

K O G ΑS SUSTAINABILITY R m σ Õ R T 2006



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# SUSTAINABILITY REPORT 2006 **BEYOND KOGAS**

Economic Value / Environmental Value / Social Value

KOGAS



## ABOUT THIS REPORT

FUTURE

- The Sustainability Report 2006 was prepared by KOGAS. The purpose of this report is to provide KOGAS stakeholders with an overview of the Company's efforts and commitments to achieve sustainable development in terms of economics, the environment and society. Our goal in releasing this report is to open new channels of communication with KOGAS stakeholders.
- The information contained in this report is prepared in accordance with internationally recognized standards for sustainability reports in consideration of materiality, accuracy, fairness, and comparability.
- The report covers the period from Jan. 1 to Dec. 31, 2006, however, historical data and information from 2003, 2004 and 2005 is included for comparison purposes. For more information on KOGAS' financial performance in 2006, please refer to the Company's 2006 Annual Report.

## Characteristics of This Report

- KOGAS received ISO14001 certification in 1997, and since 1998, we have published an Environmental Report every two years hence. In 2004, we published an Environmental, Health, Safety & Quality (EHSQ) Report, which was KOGAS' first sustainability report. The Sustainability Report 2006 integrates and reports on KOGAS' overall economic, environmental and social activities. Henceforth, it is our intention to publish a sustainability report annually to help stakeholders better understand the sustainability activities of KOGAS.
- In compiling this report, we referred to the writing standards of global corporations. In particular, we followed the standards outlined in the G3 version of the GRI (Global Reporting Initiative) Guidelines as our main source of reference.
- To encourage stakeholder participation, we invited stakeholders to help us in prioritizing our actions on sustainability issues and to aid in the identification of core values. Additionally, stakeholder comments and opinions, collected through surveys, were reflected in the report.
- The information and contents of this report were verified by a third party in compliance with international verification standards. An independent verification agency, Det Norske Veritas (DNV), made an assessment and verification of this report in accordance with the AA1000 and the DNV Verification Protocol.

# A FUTURE FOR SUSTAINABILITY

Leaders never cease in their efforts to seek a better future. Challenges create the energy to open the doors to the future. Responsibilities provide the power to run corporate hearts.



And accepting change is our bottom line for innovation.

KOGAS' core values - challenge, change and responsibility - are required attributes of leaders in the 21st Century.

Leaders never cease in their efforts to seek a better future.





# **CEO MESSAGE**



In 1983, KOGAS was established to make natural gas "a national fuel," thus to contribute to the development of the national economy. Since then, KOGAS has put utmost efforts into providing a safe and stable supply of natural gas. At present, KOGAS is the single biggest importer and seller of natural gas in the world.

The year 2006 was a pivotal year for KOGAS as we made every effort to grow economically, environmentally and socially so as to contribute to the steady growth and development of society. The year was also important in that we officially launched sustainability management activities to enhance the trust and support of our stakeholders.

Since its establishment, KOGAS has contributed to global environmental protection activities through the expanded use of natural gas, a cleaner fuel. To facilitate such efforts, KOGAS developed a corporate philosophy of "Better Energy, Better World," which means, "improving the environment and ensuring a better world through the supply of cleaner energy." In line with this, KOGAS acquired ISO14001 certification in 1997 and since then, has continued to develop and improve its environment-friendly management activities. In addition, to fulfill its responsibilities as a corporate citizen, KOGAS mobilized the Cheongyeon Social Service Team made up of volunteers and is moving forward with environment-friendly activities and volunteer social service activities.

Nonetheless, we are aware that much remains to be done in terms of sustainable management. Having determined the core issues of stakeholders, we acknowledge that we must secure stable energy supplies, improve environmental and safety-related activities and expand community-friendly social service activities. Our sustainability management will be the key vehicle for delivering on these needs and activities.

In keeping with such efforts, KOGAS has consistently carried out ethical management activities since 2004. We are fully aware of the importance of corporate ethics and seek to improve our corporate transparency and reliability through various activities such as the establishment of an ethics code. Furthermore, by making our corporate vision and management strategies more customer-oriented, we are determined to execute innovative management activities that meet the increasing demands and expectations of stakeholders.

KOGAS is currently strengthening its cooperation with energy sellers in order to secure stable supplies of resources while ensuring its control of supply and demand with the expansion of storage facilities. Moreover, we continue to search for ways to become actively involved in the resources development sector for the purpose of expanding our portfolio of energy resources and thus our profit streams. We have seen tangible results from KOGAS' involvement in the natural gas production sector and from recent equity investment projects, which are highly diversified in comparison to the Company's past investment projects.

In order to cope effectively with global warming and the United Nations' Convention on Climate Change, KOGAS leads the use of new and renewable energy sources through participation in hydrogen fuel cells development and fuel cell research/monitoring projects. We are also developing relevant technologies and will work to further the Clean Development Mechanism (CDM).

To effectively expedite EHSQ activities, we have built an environmental performance system and will continue to implement environmentfriendly management activities. In particular, we will focus on facility integrity to secure the trust of our stakeholders.

KOGAS will continue to fulfill its responsibilities as a good corporate citizen by steadily moving forward with social contribution activities. In



particular, we will focus on community specific contribution activities. In addition, KOGAS has communicated our commitment to international sustainability activities with its participation in the UN's Global Compact.

With this report, KOGAS recognizes the significance of various activities in meeting the expectations of stakeholders and the requirements of risk management. This report provides us with the opportunity to share our commitment to sustainability management with stakeholders as well as our employees. We will continue to improve our performances and thus, this report as well.

KOGAS is at a crossroads in which it is ready to take off as a top-tier global company. I would like to express my sincere gratitude to you, our stakeholders, for your generous support and encouragement of KOGAS. With your support, KOGAS will continue to improve its competitiveness through steady internal innovation so as to maximize corporate value through stakeholder-oriented management, to increase trust through ethically responsible and transparent management, and to fulfill our social responsibilities as a good corporate citizen.

Thank you for your support and assistance. We will continue to do our best to make the world a better place to live.

March 26 2007

Lee Su-ho, CEO of KOGAS

# GLOBAL COMPACT



# **TEN PRINCIPLES OF UN GLOBAL COMPACT**

#### Human Rights

Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and Principle 2: make sure that they are not complicit in human rights abuses.

#### Labor Standards

Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;

Principle 4: the elimination of all forms of forced and compulsory labour;

Principle 5: the effective abolition of child labour; and

Principle 6: the elimination of discrimination in respect of employment and occupation.

### Environment

Principle 7: Businesses should support a precautionary approach to environmental challenges;

- Principle 8: undertake initiatives to promote greater environmental responsibility; and
- Principle 9: encourage the development and diffusion of environmentally friendly technologies.

### Anti-Corruption

Principle 10: Businesses should work against all forms of corruption, including extortion and bribery.

FUTURE

KOGAS



# SUSTAINABLE MANAGEMENT

KOGAS' Sustainable Management Sustainable Management As Risk Management



Where does the core of KOGAS' sustainable management begin? It begins from our commitment to share our successes in corporate growth with the stakeholders of the past and present, inside and outside, male and female, young and old and the disadvantaged. KOGAS defines this as an attitude for "Challenge, Responsibility and Change."



#### KOGAS' Sustainable Management Practices

In applying Chuang-tzu's saying, "The summer cicadas know neither spring nor autumn" to corporate management, we can summarize sustainable management as 'balancing risk management in preparation for the future.' We set our core value with customers for sustainable management in terms of the concept that we cannot expect a good future without preparation.

This is our proactive approach to facing the challenges of the future, our responsibilities to stakeholders and our positive attitudes towards change. This approach will guide us as we play a role as an energy innovator in the 21st century.



Our stakeholders can be recognized as customer, investor, contractor, community, media/supervisory institutions, government and employee. The following are our sustainable action approaches for sharing our core values ("challenge, responsibility, change") with stakeholders;

- People: Sharing and Coexisting
- Nature: Managing environmental indexes and reconsidering measures for improvement
- Economy: Increasing sales and employment
- Relationships: Global cooperation for securing gas supply

These approaches will be implemented on the basis of achieving balance.



The risks in terms of the sustainable management practices related to our economic activities are more apparent with the changes of international standards such as the UN Framework Convention on Climate Change and the Kyoto Protocol (2005). These treaties are expected to convene a phenomenon in which external market factors become internalized, in this case, with the carbon market. In particular, as an energy wholesaler, KOGAS emits low amounts of carbon in the natural gas chain, especially in the gasification process. Thus, risk management of the carbon premium must become an important part of our sustainable management system. To this end, we have classified the global risks related to our economic activities as the following in order to establish systems for analysis and management.

• Business Risk: These are the risks that accompany corporate management such as risks to value and governance. We plan to implement an ERM (Enterprise Risk Management) system to integrate the managing of all management risks.

• Environmental/Social Risk: These are risks that accompany the energy development business. In order to prevent delays and stoppages in construction, we meet with local communities and stakeholders to gain their input. Furthermore, we are also interested in the risks involved; the social environment, working conditions, the natural environment, biodiversity, and the exhaustion of natural resources.

We have incorporated economic risks into our strategy as well as environmental/social risks, that is, we expect to provide very effective innovation opportunities to improve the welfare of our stakeholders.



#### Effective Sustainable Management Practices

KOGAS is driving its sustainable management practices as if we were disentangling a spool of thread.



When a person pulls one end of the thread carelessly in one direction, the thread becomes entangled and creates an unexpected knot. Accordingly, we are furthering our sustainability management by considering not only our existing economic value-oriented management activities, but the value of people and nature. In particular, we will prepare channels of communication to share stakeholder ideas for the efficient allocation and practical use of resources.



# SUSTAINABLE MANAGEMENT

Stakeholders Participation Sustainable Management Performance



#### Stakeholders' Participation in Sustainability Management

We conducted a survey with stakeholders to learn about their various viewpoints and to analyze the gaps between the internal and external stakeholders. The results of the survey, conducted in December 2006, showed that both internal and external stakeholders stated a preference for challenge over change or responsibility. This was a common phenomenon with both internal and external stakeholders. Among internal stakeholders, the preference of employees for change as a core value was higher than that of executives.



Overall, the internal evaluation of action tasks was generally higher than that of the external evaluation. However, the external evaluation was higher in terms of management strategy, and the evaluation of the energy cooperation sector had the narrowest gap in perceptions between internal and external stakeholders. In contrast, the environmental performance showed a broad range of evaluations. The standard deviation (0.08) for this part of the evaluation was five times higher than for energy cooperation. While analyzing the causes of such a broad range of opinions, it was discovered that the objectives of previous environmental activities were vague. The opportunities for improvement identified in the survey will be addressed through continuous cooperation with stakeholders.



