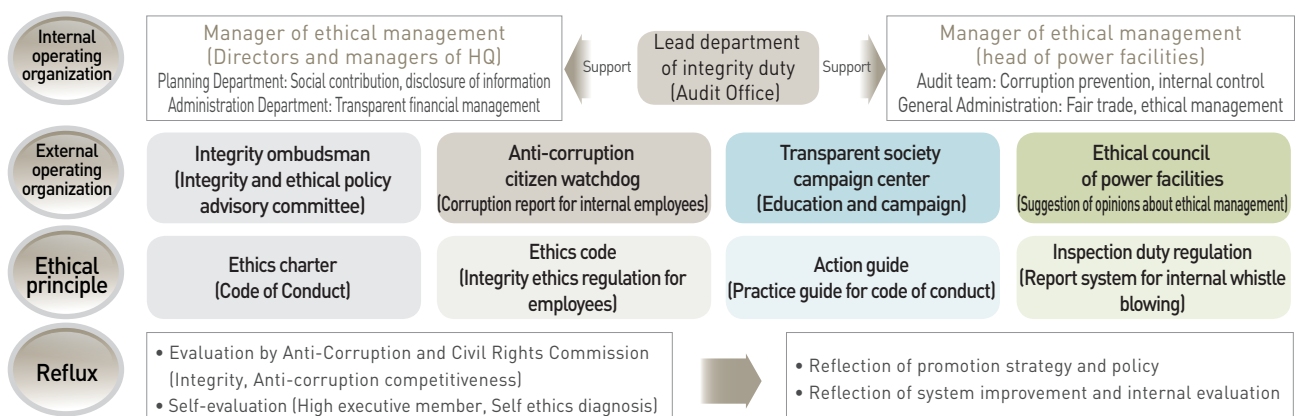
◎ Roadmap to promote ethical management

Year	2009 ~ 2012	2013 ~ 2016	2017 ~ 2020
Promotion goal	Exemplary domestic company of ethical management : Maintained Zero-corruption case level	Leading domestic company of ethical management : The most successful group in ethical management among power generation companies	Leading company of global ethics : Top-ten respectable company in the country
Promotion direction	Transparent and ethical management Enhancement of infrastructure	Transparent and ethical management Active development of practice activity	Enhancement of activity for anticipative prevention corruption
Promotion direction	<ul style="list-style-type: none"> Enhancement of inside /outside executive organization Establishment of systematic plan for ethical management 	<ul style="list-style-type: none"> Leading by example of the management Periodical supplementation of ethics regulation 	<ul style="list-style-type: none"> Enhancement of pre-inspection activity Enhancement of Transparent and ethical management

Promotion system for ethical management

Ethical management is being operated with a system in which the Audit office in charge of integrity duty supports managers of ethical management of each department. In addition, to keep pace with the rise of awareness toward anti-corruption and integrity and the basic trend of strongly required integrity, The "Integrity ombudsman system" and "Anti-corruption citizen watchdog" have been adopted so that it can block the possibility of occurrence of unethical behavior. KOWEPO is operating execution organizations inside and outside the company and strongly promoting ethical management.

◎ Promotion map of ethical management



Building of ethical management practice system

With a belief that social reliability of a company starts from ethical management, KOWEPO has adopted an ethical management system for the first time among power generation companies to put anti-corruption and ethical management into practice. It declared an ethics charter, "Code of Conduct" and practice guidelines for the ethics code, so that all employees can follow the institutional policy of the company. For the management, they are taking the lead in internal substantiality of ethical management by practicing the "qualis rex, talis grex" movement such as integrity pact, ethics vow of the CEO and public disclosure of personal assets who is on the level of first position.

© Regulation of ethical management practice

Classification	Company regulation	Contents
Ethics charter	Code of Conduct	Suggested ethical management philosophy and values of KOWEPO
Ethics code	Code of ethical behavior for employees	Presented standard of ethical behavior toward pursuing value of Code of Conduct
Action guide	Practice guideline for code of conduct	Stated guidelines of ethical behavior as well as clear criteria about unethical and ethical behavior

Implementation of practical education for anti-corruption, integrity and ethics

To develop the consciousness and capability of internal employees necessary for corruption prevention, there is ongoing education – one is anti-corruption and integrity education by lifecycle during the period of service time, which is for the top managers, employees, promoted personnel and new employees. The other is customized integrity education for people in charge of work that has high potential of corruption such as human resources, accounting and contracting. In addition, KOWEPO frequently spreads out and emphasizes the importance of ethical management to all employees through itinerant workshops, education for managers, invited lecturers about the Integrity ombudsman, field explanatory meetings for pending issues of management held by executives, MV (Management Vitality) conversation, and message delivery from the CEO using a council. In 2012, the first integrity festival was held to try to spread the company-wide culture of integrity through various activities such as Labor-management joint integrity-practice determination conference and integrity book report presentation, collecting 3,054 contents of integrity UCCs, posters and slogans and hosting the "Integrity Golden bell" program.

© Ethical management education system (implementation of education by lifecycle during the period of service time)

Classification	Basic quality education	Leader education and training	Working-level education	Cyber education
Purpose	Explanation of importance of ethical management Sharing consciousness about promotion direction and its spread	Nurturing leader for cultivation of voluntary development ability about unethical work practices	Cultivation of change manager who will play a leading role	Company-wide spread of ethical management, Enhancement of sense of integrity and ethics
Subject for education	All employees including new workers	Promoted person on level of more than third position	Manager in charge of corruption-risk-work and ethical management	All employees
Types of education	Itinerant education Continuing education	Commissioned education Gathering education	Commissioned education at workshop	On-line education
Record in 2012	1,239 people (over one hour)	109 people (two hours)	Person in charge of its affairs (over five hours)	1,569 people (10 hours)



Integrity-Practice determination conference



The first integrity festival

Corruption control system operation

KOWEPO prepares various corruption reporting channels and promotes its activation to dispel internal corruption and lead fair public careers with integrity. There is also a regulation to protect and compensate whistleblowers (max. ₩2 billion), so that it can be encouraged to report corruption and protect the reporter.

◎ Status of corruption reporting system operation

Classification	Contents
Conversation with CEO	Releasable to CEO only, closed contents (real name)
Autonomic report center	Voluntary report for accepting bribes from outside (real name)
Sinmungo	Corruption reporting, operation of audit office (real and anonymous name)
Ethics Helpline	Internal corruption reporting, operated by external company (anonymity guaranteed)
Integrity postcard	Corruption reporting, operation of audit office (anonymous name, impossible to trace source)

Reporting cases and its handling history

Business operating expenses details conducted by directors and tech management, heads of HQ and branches are open to public through an external webpage since 2010. However, since January 2013, details of business operating expenses and meeting expenses by department have been released to team members as anonymous reports demanding details of business operating expenses and meeting expenses by department has been accepted by Integrity postcard and report system on smart phones.

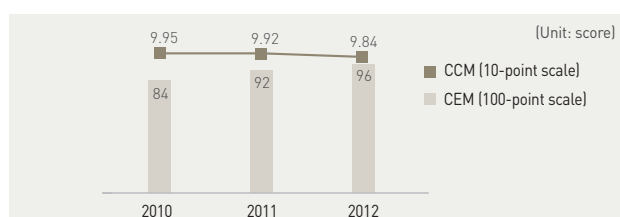
Evaluation of moral level and its feedback

Audit office of HQ and each branch operates an Anti-corruption citizen watchdog by branches and regularly monitors the reality of ethical management including law-abiding activity. Also, it is actively promoting anti-corruption activity by concluding an agreement on anti-corruption with cooperation companies by branch, and conducts a self survey on integrity twice an year, so that it can confirm the effectiveness of integrity activity through monitoring by stakeholders such as counterparts, customers, internal employees, the local community, and at the same time, it can promote improvement of ethical reliability and satisfaction with deduction of management factors, and constant maintenance.

Furthermore, its level of integrity and anti-corruption competitiveness is evaluated by the Anti-Corruption and Civil Rights Commission annually. The evaluation result of Anti-Corruption and Civil Rights Commission is reflected on organization assessment influencing incentives that employees could obtain, and if there is any case of corruption found, compensation or opportunities of overseas training for the relevant branch will be disqualified. Feedback of monitoring result will be shared under participation of all the employees such as workshop for manager on ethical duty or itinerant education for branches, and applied to the next anti-corruption and integrity promotion plan.

◎ Status of self investigated integrity

Classification	Survey on ethics satisfaction of cooperation company (CCM)	Survey on ethics satisfaction of internal employees (CEM)
Subject	Manager of cooperation company	Internal employees
Method	Telephone poll	Mail survey
Contents	Corruption experience, Corruption perception, Administrative system, Ethical practice	Sense of ethics level, Ethics enforcement,



While the ethics satisfaction of internal employees increased by 4% in 2012, that of cooperating companies showed a decrease by 0.8% compared to the last year. To make this result better, all the branches of KOWEPO, including HQ, organized an ethical council and had a "meeting with integrity cooperation companies". Additionally, an integrity letter was sent under the name of directors and managers of departments and offices, and spread KOWEPO's will for the fair and ethical contract business to cooperating companies. KOWEPO makes every effort to announce its firm will of integrity externally.

◎ Evaluation result related to integrity including survey result on level of integrity conducted by Anti-Corruption and Civil Rights Commission

Classification	Contents of evaluation				
Corruption case	"Zero" cases for reported or indicated corruption, and press report				
Best case	Obtained AAA level after KoBEX SM evaluation				
Evaluation by Anti-Corruption and Civil Rights Commission	Integrity evaluation	Classification	2010	2011	2012
		Level of integrated integrity	9.45 score	8.91 score	8.67 score
		Level of external integrity	9.52 score	9.14 score	9.35 score
		Level of internal integrity	9.27 score	8.66 score	7.15 score
	Evaluation of anti-corruption competitiveness		-	79.6 score	89.4 score

As a result in the survey on the level of integrity conducted by the Anti-Corruption and Civil Rights Commission, the level of external integrity increased, while that of internal decreased. KOWEPO admitted that employees slightly lack of awareness about activities for the spread of ethical management at the company level, conducted with various forms. Therefore, it makes the utmost effort to improve the internal integrity, reinforce the trust through communication opportunity expansion among employees, and spread the will of ethical management, by conducting "employee-directed MV (Management Vitality) conversations" in which the employee takes the lead to organize the schedule and select the location, as well as "lunch conversations" which are communication activities between supervisors and employees such as a cafeteria meeting or lunch meeting.

KOWEPO practices sustainable eco-friendly management.





Eco-friendly business

New renewable energy • 54

New and renewable energy

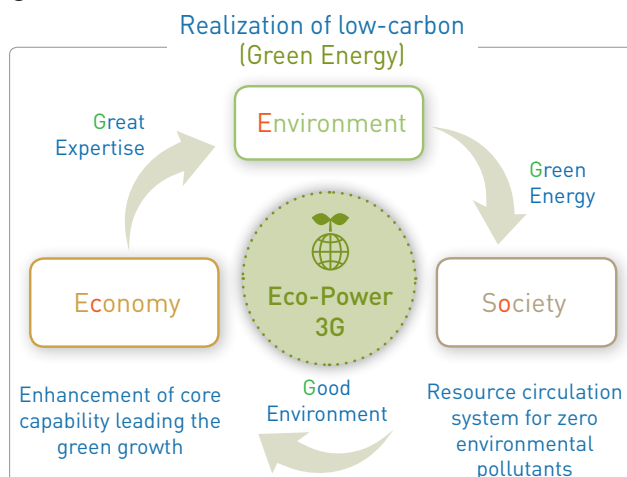
Environmental vision of KOWEPO

KOWEPO has established a mid/long-term basic plan for environmental management to achieve the goal of "Eco-Future" among KOWEPO's vision, "World's Best 3E Creator". To achieve the environmental vision, [Realization of sustainable management with Eco-Power 3G], four environmental goals and 38 strategic projects, such as an increase of carbon business profit up to ₩10.5 billion and compliance with the emission standard, have been established, and KOWEPO has been conducting inspection to check the performance result.

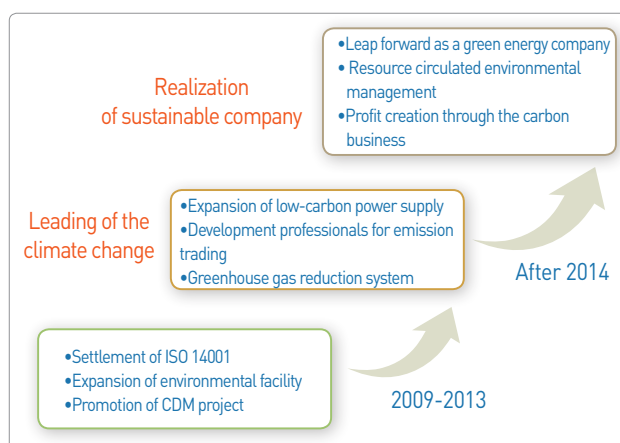
© Environmental vision system



© ECO-Power 3G

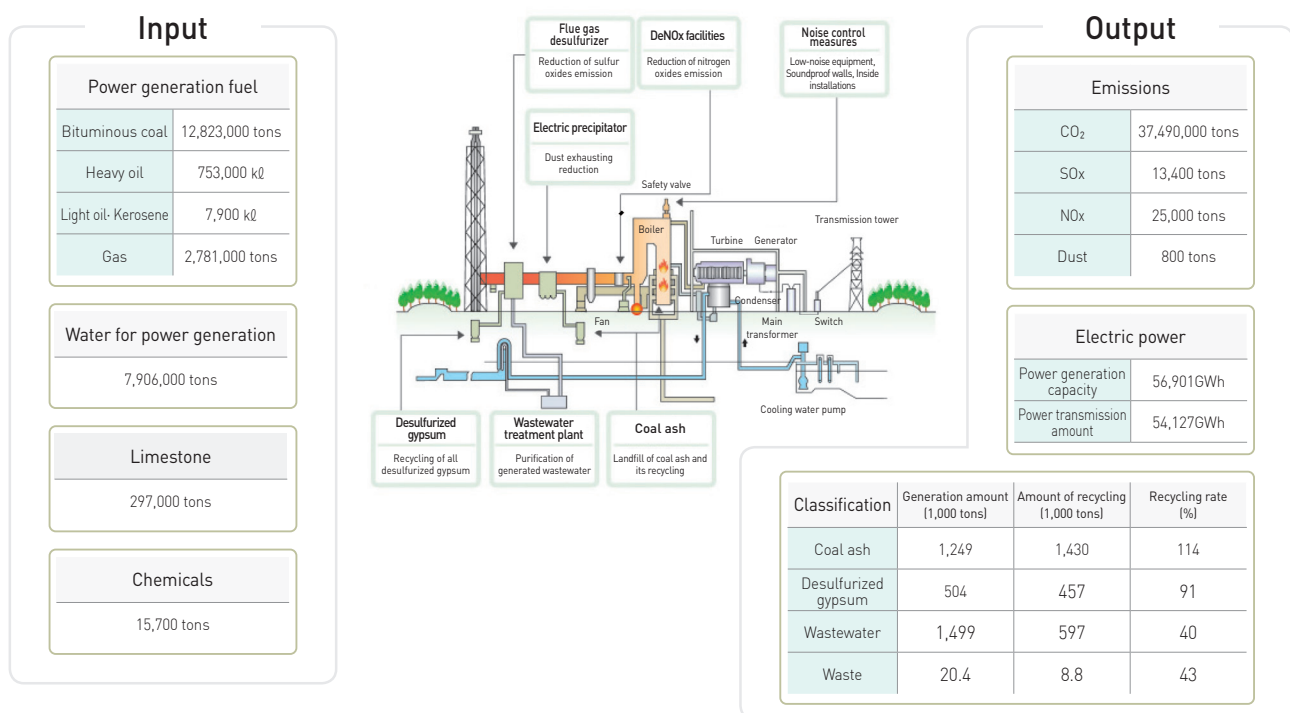


© Steps for promotion of environmental vision



Operation of resource circulated power plant

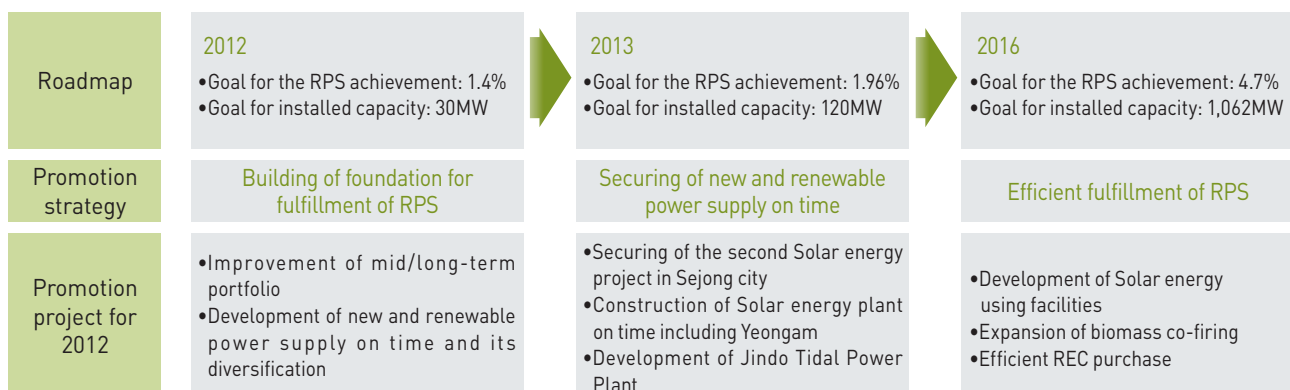
Not only is electric power an essential factor for life but it is also a factor that has great influence upon the sustainable future by using up fossil fuels and contaminating the environment. To overcome these limits, KOWEPO operates resource circulated power plants that control waste, recycle resources and offer advanced prevention of pollutants, so that it can contribute to the sustainable development of our society.