#### **Evaluation of Sustainable Management Performance**

We are planning to obtain an objective evaluation of our sustainable management performances by mobilizing an external consultant in 2007. We expect that more practical improvement items will be identified and guided by a specialized 3rd party rather than by the overall opinions of internal and external stakeholders. We plan to prepare a system for evaluating our efforts at sustainability management based on our internal management review processes. The results of evaluations will be reflected in the reorganization process.

#### 2006 Sustainability Management Award

	Date	Award and Evaluation	Managing Organization
0	Aug., 2006	10 times Disaster-Free Office (Seoul Branch)	KOSHA
Govern- ment	Oct., 2006	The Excellence Award in Volunteer Service Contest (Gyeongin Office)	Ansan City
	Dec., 2006	An Excellent Organization in the Cultural Legacy Protection Campaign	The Cultural Heritage Administration
Private Sector	Mar., 2006	Customer Satisfaction Grand Prize	The Sports Hankook and Korea Consumer Research
	Jun., 2006	Korea Productivity Grand Prize (Production Innovation)	Korea Management Association
	Oct., 2006	Grand Prize for Best Company in 2006	Economic Review
	Oct., 2006	Grand Prize for Social Contributions	Korea Economic Daily
	Dec., 2006	Grand Prize as Korea's Best Leader	Media Intelligence



## - Approach to Improve Sustainable Corporate Value



<ul> <li>Indicators of Sustainable Management by Phase</li> </ul>	

Phase		Foundation (2007)	Establishment (2008~2011)	Sustainable Management (2012~2016)
	Economic	Sales: US\$15,113 million Net Income: US\$304 million	Sales: US\$18,443 million Net Income: US\$496 million	Sales: US\$19,282 million Net Income: US\$1,112 million
Four	E H S (Environment)	Roll out the Environment Performance Evaluation (EPE) System	Execution of Company-wide EPE Prepare Mid- to Long-Terr Environment Strategy	An environmentally- n sound company
Sectors	Society (Respect)	Top 20	Тор 10	Top 5
	Manpower	International Business Experts	Manpower Pools by Sector	Leading Global Markets
Sustainable Activities		Publishing CSR Report Participate in Global Compact Registries report in GRI	Evaluation of Sustainable Activities In Place the Sustainability System	Global Standards in Sustainability Activities

## • Sustainable Management Performance Indicators

	<b>c</b> .		Performan		mance
	Sector	Indicator of Core Performance	Unit	2005	2006
	Rusinoss	Pipeline (Total)	KM	2,452	2,520
	Expansion	Storage Capacity (Total)	10,000Kl	446	488
	Expansion	Vaporizing Capacity	Tons/Hour	7,340	8,060
Economic	Credit Rating	Credit Rating (Moody's)	-	A3	A3
		R&D Investment	KRW100 millions	647	729
	Core Technologies	Patent (Total)	ltem	165	185
		Core Technologies	ltem	71	91
	Management	Corporate Probity	Point	9.3	9.5
	Management	Ratio of Web-based Purchases	%	73	83
Society	Transparency	Ratio of Information Disclosures	%	91	93
	Partnerships	Ratio of Small Company Purchases	%	26	15
	Social Contribution Activities	Amount of Social Contributions	KRW millions	3,924	3,327
	Manpower Development	Education & Training Hours (per Person)	Hours/ Persons	93	93
Humanity	Human Rights	Ratio of Female Employees	%	14.3	3.5
	and Diversity	Ratio of Physically-challenged Employees	%	1.6	2

<ul> <li>Sustainable Management Roadmap</li> </ul>								
Sustainable Management	Sustainable Management: Growth, Consideration, Balance, Sharing	Global Risk Management	Set the Sustainability Codes & Strategy					
	Survey Stakeholder Awareness (Gap Analysis)	Adjusting Goals of Action Plan according to Changes in External Environments	Stabilize Sustainable Management System					
KOGAS:								
Global Energy	Fulfillment of Role	Coping with Post- Kyoto Protocol	Putting Global Risk Management System In Place					
KOGAS	as Policy Leader	Integration of Energy and Environment Markets	Strategy to join Integrated Energy-Environment Market					
	Economic	Evaluation of Management Effectiveness	Evaluation of Action Items for each Stakeholder					
	Performance-Oriented Management Strategy	Minimizing Regulations and Changing Structures	Identify Sustainable Business Model					
	A Global	Energy Partner: Beir	ng with Customers					

# COMPANY SUMMARY

Characteristics of Natural Gas Characteristics of NG Business



Natural gas is a gift from nature. How can we utilize this gift and its value most effectively? Our goal is to maximize convenience for customers while contributing to the improvement of quality of life. KOGAS is leading the way in freeing Korea from energy supply concerns.

The value of natural gas increased after two oil shocks. In 1986, Korea first introduced natural gas so as to reduce the nation's dependence on oil and to satisfy demand for convenient and clean sources of energy. After the Oil Shock of the 1970s, Korea realized the need to find alternative sources of energy to stabilize the supply and natural gas was considered an excellent alternative. Currently, natural gas is widely used throughout the country as one of Korea's major sources of energy.

# **Characteristics of Natural Gas**

#### **Components of Natural Gas**

Methane is the main component of natural gas at 85.0% in terms of volume. Other components are butane, pentane and nitrogen. KOGAS adds an odorant to natural gas in the production process.

	Ingredients	Standards
	Methane: CH4	85.0 mol% or more
Major	Butanes and Heavier: C4+	2.0 mol% or less
Ingredients	Pentanes and Heavier: C5+	0.1 mol% or less
	Nitrogen: N2	1.0 mol% or less
Others	Total Sulfur	30mg / m² or less
Uthers	Hydrogen Sulfide	5mg/m²orless

\* Note: An odorant is added to natural gas for easy detection of leakage.

## **Characteristics of the Natural Gas Business**

The reservoir volume of natural gas is bigger than that of petroleum and is widely spread throughout the world in such regions as Russia, the Middle East and Asia. In terms of transportation, if the distance between a gas field and consumer is less than 5,000km, it is traded in the form of PNG and when the distance is over 5,000km, it is transported in the form of LNG.

#### Large-Scale Capital Project

It costs more than US\$3 billion and a long period of time to develop a gas field with a certain scale (3 million tons a year). The natural gas business is a large-scale international business requiring large capital investment. Participants in the business include LNG producers and buyers, carrier fleets and international financiers.

#### **Rigidities in Trading**

The structure of the natural gas business is relatively rigid, because long-term contracts in line with production, transport and consumption, often spanning more than 20 years, must be finalized before the start of development. In addition, the supplying and receiving of contracted volumes is strictly controlled and regulated.

#### **Business Structure**

As one of the biggest international LNG companies, KOGAS imports LNG and distributes it to consumers across the nation (17 power stations and 30 city gas companies) through a countrywide 2,520Km-long pipeline network and by tank lorries. City gas companies distribute the natural gas directly to end-users.



# COMPANY SUMMARY

**Company Status** 

# "Better Energy, Better World." This is our mission.

KOGAS was established to promote convenience in people's lives through the supply of natural gas as a clean energy. Our business scope includes the development, production and supplying of natural gas, to construct and operate LNG receiving terminals and pipeline network of the natural gas distribution.

# Introduction of Company



KOGAS introduced a practical team system for the establishment of a work-oriented organization system. Through this change, we reduced a total of 138 departments to 102 teams. This reorganization process will be continuous so as to improve our productivity.





st Commissioning the supply of natural gas to Hongseong, Yesan, Goryeong and Naju in 2006

With the completion of a main pipeline network for the Kangwon-do area in November, 2002, KOGAS completed the nationwide supply loop. We will continue to expand our service reach to increase convenience for people and promote balanced regional development.



As an environment-friendly energy source, natural gas is an elementary energy source for homes, industries and power plants for the generation of power and heat.

# COMPANY SUMMARY

Management Philosophy, Vision and Strategy



# KOGAS has been taking the lead in making Korea an energy power.

It is not an exaggeration to say that the world is now waging an energy war without guns and bullets. Every nation is preparing for the future by securing sources of energy today. KOGAS has concentrated on the stable supply of natural gas over the past 22 years.



#### **Management Philosophy**

KOGAS endeavors to realize our slogan of "Better Energy, Better World" through the stable supply of natural gas, an environmentfriendly fuel. We are making this come true, a better world based on sustainable development and co-prosperity with our stakeholders, and this will be with us through the production and sale of natural gas and ceaseless development of future renewable energies.

#### Vision

Our vision is to be a globally competitive energy-specialized company by making ceaseless efforts and securing trust internally and externally. Ultimately we will become an extremely attractive company to shareholders and investors and share the best value in the industry with direct customers and consumers, while providing the best workplaces for employees.

We will pioneer our dream of energy independence by developing alternative energy sources such as DME and gas hydrates alongside the export of accumulated facility-related technologies.

#### Management Strategy

KOGAS, a company specializing in energy, has grown with the history of natural gas in Korea while accumulating expert knowledge in the gas sector on the basis of technological innovation, marketing capabilities and a credible reputation.

Despite its many successes, KOGAS will not rest on its laurels. With continuous change and a pioneering spirit, we are developing new business profiles in such areas as exploration, development, production and liquefaction in the pursuit of growth and profitability. We seek to maximize our management capabilities so as to satisfy customers, shareholders, investors and employees.

To this end, we intend to enforce internal productivity and our leadership in the gas market at home and abroad while making steady efforts to secure core management resources. Furthermore, the customer will be with us all the way as KOGAS grows into becoming a global company based on the development of our future business profile.



# CORPORATE GOVERNANCE AND TRANSPARENT MANAGEMENT



## **BOD and Selection Process**

The BOD of KOGAS abolished the chairman system and the automatically instituted member system in October of 1997. After this, a new BOD system, which consists of the CEO, standing directors and non-standing directors, was introduced in compliance with the Law on Improvements in Corporate Governance and KOGAS' articles of governance.

#### BOD Meetings

	Number		Issues Passed (1)					
	of Meetings	(1+2)	Passed without Change	Passed with Change	Reserved	Rejected	Sub-Total	Reported (2)
2003	20	55	33	5	2	0	40	15
2004	14	53	34	4	0	0	38	15
2005	23	72	44	3	2	0	49	23
2006	13	51	33	0	1	0	34	17

KOGAS does not have a committee under the BOD, but in considering the specialties of non-standing directors, KOGAS makes major management decisions regarding such matters as annual business plans, budgeting, the evaluation of performances and the establishment of business goals in consultation with non-standing directors and the directors assigned to each Division.

#### Average BOD Participation

	2003	2004	2005	2006
Average Participation Ratio	89.8%	93.5%	91.8%	91.7%
Non-Standing Directors	91.4%	93.9%	91.3%	89.0%

#### Process for Appointing Directors and Executives, and Salaries

The standing directors are appointed at the shareholders' meeting upon the recommendation of the Standing Director Nomination Committee and the CEO with approval of the BOD. Non-standing directors are also appointed at the shareholders' meeting upon the recommendation of shareholders or the shareholders' conference.

The salary for directors includes a basic salary, performance-based incentives and severance benefits. The yearly basic salary is decided by the board of non-standing directors within the limits approved by shareholders at the shareholders' meeting. Performance-based incentives are awarded according to the achievement of management contracts confirmed at the beginning of each year.

#### Audits and Audit Committee

KOGAS appoints a standing auditor at the shareholders' meeting in compliance with Article 409 of Korea Commercial Law and Article 22 of KOGAS' articles of governance. We also operate an Audit Committee in accordance with Clause 24 of Article 84 of the Stock Trade Law. An internal audit system has been put in place to allow auditors unimpeded access to relevant information and data so as to perform thorough and objective audits of the Company's finances.

#### **Management Committee**

KOGAS operates a Management Committee consisting of the CEO, the vice-president and other executives, and the heads of offices, which discusses and makes decisions regarding important business issues.

#### **Composition of Shareholders**

The shareholders of KOGAS consist of the Korean government and the Korea Electric Power Corp., which together account for 61.2% of holdings. KOGAS' total capital equals US\$386.4 million.

Capital	Но	ldings by S	Shareholde	ers	
Capitat	Government	KEPCO	Local Government	Others	
US\$386.4 million	27%	25%	10%	38%	Total Issued Shares: 77,284,510

FUTURE

KOGAS

# **RISK MANAGEMENT**

Management of Natural Gas Supply and Demand and Internal Control Systems



KOGAS' risk management is based on the Company's accumulated experience and vast knowledge of the natural gas business. It is crucial that our risk management system be capable of determining and mitigating against predictable and revealed risk.

#### Gas Supply Management System

KOGAS has put a Supply Control Team and a Supply Control Committee in place, with the Sr. Executive Vice President as chairman, to deliberate on major issues such as import and sales contracts, changes in the contracts and the maintaining of a safe inventory.



#### Internal Control System

As for the accounting system in terms of reformed laws such as a law on external audits of a corporation, we make it obligatory for the management to check and approve the efficiency of internal controls when submitting business plans for the purpose of securing transparency and reliability in producing financial reports. External auditors are asked to share their opinions after reviewing the internal accounting system including the internal control system.

Accordingly, KOGAS is executing internal accounting management regulations and reports on the status of the execution every half to the BOD and auditor, and in our business plans published in accordance with the Stock Trade Law. Furthermore, in order to increase the effectiveness of the internal control system, completed in April of 2006, KOGAS evaluates the design and effectiveness of the system using 11 processes and 386 controlled items every quarter.

#### **Management Committee**

KOGAS operates a Management Committee as the highest internal decision-making organization. The purpose of the committee is to devise effective measures for removing risk factors in advance regarding important issues requiring policy decisions. The committee consists of 11 executives including the CEO (as the chairman of the committee) and makes rational decisions based on consensus rather than as a mere support mechanism for the CEO. The Management Committee meets every Thursday and reviews the issues of relevance to the BOD and recognized by the CEO.

#### **Internal Audit System**

KOGAS aspires to conduct consulting audits and preventive audits rather than pointing out individual problems to maximize the value of the entire system by improving the efficiency of the organizational system and by helping to reach goals. By doing so, KOGAS conducts consulting audits, which aim to contribute to accomplishing management goals. The goals are to plan on manpower development and to understand the trends of international natural resource development. In addition, we operate a system for the reporting of corruption called "Cheongeumgo," which helps to secure transparency while improving awareness of ethical issues.

We have maintained a record of audit results in our Audit Information System since 1999. This provides us with the opportunity to identify and monitor weak sectors. Our audits are focused on enhancing management efficiency by improving the management system through line audits such as management of outsourced services and equity investment projects, and by controlling risks impeding management activities through regular audits of the production management sector, the construction sector, the piping management sector and the R&D sector.



Risk Management Financial Risk and Security



#### Financial Risk Management System

#### ► Foreign Exchange Risk Management

KOGAS has properly coped with a rapidly changing international financial environment and volatile foreign exchange risks. To this end, the Company introduced a Foreign Exchange Management Committee and a foreign exchange risk management system, and works to comply with company rules regarding sales following a loss.

In particular, we regularly measure the foreign exchange risks of short- and long-term foreign currency debt through our KRMS, introduced in 2002. We hedge risks using new measures developed by internal and external experts such as professional currency dealers and foreign currency consulting firms. In addition, we systematically manage the foreign currency risk by vigilantly observing the foreign exchange market and when necessary, by utilizing future exchanges, spot exchanges and related derivatives to reduce risk.

#### Funding Advisory Committee

KOGAS' Funding Advisory Committee consists of internal and external specialists such as bond experts. The purpose of the committee is to oversee the supply of domestic funds such as corporate bonds to KOGAS. Through this committee, KOGAS analyzes economic trends at home and abroad, forecasts changes in interest rates and makes decisions regarding the issuance of corporate bonds to promote efficiency in fundraising.

#### **Disaster Management System**

KOGAS has developed training programs and emergency plans capable of handling a wide variety of emergencies such as wars, terrorism and serious disasters. The goal of the Disaster Management System is to enable KOGAS to prepare for all emergencies. As a natural gas supplier, KOGAS plays an important role in Korea in supplying a source of energy that is critical to the lives of the people of the nation and to the domestic economy. Every month, the Safety, Quality and Environment Team holds an EHSQ Safety Check Day to inspect and eliminate any hazards and risks. We conduct drills for various disasters such as fires in cooperation with related organizations. KOGAS takes proper countermeasures in accordance with established procedures and issues alerts as to the level of seriousness of an emergency, for example; "Security Emergency" is the highest level emergency and is invoked for grave emergencies affecting national security such as wars, "Natural Gas System Emergency" is invoked for serious accidents affecting gas supplies, and "Disaster and Accident Emergency" covers natural disasters and gas accidents.

#### Security Management System

Our security is controlled in accordance with the security work guidelines of the Ministry of Commerce, Industry and Energy. The targets of security may be intangibles such as secrets or tangibles such as facilities, both of which are worth protecting. Security personnel must be qualified for each security job in accordance with pertinent laws. Applicants must receive permission from the local police and must go through a background check before being eligible for a security job at KOGAS. Security personnel receive seven days of basic training before being placed on duty.

As potential targets, natural gas production facilities are important to national security and are thus designated as "Grade A" targets. A total of 136 security personnel are in place at all KOGAS facilities. Of this total, four work at the headquarters, 46 at the Incheon Terminal, 43 at the Pyeongtaek Terminal, and 43 at the Tongyeong Terminal. In terms of document security, the heads of security departments have systems in place to secure documents and to keep information safe.

In the facility sector, we maintain secure areas and control access by visitors to protect facilities from outsiders and disasters. In terms of IT security, we install firewalls and anti-penetration systems to protect our IT systems and network.

# On the way to finding future sources of energy



World energy resources are limited.

The more energy we use, the fewer natural resources remain. It is imperative that we discover new sources of energy.

# INNOVATION

Just as KOGAS does in providing secure and stable supplies of natural gas, we will put forth unceasing efforts to find new sources of clean energy.

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# SECURING THE SUPPLY

Natural Gas Imports



The increased use of natural gas and creation of customer value through the stable supply of natural gas are our most important criteria.

We are focusing our efforts on stabilizing our supply of natural gas. To ensure the delivery of a stable and safe supply to city gas suppliers and power stations, we are making various efforts in such areas as the diversification of importing sources, the expansion of storage facilities and international cooperation on natural resources.

# **Natural Gas Imports**

We first imported LNG from Indonesia in October, 1986. Natural gas imports then skyrocketed and surpassed 10 million tons by 1997 and 22 million tons by 2005. The average growth ratio of imports reached 16% during this span. Currently, we import more natural gas than any other Company in the world.

We depend on nine mid- and long-term contracts to ensure a stable supply of natural gas. Among these, the longest contract is for 25 years and the shortest is for seven years. Such contracts protect consumers from various risks in regards to changes in the market. We also secure gas resources in the spot market by utilizing two short-term contracts to respond to short-term changes in demand.

In particular, we signed three natural gas purchase contracts with Russia (Sakhalin), Yemen, and Malaysia in 2005 to meet long-term demand after 2008. These contracts will enable us to set a cornerstone for securing gas resources on a long-term basis after 2010 and to diversify import lines from six to eight countries. This will allow us to spread and mitigate risk factors related to exporting countries and contribute to the stabilization of natural gas imports.

## **Transport of Natural Gas**

As of 2005, we operated a total of 19 LNG carriers with four Korean shipping companies to transport about 15 million tons of FOB volumes. This exclusive fleet efficiently transports LNG to Korea. At the same



# Our Contractors



time, the Korean shipping industry can enter the spot shipping market through the operation of this fleet and therefore, have opportunities to create new value.

Moreover, we are diversifying our efforts to reduce transportation costs. For the transportation of two long-term FOB volumes since 2008, we succeeded in supplying low-interest-rate funds to build ships, thanks to KOGAS' high credit rating gained from the establishment of Korea LNG Trading in 2005. Accordingly, we expect that this project will reduce transportation costs from Yemen and Sakhalin to Korea.

In particular, by utilizing the booming financial market for shipbuilding, we saved about US\$33 million in capital costs by refinancing capital costs for our five existing national flag carriers in December of 2006. In the future, we will watch the financial market for shipbuilding closely while pushing for the refinancing of the remaining nine vessels.

# **Expanded Use of Natural Gas**

#### Natural Gas Stands as a National Energy Resource

Natural gas has recorded an annual average growth rate of 16% since its introduction in October of 1986. Now it is an important source of energy for the nation (along with oil, coal, and nuclear power) while accounting for 13% of Korea's primary energy consumption and 16% of Korea's fuels for power generation. The usage ratio of city gas at home has remained at over 70%, making natural gas an essential energy for general home heating. Therefore, a stable supply of natural gas is our prime concern and an important part of the national agenda affecting the energy security of the nation.

- Domestic Consumption of Primary Energies (As of the end of 2004)



\* Source: Korea Energy Economics Institute

## **Natural Gas Sales and Forecasts**

The sale of natural gas has increased at an annual growth rate of 16.5% from 1990 to 2005, but is expected to drastically slow down to 3.5% from 2006 to 2017.