Expansion of New and Renewable energy

For reduction of the greenhouse gas, KOWEPO is planning to not only construct a solar energy generation plant but also develop various new and renewable energy facilities, such as wind power, tidal power and bio-fuel power plants, to complete its responsibility as a social company and implement the government policy, "Renewable Portfolio Standard" (RPS).

Strategic system for New and Renewable energy development



※ RPS (Renewable Portfolio Standard): a system that makes major power generation companies, with more than 0.5 million kW, supply certain rate of electric power as new renewable energy (self-generated or purchased)

Effort to fulfill the RPS (Renewable Portfolio Standard)

In 2012, by constructing and operating power plants with 75.44MW capacity in total from Taeon Small Hydro Power, six Solar Power Plants including Sejong city, and Taeon biomass co-firing, KOWEPO exceeded the goal capacity which was set up when establishing a strategy system for new renewable energy development. Also, in 2013, we additionally obtained 7.7MW of capacity through Daegu Solar Power Plant, and performed the obligation of RPS, so that it can obtain the REC. It is expected that obliged supply would be hard to achieve with only self-construction and investment shares from 2012, the early stage of the RPS system, to 2016, however, it will move in a positive direction after 2017.

Obligated supply rate and self-supply plan of RPS by year

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Obligated supply rate (%)	1.4	1.96	3.0	3.9	4.7	6.6	8.2	9.6	11.3	13.4	15.3
Self-supply rate (%)	0.13	0.35	1.56	2.12	3.52	6.82	8.44	8.77	9.21	13.78	13.78

REC purchase through the REC trading market environment analysis

KOWEPO has established an efficient REC purchase strategy and been promoting through the analysis of the supply amount of REC in the trading market and its fluctuation of unit price.

Classification	Solar energy REC	Non-solar energy REC
Status	Compulsory purchasing of outside REC (over 50%) Growing trend of the supply amount of REC in the trading market	Absolute shortage of dealings in trading market Increasing trend of REC price
Effort	Purchase focused on low-priced small items - Decreased interest in purchasing small items of competitors	Purchase focused on early stage of the market when the displayed price is low - Analysis of daily trend accumulated the last time
Performance in 2012	Purchase 70.4% of entire dealings - Contributed to activation of solar energy REC market in early stage	95% of low-priced purchase compared to the average price of market - Purchase cost reduction (₩50 million)

Securing of carbon emission through new and renewable energy project CDM registration

KOWEPO is promoting CDM (Clean Development Mechanism) for new and renewable energy business that KOWEPO implements in preparation for international greenhouse gas regulations based on market mechanism. In February 2009, Samranjin Solar Power Plant with 3MW capacity, the largest size at that time, registered for CDM, and after that, Taeon Small Hydro Power Plant for it, the first time domestically as an Ocean Small Hydro Power in November 2010. In addition, in 2012, it has been registered in the UN by promoting registering for CDM of Solar Power Plant in Taeon and Sejong city with 5.6MW capacity and Yeongam F1 Solar Power Plant with 13.3MW capacity.

Project name	Capacity (MW)	Status of registration	Greenhouse gas reduction volume (tCO ₂ -eq/year)	Validity date of the project
Samranjin Solar Power Plant	3.0	Registered in UN (Feb. 2009)	2,215	2009-2019
Taeon Small Hydro Power Plant	2.2	Registered in UN (Nov. 2010)	4,050	2010-2020
Taeon and Sejong city Solar Power Plant	5.6	Registered in UN (Aug. 2012)	5,134	2012-2022
Yeongam F1 Solar Power Plant	13.3	Registered in UN (Oct. 2012)	12,003	2013-2023
Total	24.1	-	23,402	-

Status of New and Renewable energy project

KOWEPO has been developing Taeon IGCC (integrated coal-gasification combined-cycle power system) as well as Seonamhae Offshore wind Power, Garolim Tidal Power, Seoincheon Fuel Cell Power, Biomass co-firing, Solar Power and Small Hydro Power.

Garolim tidal power generation



Bird's-eye view of Garolim tidal power plant

It has been promoting construction of the world's biggest tidal power plant of 520MW in the bay of Garolim, Taeon and Seosan city, and after the ongoing licensing work, the construction will be starting soon in November 2013. This construction would contribute to the obliged supply rate of new and renewable energy after completion in October 2020.

Fuel cell generation

A fuel cell generation facility on the level of 11MW within Seoincheon Combined Cycle Power Complex Division is going to be started by the end of 2013 and completed in June 2014. Meanwhile, in 2014, construction of that on the level of 5MW is also scheduled within Pyeongtaek Thermal Power Complex Division. Moreover, KOWEPO is promoting additional joint-development of projects cooperating with local governments that wish to attract dispersing power supply.

Biomass generation

KOWEPO developed organic solid fuel for the first time in 2012, and started co-firing at Taeon Thermal Power Plant. At the same time, it is spreading its technology by opening it to other power generation companies. KOWEPO has also constructed wood pallet-co-firing facility, running parallel with development of overseas bio-fuel resources, as well as developed various bio-fuels by cooperating with small and medium-sized businesses.

Taeon IGCC



Bird's-eye view of Taeon IGCC

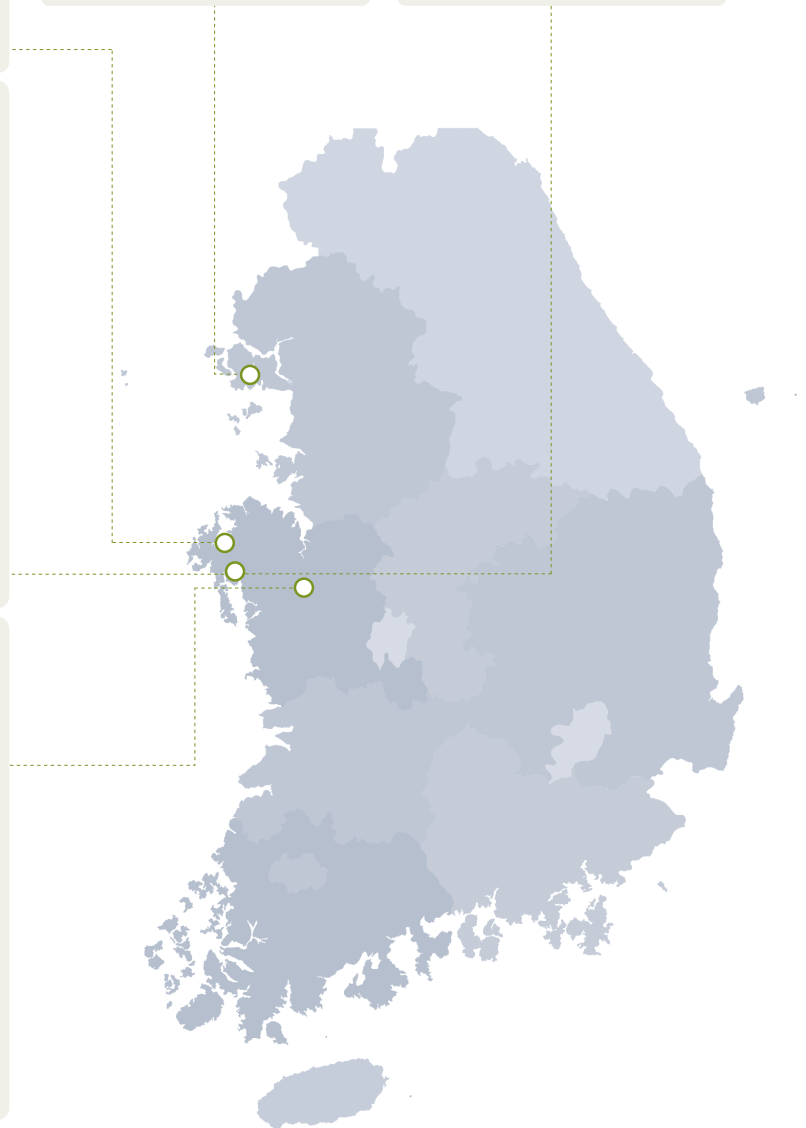
IGCC (integrated coal-gasification combined-cycle power system) is able to reduce the greenhouse gas compared to the same level of coal thermal power by 7% since the coal is gasified and used as combined-cycle fuel. As a part of the technology development project of the localization of IGCC, KOWEPO made an agreement with the government about Taeon IGCC of 380MW and started its demonstration construction in November 2011. Meanwhile, it is scheduled to be completed in November 2015.

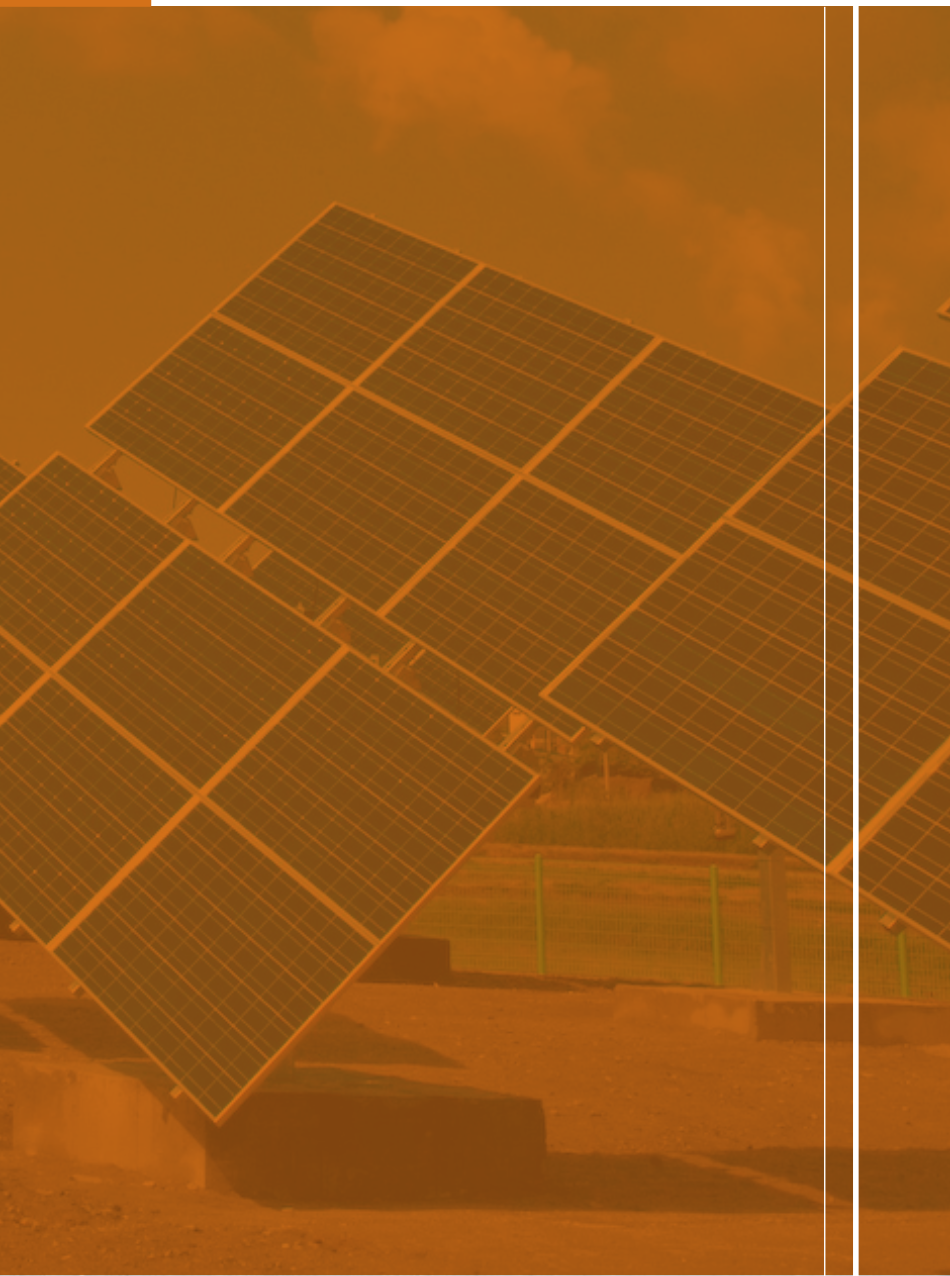
Solar power generation



Solar power plant of the cycle path in Sejong city

Since KOWEPO completed a 120kW Solar power plant at Taeon Thermal Power Complex Division for the first time among the power generation companies in August 2005, as well as 3MW of Samrangjin Solar Power Plant in 2008, 5MW of cycle path in Sejong city and 13.3MW of Yeongam F1 in 2012, and 7.7MW of Daegu Sewage Treatment Plant in 2013, it has completed and operated 29MW in total ,furthermore, it is planning to obtain 73MW until 2016.







Performance

- Economic performance • 60
- Social performance • 63
- Environmental performance • 68

Economic performance

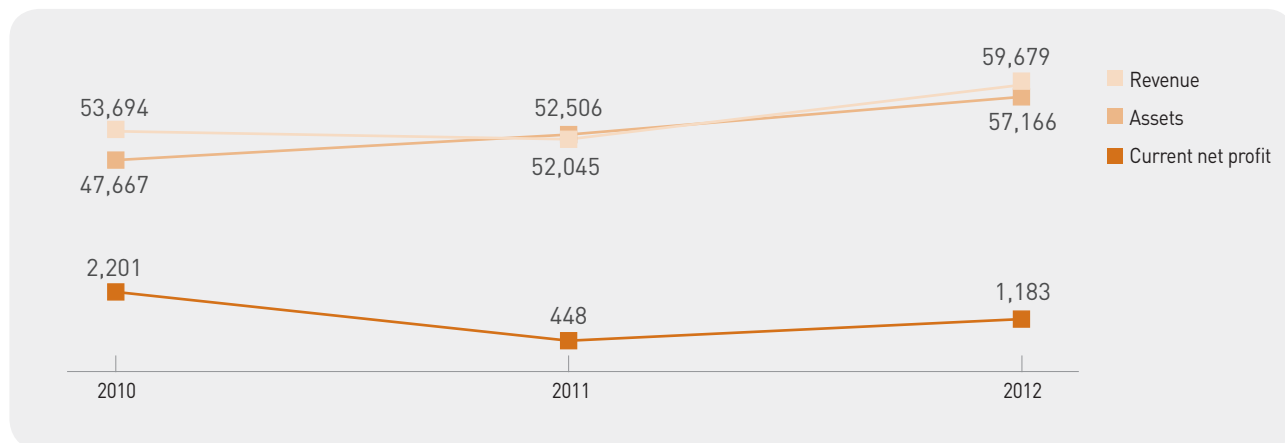
Creation and distribution of economic value

Creation of economic value

KOWEPO turned over ₩5,967.9 billion and its net profit reached ₩118.3 billion in 2012. Compared to 2011, these performances increased by 15% and 164%, respectively. This is because all the employees of KOWEPO have made ceaseless efforts to create a surplus of operating profits by operating optimal power plants and stably supplying power, while it adopted an emergency management system and reduced management cost and unit price of fuel for power generation.