## • Natural Gas Sales and Forecasts

(Unit: thousands tons)

	Sal	es		Forecasts			
	' 00	'06	' 07	' 11	' 15	<sup>,</sup> 20	Annual Growth Rate
City Gas	9,528	13,957	15,311	19,090	23,300	29,780	3.5%
Power Generation	4,689	9,543	10,074	13,810	10,190	10,570	0.1%
Total	14,217	23,500	25,385	32,900	33,490	40,350	5.4%

# SECURING THE SUPPLY

Forecast of Natural Gas Demand



# Forecast of Natural Gas Demand

Basically, the supply of natural gas in Korea implies many uncontrollable factors. Temperatures vary greatly in Korea from summer to winter, so demand for natural gas for heating differs significantly between winter and summer. At the same time, in the international natural gas market, most deals are long-term and natural gas is supplied at a steady rate regardless of the season.

It is almost impossible to import natural gas in accordance with demand patterns. This makes it difficult to respond flexibly to demand in the winter season. To compromise this structural problem, we handle the increased winter demand by buying natural gas in the summer when spot market prices are lower and store the excess in our storage facilities, which we are steadily expanding.



st TDR (Turn Down Ratio): The highest and lowest sales volumes in a target year

#### Improve the Accuracy of Demand Forecasts

Our efforts to ensure a stable supply of natural gas are kept in step with accurate predictions of future demand. In order to increase our accuracy in predicting, the KOGAS Management Research Center, a KOGAS think-tank, developed a model for predictions based on natural gas usage. We also continue to develop the professional manpower for this issue.







# SECURING THE SUPPLY

Efforts to Ensure Stable Supply of Natural Gas



# Efforts to Ensure Stable Supply of Natural Gas

#### Factors Threatening Stable Supplies and Countermeasures

The factors increasing the insecurity of the supply of city gas come mainly from fluctuating temperatures; the greater the change in temperature, the greater the change in demand. The demand for natural gas for power generation depends highly on an increase in demand for power, malfunctions, or the maintenance of power generation facilities and the relative price of heavy oil, a rival energy source to LNG. In preparation for emergencies such as unseasonably low temperatures, we take care of LNG demand for power generation by purchasing additional volumes of LNG on the LNG spot market and by encouraging the mobilization of heavy oil and coal power plants for the generation of power.

#### **Emergency Supply Stabilization Plans**

In winter, we operate an emergency supply planning team in cooperation with the government, the Korea Electric Power Corp., and other related organizations. The team conducts a program to reduce demand for city gas, encourages power generation using alternative fuels and secures additional LNG importing opportunities. In particular, we prepared a practical manual for emergencies such as disruptions in the supply of natural gas. The manual describes systemized activities for stabilizing the supply of natural gas in the event of an emergency.

## Expanding LNG Storage Capacities

Based on the recent TDR, we are struggling with a limited shortage of storage capability. As of the end of 2005, the storage capability rate was 8.9%, much lower than that of Japan (16~20%). Although we have managed to stabilize LNG supply with a small number of storage tanks and the importing of spots and swaps, these measures are not permanent solutions. Therefore, we are planning to steadily construct more storage tanks to raise the storage capability rate to 16% by 2020.

#### Supply Management Work Flow Chart





# E&P

Gas Fields Exploration



We are actively participating in the development of overseas projects; this will be our new image, as we do not intend to remain a utility company that merely distributes natural gas. So far, we marked several achievements such as participation in LNG projects as a buyer and the successful exploration of new sources of gas in Myanmar. We will secure a foothold in becoming a global energy company by diversifying our profit profile, while securing the sources of supply as realized through the expansion of natural gas exploration and liquefaction projects and equity investment projects.

## **Gas Fields Exploration**

#### Participation in Myanmar Gas Field Project

We began our participation in a gas field development project in the A1/A3 Block of Myanmar's northwestern sea in November, 2001. Daewoo International, KOGAS, ONGC-Videsh Limited and GAIL are participating with equities of 60%, 10%, 20% and 10%, respectively. The exploration project for the A-1 Block is close to completion; thereafter the gas field development project will begin in 2008. Currently, the A-3 Block is still being explored.

In addition, we will undergo concrete negotiations on import conditions as a preferred bidder in the bidding for LNG purchases in Myanmar. KOGAS' participation in the Korea-led LNG liquefaction project will improve our status and become a cornerstone enabling us to stand shoulder to shoulder with major energy companies around the world.

In preparations for environmental and safety issues, we carried out an evaluation of the environmental impact of the construction of the A-1 and A-3 Blocks. Based on these evaluations, we will place our priority on reducing the impact of the projects on the environment and on

improving safety during development. Moreover, it will be our first priority to prevent environmental damage and human rights violations as we aim to comply with international standards.

#### Exploration Projects for Mining Blocks in East Timor and Australia

Our reach even extends to a small island in the South Pacific. We set another milestone in our participation in the upstream business by succeeding in the bidding for a marine gas field in East Timor, which has a population of about 600,000.

As part of our efforts at expanding the upstream business and securing potential LNG sources, we formed a consortium with three companies including Petronas Carigali and took part in the 2006 bidding for exploration led by the DA (Designated Authority) and won the development rights to the JPDA 06-102 Mining Block.

## \* Composition of Consortium: KOGAS (30%), Petronas Carigali (50%), Samsung Corp. (10%), LG International (10%)

The consortium is planning to execute a full-scale exploration project such as three-dimensional elasticity wave exploration and exploration ship operations beginning in 2007 for three years. When we find an economically feasible gas reserve, we will be able to secure a lucrative new source of energy, which can contribute to the securing of national energy supplies. Furthermore, we expanded our status with this project and carried out a leading role in conjunction with the operating company, veering from a passive approach of simple equity participation. We will keep developing upstream specialists to find and operate our own project opportunities.

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#### Uzbekistani Project

On the occasion of the Korea-Uzbekistan summit in March, 2006, KOGAS and Uzbekneftegaz, a government oil company in Uzbekistan, signed an agreement for co-research on the Uzunkui Exploration Project and an MOU for the development of a gas field in Surgil. We will carry out explorations of the 9,300 square-meter Uzunkui-Tuarkyr Block in the Karakalpakstan area, west of Uzbekistan for 4~5 years.

If we can confirm that the project is feasible, KOGAS, alongside Uzbekneftegaz, will sign an exploration contract and a licensing agreement with the Uzbekistani government. KOGAS and Uzbekneftegaz jointly invested US\$1 billion in the Surgil Gas Field, which has reserves estimated at 84 million tons. We plan to cooperate not only on joint development and production, but also on producing and marketing high-value-added polyethylene, which can be made from the ethane in natural gas.

We also assigned the Geophyzika, a national geological survey organization, to a gas field research project. Geophyzika is conducting research on the development possibilities of the gas field such as geographical conditions, the size of the mining area and basic facilities, a structural scheme of the project, feasibility and estimation of the reserves in the Uzunkui region.

As for the development of the Surgil Gas Field and gas production there, we are carrying out tentative feasibility studies by dividing the project into the gas field and Gas Chemical Complex (GCC) sectors. With regard to the gas field sector, a research organization in Uzbekistan is conducting research on the upstream potential including the volume of gas reserves, a gas field development plan, a processing facility construction plan and estimation of the production and development costs.

On the other hand, in the GCC sector, Nexant, a consulting company that specializes in polyethylene, was selected as a PFS agency and is conducting a tentative feasibility study, which covers the estimation of investment costs, analyses of the polyethylene market, logistics and economical efficiency. The significance of the Uzbekistani Project is to lay the foundation for expanding our business profile.

We can secure exploration technologies and foster specialized manpower through the Uzunkui gas field exploration project experience. Additionally, through the GCC project, we can diversify our profit-making profile to market the by-products of natural gas. Moreover, Uzbekistan is still free of major oil companies, so we can secure an advantageous position in the Uzbekistani market, which will allow us to have access to Central Asia and other oil-producing countries. Lastly, the project is very important to us as one of many natural resource development projects. E&P

Equity Investment Project



## **Equity Investment Project**

With investments in OLNG in 1997 as a stepping stone, we have been active in overseas natural resource development projects through equity investments so as to secure the supply of natural gas and to expand our areas of business. In addition to the KOLNG Project in Oman and the KORAS Project in Qatar, we are conducting the YLNG Project in Yemen. We plan to invest about US\$220 million in overseas gas field development projects on a mid-term basis by 2008.

#### Participation in Overseas LNG Projects

With a view to securing a stable supply of natural gas and expanding our areas of business, we are securing 5% of the equity in an Omani company and in Ras Laffan I in Qatar, in conjunction with other Korean firms. KOGAS' equity in YLNG (Yemen) is 6%.

#### Oman OLNG Investment Project

This is a project to supply LNG to Korea by developing a gas field in the central region of Oman. The production capacity of this project is 6.5 million tons per annum. KOGAS' long-term contact (2000~2024) will import 4.06 million tons of natural gas from this field to Korea a year.

We established an investment entity, KOLNG, together with four other Korean companies. KOLNG acquired 5% of the equity in OLNG at US\$35 million in 1997. Up to the end of December, 2006, KOLNG has shared a total of US\$221 million in dividends.



\*\* KOLNG: KOGAS (24%), Samsung Corp. (20%), Hyundai Corp. (20%), Daewoo International (20%), SK (16%)

#### Qatar RasGas Investment Project

This is a project to develop the gas field in the North Field Khuff of Qatar. Two LNG production trains have about 6.5 million tons of production capacity per annum. We signed a long-term contract to import 4.8 million tons a year to Korea.

We established an investment entity, KORAS, together with six other Korean companies in 1999. KORAS invested US\$49 million to acquire 5% of the equity in Ras Laffan I and shared a total of US\$393 million in dividends. Out of this, KOGAS received US\$236 million.

% KORAS: KOGAS (60%), Samsung Corp. (10%), Hyundai Corp. (8%), SK (8%), LG (5.6%), Daesung Industrial (5.4%), Hanwha (3%)

#### Yemen LNG Investment Project

In August, 2005, KOGAS signed an EPA (Equity Participation Agreement) to acquire 6% of the equity in Yemen LNG in line with the long-term importation of 2 million tons of LNG from Yemen (2009~2028). We also took over 2.88% of the equity in YLNG from Hyundai Corp.

#### **Overseas Equity Investment Projects: Performances and Forecasts**

The KORAS for RasGas' equity and KOLNG for OLNG's equity are generating profits. Our investments were a total of US\$20.6 million at US\$1.7 million and US\$18.9 million, respectively. From 2001 to 2006, total profits from the investments reached about US\$313.8 million. In the future, an additional US\$1 billion or more is expected to be shared as dividends. Furthermore, as of December 2005, equity investments in Yemen LNG were about US\$145.8 million and dividends are expected to reach US\$1.13 billion over 25 years. This will become a foundation stone to help us develop into an E&P company in the future.

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# FUTURE ENERGY DEVELOPMENT

Development of Hydrogen & Fuel Cells Technologies



Korea's overseas energy dependence ratio is 97% while Korea is the world's tenth largest consumer of energy. Therefore, technological strength in future energy sources may be a key element in Korea's national competitiveness. We invest focusing on the development of alternative energy technologies as part of our preparation to secure alternative energy sources for the coming exhaustion of fossil fuels. It is our strategic choice to develop core technologies for alternative energy to cope with business environment changes such as high oil prices and the United Nations' Convention on Climate Change.

# **Development of Hydrogen & Fuel Cells Technologies**

## Development of Hydrogen Energy Technologies

Natural gas is an important source in producing hydrogen. It is expected that a hydrogen supply system, which utilizes the current natural gas piping infrastructure, will be realized. In preparations for an era in which the economy relies on hydrogen, we developed a hydrogen-generating device to secure technologies in the area of hydrogen production devices and hydrogen stations. We are conducting a study of practical hydrogen station operations in order to obtain experience in constructing and operating hydrogen stations.

We are taking part in a government-led development project so as to contribute to the construction of a domestic hydrogen station infrastructure and to secure self-reliance for our future business. We currently operate a  $30N\,m^3/hr$ -class hydrogen station to develop the technologies to produce, supply and use hydrogen energy. We are planning to secure hydrogen generation technologies that utilize new renewable energies.



## Managing Project to Monitor Home Fuel Cells

For future homes that can produce electric power for their own use, we have been managing a project to monitor 1kw-class home fuel cell operations since 2006. This initiative is a new renewable energy development project at the national level. We are in charge of this project as a managing organization and ten city gas suppliers joined during the first year of the project.

In the first year (2006), a total of 40 fuel cells were installed and operated at KOGAS and ten city gas suppliers across the nation. By analyzing data through large-scale monitoring of 210 home fuel cells by 2008, we will raise the domestic manufacturing ratio and secure fundamental technologies to expand their use.

# FUTURE ENERGY DEVELOPMENT

DME Technology Development



# DME Technology Development

DME is a synthesized compound made from the chemical reaction between  $H_2$  and CO from natural gas, coals, etc. A clean energy, DME is non-toxic, easy to handle and versatile.

We began to develop the technologies to produce DME out of natural gas and CO<sub>2</sub> as a technology to reduce greenhouse gases in 2000. We are the fourth company in the world to have developed these technologies. We constructed Korea's first DME production pilot plant with a daily production capacity of 50kg at the Incheon Terminal in 2003. By 2008, we will develop a DME plant with a daily production capacity of 10 tons and keep carrying out further research. We are

considering a project to produce DME in small- and medium-sized gas fields, undeveloped due to economic efficiency, by utilizing DME production technologies and to bring it to Korea.

## DME Business Chain





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# **FUTURE ENERGY** DEVELOPMENT

Gas Hydrate Development

# **Gas Hydrate Development**

#### **Gas Hydrate**

Gas hydrate is a future energy source capable of solving energy and environmental problems at the same time. It is a crystalline solid, its building blocks consist of a carbon-hydrogen molecule surrounded by a cage of water molecules at low temperature and high pressure. Methane molecules are attached to the inside of the water molecules, and since methane accounts for more than 90% of gas hydrate, it is known as Methane Hydrate. This material is similar to dry ice in terms of appearance and characteristics and is therefore called "burning ice," as well. Gas hydrate exists mainly in deep-sea regions and in the permafrost of frozen land. Its estimated worldwide reserve is about ten trillion tons and it contains 25 times the methane reserves found in the world's fossil fuels



#### **Gas Hydrate Development Project**

We discovered the possibility of finding gas hydrates in Korea's East Sea after large-scale explorations from 2000 to 2004 in partnership with the Korean government, which proposed a gas hydrate development project as a government policy project in terms of national energy security. We are currently taking part in the first phase of the National Gas Hydrate Development Project.

## National Gas Hydrate Development Phases

	Period	Main Activities
Phase 1	2005~2007	In-Depth Survey of Promising Area I · Drilling and Confirming Existence
Phase 2	2008~2011	In-Depth Survey of Promising Area II · Drilling, Confirming Existence and Research on Production Technologies
Phase 3	2012~2014	Tentative Production and Developing Best Commercial Production Methods



Phase 1 is a government policy project being conducted jointly by the Ministry of Commerce, Industry and Energy, KOGAS, Korea National Oil Corporation and the Institute of Geosciences and Mineral Resources. The project will be managed by a consortium with private companies from its second phase. Project participants conducted 2-D explorations and a 3-D spot survey project in Promising Area 1 as Phase 1 activities. After analyzing the results, they will begin to drill in 2007.

Hydrate Exploration Areas in East Sea



KOGAS has made steady investments including US\$1.8 million in the basic research phase and US\$7.9 million in the first phase. In particular, we are taking the lead in research on gas recovery technologies in gas hydrate development and production. This technology turns the solid gas hydrate in sedimentary layers in deepsea locations into gas. Researchers in this project are studying the characteristics of gas hydrate layers and the dynamic characteristics of hydrate.



BEST & FIRST

KOGAS |

# LONDON

# DOH

# There is a way to become a global energy company.



Resting on its laurels without making preparations for the future, no company can become a global player.

Without a spirit of challenge nor a mindset for change, no energy company can become a truly excellent energy company.

# SINGAPORE

**BEST & FIRST** 

A

KOGAS knows the way to become a global energy enterprise.



SE

2006 Business Performance



## There is a way to become a global energy company.

Since its founding in 1983, KOGAS has become a leading supplier of natural gas, a clean energy, while accumulating KRW12 trillion in assets, KRW13 trillion in sales and 2,744 employees. We also have storage capacity of 4.88 millionkQ and 2,520 km of pipeline countrywide, and supplied 23.50 million tons of gas in 2006. With increased investments in facilities we continue to grow our business so as to ensure a stable supply of energy to the nation.

## 2006 Business Performance

#### **Production and Sales**

In 2006, our total volume of natural gas sales was 23,479 thousand tons, a less than expected 2.7% increase from the previous year. Although sales of gas for power generation climbed around 8%, weakened consumer confidence due to unseasonably warm winter temperatures and high oil prices served to limit the increase in the volume of sales. Over the past year, despite rising fuel costs due to high oil prices, we endeavored to minimize the gas price increase for consumers by lowering operating costs through cost reductions and management efficiency.

#### Management Sector

In February of 2006, KOGAS changed its post-oriented system to a work-oriented one to ensure a rapid response to the fast-paced business environment and to improve efficiency company-wide. We also introduced a more practical team-style organization system, which utilizes a separation of positions and classes, and a scaled-down decision-making process. In addition, we made efforts to promote coprosperity and harmony between labor and management through the successful conclusion of a new wage agreement, a first for a government enterprise in 2006.

#### **Financial Sector**

In 2006, with Moody's and S&P again giving KOGAS strong investment grade ratings of A3 and A-, respectively, the Company continued to secure funding from domestic and international sources at more attractive terms. These ratings came despite a slight rise in the Company's debt ratio due to steady facility investment and rising prices for raw materials. At the same time, we more effectively manage financial risks having increased the transparency of our financial data with the launching of an internal control system for better financial reporting.

#### **Construction Sector**

In order to increase our storage capacities to ensure a safe and stable supply of natural gas, KOGAS completed the construction of two storage tanks at the Tongyeong Terminal in 2006 and is currently constructing 13 additional storage tanks. With the accumulation and application of domestically developed technologies to the construction of new storage tanks and the upgrading of worksites and facilities, we are working to improve productivity while reducing costs.

In addition, we have been expanding our pipeline network so as to build up an energy infrastructure for the steady and stable supply of energy for the benefit of all Koreans.

#### Major Financial Indicators

(Unit: KRW100 millions)

	2003	2004	2005	2006
Sales	74,574	91,513	110,700	128,948
Net Income	2,883	3,231	2,464	2,405
Assets	96,581	100,905	113,165	122,483
Debt	66,310	68,689	79,671	87,296
Capital	30,271	32,2163	3,494	35,187
Debt Ratio (%)	219%	213%	238%	248%



# Key Financial Indicators



## Stability Index

	Formula	2005	2006
Current Ratio	Current Asset/ X 100 Current Liability	104.78%	123.98%
Debt-to-Equity Ratio	Total Liabilities/ Total Shareholders' X 100 Equity	237.87%	248.09%
Debt Asset Ratio	Total Borrowings/ X 100 Total Assets	60.72%	62.34%
Interest Coverage Ratio	Operating Income/ Interest Expense	2.09 times	1.82 times

## Profitability Index

	Formula	2005	2006
Operating Profit Margin	Operating Income/ X 100 Sales	4.29%	4.19%
Net Income Margin	Net Income/ X 100 Sales	2.23%	1.86%
ROA	Net Income/ X 100 Total Assets	2.30%	2.04%
ROE	Net Income/ Total Shareholders' Equity X 100	7.50%	7.00%

## • Growth and Activity Index

	Formula	2005	2006
Sales Growth Ratio	CY/PY X 100 -100	20.97%	16.48%
Operating Income Growth Ratio	CY/PY X 100 -100	(-)23.11%	13.82%
Net Income Growth Ratio	CY/PY X 100 -100	(-)23.72%	(-)2.42%
Total Asset Growth Ratio	CY/PY X 100 -100	12.15%	8.23%
Asset Turnover Ratio	Sales (Beginning Balance + Ending Balance)/2	1.03x	1.09x

## • Credit Ratings by Years

2003	2004	2005	2006	Rating Agencies
A3	A3	A3	A3	Moody's
A-	A-	A-	A-	S&P



## - Summary of Income Statement



Allotment of Economic Value for Stakeholders

# Allotment of Economic Value for Stakeholders

We are being on the road of steady innovation to offer customers the highest economic value in the industry.



#### Customers

We supply natural gas to power plants and city gas suppliers from our three LNG receiving terminals, eight branches and four construction offices.

As of 2006, our services reached more than ten million homes. Today, 71% or more of our total households are available of natural gas. In step with this trend, we are making concerted efforts to enhance people's welfare and ensure a clean environment.