© Fluctuation of financial performance

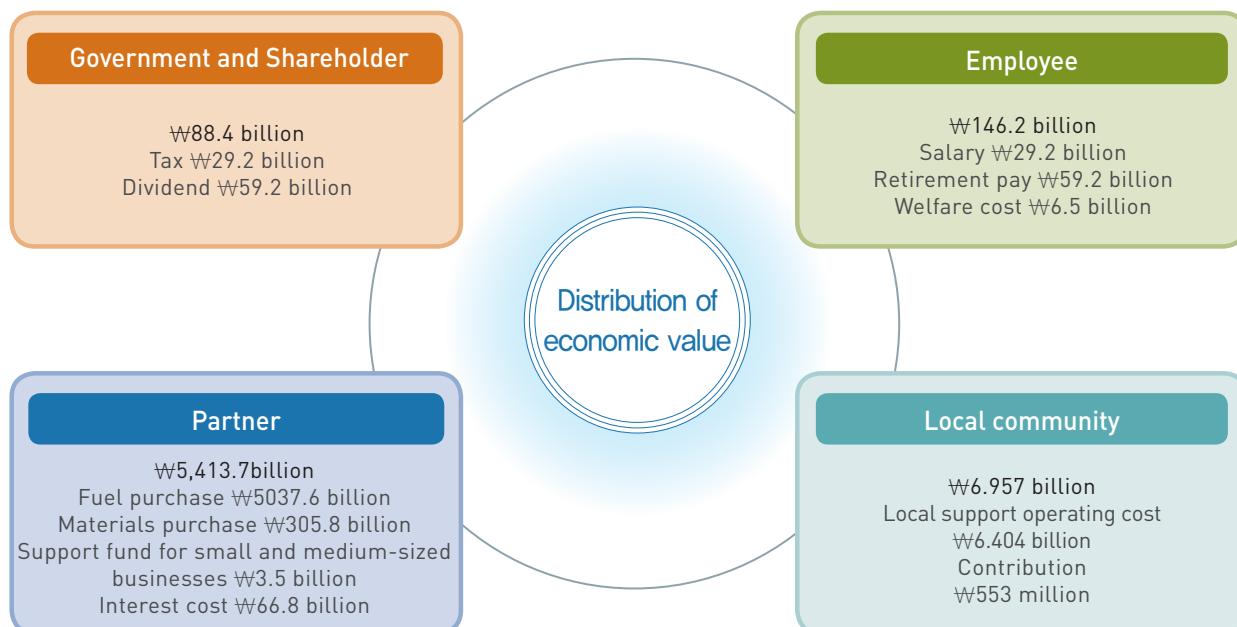
(Unit: hundred million won)



Distribution of economic value

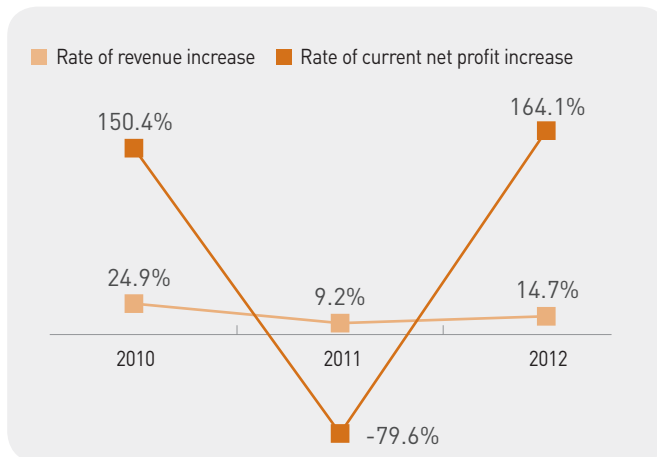
KOWEPO develops various business activities enhancing the economic value and devotes itself to justifiable and fair distribution of economic values among stakeholders.

Created revenue in 2012, ₩5,967.9 billion, has been distributed to each stakeholder through various business activities such as purchase of raw materials, power generation and sales.



Financial indicators

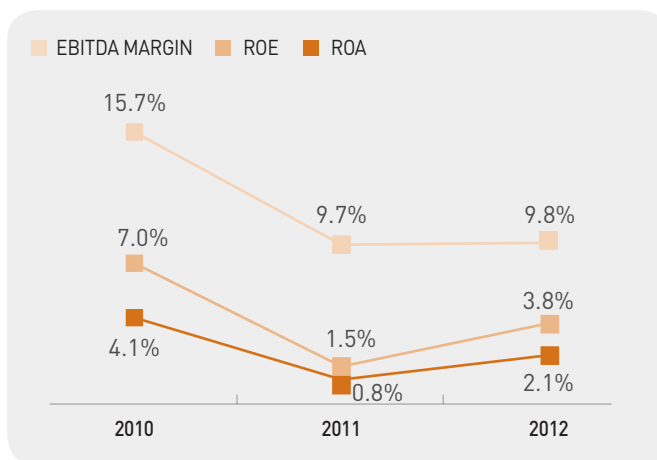
© Growth indicators



© Growth

The rate of revenue increase shows 14.7%, increased results from the previous year, 9.2%, so that it maintains an increasing trend in accordance with increased demand of power systems. The rate of current net profit increase shows 164.1%, increased by 243.7% compared to last year, by promoting intensive reduction of management cost and improving profit system with economic fuel purchase.

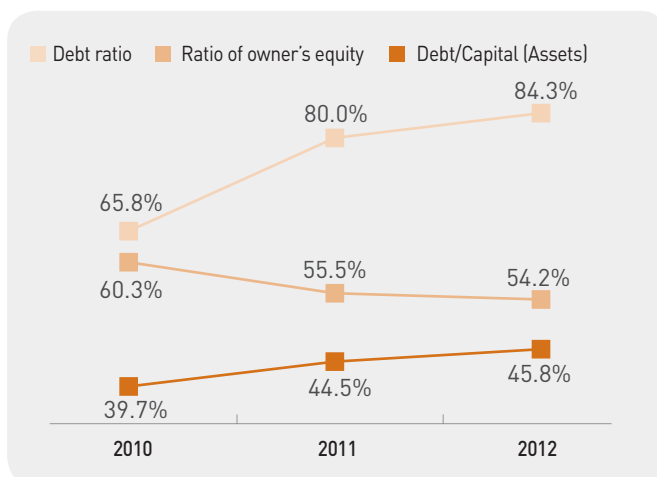
© Profitability indicators



© Profitability

As a reward of effort to improve profit, the profitability is generally increased over the same period in the previous year. This is because of company-wide improvement of profitability and efforts for cost reduction to increase the payability, taking part in stable power supply catching up with system demand.

© Stability indicators



© Stability

Since it has proceeded with the construction of Taeon units No. 9 and No. 10, and Taeon IGCC in earnest, its scale of financing has been increased and debt ratio shows 84.3%, increased over the previous year, 80.0%.

It is expected that, for a while, the debt ratio increases until the payback period of a relevant construction project; however, this is a necessary part to establish a foothold of long-term profit-making business, and it will be improved after 2016.

Research & Development

To lead the power generation technology at home and abroad, KOWEPO has been focusing on improvement of R&D and extension of investment to create core technology development and growth power.

KOWEPO conducted 230 cases of R&D projects (completed: 216, ongoing: 14) from its foundation to 2012.

Moreover, from 2010 to 2012, the R&D investment cost was ₩77.6 billion, and it is scheduled to invest ₩44.2 billion more in 2013, an increase of ₩18.4 billion compared with last year, ₩25.8 billion.

Major technology development

KOWEPO has established R&D Master Plan for the world's best technology security, built up the foundation for creation of the new growth power and leapt forward as an integrated energy company.

KOWEPO is planning to invest ₩1,800 billion in three major R&D areas to obtain five core technologies by 2020. As a result of promotion of research strategy, aiming for new energy technology independence, it could localize the core facilities including development of Integrated Supervisory Control System for Thermal Power Plant domestically for the first time, and it brought an import substitution effect of around ₩35 billion. In addition, it is promoting the demonstrative plant construction of mid/long-term Taean IGCC with 380MW capacity and the localization of a large-sized gas turbine (aiming for completion in 2018).

Three Areas	Five core technologies (2011~2020)	Investment cost (hundred million one)	Expected effect
Cost reduction and Securement of reliability	<ul style="list-style-type: none"> Facility operating optimization technology : USC 1), Retrofit 2), lifetime evaluation /facility improvement Localized technology of gas turbine 	1,112	<ul style="list-style-type: none"> New technology security that can create highly efficient but low-cost added value Technology management system security with R&D enhancement in 2020 Contribution to the world's best R&D company
New Renewable energy	<ul style="list-style-type: none"> Optimal operation of IGCC and application technology Application technology of new renewable energy 	14,765	
Technology development for the future environment	<ul style="list-style-type: none"> CO₂ treatment and conversion technology : development of highly efficient clean technology 	784	
Other	Fostering cost, Computation development cost, Operational business cost	1,995	
Total		18,656	

1) USC (Ultra Super Critical): Seam condition of steam turbine generator is on the higher level of super critical, which has more pressure than critical (pressure: 225.65 kg/cm², temperature: 374.1°C). It can reduce fuel cost and greenhouse gas emission. 2) Retrofit: Remodeling of outdated equipment

© Control room before and after the localization of integrated supervisory control system



Board before replacing IMCS



Board after replacing IMCS

Technical support for small and medium-sized businesses

KOWEPO has been making an effort to secure the industrial property rights, the intangible knowledge property. There are 315 obtained industrial property rights in total, such as patent and utility model, including one before the separation of the company, among them, those obtained after the separation, reaches 235 cases.

As a part of support policy for vitalization of small and medium-sized businesses, KOWEPO had transferred 59 industrial property rights to 35 companies up until 2012, 22 of them were transferred at a cost, and 37 of them free of charge. It will continuously obtain the competitive industrial property rights, and support small and medium-sized businesses by transferring technology in retention.

© Status of industrial property rights

(Unit: case)

Classification	~2009	2010	2011	2012	Total
Patent	131	14	15	32	192
Utility model	80	5	9	2	96
Design, Trademark	27	0	0	0	27
Total	238	19	24	34	315

Social performance

Highly talent-regarded management

Status of Employees

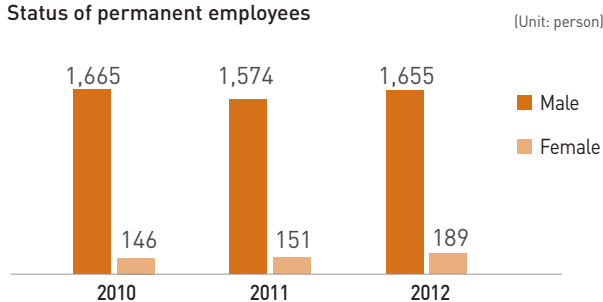
There were 1,844 employees working for KOWEPO as of December 2012, and their average years of service are 15.3 years due to the low turnover rate on the level of 1%. In 2012, 41 high school graduates, accounting for 24% of the entire number of employment, were hired to be faithful to the duty as a social company that creates jobs. The wage level is higher compared to the same industry, and there is no wage discrimination between male and female new employees.

◎ Status of Employees

Classification		2010	2011	2012
Employment	Permanent employees (person)	1,811	1,725	1,844
	Female managers (person)	13	14	19
	Average years of service (years)	16.2	16.1	15.3
Turnover	Turnover rate (%)	0.6	1.0	1.2

※ Turnover rate = Number of retirees/Average number of employees at the end of the year x100

◎ Status of permanent employees

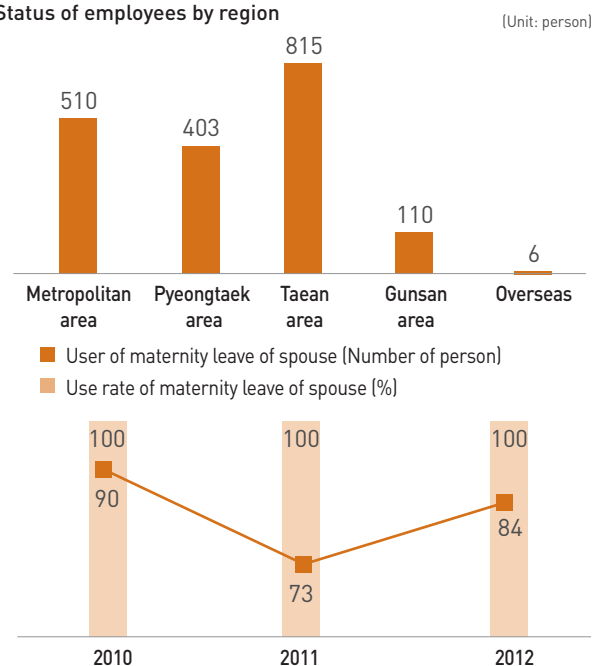


Furthermore, for maternity, KOWEPO fully supports free use of maternity leave, reinstatement, and maternity leave of spouse

◎ Status of using maternity welfare system

Classification	2010	2011	2012
User of maternity leave (Number of person)	12	12	9
Reinstatement rate after maternity leave (%)	100	100	100

◎ Status of employees by region

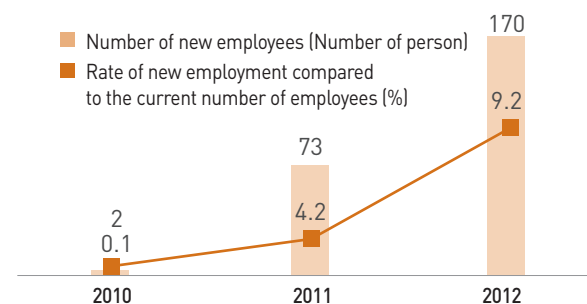


Talent-recruiting through open employment

◎ Expansion of new employment

Since there are several ongoing large construction projects such as Taean units No. 9 and No. 10, Taean IGCC and Pyeongtaek combined Cycle Power plant step 2 construction, KOWEPO has hired the greatest number of employees since its establishment.

With starting construction in earnest in 2010, 73 permanent new employees were hired in 2011, and 170 employees in 2012. It is also scheduled to hire 210 employees, the most since its establishment. Total hired permanent employees, from 2010 to 2013, are around 450, and this accounts for 23% of current employees. KOWEPO actively takes part in the core government's project, "Achieve 70% employment rate, Create high-quality jobs" policy.



◎ Talent-recruiting with social equity

KOWEPO actively implements open employment and recruiting with social equity to realize a fair society. First of all, it plays a leading role in establishment of employment conditions for high school graduates and a “first employed, then entering school” policy, by building up the employment paradigm for high school graduates to eliminate educational background and hire ability-oriented talent.

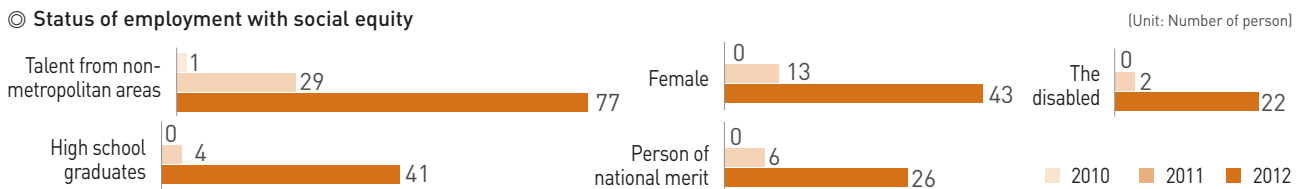
As a reward for these efforts, KOWEPO has received a presidential citation, getting credit for “Settle Down the New Times for High School Graduates”.

In addition, it has established and operated an action plan for talent-recruiting with social equity, so that it can carry out the substantial employment policy. Above all, there are several activities that KOWEPO has done so far – fostering local talent through MOU agreements with local universities for hiring talents from non-metropolitan areas, expansion of areas applying additional points for special treatment for local residents around power plants, exception of application phase for relevant candidates, and additional points system on written test. Meanwhile, for employment for people of national merit or the disabled, mitigated qualification and extra limited screening process were conducted. Also, for expansion of female employment, women’s policies, including approval of maternity leave when promoting, are established as company regulations to improve the working environment for women.