#### • NG Distribution and Sales

	2003	2004	2005	2006
Homes Served	10,173	10,461	10,966	11,375
Spreading Ratio	67	68	69	71
Sales Volume	18,447	21,322	22,854	23,478

(Unit: 1,000 households, %, 1000 tons)

#### Employees

In order to improve employee satisfaction and thus productivity, we rolled out various programs to promote the welfare and self-development of our employees.

#### • Salary and Satisfaction Level

	2003	2004	2005	2006
Wages per year (Unit: US\$ millions)	5.3	5.4	5.5	5.7
Satisfaction Level	86.2	87.3	88.8	88.97

### Shareholders and Investors

## Dividends

KOGAS returns profits to shareholders at a dividend payout ratio of 50% and a dividend yield of more than 5%.

#### Interest Expenses

The interest expenses from debts increased US\$70 million compared to 2005 due to the increasing costs of LNG purchases and an increase in the construction of new facilities.

#### Dividend and Interest

	2003	2004	2005	2006
Dividend	115	116	90.4	80.2
Interest	243	234	226	296

(Unit: US\$ millions)





#### **Partners**

Because the natural gas industry is a processing industry requiring large-scale investment in production and pipeline facilities, it has a large influence on job creation and equipment manufacturing for contractors and partners. We play an important role in this area as a base for the creation of mutual prosperity. We do it by making technologically advanced products that account for 20% of our total purchases and by expanding the purchase of products manufactured by companies owned by women and by small- to medium-sized businesses.

Annual Purchases     (Unit: US\$ million:				
	2003	2004	2005	2006
Total Purchases (A)	4,453	927	579	962
Goods	83	154	169	183
Construction	307	742	334	738
Services	63	31	77	42
Small Businesses (B)	90	90	148	143
Ratio (B/A)	10%	10%	25%	15%
# of Partners	604	604	741	528

#### Effect on Shipbuilding Industry

With a view to stabilizing the import of natural gas and to developing Korea's shipbuilding and shipping industries, we have kept the industrial policies that support the use of Korean-registered LNG tankers since 1994. We currently utilize the services of 17 LNG tankers operating under the Korean flag. Korean-registered LNG tankers transport more than 60% of our total imports (61% in 2004, 62% in 2005). The added value of these imports and the related effect on industry has served as a catalyst for national development.

#### Government

We contribute to communities and the nation by paying taxes. The following chart lists the taxes paid.

<ul> <li>Payment of Taxes</li> </ul>			(Unit: KF	RW 100millions)
	2003	2004	2005	2006
Withholding Tax	91	101	103	29
Local Tax	206	183	238	79
Surtax	834	1,020	1,426	384
Corporation Tax	1,195	1,650	76	129

#### **Nation and Society**

As a national company whose purpose is to serve the people of Korea, we conduct various social contribution activities as part of our efforts to be a socially responsible company.

Moreover, through the steady expansion of energy infrastructure, we promote the balanced development of regions while contributing to national energy security through overseas natural resource development projects.

# We will continue our pace to be the company that shares its value with stakeholders through neverending challenge and innovation.

Research & Development



## **Research & Development**

Our mid- to long-term R&D strategies are prepared in support of corporate strategic choices; core technology for the upstream business and overseas projects, the development of next generation energy technology, and the construction technology of a liquefaction plant. We select and concentrate on these core areas while developing innovations and core competences.



After setting a new R&D vision, "Energy, Beyond GAS," we continue to strengthen our core competences and develop more substantive R&D goals so as to increase our overseas business. In addition, we seek to expand our R&D into several other energy sectors beyond natural gas. In order to establish an advanced research system, we restructured our research units in accordance with projects in 2006 and implemented more efficient management practices while increasing the effectiveness of our manpower.

#### Expanding Our Investments in R&D

In predicting that long-term investment in R&D will be vital to the Company's future performance and that technological development will become a crucial component of our core capabilities, we are expanding our investments in R&D. Furthermore, we plan to secure competent R&D manpower.



### Oil Field Technologies for Upstream Projects

We are advancing into the upstream sector so as to expand the profile of our business and to secure future energy resources. Accordingly, we recently established a Gas Field R&D Team for the purpose of securing core and new technologies. The team will evaluate reservoirs using new technologies in natural resource development, analyze and interpret development and production processes, and manage the calculation of ultimate recovery. The team will also be involved in the launch of new development, production and management businesses. In addition, we have introduced a system for reservoir analysis as part of the technological evaluation of gas fields and G&G (Geology & Geophysics) materials.



#### LNG Tank and Cargo Containment Technologies

We offer services in LNG-related R&D, engineering design, technological consulting and testing operations on the basis of technologies accumulated over the past 15 years. We have presided over the development of core materials and technologies for our LNG facilities, created basic designs for LNG Terminals, designed LNG storage tanks and developed cargo containments for LNG carriers.

In particular, we obtained an international patent for development of essential materials such as PUF insulating materials and membranes for the storage of LNG at cryogenic temperature (-160°C). In addition, we demonstrated the quality and safety of our KOGAS-type containment system with the design and construction of a pilot 1,300-cubic-meter LNG tank for research purposes.

Thanks to such technological development, KOGAS is taking part in the LNG storage facility business at home and the LNG storage and receiving facility design business abroad. In the future, we plan to enter the upstream plant business with the development of new design technologies for liquefaction plants. We are currently undertaking an LNG carrier cargo containment project to modify and adapt LNG storage tank technologies to LNG cargo containment technologies.

LNG carrier cargo containment technologies require advanced technologies and knowledge, and as a core part of the Korean economy, Korean shipbuilders are very competitive internationally with world-class shipbuilding capabilities. The cargo containment system development project for next-generation LNG carriers, a mid-term strategic development project of the Korean government, will help the nation to secure another national competence. This will be done by combining our technologies with those of shipbuilders through capital and/or technology investment.

#### **Piping Integrity Improvement Technologies**

A critically important issue for KOGAS is that the integrity of pipelines should be secured to ensure safety. In order to secure the safety of pipelines and to extend their life, we selected intelligent pigging (ILI: In-Line Inspections) as the focus of our R&D.

In-line inspections, an advanced core technology used to inspect the integrity of pipelines, utilize an intelligent pig device inserted into the pipes to directly examine the inner surfaces of piping. The unit moves through the pipes powered by the flow of fluid; gas, oil or water and examines any damage, corrosion or structural weakness it finds and locates the spot of such findings.

#### Geometry Pig

▶ Pig



Currently, KOGAS is testing a newly developed pig and in the future, we hope to provide a new design with enhanced functions and an improved line-up of products for domestic and global markets.

# KOGAS will become a leading energy enterprise through steady R&D investment and development.

# CHANGE

Management Innovation



The goal of change is to elevate the competitiveness of the organization and employees in order to create customer value.

Since its founding, KOGAS has steadily promoted changes and innovations. Through our 'Best & First' activities to change members, systems, and corporate culture, we will expedite innovation activities to maximize customer value.

## **Management Innovation**

Preparing for fast-paced business environments, we strive to implement management innovation activities to elevate the competitiveness and productivity of the organization. The goal of our management innovation is to secure our global competitiveness by enhancing customer value.

For this goal, we will nurture creative specialists and form productive corporate cultures through the innovation of our employees, systems and culture. Our customer value-oriented systems will contribute to KOGAS achieving our management goals and corporate visions.

#### - Best & First Strategy



#### **BEST & FIRST Activities**

We held a contest to find a new innovation motto to replace the old management innovation activities and chose "Best & First" activities.

The main contents of "Best & First" activities are;

- A company evaluated as the best through the carrying out of acustomeroriented management system
- The best specialists in the industry through the enhancing of individual capabilities
- The best energy company through the intensifying of competitiveness

To achieve these goals;

- Customer-first work practices that get employees to think and act in the customer's shoes
- A team-oriented corporate culture based on cooperation
- Leading the changes in environments through continuous internal innovation

#### Organization

These days, it is clear that an uncompetitive organization with low productivity cannot survive. KOGAS has initiated new innovations at its organization in order to reorganize the structure based on 'works' rather than 'positions.' We will push forward with steady innovation to strengthen the competitiveness of our organization.

#### Employees

Innovation at KOGAS begins with the reinforcement of employees' competences. We are developing our core competences to cope with new business circumstances and to achieve our corporate goals.

#### Systems

With the launching of a company-wide integrated management information system, we will improve our work processes and build a fast and accurate system to support management decision-making.


### CHANGE

Knowledge Management



#### **Knowledge Management**

Knowledge management is a methodology to remove trial and error. It also improves the process of the turn-over of know-how and experience from a predecessor to a successor methodically. In addition, knowledge management maximizes productivity and enhances work efficiency through the sharing of experiences and knowledge between employees. It also enhances this sharing using a knowledge infrastructure in which people can collect, process and communicate necessary information. Ultimately, the goal of knowledge management is to manage the knowledge as an asset of a company by packaging experience and know-how as easily communicated information.

#### **Knowledge Management Integration**

In 2006, in order to activate the CoP (community of practice) program, we improved the quality of our knowledge management system to integrate knowledge, the system for making suggestions and study units.

First, we simplified the knowledge, suggestion and study organizations and work process through improvements in work processes.

Second, we standardized the knowledge management regulations through improvements in systems while changing the integrated mileage system through the integration of registration, evaluation, compensation, suggestion and organization.

#### Community-Oriented Blog-Type KMS

KOGAS' new KMS (Knowledge Management System) suggested a new paradigm in knowledge management with the building of a communityoriented blog-type KMS. Our blog will be used to solve problems and reduce the user's inconvenience in data management caused by the separated control of knowledge and suggestion. The KMS is a model of the blog-type integrated Knowledge Management System, and we expect to recieve a patent for its methodology and innovation.

#### **Connecting Idea Suggestion with Study Groups**

By changing the action-oriented suggestion system into an ideasuggestion one, we devised a plan to promote the study group to put the chosen idea into practice. By putting the intangible-knowledge and know-how of employees into a database that various study groups have access to, and by allowing employees to share the important values of the Company and its secure core knowledge, we have passed the threshold of recognizing knowledge as an asset.

#### Refining and Upgrading of Knowledge

We enhanced the quality of knowledge by refining the remaining 150,000 knowledge items, except for 10,000 core knowledge items accumulated through the knowledge management system. At the same time, we adopted a knowledge certification system in which excellent knowledge can be registered and used after it has been evaluated by knowledge experts at the knowledge registration stage.

#### Patent Certification



### **CHANGE**

Work System Innovation



#### **Building an Integrated Information System**

#### **Project Overview**

This project will enable us to connect each department and information through improvements in work processes and to create the establishment of an integrated work system based on the improvements while enabling the creation of a rapid strategic decision-making support system. With a view to reinforcing KOGAS' productivity and competitiveness by building a support system for rapid and strategic decision-making, we have been preparing for a process improvement and integrated information project since March, 2006.



#### **Establishment of the Project**

KOGAS is devising an integrated information master plan to develop mid- and long-term strategies that can support KOGAS' management strategies and goals from October, 2006 to February, 2007. We plan to expedite the establishment of an integrated information system for improving work processes, data standardization and ERP (Enterprise Resources Planning).

#### **Expected Benefits**

When the integrated information system is completed, a change from a non-standardized work process system to a standardized one is

expected to be made on the basis of optimized work processes across the Company. This change will remove unnecessary and inefficient work and become the foundation for diagnosing and planning the management of the Company in real time while significantly contributing to the solidification of the Company's competitiveness.



### **Targeted Information System Concept**



### RESPONSIBILITY

KOGAS Ethical Management



### Transparency through ethical management is an indispensable request.

We recognize that transparent and ethical management are core values of the Company. We conduct our tasks while complying with laws and regulations in conjunction with being monitored and supervised by the Audit Team. Additionally, we chose stricter ethical standards through new ethics codes and communicate these standards to employees while encouraging them to voluntarily follow the guidelines. These efforts secure soundness through positive monitoring to find items for improvement. Such efforts are made in accordance with KOGAS' ethical management roadmap to secure consistency.

#### **KOGAS Ethical Management**

#### KOGAS' Ethical Management Roadmap



#### Proclamation of Ethical Management and Ethics Code

To realize "clean and transparent right-path management," we proclaimed our codes of conduct, which includes 11 core values in four areas, standards for employee behavior and value selection. We encourage employees to sign the compliance agreement demonstrating their commitment.

#### 🔶 Ethical Practices

We seek to strengthen ethical leadership by establishing guidelines for ethical practices and regulations for leaders.

#### ♦ CEO's Commitment to Ethical Practice

Mr. Lee, the CEO of KOGAS, strongly supports ethical management. His commitment is demonstrated by his participation in the signing ceremony at the Ethics Forum, a rally to report on initiatives for increasing ethical practices in business and a consultative meeting on an agreement for creating a transparent society for government companies.

#### ♦ Managing an Ethical Web "Clean Zone"

For the dynamic management of ethical practices and to communicate our efforts and customer's feedback, we launched an Ethical Management Home Page, a center for reporting any ethical violations and a cyber ethical counseling room.

#### Anti-Corruption Activities

Under the agreement that ethics are the basis of our competitiveness, we continue to focus on anti-corruption activities. We provide anticorruption training to all employees. We also monitor corruptible tasks and share this commitment with branch offices and our partners. The results of an evaluation conducted by a government agent in 2006 gave us 9.5 out of 10, which shows that we are on the right track.

### RESPONSIBILITY

Confirming the Transparency of Contracts



#### **Confirming the Transparency of Contracts**

We have endeavored to raise the transparency of the contract process by establishing a transparent transaction climate. We are securing the transparency in transactional processes through a self-developed "Web-Based Contract Process," and confirming that our employees' and contractors' mindsets are set for a transparent contract process.

#### **Transparency of Transaction System**

#### ♦ Web-Based Contract Process

Since 2002, with the launching of a Web-based bidding system, all processes are conducted electronically to ensure the transparency of transactions.

#### Publicizing Contract Information on the Internet

We make all information regarding orders and contracts available on the Internet. We release annual order plans at the beginning of each year to give the participants in bidding more time for preparation. At the same time, we work to prevent and circumvent corruption by releasing all bidding results and contract information on the Internet.



#### **Campaign for Ethical Awareness in Transactions**

#### Signing the Commitment Statement

In 2004, all contract process related employees signed a commitment statement in accordance with the launching of ethical management practices. In addition, we encourage employees and their counterparts to comply with the ethical management practices through the whole contract process by exchanging written oaths.

#### Stipulating Probity in Condition of Contract

As stipulated in our bidding notifications, transparency and compliance with all policies and practices are required of all participants in contract negotiations; our employees and contractors. This is another way to enforce compliance and to take corrective actions when violations are discovered.

#### Onducting Regular Integrity Surveys

We conduct regular integrity surveys by mobilizing an outside professional survey consultant. We are currently strengthening our supervisory functions through such measures as pre-controlling potential misconduct and corruption of the employee responsible for the contract process, and by conducting surveys of contractors to learn if they have any experience of corruption and misconduct related to contracts.

#### \* Meeting with Partners on anti-Corruption Measures \*

We are ready to receive complaints and suggestions from our partners and contractors related to construction, services and purchases. We hold meetings with contractors to find ways to eliminate corruption and secure transparency while improving awareness of ethical practices. Through these efforts, we are leaping forward as a company trusted by our stakeholders.



### RESPONSIBILITY

**Customer Satisfaction** 



#### **Customer Satisfaction**

Customer satisfaction is our reward and mission. Our vision 'Global KOGAS: Being with Customers' is the starting and finishing line of our business. To achieve this goal, all management is based on the creation of value for customers, that is, supported by a company-wide customer satisfaction program.

#### **Our Management Vision: Being with Customers**

By making clear to the public the openness of management performances and current status, we are improving the effectiveness of communication with customers while confirming our credibility.

#### • Our Commitment to Sharing Management Information

- Our Website: We release all relevant information about our management performances and practices on our website. Currently, we operate eight websites in which people can easily access general management information, ethical practices, innovations, safety practices, environmental practices, the Gas Science Hall, as well as real-time bidding results.

- Government Company Open Committee: We share information regarding our management status with the Government Company Open Committee, which consists of consumers, customers, energy experts, college professors and other experts. This committee provides us with the opportunity to share our information with all consumers, to handle customer complaints and discuss any ideas for improving the transparency of our management.

#### Voices of Customers

Listening to the Voices of Customers: We encourage our customers to voice their opinions and concerns. Customers can voice their opinions or ask questions on-line and get answers in a timely manner. We strive to understand our customers so as to respond immediately and effectively to customer needs and expectations.

#### • Customer Participation in Management

- Contractor's Participation in survey process: We encourage our contractors to evaluate the integrity of our management and we incorporate their opinions in our contract systems.

- Participation in Sustainability Management Activities: We actively encourage the participation of the government, customers, journalists, citizens' groups, and the general public in the process of establishing sustainability management strategies. These participants play an important role in selecting the core values of stakeholders and enable us to analyze and understand the significance of sustainability-related issues to the stakeholders. This customer participation program will be expanded as far as possible.

#### Participation in NCSI

We take part in the NCSI suggested by the Ministry of Planning and Budget. The NCSI measures the customer satisfaction level of all government companies.

The measurement is focused on the royalties, reliability, and social responsibility efforts and targets the employees of city gas facilities and power plants, who are our main customers, to assess our overall performance in terms of customer satisfaction. We were ranked 1st in the NCSI in 2004 and 2005. Although ranked 4th overall in 2006, in the social responsibility area we were ranked in 1st place.

\* NCSI: NATIONAL CUSTOMER SATISFACTION INDEX (managed by the Ministry of Planning and Budget)

#### NCSI

	2003	2004	2005	2006
Score	79	87	85	85
Ranking	4	1	1	4

## There is a way for people and nature to live together.



When people take care of nature, nature takes care of people.

When we do not break the rules of nature, nature protects human life.

# NATURE & PEOPLE

A way for nature and people to live together -KOGAS pursues ways for nature and people to live together based on an EHS management system.



### EHS OVERVIEW



#### EHS OVERVIEW

In the winter of 1994, KOGAS experienced an accident, which gave us an important lesson that we will never forget. In response, we introduced a new management system that focused on health, safety and the environment, a first in Korea. Since then, this system has provided us with opportunities to improve our awareness and commitment to EHS issues and to improve the situations. Natural gas is a clean energy that produces lower CO<sub>2</sub> emissions compare to other fossil fuels. As a supplier of natural gas, a clean energy, KOGAS aims to fulfill its responsibilities for the environment by considering the environmental aspects of our production and supply processes. The implementation of an EHS Management System is a key tool to ensure the consideration of environmental aspects in our daily routines and to eliminate the environmental and safety risks in every step of our business operations.

#### EHS Management Vision and Policies

system

#### Management Practices that Respect Nature & Humanity The Environment, Health & Safety are our first priorities and we implement preventive/proactive activities cooperatively and with continuous improvement. Providing safe and environmentally sound workplaces ensures the health and welfare of our employees and the public, while also ensuring high quality services to meet the expectations and demands of customers. It is required that every KOGAS employee must be made aware of and comply with the following EHS policies Effective EHS Improving the EHS Compliance with Laws Competence of Employees Management Complying with Laws, Implementing an Effective Providing EHS Training Regulations & Domestic EHS Management System for All Employees and International Standards Sharing Value with Contracts **Crisis Management** Securing Transparency It is the responsibility of all KOGAS ensures the employees to conduct their transparency of its EHS KOGAS' partners jobs safely. Furthermore, they must do their best to management performance have the same by communicating our EHS as KOGAS'. prevent accidents and environmental incidents. policies, goals and performances while being At the same time, they should open to feedback from build an a disaster response

stakeholders

#### Introduction and Development of the EHS System

The '5 Year safety development plan' prepared in 1997 asked us to benchmark and customize Mobil's (presently, ExxonMobil) EHS Management System, especially since EHS issues are considered a core element in our business management. It also provides us with the strong motivation to improve our EHS Management.



#### **EHS Committee**

EHS staff from all over the country gather to share EHS information and experiences, and to discuss EHS issues. In this committee, EHS goals and performances are discussed as a way to communicate KOGAS management's commitment to EHS.

#### **EHS Climate Survey**

The results of surveys conducted from 1997 to 2005 on KOGAS employee attitudes, opinions and beliefs about health, safety and the environment have shown steady improvement. The results reached 78 points in 2005.







#### **EHS Work Processes**

The goal of the EHS Management System is to prevent accidents and increase efficiency through the evaluation and analysis of risk factors in all Company operations and activities related to the import, production and supply of natural gas, gas products and services. Continuous improvement is the key characteristic of this integrated management system, which also includes many programs and practices aimed at achieving EHS policy. The EHSQ Management System adopted a TQM (Total Quality Management) cycle approach consisting of 'plan, do, check and adjust,' to achieve continuous improvement.



#### Safety Campaign

To improve the safety climate and demonstrate our EHS commitment after organization re-modeling to enhance productivity, all EHS staff from across the country gathered on March 16, 2006. In this session a catch phrase "Practicing EHS, Changing KOGAS" was shared.