Presidential citation, a credit for “Settle Down the New Times for High School Graduates”

◎ Status of employment with social equity

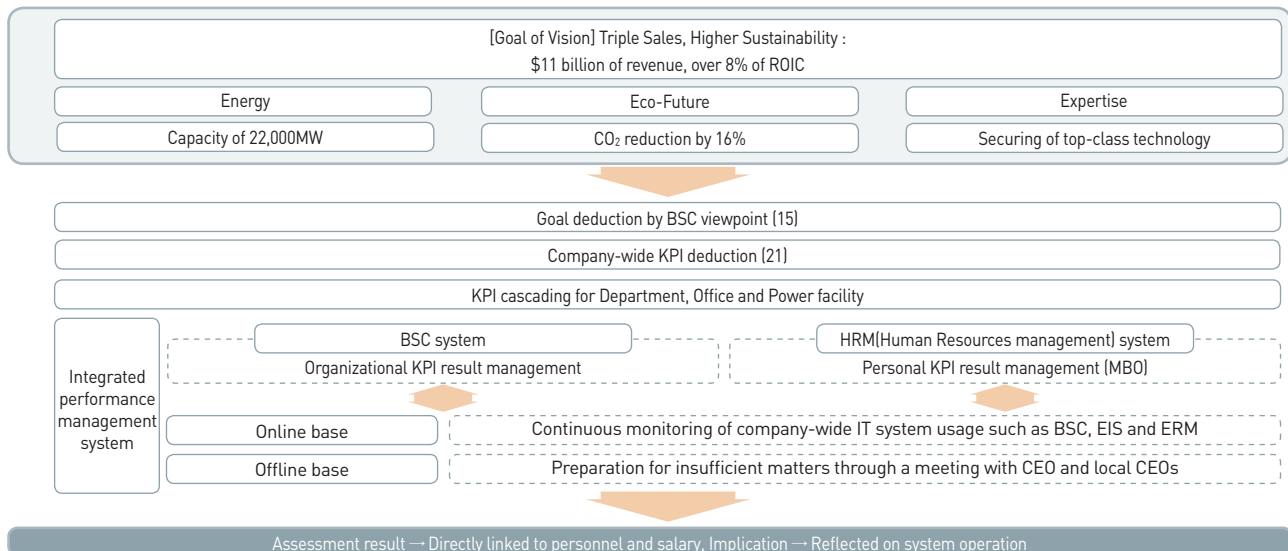


Performance management

◎ Establishment of performance assessment and its compensation system

Assessment system for achievement of internal management is operated to achieve the management goal and improve management efficiency through healthy internal competition. The assessment system for achievement of internal management is based on BSC (Balanced Scorecard), and led to company-wide KPI, primary power facility KPI, secondary power facility KPI and team KPI. At the same time, it evaluates the level of contribution of the organization toward the achievement of company vision, and its result is directly linked to personnel and salary as well. Moreover, since personal goal (personal KPI) by MBO is set through discussion with a head of a division, it can be in alignment with strategy direction for achievement of company vision, from private to company-wide. In 2013, to enhance communication and cooperation between competitive assessment units, KOWEP is planning to establish the performance management culture company-wide by strengthening operation of the cooperation indicators and indicating the spontaneous performance management efforts on site.

◎ Performance management system



Development of Employee's Capability

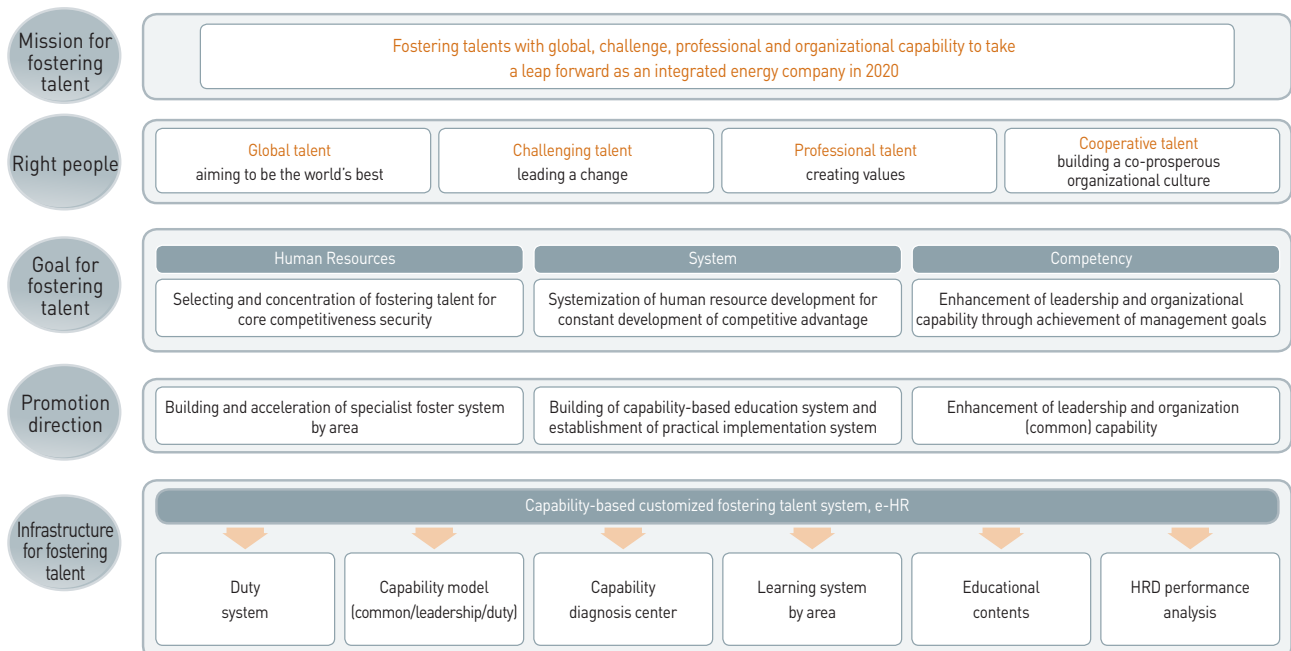
KOWEPO has planned and operated a systematic educational program based on employee's needs and their capability to constantly develop KOWEPO members' capability. There are several established programs such as capability diagnosis process, operation of capability diagnosis-related educational course, and educational performance indicators system. In addition, there is life-long education for constant capability development from joining to retiring from the company as well.

© Right people for KOWEPO



Vision and mission of development of employee's capability

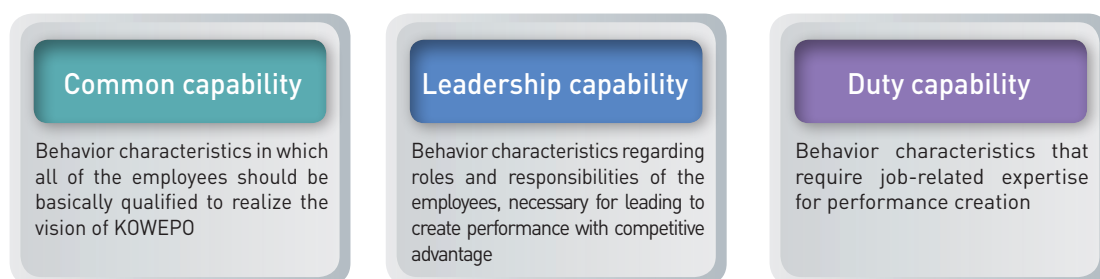
There are four aspects of Right People (global, challenge, professional, and cooperative talent) and well-established education infrastructure to cultivate necessary talents for achieving the company vision and business goals in 2020. Furthermore, KOWEPO has established and operated a capability-based education system (common, leadership, duty capability) aiming at all the employees, and in particular, it supports a master's and doctorate program to foster professional and core talents.



Operation of fostering talent program based on needs and capability

KOWEPO has planned and operated an education course based on employee's needs and their capability, also, it supports employee's growth as professionals by diagnosing their capability through the career development program and conducting personalized necessary education in accordance with the results of this program. Furthermore, for cultivation of next-generation female leaders and growth of female leaders within the organization, KOWEPO has annually conducted Ehwa leadership consignment education since 2005. In 2012, annual education hours per capita reached 192 hours, and that of the disabled employees gradually increased by 76 hours in 2010, 106 hours in 2011, and 182 hours in 2012.

© Capability system of KOWEPO

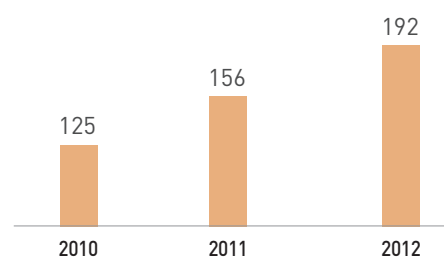


Moreover, KOWEPO developed an integrated education supporting portal site, "Dodream 3.0", based on personal needs and the level of capability in 2012, so that it can systemize to be able to set up and study the education plan. Also, it provides mobile knowledge contents, "Well of Information", which can be accessed by smart phones so that employees can develop their capabilities anywhere and at any time.

© Status of education by year

Classification		2010	2011	2012
Number of annual education (Number)		8,078	8,891	14,976
Number of education per capita [times]		4.46	5.15	8.12
Annual education cost	Annual (¥ hundred million)	83.8	88.4	105.6
	Per capita (¥ thousand)	4,631	5,128	5,730

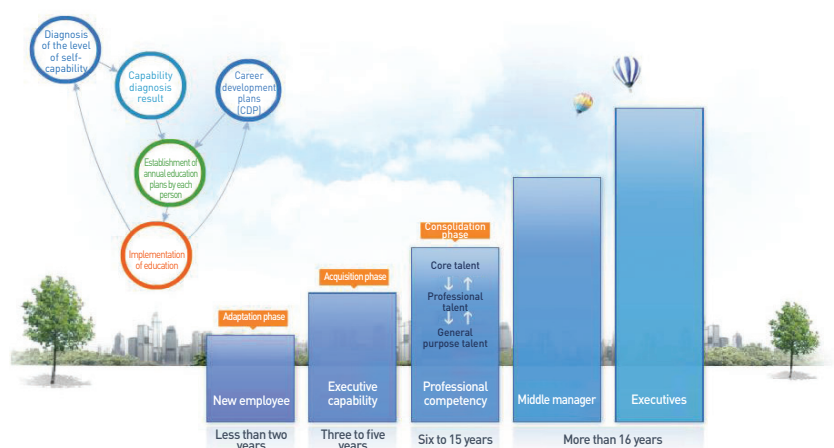
◎ Average education hours per capita (Unit: hours)



© Mobile “Well of Information”



© “Dodream 3.0” roadmap for fostering talent



Customer satisfaction

Customer satisfaction management

To meet various requirements of stakeholders, KOWEPO is actively practicing the customer satisfaction management. Along with this, it has an organizational system for customer information security to prevent infringement of personal information in accordance with IT development, and faithfully complies with the relevant regulations.

◎ Main activities for customer satisfaction management

Customer service	<ul style="list-style-type: none"> • Guidance of customer who visits the power plant, and effort to improve convenience of the power plant usage for cooperating companies • Hospitable and warm reception, fair and transparent business management
Fulfillment of social responsibility	<ul style="list-style-type: none"> • Purchase of products from area around the power plant, expansion of employment opportunity for local residents • Improvement of efficiency of power industrial infrastructure fund execution (income enlargement, education business) • Enhancement of corporate social responsibility in the area surrounding the power plant
Reinforcement of mutual aid system and follow-up management	<ul style="list-style-type: none"> • Maintenance of organic cooperation system with relevant bodies • Inspection of status in customer interaction area and consideration of countermeasures • Tour through a power plant for local influencers and residents

Customer information security policy

According to the rapid change of IT, the infringement of personal information has become a social issue and been having a serious effect on the reliability of a company when an accident occurs.

Therefore, KOWEPO established an organizational system to protect both internal information and customers' information. It also has established and operated a task procedure and its guidance to protect personal information that meets the security policy of the Ministry of Trade, Industry and Energy.

As KOWEPO realizes the importance of personal information security and follows established guidance, it blocks out the outward flow of information using firewalls that have obtained the security conformance certification from the National Intelligence Service. There were no complaints brought up related to customer information security or customer data loss, or cases invading customer's privacy so far.

Compliance with regulations

◎ Compliance with the Political Fund Law

KOWEPO complies with the Political Fund Law that prohibits the offering of political funds.

◎ Marketing communication

Meanwhile, KOWEPO has faithfully complied with regulations related to advertisement. And for the enhancement of the level of compliance, it has established guidance for public relations affairs and operated it since 2007, so that there is no violation of regulations and standards related to marketing communication or voluntary rules.

◎ Product and service supply

There is no case in which KOWEPO has been imposed a fine because of violation of laws and regulations while it develops power resources, generates electric power, and conducts business related to them. Also, KOWEPO has never violated regulations related to customer's health and safety while KOWEPO provides electric power.

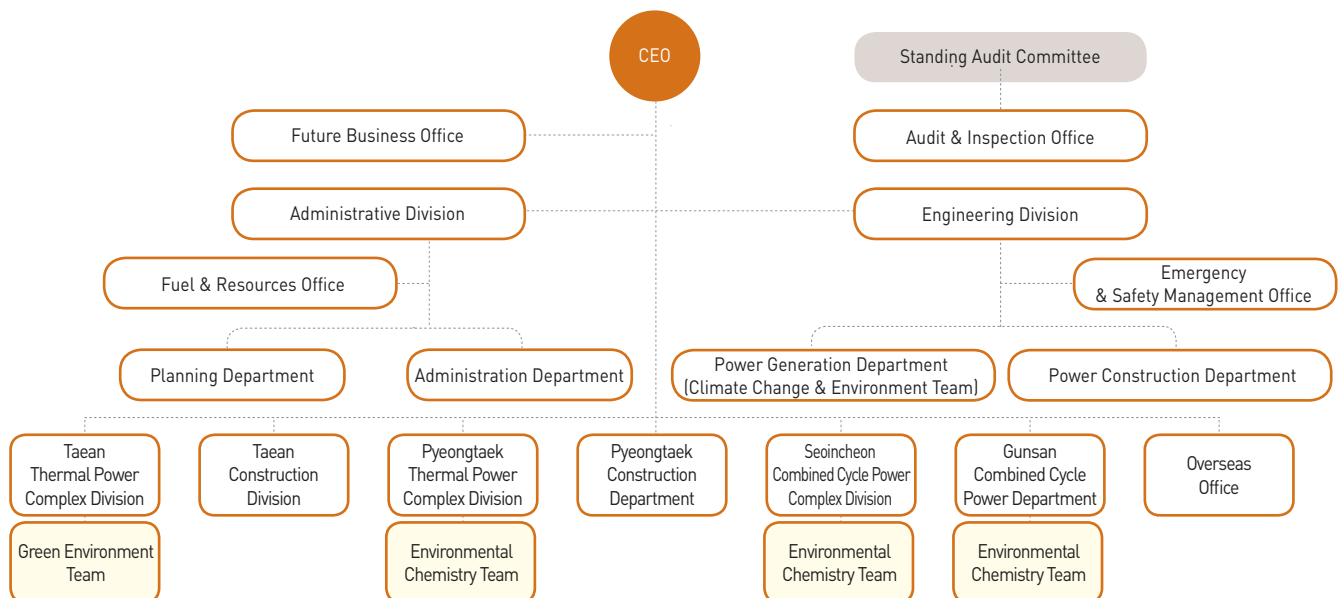
Environmental performance

Response to the climate change and energy reduction

Green management system of KOWEPO

KOWEPO has established a mutually cooperative GMS (Green Management System) and has been operating it with company-wide green management organization, which consists of the director of the Administration Division, director of the Engineering Division, director of the Power Generation Department and team managers of the Green Environment Team and Environmental Chemistry Team of each power facility, to promote and manage climate change-related issues more efficiently and smoothly. It obtained GMS (Green Management System) certification in June 2011, through engagement in a government demonstration project. Meanwhile, it makes authority and responsibility of green management clear to build the organic cooperation system of work between organizations that perform the green management system. Through this, it achieves its policies and goals for green management, and promotes efficient operation of a green management system.

© Green management organization



© Green management system

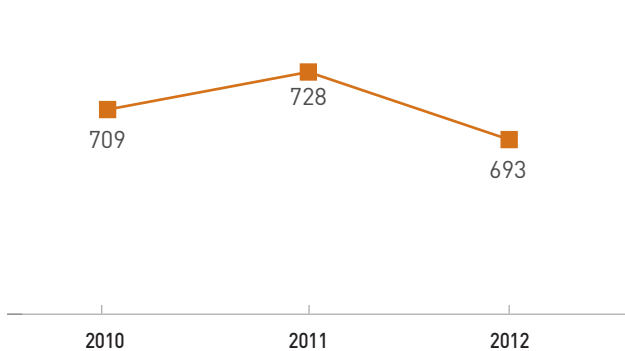
Position	Authority and Responsibility
CEO	<ul style="list-style-type: none"> Declaration of green management policy and approval of green management manual Selection of green management goal and its evaluation Review and approval of manager for green management system Provision of support and resources for green management activities Appointment of a deputy for green management and delegation of authority
Director of the Administration Division	<ul style="list-style-type: none"> Assistance for CEO regarding green management activities General operation of relevant project related to green management and determination of it
Director of the Engineering Division	<ul style="list-style-type: none"> Assistance for CEO regarding green management activities General operation of relevant project related to green management and determination of it
Director of Power Generation Department	<ul style="list-style-type: none"> Approval of company-wide green management procedures Support for implementation of green management system
Team manager of the Climate Change & Environment Team of HQ (Deputy/Department)	<ul style="list-style-type: none"> Establishment of company-wide green management manual and its procedure, review of effectiveness, and its revision Establishment of plan for green management education and its implementation Business promotion related to review of green management certification General management of internal/external review results and corrective action
Director of power facilities	<ul style="list-style-type: none"> Approval of green management manual/ procedures at power facilities Support for implementation of green management system
Team manager of the Environmental Chemistry Team of power facility (Deputy/Department)	<ul style="list-style-type: none"> Establishment of company-wide green management manual and its procedures, review of effectiveness, and its revision Implementation of green management education at power facilities Implementation of internal audit for green management and its corrective action Report preparation for management
Leader of department in HQ and power facilities	<ul style="list-style-type: none"> Implementation of green management system by unit of department Cause investigation to address inadequate item and its corrective action

Status of energy use and greenhouse gas emission

Since increase of equipment is caused by increase of power demand, greenhouse gas emission, 37.49 million tCO₂, in 2012 showed a growing trend. Yet, with an effort of expansion of low-carbon power supply including new renewable energy and LNG combined, greenhouse gas emission for unit power generation has decreased from 709 tCO₂ in 2010 to 693 tCO₂ in 2012.

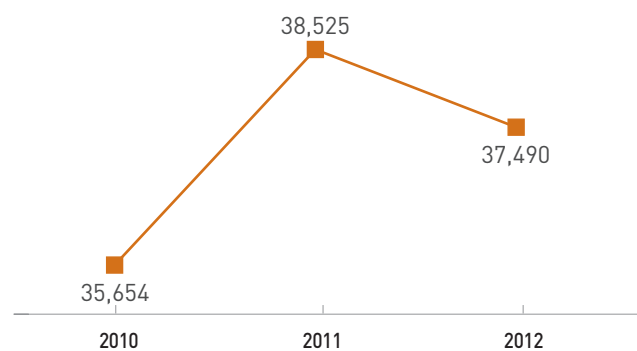
◎ Basic unit trend of Greenhouse gas

(Unit: ton-CO₂/KWh)



◎ Status of greenhouse gas emission by year

(Unit: 1,000ton-CO₂-eq)



It shows also a constant growing trend of power generation capacity and energy usage in accordance with an increase of equipment such as Gunsan Combined Power and an increase of power demand. But the rate of self-power consumption has decreased by 0.05%p compared to generation amount, from 3.69% in 2010 to 3.64% in 2012. This is the most difficult part to reduce, therefore, it requires active energy-saving activity.

◎ Energy consumption and Greenhouse gas emission

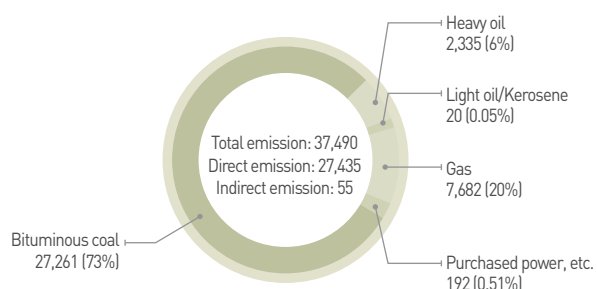
Classification	Energy consumption by fuel (1,000TJ)						Self consumption (%)	Sales volume (GWh)	Greenhouse gas emission (1,000tonCO ₂)
	Total	Coal	Gas	Oil	Other*	Purchased power			
2010	450	294	125	30	0.01	1.21	3.69	50,301	35,654
2011	477	311	144	21	0.01	1.17	3.69	52,903	38,524
2012	487	301	152	32	0.65	1.13	3.64	54,127	37,490

※ Other: Organic solid fuel

Since KOWEPO's main business area is power generation, use of bituminous coal as combustion fuel accounts for 62% of entire energy usage, followed by LNG and heavy oil. As the same as fuel usage amount, bituminous coal accounts for 73% of greenhouse gas emission in accordance with standard use of energy in 2012, followed by LNG and heavy oil. More than 99.5% of greenhouse gas emission is caused by direct emission of limestone mainly used as combustion and at desulfurization facilities, and only 0.5% of that by indirect emission purchased from KEPCO and used as starting power.

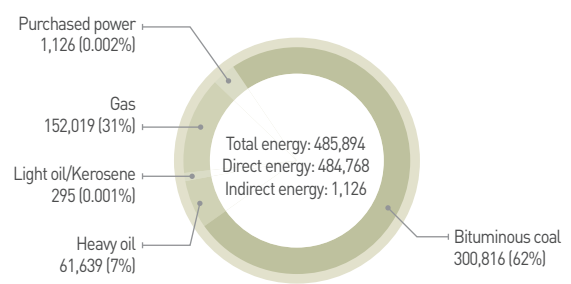
◎ Greenhouse gas emission by energy source

(Unit: 1,000ton-CO₂-eq)



◎ Energy consumption by energy source

(Unit: TJ)



Major performance of energy and greenhouse gas reduction

Total amount of greenhouse gas reduction in 2012 was 0.2 million tCO₂, and 2,128TJ (510 million TOE) of energy was reduced, therefore, KOWEPO achieved performance of ₩15.7 billion of energy cost reduction. There are four power facilities, Taean Thermal Power Complex Division, Pyeongtaek Thermal Power Complex Division, Seoincheon Combined Cycle Power Complex Division, and Gunsan Combined Cycle Power Department, and the largest Taean power facility among them substantially reduced greenhouse gas with 0.17 million tCO₂. Also, its greenhouse gas emission reduction against investment cost showed the highest with 4.2tCO₂/million won.

KOWEPO applied new technology to each power facility as shown below, and operated 46 projects in total including process improvement. And, it is enhancing efforts and investment in greenhouse gas emission and energy reduction activities.

- Taean Thermal Power Complex Division: 27 projects including loss reduction of vehicle exhaust due to the extension of heating surface of boiler economizer
- Pyeongtaek Thermal Power Complex Division: 10 projects including additional installation of speed conversion equipment to positive blower of boiler
- Seoincheon Combined Cycle Power Complex Division: Eight projects including conversion to energy-saving lighting in HQ
- Gunsan Combined Cycle Power Department: Replacement of low-efficient lighting by LED lights

◎ Performance of energy and greenhouse gas consumption reduction in 2012

Classification		Investment cost (₩1,000)	Energy reduction cost (₩1,000)	Energy reduction		Greenhouse gas reduction
				TOE	TJ	
Power facility	Taean	40,883,489	9,313,282	41,871	1,753	173,356
	Pyeongtaek	6,933,300	6,334,011	8,876	372	27,135
	Seoincheon	229,000	61,634	79	3	168
	Gunsan	-	7,170	9	0	20
Total		48,045,789	15,716,096	50,835	2,128	200,678

Meanwhile, to control the effect of climate change, KOWEPO is reducing use of fossil fuel and concentrating on the new renewable energy area that uses natural resources. In 2012, 76GWh of energy was generated from 42MW-scale plants in total and it reduced 3,490 million tCO₂ of greenhouse gas. It is comparable to greenhouse gas reduction of 28 million 20-year-old pine trees¹⁾ raised for 40 years.

Investment in greenhouse gas reduction and green technology development

Considering domestic condition that 97% of energy usage is dependent on overseas, KOWEPO is actively engaging in CCS (Carbon Capture & Storage) technology development which can reduce greenhouse gas emission from a thermal power plant when its operation is unavoidable. Moreover, for greenhouse gas reduction and environmental protection in accordance with operation of plants, KOWEPO is focused on extension of investment in the green technology area so that it can develop core technology of relevant areas and create growth power.

◎ Expansion of R&D investment in green technology area

KOWEPO invested ₩66.6 billion, accounting for 77% of total R&D investment cost, in the areas of greenhouse gas reduction and eco-friendly technology in 2012, and is going to continue expanding the investment.

Classification	2010	2011	2012
Total investment cost in R&D (₩100,000,000)	319	906	864
Investment cost in green technology (₩100,000,000)	35	442	666
Share (%)	11.0	48.8	77.1

1) A 20-year-old pine tree absorbs 4.530kg of CO₂ [refer to CO₂ absorption standard for carbon neutrality]

Greenhouse gas control system

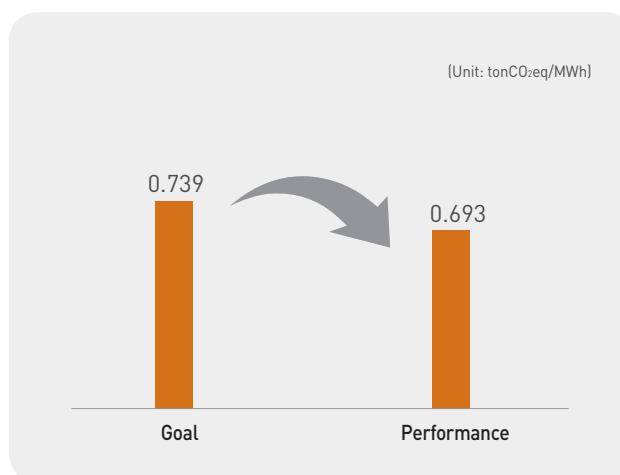
As the Korean government established and declared the (Basic act on low carbon green growth) on 13 January, 2010, the (Goal management system of greenhouse gas and energy) has been conducted in earnest since 1 January, 2012.

According to this legislation, KOWEPO was also charged with the goal for greenhouse gas emission and energy usage amount of 2012, and obliged to report them annually to the government – after evaluation conducted by a government-appointed agency. Hence, KOWEPO has established procedures for operation of goal management for greenhouse gas and energy. Also, the greenhouse gas inventory IT system has been developed to respond to the goal management system, and now is being test-operated to control greenhouse gas more accurately.

Greenhouse gas inventory

First of all, accurate inspection of greenhouse gas emission amount is necessary to respond to the government's low-carbon green growth and reduce greenhouse gas emission. Hence, KOWEPO built a greenhouse gas emission inventory system to meet the international standards, and prepared its report from 2002 to 2011. As the goal management system has been conducted in earnest since 2012, KOWEPO, included in subject company, developed an IT system for greenhouse gas control linked to ERP in December 2012. It is now being test-operated for further active countermeasures. Estimation standard of greenhouse gas emission of KOWEPO follows the [Guideline for operation of goal management for greenhouse gas and energy (Notification No. 2011-29 of the Ministry of Environment)], and KOWEPO has been estimating and reporting about greenhouse gas from all of the emission sources, such as boiler, generator, desulfurization facilities, gas-insulated transformer, and vehicles of Taejeon, Pyeongtaek, Seoincheon, and Gunsan including HQ. Furthermore, by securing objectivity and reliability about final estimated greenhouse gas emission, it completed verification through a third party to use for countermeasure policy against climate changes.

© Goal of greenhouse gas emission and its performance in 2012



Management system for achievement of goal for greenhouse gas reduction

KOWEPO is conducting establishment of implementation plan for goal management system, monitoring, data quality control, internal verification and evaluation on the basis of the operation procedure for goal management for greenhouse gas and energy.

Moreover, it complies with not only the goal management system but also regulations related to energy and greenhouse gas by making authority and responsibility between the leading department and relevant ones clear and conducting quality control of greenhouse gas emission estimation and report, and quality assurance activities.

Meanwhile, information, such as status of development of greenhouse gas reduction technology and its plan, is collected and provide by Climate Change & Environment Team of the Power Generation Department, so that it can promote goal achievement smoothly.

Major activities	Department
<ul style="list-style-type: none"> •Goal setting, Establishment of implementation plan, Statement preparation •Responsible for general affairs about operating goal management of greenhouse gas and energy 	Assistant manager in charge of greenhouse gas at HQ
<ul style="list-style-type: none"> •Data collection by emission source, Preparation for implementation plan and statement •Internal inspection 	Assistant manager in charge of greenhouse gas in each power facility
<ul style="list-style-type: none"> •Goal setting of energy reduction and its management 	Assistant manager in charge of energy in each power facility
<ul style="list-style-type: none"> •Establishment of monitoring plan by emission source and its implementation 	Assistant manager in charge of emission facility in each relevant facility

Greenhouse gas reduction activities

Greenhouse gas reduction through performance improvement of a power plant

KOWEPO has improved the seawater withdrawal facility in Taean Thermal Power Plant, used as cooling water, into a siphon-type, the first of its kind domestically. Through the reduction of power usage with this improvement, KOWEPO could reduce 8,965tCO₂ of greenhouse gas annually. Moreover, it blocks seawater bubbles generated on surface of the sea due to the open intake channel, so that it contributes to improvement of environmental view and prevention of facility-corrosion.



Before improvement of water withdrawal facility



After improvement of water withdrawal facility

Construction period	2010.6~2012.3
Investment cost	₩3.2 billion
Number of installation	20 units
Power consumption reduction	10,305MWh
Greenhouse gas reduction	8,965 tonCO ₂ /year

Promotion of Biomass-Coal Mixed Thermal Power Plant

It is true that new renewable energy such as solar light and wind power are effective means to reduce greenhouse gas, yet, it requires enormous investment costs. Hence, KOWEPO is making great efforts to develop biomass-mixed technology at thermal power plant as an efficient plan for reduction of greenhouse gas at a relatively low price. Therefore, biomass-mixed is going to be used as a core means of reduction centered power generation company that has less capacity to reduce greenhouse gas.

Greenhouse gas reduction by mixing with organic solid fuel for the first time in Korea

As protocol of the London Dumping Convention in 1996 takes effect, the dumping of waste, including sewage sludge, into the ocean is prohibited, hence, the sewage sludge generated at a sewage treatment plant was converted to land treatment but there was no specific treatment method except a landfill. However, KOWEPO has a demonstrative combustion test with the Ministry of Environment based on the ideas that the calorific value of dried organic sewage sludge is around 60% of the level of coal and it would have great value as a fuel. Through this, it has been signed into law for sewage sludge recycling, and standardized as an organic solid fuel. Also, KOWEPO has co-developed production of organic solid fuel and combustion technology with POSCO and POSCO construction jointly for improvement of availability of sewage sludge. The organic solid fuel-mixed facility was completed at Taean Thermal Power Complex Division Units 3 and 4 in December 2010.

© Promotion effect of mixed organic solid fuel in 2012

Classification	Replacement of Bituminous Coal	Fuel cost reduction	New Renewable energy generation capacity	REC cost reduction	Greenhouse gas reduction
Impact type	24,000 tons/year	1.9 billion won/year	66GWh	2.7 billion won/year	60,000 tons/year

KOWEPO's leading activity for organic solid fuel-mixed became a role model for other power generation companies, and three additional companies, MOIMPO, KOSEP, and EWP, are currently undergoing a similar project. KOWEPO contributes to reduction of fuel cost and greenhouse gas as well through ocean environment protection and replacement of coal.

Minimization of impact on environment

A power plant using coal and oil, among thermal power plants, emits sulfur oxides, nitrogen oxides and dust, and a gas power plant using natural gas emits nitrogen oxides. KOWEPO improves the reliability of a prevention facility by setting and operating more strict internal management standards than various legal regulation values, and makes an effort to minimize the emission of air pollutants.

Operation of optimal prevention facilities for suppression of air pollutants

To minimize the generation of air pollutants, KOWEPO has applied prevention facilities, such as flue gas desulfurizer using the most advanced wet limestone-gypsum and flue gas DeNOx facilities with SCR (Selective Catalytic Reduction), the best technology of nitrogen oxides reduction, and a highly efficient electric precipitator to Taean Coal Thermal Power Complex Division and Pyeongtaek Heavy Oil Thermal Power Complex Division. Meanwhile, a low-NOx combustor that generates less nitrogen oxides is installed at Seoincheon Combined Cycle Power Complex Division and Gunsan Combined Cycle Power Department to minimize the emission of air pollutants. And finally, equipment that reduces Yellow Plume occurring when starting and stopping has been installed at every plant.



Desulfurization facilities



Electric precipitator



DeNOx facilities



Chrome yellow reduction facilities

© Air pollutant emission amount by year

[Unit: ton]

Classification	2010	2011	2012
Sox	10,794	12,684	13,449
Dust	714	835	847
NOx	22,382	24,707	24,967

© Basic unit of air pollutant emission by year

[Unit: g/GWh]

Classification	2010	2011	2012
Sox	0.20	0.23	0.24
Dust	0.01	0.02	0.01
NOx	0.42	0.45	0.44

Prevention of soil pollution

To prevent soil pollution from an oil spill from oil used as fuel for power generation, prevention walls are installed around the oil tank. In addition, soil pollution inspection for soil pollution occurring area is conducted annually or once every two years, and there have been no cases of pollution so far.

Classification	Subject facility for inspection	Inspection item	Inspection areas	Inspection items	Inspection result	Inspection agency
Taeon	Light oil Unit 1 (newly-built)	2012. 9. 24~9. 28	4	TPH	Fair	Korea Testing Laboratory
	Light oil Unit 2	2011. 12. 20~12. 27	7			
Pyeongtaek	Light oil Unit 2	2013. 4. 10	7	TPH	Fair	Korea Environment & Water Works Institute
Seoincheon	Light oil Unit 3	2013. 4. 12	9	TPH	Fair	Korea Environment & Water Works Institute
Gunsan	Light oil Unit 2	2010. 1. 27	2	TPH	Fair	National Environment Research Institute

Minimization of water pollutant emission

At power plants, wastewater is generated during water quality control in the boiler, pure production and operation of desulfurization facilities. KOWEPO is operating general wastewater treatment facilities and desulfurization wastewater treatment facilities at all power plants to treat waste properly, and some part of the discharged water is reused through heavy water supply facilities. In addition, preparing for sudden rainstorms, a large-scale rainwater treatment facility is also installed and operated for improvement of water level adjustment ability of ash treatment facility.



General wastewater treatment facility



Large-sized rainwater treatment facility



Desulfurized wastewater treatment facility



Heavy water supply facilities

© Wastewater discharge amount by year

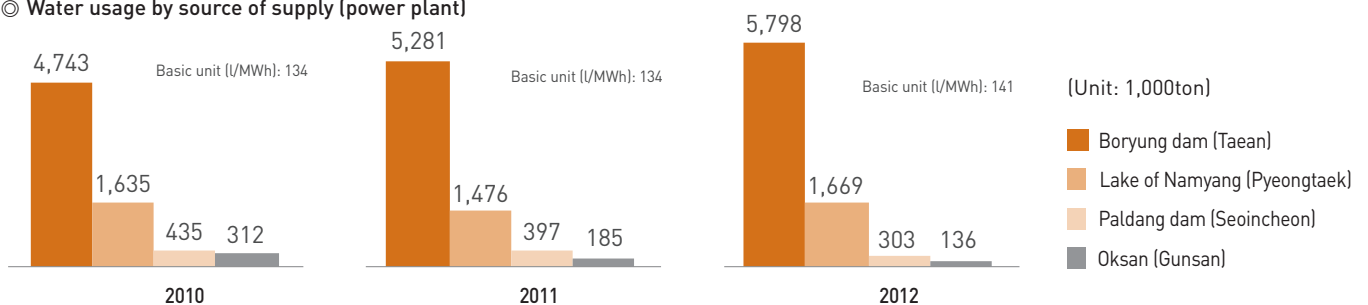
Classification	Wastewater discharge (ton)	Discharge amount (kg)				Basic unit of discharge amount (g/GWh)			
		COD	SS	T-N	T-P	COD	SS	T-N	T-P
2010	1,010,092	4,640	1,322	3,906	55	89.0	25.4	74.9	1.1
2011	875,865	6,634	1,027	2,747	11	121.0	18.7	50.1	0.2
2012	901,916	5,252	817	3,186	25	93.0	14.6	56.8	0.4

Water resource saving

Water used at a power plant is divided into two – one is directly used for electric power generation and the other is supplied to desulfurization facilities and used as desulfurizing water, equipment cooling water, and drinking water.

Huge amounts of water are supplied from a source of withdrawal such as a dam or lake near the plant, and compared to its supply capacity, the amount of water used at the plant has little influence on its water system. However, to reduce the growing use of water resources due to the increase of power generation and prevent any harmful effect on a water system, KOWEPO reuses and discharges all wastewater after treating to grade 3. In particular, Taean Thermal Power Complex Division recycles most of its wastewater, while Pyeongtaek Thermal Power Complex Division and Seoincheon Combined Cycle Power Complex Division discharge treated water at room temperature directly into the ocean whose management standard of water environment is “B” so that it tries not to influence water pollution or the ecosystem. KOWEPO has installed heavy water supply facilities and has been operating them for efficient use of industrial water and stable water security. At the same time, it has been promoting a zero-leakage ratio, taking advantage of the opportunity to reuse waste and improving its process. Although the rate of water usage increases along with the current capacity of generation, KOWEPO is promoting water for a generation reduction system building as well as a project that increases the rate of reuse and minimizes water discharge for maximization of efficiency in using water.

◎ Water usage by source of supply (power plant)



◎ Status of wastewater reuse

Classification	Amount of reuse (1,000ton)	Rate of reuse (%)
2010	566	37
2011	496	39
2012	597	40

※ Rate of reuse = Amount of reuse / Amount of generated wastewater x 100

Thermal discharge control

At a thermal power plant, high-temperature and high-pressure steam is used to generate power and the used steam is reused by condensing the water again. Since seawater is used as cooling water to condense steam at this time, thermal discharge is released and its capacity is proportional to the power generation amount. KOWEPO's thermal power plant also releases thermal discharge, and a special agency annually conducts inspection of the impact of this thermal discharge. According to this result, its influence on the ocean is insignificant.

Activity of biodiversity maintenance

KOWEPO has entered into an agreement (in 2009) with Guem River Basin Environmental Office regarding preservation and management of Duwung wetland and Shinduri sand hill, excellent ecological regions in Taean-gun, appointed to fully charged management agency (Green Taean 21 promotion council), supported funds, and continued to implement environmental purification activities. Duwung wetland and Shinduri sand hill, located close to Taean Thermal Power Complex Division, are home to rare wild animals and plants. Since they have various vegetation and show unique landforms, their conservation value is very high, hence, Duwung wetland has been appointed to a reservation (Ministry of Environment, 2002) for the first time and registered in Ramsar Convention (6th registered, 2007). Meanwhile, Shinduri sand hill is designated as Korean National Monument number 431 (2001) and Ecosystem Conservation Zone number 1 (Article 18 of the Natural Environment Conservation Act, 2002). Furthermore, KOWEPO has made an agreement with Gangnam-gu office about the One River for One Company movement, and has been implementing Yangjaecheon environmental refinement activity every month. Also, as a responsible member of local society, KOWEPO continuously promotes local ecosystem preservation activities by donating aquatic plant and tress, and conducting planting for improvement of Yangjaecheon water quality and riverside environment.

Reuse of waste and byproduct of power generation

Coal ash and desulfurized gypsum are recycled for waste recycling and appropriate treatment, and wastewater or waste laggings that cannot be recycled are legally committed its process by a waste treatment licensed company. The total amount of waste in 2012 was 20,248 tons and of that recycled 8,813 tons, and it makes KOWEPO continue to try to improve the rate of recycling. Coal ash is used as concrete admixture, raw material of cement, and ground fill material, especially recycled coal ash auto-immersed, the rate of recycling in 2012 reached 114.5%. In addition, the entire quantity of desulfurized gypsum is recycled as raw materials of cement and gypsum board. Preparing for an increase of byproducts from power generation, KOWEPO is promoting the resource recovery project from waste with high added value, by setting up the mid/long-term recycling plan and up-cycling of byproducts from generation.

◎ Status of waste generation and its recycling

Classification	2010	2011	2012
Amount of waste (ton)	6,392	26,666	20,359
Amount of recycling (ton)	1,701	3,573	8,813
Rate of recycling (%)	26.6	13.4	43.3

◎ Status of coal ash generation and its recycling

Classification	2010	2011	2012
Amount of coal ash (1,000ton)	1,210	1,285	1,249
Amount of recycling (1,000ton)	1,064	1,068	1,430
Rate of recycling (%)	87.9	83.2	114.5

Korea's first Carbon Product Declaration for byproducts (desulfurized gypsum, refined ash)

KOWEPO voluntarily engages in government low-carbon policy and tries to contribute to a national reduction of greenhouse gas. It obtained certification of carbon product declaration in the electric power area in 2012, then in June 2013, it also obtained certification of desulfurized gypsum and refined ash, the byproducts, (product produced through the refinement process of coal cinders) for the first time domestically. KOWEPO tries to reduce greenhouse gas even in byproducts from generation, and is a leading company as a role model of low-carbon and resource circulation type plants that promote resource of high added value.

Carbon emission
13.80g
CO₂
For 1kg of refined ash generated from Taean Thermal Power Complex Division

Refined ash of Taean Thermal Power Complex Division

Authorization code
C-2013-1-011
Expiration date
2013. 5. 29~2016. 5. 28

Carbon emission
178.45g
CO₂
For 1kg of desulfurized gypsum generated from Taean Thermal Power Complex Division

Desulfurized gypsum of Taean Thermal Power Complex Division

Authorization code
C-2013-1-012
Expiration date
2013. 5. 29~2016. 5. 28

Carbon emission
62.88g
CO₂
For 1kg of desulfurized gypsum generated from Pyeongtaek Thermal Power Complex Division

Desulfurized gypsum of Pyeongtaek Thermal Power Complex Division

Authorization code
C-2013-1-013
Expiration date
2013. 5. 29~2016. 5. 28

Environmental impact assessment

KOWEPO has inspected and evaluated impacts on environment and traffic by the power plant since the planning stage of site selection for the plants. Based on the determined result, KOWEPO established alternatives and reflected them in the design along with stakeholders' opinions (local residents, relevant agencies) to be reflected on the plant construction plan. As a result, every plant has been constructed on a site apart from ecosystem reservation where protected species or endangered animals and plants live. Meanwhile, on the level of operation, KOWEPO conducts post environmental impact inspection for items subjected to environmental impact assessment and reflected in advance for a specific period, then verifies the expected result through environmental impact assessment, and reports it to the relevant agency.

Area	Power facilities	Contents	Period
Construction business	Pyeongtaek Combined cycle power step II	Environmental impact assessment of construction business	2011. 7 ~ 2013. 2
	Taeon IGCC	Environmental impact assessment of construction business	2007. 5 ~ 2010. 12
	Taeon Units 9 and 10	Environmental impact assessment of construction business	2010. 9 ~ 2012. 12
Operation business	Taeon	Post environmental impact inspection of ocean, land, atmosphere, and soil	Biennial or Annual
	Gunsan	Post environmental impact inspection of ocean, land, atmosphere, and soil	Biennial or Annual
	Pyeongtaek	Post environmental impact inspection of land, atmosphere, and soil	Quarter, Half, Annual
	Seoincheon	-	N/A



Land survey



Noise measurement



Ocean life survey



Air quality inspection

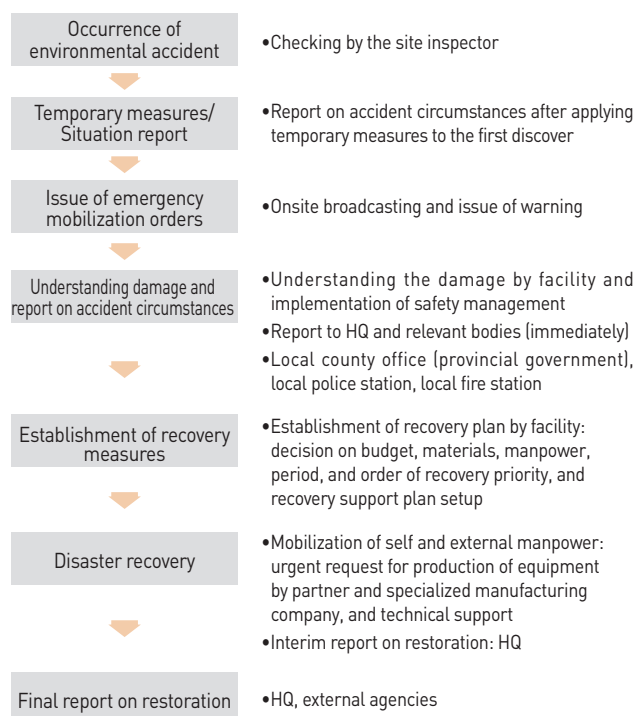
Environment management

Compliance with environmental regulations and effort for self-management

KOWEPO complies with environmental regulations related to atmospheric environment, water environment and waste, and has never been fined or restricted due to the violation of environment regulations. Furthermore, for practice of auto-environmental management, Taean, Pyeongtaek and Seoincheon Thermal Power Complex Division have made an agreement with the local government about it. And there is an autonomous management standard for atmospheric and water pollutants (goal of emission: 30% level of legal standard) and waste (goal of limestone recycling: over 75%) to minimized the environmental pollution.

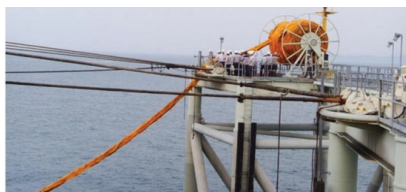
Improvement of reliability through environmental information disclosure

KOWEPO constantly tries to improve stakeholders' reliability through transparent co-friendly management. As it constructed a measurement quality control system of air, water, and the surroundings, it transfers the measured result to environment-related agencies and local government, and also, for local residents around the plants, it reports the information through an electronic display, so that people can easily access the environmental information. Furthermore, KOWEPO opens information about the status of environmental management of the company by registering the results of environment information and environmental impact assessment, through the national intelligence system outside the company annually.



Prevention of environmental accident and its responding system

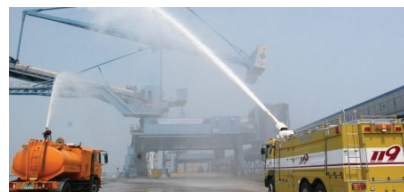
KOWEPO categorized all possible environmental pollution accidents by type and organized integrated emergency measures for zero accidents related to the environment. The integrated emergency measures organization is well-informed of duty and behavior by department, and conducts simulation training more than twice annually to improve rapid reaction capability in an emergency situation. With all these efforts, there has been no accident so far. Moreover, KOWEPO voluntarily conducts company-wide thorough environment safety inspection for chemical treatment facility, so that it deduced some improvements, such as corrosion of carbon steel pipe by corrosive toxic substance, volt, and corrosion of flange, and established and is operating countermeasures. KOWEPO tries to maintain a pleasant, safe workplace with no injuries.



Simulation training for oil leakage prevention



Simulation training for toxic substance leakage



Simulation training for fire

Investment in environmental facility and its operation

Investment cost in environmental facility in 2012 is ₩41.9 billion, accounting for 8.6% of total facility investment, and that of the last three years is ₩99.2 billion, accounting for 9.4% of the total amount. In 2012, KOWEPO executed ₩105.2 billion as the cost for operation of environmental facility and development. In particular, a deteriorated environmental facility has been replaced by a highly efficient facility, and investment is focused on atmospheric facility and new renewable energy area, such as optimal operation of desulfurization facilities.

© Investment in environment area and its execution result

(Unit: hundred million won)

Classification	2010	2011	2012
Investment cost in environmental facility	227	346	419
Operating cost in environmental area	1,228	1,214	1,038
Development cost in environmental area	11	16	14
Classification	1,496	1,577	1,471

※ Development cost: R&D cost (education and training cost is included in operating cost)

※ Except for environmental benefits

Appendix

- Awards and groups joined
- Verification report
- GRI Indicators
- Definitions
- Code of Conduct
- Reader's comments

Details of major certifications and awards from external agencies

Year	Certifications and Awards	Arranging/Sponsoring agency
2012	Received the Suggestion Master and Queen, and the Best Suggestion Award in 2012 Korea Idea Contest	Korea Suggestion System Association
	Received the Best public company for Sustainability Management	Ministry of Knowledge Economy
	Received the gold prize [4], the silver prize [3], the bronze prize [2] in the Presidential Prize National Quality Circles Contest	Korean Standards Association
	Received group award in 2012 Greenhouse Gas & Energy Goal Management Merit System	Ministry of Knowledge Economy
	Received the Prime Minister's citation in Labor-Management Cooperation in 36th National Productivity	Korea Productivity Centre
	Received the grand prize in public construction in 2012 Eco-friendly Construction Industry	The JoongAng Ilbo/ Ministry of Land, Transport and Maritime Affairs, etc
2011	Received the silver prize in Presidential Prize National Quality Circles Contest (Pyeongtaek)	Korean Standards Association
	Received the gold prize [4] in Presidential Prize National Quality Circles Contest (Seoincheon)	Korean Standards Association
	Received the Korea Suggestion King and the Best Suggestion Award in Korea Idea Contest	Korea Suggestion System Association
	Received the Minister of Ministry of Knowledge Economy citation for Best company of national security operation	Ministry of Knowledge Economy
	Received the Prime Minister's citation in 2011 Korea Green Management	Ministry of Knowledge Economy, Ministry of Environment
	Received an award in 2011 Korea Ethical Management	New Industry Management Academy, Ministry of Knowledge Economy
2010	Received the Best Suggestion Award in Korea Idea Contest	Korea Suggestion System Association / The Korea Economic Daily
	Received the grand prize in Korea Communication	Korea Company Newsletter Association / Ministry of Culture, Sports and Tourism, etc
	Received the Integrated grand prize in Ethical Management	The Korea Economic Magazine/Small and Medium Business Administration, etc.
	Received the Beautiful Companion Award	Small and Medium Business Administration
	Received the Minister of Ministry of Knowledge Economy citation in 32nd Energy Saving Contest	Ministry of Knowledge Economy /Korea Energy Management Corporation
	Certification of reduction result of domestic greenhouse gas	Ministry of Knowledge Economy
	Certification of Energy Management System (Seoincheon)	Korea Energy Management Corporation

Status of major groups joined

Area	Association name	Area	Association name
Ethics/Transparency	Yunkyeong SM Forum	Power generation technology	Korea Energy Economics Institute
	Yunkyeong CEO Club		Korea Energy Foundation (Korean Committee for WEC)
	The Institute of Internal Auditors		The Korea Society of Mechanical Engineers
Social contribution	Korean Red Cross		The Korean Institute of Electrical Engineers
Quality/Innovation	Korean Standards Association		Korea Plant Industries Association
	The Korean Society for Quality Management		EEI (Edison Electric Institute)
	Korea Quality Master Association		AESIEAP (Association of the Electricity Supply Industry of East Asia and the Western Pacific)
	NQA (National Quality Award) Winners	Construction	Korea Construction Consulting Engineers Association
	Korea Six Sigma Association		Korea Project Management Association
	Korea Suggestion System Association	Environment	Korea Environmental Preservation Association
Safety	Korea Management Association	New Renewable energy	The Korean Society for New Renewable Energy
	Korea Fire Safety Association		Korea New Renewable Energy
	Korea Occupational Safety & Health Agency	Business management/Economy	The Federation of Korean Industries
Fuel/Contract	Korean Committee for World Petroleum Council		Korea Employers Federation
	Korea International Trade Association		International economic cooperation of The Federation of Korean Industries

Independent Assurance Statement

The Institute for Industrial Policy Studies (hereafter "Auditor") was engaged by KOWEPO to review information specified in its 2013 Sustainability Report (hereafter "Report") to provide an independent third-party assurance on the reported content. On the basis of the above, the Auditor presents the following independent statement of assurance.

Accountability and Objective

KOWEPO is held accountable for all information and claims contained in the Report including sustainability management goal setting, performance management, data collection and report preparation. The Assurance Provider has no relations with KOWEPO regarding any of its for-profit operations and activities. In addition, the Assurance Provider has carried out its assurance process with independence and autonomy as it was not involved in the preparation of the Report except for offering comments in the process.

Type and Level of Assurance

For the purpose of this assurance, the Report was reviewed against the following reporting criteria.

- AA1000 Assurance Standard (2008)
- GRI G3.1 Sustainability Management Reporting Guidelines

Scope of Assurance	Compliance with the three core AA1000S (2008) principles of Inclusivity, Materiality, and Responsiveness	GRI-checked GRI reporting level
Assurance Type/ Level	Type II	Moderate Level
Assurance Criteria	The three AA1000AS (2008) principles and IPS Assurance Manual standards IPS Performance Indicators Assurance Criteria™	GRI G3.1 Sustainability Reporting Guidelines

Work Undertaken and Scope

The Auditor confirmed 1) the inclusivity, materiality, and responsiveness of the reported content; 2) the reliability of the reported performance data; 3) the Report's level of compliance against GRI Sustainability Reporting Guidelines and 4) the level of compliance relative to the B.E.S.T Reporting Guidelines through the process outlined below.

- Interviews with persons responsible for the respective performance dimensions as well as persons in charge of collecting performance data to assess the adequacy of the information contained in the Report
- Review of the Company's materiality testing process and findings
- Review of the Company's stakeholder engagement process
- On-site review to review the Company's raw performance data as well as systems and processes for data collection and reporting
- Review of corroborating reference data across the economic, social, and environmental dimensions
- Review of the completeness and accuracy of the reported content through sample testing of key material issues

Limitations

For the purpose of this assurance, the Auditor undertook a review centered around the Company's Headquarter Office covering available data, disclosed information, performance indicators etc., relevant for the reporting period. With regard to the Company's financial performance, which belongs to the economic dimension of sustainability, as well as data on greenhouse gas emissions, the Auditor referenced data validated by an independent third party provider.

Assurance Findings

[Inclusivity] Is the Company's stakeholder engagement strategy-setting and related processes adequate?

The Auditor took note of continuous efforts by KOWEPO to establish processes for stakeholder engagement, based on recognition of the importance of stakeholder participation in implementing sustainability management. The Auditor also took note of efforts to incorporate stakeholder comments in the Company's business management activities by making use of various engagement channels. The following points were found to be particularly commendable.

- Efforts to identify expectations specific to different stakeholder groups while also introducing channels for stakeholder communication to build mutual trust; and
- Efforts to re-categorize stakeholders depending of the degree of mutual impact, while also providing an account of the engagement findings collected across the respective channels in the Report.

Going forward, however, as clearly defined in its 2013 Report with regard to the prior year's stakeholder groups, the Company is advised to review its various stakeholder engagement channels and their utilization for possible improvements, while working to better reflect stakeholder views collected through the various channels in the Company's sustainability management activities.

[Materiality] Does the Report contain information of the highest material importance to KOWEPO stakeholders across the economic, social, and environmental dimensions?

It is the Auditor's view that the Report does not omit or exclude issues of importance to the stakeholders of KOWEPO across the economic, social, and environmental dimensions. The Company was found to be engaged in various activities including - a direct/indirect economic impact study, a review of internal practices and policies, a review of relevant laws and international norms, a survey of internal and external stakeholders, benchmarking of industry peers and companies leading in the field of sustainability management, a media review etc., - as part of a six-stage analytical process for

materiality assessment in identifying issues of material importance to its stakeholder groups. Building on these findings, the Company structured its Report so that it includes issues found to be of the highest importance. The following points were found to be particularly commendable.

- Efforts to assess issues of the highest priority for KOWEPO in 2012, with due consideration toward their importance and potential external impact to each of the respective stakeholder groups; and
- Structuring the Report so that issues of the highest priority are accounted for in the “core” part of the Report, while presenting mid to low-level issues in the performance outcome section of the Report, to make sure that issues of stakeholder interest are not left unaccounted for.

Going forward, the Auditor recommends develop a system for responding to issues identified in each of the reporting periods so that the Company can be more responsive to any changes surrounding the issues. The Company is also advised to provide a status update on how the key material issues are currently being managed.

[Responsiveness] Does the Report provide an adequate response to stakeholder demands and interests?

The Auditor confirmed efforts by KOWEPO to respond to key issues of interest and concern to its stakeholders by providing an account of the collected views in its Report as well as the Company’s response and outcomes. The following points were found to be particularly commendable.

- The Report highlights examples of efforts by the Company to reflect stakeholder views in its management activities such as “Click & Suggest Now” recommendation activities, retirement planning program, labor/management council, local community council, and global marketing support for SMEs etc., while also providing an account of all key outcomes; and
- The Report provides an update centered on issues identified to be of the highest priority to the Company’s stakeholders as well as their outcomes, which is responsive to the needs of its stakeholders.

Going forward, however, the Auditor suggests improving its responsiveness further, by establishing a plan outlining its intended future response as well as target levels and goals. Moreover, the Company should provide an account of its achieved outcomes while explaining its position and working to improve upon any weaknesses.

[Performance Indicators] With regard to the performance indicators presented in the Report, on the basis of our review of the reported data and content, the Auditor found the underlying data collection system to be adequate and did not find any material errors that can either bias the Company’s judgment or compromise the reliability of its data.

[GRI Compliance Levels] The Report was found to be consistent with “A+” compliance levels, when measured against the GRI G3.1 Reporting Guidelines. Relative to the B.E.S.T Guidelines, the Report was found to satisfy 95.9% of the reporting requirements necessary to qualify for a “Level 4” report in view of the depth and coverage of the reported content.

Recommendations

As the fifth Report by KOWEPO, the Auditor found its “2013 Sustainability Report” commendable in the following respects. The Report (1) is structured to highlight focus on the “core” issues of stakeholder interest for the given reporting year; (2) represents stronger DMA disclosure, making it easier for readers to understand its sustainability management plans and achievements; and (3) reflects efforts by the Company to implement sustainability management practices in line with global sustainability standards by expanding the scope of applicable guidelines.

For future reports, the Auditor recommends considering the following.

- Apply strengthened sustainability reporting
- Reinforce the use of easier to understand terminology when reporting on performance outcomes and other reported content
- Strengthen reporting on any negative issues or underperforming outcomes
- Center reporting around core and importance issues for the given reporting year
- Improve stakeholder accessibility by providing links with the Company’s website

Independence

Apart from this independent assurance undertaking, the Auditor was not involved in the preparation of any part of the Report, and has no commercial affiliation with KOWEPO that might compromise our independence.

Qualifications of the Auditor

Commissioned by KOWEPO as the Auditor for this assurance undertaking, the Institute for Industrial Policy Studies (IPS) was established in 1993 and has since developed into a specialized institution with broad expertise in the areas of business ethics, CSR, and sustainability management since 2002. The Auditor is composed of experts in business management, accounting, and environmental science including professors at Korea’s top universities and practitioners with professional accreditation and extensive experience in sustainability management.

GRI Indicators Chart

● : Reported, ● : Partially reported, ○ : Not reported, ◇ : Not applicable

Classification	Indicators number	Contents of indicators	Cover	Page	BEST	UNGC article
Strategy and Analysis	1.1	Statement from the most senior decision maker of the organization about the relevance of sustainability to the organization and its strategy.	●	2-3	A_1	
	1.2	Description of key impacts, risks, and opportunities.	●	10-11	A_2	
Organizational Profile	2.1	Name of the organization.	●	4	A_3	
	2.2	Primary brands, products, and/or services.	●	4-5	A_4	
	2.3	Operational structure of the organization, including main divisions, operating companies, subsidiaries, and joint ventures.	●	4-5	A_5	
	2.4	Location of organization's headquarters.	●	4	A_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.	●	5, 24-27	A_7	
	2.6	Nature of ownership and legal form.	●	4	A_8	
	2.7	Markets served (including geographic breakdown, sectors served, and types of customers/beneficiaries).	●	5, 24-27	A_9	
	2.8	Scale of the reporting organization, including: Number of employees; Number of operations; Net sales or net revenues; Total capitalization broken down in terms of debt and equity (for private sector organizations); and Quantity of products or services provided.	●	4-5	A_10	
	2.9	Significant changes during the reporting period regarding size, structure, or ownership	●	4-5	B_8	
	2.10	Awards received in the reporting period.	●	78	C08	
Report Parameters	3.1	Reporting period (e.g., fiscal/calendar year) for information provided.	●	Inner cover	B_3	
	3.2	Date of most recent previous report (if any).	●	Inner cover	B_8	
	3.3	Reporting cycle (annual, biennial, etc.)	●	Inner cover	B_6	
	3.4	Contact point for questions regarding the report or its contents.	●	Inner cover	B_9	
	3.5	Process for defining report content, including: Determining materiality; Prioritizing topics within the report; and Identifying stakeholders the organization expects to use the report.	●	Inner cover	B_4	
	3.6	Boundary of the report (e.g., countries, divisions, subsidiaries, leased facilities, joint ventures, suppliers). See GRI Boundary Protocol for further guidance.	●	16-17	B-1	
	3.7	State any specific limitations on the scope or boundary of the report.	●	Inner cover	B-2	
	3.8	Basis for reporting on joint ventures, subsidiaries, leased facilities, outsourced operations, and other entities that can significantly affect comparability from period to period and/or between organizations.	●	4-5	A_6	
	3.9	Data measurement techniques and the bases of calculations, including assumptions and techniques underlying estimations applied to the compilation of the Indicators and other information in the report.	●	Inner 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).	●	Inner cover	-	
	3.11	Significant changes from previous reporting periods in the scope, boundary, or measurement methods applied in the report.	●	Inner cover	B_5	
	3.12	Table identifying the location of the Standard Disclosures in the report.	●	82-85	B_10	
	3.13	Policy and current practice with regard to seeking external assurance for the report. If not included in the assurance report accompanying the sustainability report, explain the scope and basis of any external assurance provided. Also explain the relationship between the reporting organization and the assurance provider(s).	●	80-81	B_7	
Governance, Commitments, and 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.	●	12	GR1	
	4.2	Indicate whether the Chair of the highest governance body is also an executive officer (and, if so, their function within the organization's management and the reasons for this arrangement).	●	12	GR1 GR3	
	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 members.	●	12	GR2	
	4.4	Mechanisms for shareholders and employees to provide recommendations or direction to the highest governance body.	●	14, 42	GR12	
	4.5	Linkage between compensation for members of the highest governance body, senior managers, and executives (including departure arrangements), and the organization's performance (including social and environmental performance).	●	13	GR7	
	4.6	Processes in place for the highest governance body to ensure conflicts of interest are avoided.	●	12	GR13	Rules 1-10
	4.7	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.	●	12	GR4	
	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.	●	87	-	
	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.	●	12-13	GR5	
	4.10	Processes for evaluating the highest governance body's own performance, particularly with respect to economic, environmental, and social performance.	●	12-13	GR6	
	4.11	Explanation of whether and how the precautionary approach or principle is addressed by the organization.	●	10-11	GR11	Rule 7
	4.12	Externally developed economic, environmental, and social charters, principles, or other initiatives to which the organization subscribes or endorses.	●	79, 82-85	GR10	Rules 1-10
	4.13	Memberships in associations (such as industry associations) and/or national/international advocacy organizations in which the organization:	●	79	A_11	
	4.14	List of stakeholder groups engaged by the organization.	●	14	C_1, C_2	
	4.15	Basis for identification and selection of stakeholders with whom to engage.	●	14	C_1	
	4.16	Approaches to stakeholder engagement, including frequency of engagement by type and by stakeholder group.	●	14-15	C_2	Rules 1-10
	4.17	Key topics and concerns that have been raised through stakeholder engagement, and how the organization has responded to those key topics and concerns, including through its reporting.	●	16-17	C_3	

Classification	Indicators number	Contents of indicators	Cover	Page	BEST	UNGC article
Economic performance indicators	Disclosure on management approach		●	18	-	
	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.	●	60	EC1	
	EC2	Financial implications and other risks and opportunities for the organization's activities due to climate change.	●	68~70	EC2	Rule 7
	EC3	Coverage of the organization's defined benefit plan obligations.	⦿	34	EC3	
	EC4	Significant financial assistance received from government.	●	45	EC5	Rule 1
	EC5	Range of ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation.	●	63	EM4	
	EC6	Policy, practices, and proportion of spending on locally-based suppliers at significant locations of operation.	●	63	EC4	
	EC7	Procedures for local hiring and proportion of senior management hired from the local community at significant locations of operation.	●	63~64	EC4	Rule 6
	EC8	Development and impact of infrastructure investments and services provided primarily for public benefit through commercial, in-kind, or pro bono engagement.	●	44~45	EC6	
	EC9	Understanding and describing significant indirect economic impacts, including the extent of impacts.	●	44~45	EC7	
Environment Performance Indicators	Disclosure on management approach		●	19		Rules 7-9
	EN1	Materials used by weight or volume.	●	69	EV10	Rule 8
	EN2	Percentage of materials used that are recycled input materials.	●	76	EV11	
	EN3	Direct energy consumption by primary energy source.	●	69	EV7	
	EN4	Indirect energy consumption by primary source.	●	69	EV8	Rules 8, 9
	EN5	Energy saved due to conservation and efficiency improvements.	●	69~70	EV5	
	EN6	Initiatives to provide energy-efficient or renewable energy-based products and services, and reductions in energy requirements as a result of these initiatives.	●	54~57, 69~70	EV5	
	EN7	Initiatives to reduce indirect energy consumption and reductions achieved.	●	54~57, 69~70	EV5 EV25	Rule 8
	EN8	Total water withdrawal by source.	●	75	EV9	
	EN9	Water sources significantly affected by withdrawal of water.	●	75	EV20	
	EN10	Percentage and total volume of water recycled and reused.	●	75	EV18	Rules 7, 8
	EN11	Location and size of land owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas.	●	75~76	EV22	
	EN12	Description of significant impacts of activities, products, and services on biodiversity in protected areas and areas of high biodiversity value outside protected areas.	●	75~76	EV22 EV26	
	EN13	Habitats protected or restored.	●	75~76	EV27	Rule 8
	EN14	Strategies, current actions, and future plans for managing impacts on biodiversity.	●	75~77	EV6 EV26	
	EN15	Number of IUCN Red List species and national conservation list species with habitats in areas affected by operations, by level of extinction risk.	●	75~77	EV28	
	EN16	Total direct and indirect greenhouse gas emissions by weight.	●	70~71	EV12	Rule 8
	EN17	Other relevant indirect greenhouse gas emissions by weight.	⦿	70~71	EV13	
	EN18	Initiatives to reduce greenhouse gas emissions and reductions achieved.	●	70~71	EV4	
	EN19	Emissions of ozone-depleting substances by weight.	●	73	EV14	Rule 8
	EN20	NOx, SOx, and other significant air emissions by type and weight.	●	73	EV15	
	EN21	Total water discharge by quality and destination.	●	74	EV17	
	EN22	Total weight of waste by type and disposal method.	●	76	EV16	Rule 8
	EN23	Total number and volume of significant spills.	●	77	EV21	
	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.	◇	N/A	EV29	
	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.	●	75~77	EV19	Rules 8, 9
	EN26	Initiatives to mitigate environmental impacts of products and services, and extent of impact mitigation.	●	73~77	EV23	
	EN27	Percentage of products sold and their packaging materials that are reclaimed by category.	◇	N/A	EV24	
	EN28	Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with environmental laws and regulations.	●	77	EV31	Rule 8
	EN29	Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce.	●	76	EV30	Rules 8, 9
	EN30	Total environmental protection expenditures and investments by type.	●	77	EV1	

Classification	Indicators number	Contents of indicators	Cover	Page	BEST	UNGC article
Labor Practices & Decent Work Performance Indicators		Disclosure on management approach	●	18		Rules 1, 3, 6
	LA1	Total workforce by employment type, employment contract, and region, broken down by gender.	●	63	EM1	
	LA2	Total number and rate of new employee hires and employee turnover by age group, gender, and region.	●	63-64	EM5	
	LA3	Benefits provided to full-time employees that are not provided to temporary or parttime employees, by significant locations of	●	34-35	EM20	Rule 6
	LA4	operation.	●	36	EM12	Rules 1, 3
	LA5	Percentage of employees covered by collective bargaining agreements.	●	36	EM13	Rule 3
	LA6	Minimum notice period(s) regarding significant operational changes, including whether it is specified in collective agreements.	●	38	EM14	Rule 1
	LA7	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.	●	37-38	EM19	
	LA8	Rates of injury, occupational diseases, lost days, and absenteeism, and total number of work-related fatalities, by region and by gender.	●	37-39	EM18	
	LA9	Education, training, counseling, prevention, and risk-control programs in place to assist workforce members, their families, or community members regarding serious diseases.	●	38	EM15	Rule 1
	LA10	Health and safety topics covered in formal agreements with trade unions. Health and safety topics covered in formal agreements with trade unions.	●	65	EM27	
	LA11	Average hours of training per year per employee, by gender, and by employee category.	●	66	EM28	
	LA12	Programs for skills management and lifelong learning that support the continued employability of employees and assist them in managing career endings.	●	66	EM29	
	LA13	Percentage of employees receiving regular performance and career development reviews, by gender	●	12, 63	EM2	
	LA14	Composition of governance bodies and breakdown of employees per employee category according to gender, age group, minority group membership, and other indicators of diversity.	●	63	EM3	Rule 6
	LA15	Ratio of basic salary and remuneration of women to men by employee category, by significant locations of operation.	●	63	-	
Human rights performance indicators		Disclosure on management approach	●	18		Rules 1-6
	HR1	Percentage and total number of significant investment agreements and contracts that include clauses incorporating human rights concerns, or that have undergone human rights screening.	●	48	PN2	
	HR2	Percentage of significant suppliers, contractors, and other business partners that have undergone human rights screening, and actions taken.	●	48	PN3	
	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.	●	36	EM30	Rules 1-6
	HR4	Total number of incidents of discrimination and corrective actions taken.	●	36	EM7	Rules 1, 2, 6
	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.	●	50-51	EM8	Rules 1-3
	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.	●	36	EM9	Rule 5
	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.	●	36	EM10	Rules 1, 2, 4
	HR8	Percentage of security personnel trained in the organization's policies or procedures concerning aspects of human rights that are relevant to operations.	○	Not reported	EM31	
	HR9	Total number of incidents of violations involving rights of indigenous people and actions taken.	◇	N/A	CO2	
	HR10	Percentage and total number of operations that have been subject to human rights reviews and/or impact assessments.	●	36	-	
	HR11	Number of grievances related to human rights filed, addressed, and resolved through formal grievance mechanisms.	●	36	-	
Society Performance Indicators		Disclosure on management approach	●	18		Rules 7, 10
	S01	Percentage of operations with implemented local community engagement, impact assessments, and development programs.	●	43-45	CO2	Rule 7
	S02	Percentage and total number of business units analyzed for risks related to corruption.	●	50-51	CO5	
	S03	Percentage of employees trained in organization's anti-corruption policies and procedures.	●	50	CO5	Rule 10
	S04	Actions taken in response to incidents of corruption.	●	51	CO5	
	S05	Public policy positions and participation in public policy development and lobbying.	●	56-57, 67, 70	CO6	
	S06	Total value of financial and in-kind contributions to political parties, politicians, and related institutions by country.	●	67	CO7	
	S07	Total number of legal actions for anticompetitive behavior, anti-trust, and monopoly practices and their outcomes.	●	67	CS3	
	S08	Monetary value of significant fines and total number of non-monetary sanctions for noncompliance with laws and regulations.	●	67	CO9	
	S09	Operations with significant potential or actual negative impacts on local communities.	●	43, 45	-	
	S010	Prevention and mitigation measures implemented in operations with significant potential or actual negative impacts on local communities.	●	43-45	-	

Classification	Indicators number	Contents of indicators	Cover	Page	BEST	UNGC article
Product Responsibility Performance Indicators		Disclosure on management approach	●	18		Rule 8
	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.	●	73~77	CS4	Rule 1
	PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning health and safety impacts of products and services, by type of outcomes.	●	67	CS11	
	PR3	Type of product and service information required by procedures, and percentage of significant products and services subject to such information requirements.	◇	N/A	CS5	Rule 8
	PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and service information and labeling, by type of outcomes.	●	67	CS12	
	PR5	Practices related to customer satisfaction, including results of surveys measuring customer satisfaction.	●	15, 67	CS9	
	PR6	Programs for adherence to laws, standards, and voluntary codes related to marketing communications, including advertising, promotion, and sponsorship.	●	67	CS13	
	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.	●	67	CS14	
	PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data.	●	67	CS15	
	PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services	●	67	CS12	
Electric power industry addition indicators	EU1	Capacity by power supply	●	5, 22		
	EU2	Power generation capacity by power supply	●	5, 22		
	EU3	Classification into general house, industry, commercial, agency customer, and their numbers	◇	-		
	EU4	Length of power line/distribution line by voltage	◇	-		
	EU5	Emission allotment under the emission trade system	◇	N/A		
	EU6	Short/long-term assurance plan for power availability and reliability	●	22~23		
	EU7	Status of whether a power demand management program is implemented	◇	N/A		
	EU8	Status of R&D expenses and activity for stable power supply and sustainable development	●	28~30, 55, 62, 72		
	EU9	Regulation of stopping operation of nuclear power plant	◇	N/A		
	EU10	Facility expansion plan by power supply in accordance with long-term prediction of power demand	●	23		
	EU11	Efficiency of thermal power plant by power supply	●	22		
	EU12	Loss rate of power transmission and distribution compared to entire energy	◇	-		
	EU13	Status of ecology in bio-diversity protection area	●	75~76		
	EU14	Personnel management process and program for securing of professional manpower	●	63~66		
	EU15	Rate of retiree-to-be within 5-10 years by occupational group and region	●	63		
	EU16	Policy and guidance to guarantee health and safety of employees and subcontracted employees	●	37		
	EU17	Working hours of subcontracted employees for constructing power plant and conducting maintenance	○	-		
	EU18	Rate of subcontracted employees who completed health and safety education	●	37		
	EU19	Status of stakeholder engagement for decision-making process related to energy supply and demand plan and construction of development infrastructure	●	45		
	EU20	Immigrants-related policy and management principle	●	45		Rule 7
	EU21	Educational program related to disaster, disaster protection, crisis response, and urgent recovery	●	38		
	EU22	Number of generated immigrants by project	●	45		
	EU23	Program for improving power distribution rate (including cooperation with government)	●	22~23		
	EU24	Program for supporting power supply to neglected class of power demand	●	43		
	EU25	Number of general deaths or disaster accidents already receiving legal remedy or ongoing legal lawsuits (harm to the general public, not employees)	●	37~38		
	EU26	Population living in area without network of power transmission and distribution	◇	N/A		
	EU27	Number of household with power supply shut off due to electricity bill in arrears (report by sub-dividing by period of discontinuance)	◇	N/A		
	EU28	Frequency of plant shutdown	●	22		
	EU29	Average period of plant shutdown	●	22		
	EU30	Average use rate of plant by power source	●	22		

Definitions

► High-efficiency electric precipitator

Installation that makes dust particles of gas spin to have electric characteristic, then collects dust by using a magnetic field

► Wet limestone-gypsum desulfurization

A facility that produces gypsum used as construction materials, and at the same time, removes sulfur oxides by reacting limestone with SO_x within gas, after vehicle exhaust passes through limestone solution

► BSC (Balanced Score Card)

A new strategy management and performance assessment system that becomes a comprehensive measurement indicators to measure and manage the company's mission and strategies

► CCM (Clean Cooperator Monitoring)

Telephone survey conducted aimed at contractor of cooperation companies, construction site managers, and visiting customers

► CDM (Clean Development Mechanism)

A system that reflects reduced amount of greenhouse gas on native reduction result through advanced countries' financial and technical investment in developing countries to reduce greenhouse gas emission, regulated by Article 12 of Kyoto Protocol

► CEM (Customer Experience Management)

Customer satisfaction concept, based on process and implementation not result, in which customer analyzes and integrates all situations and the psychological process

► GRI(Global Reporting Initiative)

A guideline of sustainability report suggested by an affiliated organization of UNEP (UN Environmental Program)

► GWP (Great Work Place)

A workplace where all employees can trust their supervisors and executives, take much pride in their duties, and work with colleagues cheerfully. There are three requirements that employees should meet: have faith in fair process with humanity, morality, principles and standard, have pride in their responsibilities, and, fully enjoy their duties.

► IPCC (Intergovernmental Panel on Climate Change)

An affiliated organization of the UN consisting of experts from around the world, founded as a council among governments regarding climate change in 1988 to review comprehensive responses to global environment, especially global warming. There are three working groups that review the scientific assessment of global warming, its impacts on environment and society, and following responses, aim for the conclusion of "Global Warming Prevention Treaty".

► IGCC (Integrated Gasification Combined Cycle)

A power generation method that generates gas made of carbon monoxide and hydrogen through incomplete combustion and gasification in a condition of high temperature and high pressure using low-quality solid and liquid fuels such as coal, heavy residual oil and petroleum coke, and after purification process of gas, generates power, first in a gas turbine and second in a steam turbine.

► K-OHSMS (Occupational Health & Safety Management System)

A management system in which a company allocates internal material and human resources efficiently and manages them, with a purpose of prevention of industrial accident and creation of a pleasant working environment, by establishing organization, responsibility and procedure to achieve a goal for maintenance of safety and health of employees.

► PCBs (Polychlorinated Biphenyls)

A generic term for materials in which one or more hydrogen atoms of Biphenyl (C₁₂H₁₀) are substituted for chlorine. It is one of the persistent organic pollutants that cause damage to the ecosystem since they are highly toxic and decompose very slowly.

► P-CRM (Policy Customer Relationship Management)

A system providing differentiated, customized policy information for customers by politic area, and currently has introduced promotion means to form nationwide sympathy and improve the reliability and efficiency of work when government agencies promote policy.

► PMP (Project Management Professional)

A certificate of international project management specialist sponsored by PMI(Project Management Institute)

► PSMS (Product Safety Management System)

A new model of management system, general management activity of a company to respond to the Product Liability Act, to improve product safety during total product life cycle including product development, design, manufacturing, delivery and disposal.

► SCR (Selective Catalytic Reduction)

An installation that separates NO_x into N₂ and O₂ by filtering through catalyst layer and emits them into the air.

► TPH (Total Petroleum Hydrocarbon)

Used TPH to identify pollution mainly caused by kerosene, light oil, jet oil and bunker-C oil among samples polluted by oil.

Code of Conduct KOWEPO's people

First

We do always put ourselves in the customer's place and make constant efforts to earn unbounded confidence from customers based on honesty and transparency. Our most important duty is to provide better-quality electric power at a lower price for customers. We do not violate customer's legitimate profit and rights for the profit of our own company and/or private. We notify important issues related to company management to customers rapidly and transparently.

Second

As a member of a social community, we pursue co-prosperity through ethical, rational business activities and social services. We engage in businesses of academy, culture, sports and scholarship for local community, and greatly contribute to the development of the local economy. We do our best to conserve the environment and protect nature, and comply with various regulations faithfully. We improve amicable relationships with business interests and are fair in competition through sound business activities. We maintain an equal relationship with cooperating companies and do not cause trouble related to any corruption or irregularities.

Third

We make active efforts to provide improvement of quality of life and satisfaction for employees. There should be a reasonable salary, pleasant workplace and freedom to set forth employee's opinions and talk about their difficulties. We provide equal opportunities for employees based on their ability and achievement in employment, assignment, promotion and development of ability, as well as give special consideration to fulfillment of responsibility to their families. We constantly make an effort for self-improvement and perform our duty honestly to make the company successful.

Forth

We seek for investment profit of shareholders by realizing healthy profit through efficient management activity and rational investment. We maintain all the facilities in optimal condition and improve the quality of product and service through continuous innovation, so that we can create a sound earnings foundation with the best competitiveness in a changing management environment. We do our best to make transparent accounting in accordance with international business accounting standards and try to obtain evaluation suitable for company value with active promotion.



Reader's comments

We would like to hear your valuable opinions to improve the faithfulness and completeness of this sustainability report of KOWEPO. Your opinions will be reflected on further reports to be published.

1. How did you access to this report?

- ☐ Website
 ☐ Media such as newspaper and TV
 ☐ KOWEPO
☐ Seminar, lecture, etc
 ☐ Seminar, lecture, etc

2. To which of the following groups do you belong?

- ☐ Government, shareholder, investor
 ☐ Employee
 ☐ Partners and clients
☐ Local residents, NGO
 ☐ Local residents, NGO
 ☐ Other

3. What do you think of this report?

- ☐ Easy to understand
 ☐ Mostly understandable
 ☐ Mostly not understandable
 ☐ Hard to understand

4. What was the most interesting part of this report?

- ☐ Company information
 ☐ Social performance
 ☐ Environmental performance
 ☐ Economic performance

5. Where do you think this report needs additional information?

Step 1	Step 2	
<input type="checkbox"/> Company information	<input type="checkbox"/> Company introduction <input type="checkbox"/> Corporate governance structure	<input type="checkbox"/> Vision and management strategy <input type="checkbox"/> Risk management
<input type="checkbox"/> Economic performance	<input type="checkbox"/> Operation of power plant <input type="checkbox"/> Development of new renewable energy <input type="checkbox"/> Management innovation	<input type="checkbox"/> Development of new projects (domestic, overseas) <input type="checkbox"/> Technology development <input type="checkbox"/> Financial performance
<input type="checkbox"/> Environmental performance	<input type="checkbox"/> Correspondence effort for climate change agreement	<input type="checkbox"/> Pollutants emission control
<input type="checkbox"/> Social performance	<input type="checkbox"/> Safety and health <input type="checkbox"/> Ethical management <input type="checkbox"/> Support for small and medium-sized businesses, co-prosperous management <input type="checkbox"/> Employee satisfaction (benefits package, labor-management cooperation) <input type="checkbox"/> Support for local community and social contribution	<input type="checkbox"/> Development of human resources
<input type="checkbox"/> Social performance	<input type="checkbox"/> Fuel purchase	<input type="checkbox"/> Building of expansion infrastructure for power plant

6. Do you have any suggestion to improve this report?

7. Please write suggestions about KOWEPO's sustainable management freely.

Sender.

Name : _____

TEL : _____

E-mail : _____

Recipient.

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