#### **EHS Audit**

#### System Audit

KOGAS' Internal Audit Team conducts periodic audits to assess risk management activities and the effectiveness of EHS management system implementation to ensure continuous improvement. Furthermore, the government agent conducts annual assessments and verifications to confirm the compliance and effectiveness of EHS activities.

#### Third-Party Certification (Outside Audits)

In addition to acquiring ISO9001 and ISO14001 certification in 1997, KOGAS was certified with the OHSAS18001 (health and safety management system) standard from the BSI in 2000. This certification is a reward for our EHS performances.



### EHS PERFORMANCE

**Pollutant Control** 



#### **Pollutant Control**

#### **Greenhouse Gas Statistics**

GHG emissions are increasing because of the expansion of facilities to meet growing demand for natural gas. Our target is to control our activities so as to decrease emissions continuously by monitoring the emissions from each of our facilities and by employing improvement choices to reduce GHG emissions.



#### **Air Pollution**

The KOGAS facilities and equipment that emit the most air pollution are the cogeneration facilities, submerged combustion vaporizers (SMV) used in winter, and gas heaters used to heat low temperature natural gas.

Co-Generation Facilities
SMV



The co-generation facilities emit only 75ppm or less of pollutants, half the 150ppm maximum suggested by Korean regulations. The NOx density and volume is monitored on a real-time basis by a TMS (Tele-Monitoring System), which automatically sends data to a control center of the Ministry of Environment (MOE) every 30 minutes. In order to reduce Nox emissions, the SMV is designed to burn the gas in the water and the design criteria of NOx emissions is less than 50ppm.









#### Water Pollutants

#### ► Fresh water discharges

Fresh water used at the Pyeongtaek and Incheon Terminals, located on the east coast of Korea, is discharged into the sea after treatment at on-site water treatment facilities. Fresh water from the Tongyeong Terminal and stations all over the country is sent to city wastewater treatment facilities. The pollutants in the discharged water are controlled below 20ppm in compliance with legal requirements.





#### Processed water discharges

KOGAS facilities are designed to minimize water discharges. Exept for the Incheon Terminal, which operates its own oil mixed water and general water treatment facilities, all other KOGAS Terminals and branch offices recycle most of the used water. Furthermore, sea water used in Vaporizors is discharged without any effect on the environment.



### EHS PERFORMANCE

Pollutant Control





**BOD Discharge and Equivalent** 



#### **COD Discharge and Equivalent** Discharge(Kg) Equivalent(Kg/LNG-thousand Ton) 100 0.005 -90 0.0042 84 80 80 0.004 0.0038 0.0038 0.0037 0.003 60 40 0.002 -20 0.001 \_ 0.000 0 2003 2004 2005 2006



#### Volume of Hazardous Chemicals Consumption

Caustic soda (NaOH) and hydrochloric acid are the main hazardous chemicals used in KOGAS' processes. Over the last three years, growing demand for natural gas has lead to the increased use of hazardous chemicals such as caustic soda for controlling PH levels in SMV water tanks. To minimize the use of such chemicals, we are currently conducting research on how to curtail the use of neutralizers in SMV. Moreover, we are endeavoring to replace caustic soda with environmental-friendly materials.





#### Waste Discharges

KOGAS scrupulously applies its own standards, stricter than the legal requirement, to the wastes generated at sites. For the treatment of waste, KOGAS selected a suitable waste treatment agency through a stringent screening process. In addition, KOGAS conducts regular inspections and monitoring to ensure that waste is properly treated.



#### **Environmental Accounting**

From October, 2002 to September, 2004, KOGAS participated in a project to develop environmental accounting practices and to encourage domestic corporations to sign on to such practices. The purpose of the project was to establish standards and clear guidelines in terms of environmental cost management, to set standards for the evaluation of environmental management performances and management decision-making, and to systematize cost reductions in the environmental sector. The project measured environmental costs and benefits and took into account the transparency asked for by stakeholders. Every year, KOGAS releases the information on environmental costs with postings on our website.

#### Costs of Environmental Activities in 2006

(Unit: KRW millions)

	Pollution Treatment	Pollution Prevention	Stakeholder Activities	Legal Compliance & Recovery	Total
Air	385	7,488	-	2	7,875
Water	976	138	-	-	1,114
Waste	192	18	-	-	210
Noise & Vibration	218	1,646	-	-	1,864
Land	12	1	-	-	13
Common	492	3,770	-	5	4,267
Miscellaneous	139	3,912	1,178	98	5,327
Total	2,414	16,973	1,178	105	20,670

For 2006, total costs for environmental activities amounted to KRW20.6 billion (2.52% of total production costs). Costs are categorized under pollution prevention, pollution treatment, stakeholder activities, and legal compliance and recovery. KOGAS continually seeks to decrease its footprint on the environment.

#### Annual Costs of Environmental Activities

#### (Unit: KRW millions)

	Pollution Treatment	Pollution Prevention	Stakeholder Activities	Legal Compliance	Total
2003	1,773	8,413	253	44	10,482
2004	1,735	17,013	1,558	93	20,400
2005	2,153	16,187	1,506	132	19,978
2006	2,414	16,973	1,178	105	20,670

#### Pyeongtaek Terminal

#### 

Incheon Terminal



### HEALTH & SAFETY PERFORMANCE



#### **Health & Safety Performance**

Natural gas is a potentially hazardous substance, and therefore must be handled with care. In order to ensure the health and safety of employees, contractors and communities, we have built the finest and most advanced facilities in the industry and implemented an internationally recognized advanced management system. In addition, KOGAS provides regular training to its employees in EHS practices, knowledge and technologies and requires employees to comply with all relevant legal requirements and regulations.

#### Health & Safety Information Technology

Information is a fundamental element in managing and minimizing risks. The documentation of procedures, practices and programs is a minimum requirement, in order to ensure the effectiveness of EHS management implementation and to guarantee that all legal requirements and regulations are strictly complied with. In addition, KOGAS has established and executed procedures for document control - writing, approval, controlling and disposal of technological materials and standards. According to the 'Management of Change' process, all relevant documents are revised following a facility and/or process change, to ensure any safety and quality issues.

As part of KOGAS' Five-Year Safety Development Plan, we developed and documented 185 safety-related procedures; afterwards, the documentation was integrated into 80 documents. Furthermore, more than 900 best practices and technical practices collected from internationally recognized companies, are maintained in our databank to be incorporated in our practices whenever required.

#### **Risk Assessment**

The first step in minimizing hazards is identifying potential hazards. In order to prevent accidents, it is critical to identify hazards and assess

the characteristics of risk that ensure the effective protection of lives, assets and the environment. KOGAS analyzes and manages risk through quantitative and qualitative risk assessments, as required.

KOGAS conducts risk assessments at the design stage for new facilities and every five years for existing facilities. The results of risk assessments are reflected in improvements of safety systems and procedures, and are incorporated in establishing new EHS regulations and procedures. The assessments also provide the basic information for the Emergency Response Plan.

#### Safety in Facility Operations

#### ▶ Integrity of Design and Construction

KOGAS' facilities are designed based on international standards, legal requirements and regulations, and constructed with the highest quality materials to ensure safety and stability in the production and supply of natural gas.



#### The Integrity of LNG Storage Tanks

#### The Structure of LNG Storage Tanks

In order to store liquefied natural gas at  $-162^{\circ}$ C, Storage tanks have double wall structures similar to a thermos bottle, to store the LNG safely and securely. The outer wall of the tank is concrete that is thicker than one meter, which ensures the safety of the tank from outside impact and installed around each tank is a dike with a volume



that is 1.2 times that of the tank's capacity. To prepare for earthquakes, a shock absorption material [Neo-prene] is installed between the tank's main body and the piles to resist an earthquake stronger than 6.3 on the Richter scale. We also have in-ground tanks to prevent LNG from leaking. Worldwide, LNG storage tanks are of two types; on-ground and in-ground tanks. Their structures and functions are almost the same.



#### Safety Control of LNG Storage Tanks

Several layers of safety protections have been installed for each tank such as water sprinklers to block radiant heat from outside, dikes around tanks, gas leak detectors, infrared flame detectors, CCTVs and foams generators. A state-of-the-art control center monitors the whole process 24 hours a day.

#### Pipeline Safety Control

Any construction or excavation in the vicinity of KOGAS underground pipelines is hazardours, therefore, to prevent any damage to pipelines, KOGAS provides supervisors to inspect and monitor progress. Furthermore, KOGAS patrols its 2,520km pipeline network and attached facilities twice a day all year round to monitor any potential problems. Quarterly our staff and contractors inspect the pipeline on foot. With these preventive activities, we can ensure the integrity of pipelines and prevent any potential incidents.

#### Cooperation with Partners

Responsibility for safety management is not limited to KOGAS alone. We request that our partners implement compatible EHS systems with that of KOGAS. KOGAS provides the resources to our partners to prepare a plan to protect humans and nature, and we monitor their progress and supervise implementation to achieve safety on both sides.

#### Work Management

KOGAS' work permit system is prepared for work performed in our facilities. In particular, special attention is required for hazardous work such as hot work and work in confined spaces.

For these types of hazardous work, each step is identified with any potential hazards, then experts at each step reviews the hazards and provides control actions to eliminate the hazard, otherwise minimizing action required on the work process.

#### The Monitor Screen of Hot Work Permit System



### **HEALTH & SAFETY** PERFORMANCE



#### Safety Inspections and Diagnosis

KOGAS continually inspects our production and supply facilities to ensure the integrity of the facilities and identifies any improvement opportunities.

terrorism. Regular drills are conducted to secure employee capabilities for responding to emergencies and for effectively controlling the aftermath.

<Disaster Response System>



In particular, we secure the safety and integrity of our underground pipelines using intelligent pigging equipment, which are endoscopelike devices that check the structural integrity of pipes inside.

#### **Disaster Response System**

#### Crisis Management System

Our crisis management system is prepared to protect lives and minimize damage to property. The central control center, located at the headquarters, is linked to eight local control centers and three terminal control centers to provide round-the-clock remote monitoring and control of our facilities. These centers have installed hotlines to emergency services such as fire stations to improve the overall effectiveness of our crisis preparedness. Furthermore, the system allows us to anticipate and respond immediately to other emergencies such as natural disasters, environmental spills and

#### ▶ Gas Fire Drill Center

To improve our ability to respond to gas leaks and fires, we constructed a gas fire drill center nearby the Pyeongtaek Terminal in 2006. Beginning in 2007, employees working at the site will be invited to drills at the center. In the future, we plan to open the facility to other gas companies to improve the abilities for mutual cooperation.

#### <Intelligent Pigging>







#### **EHS Education and Training**

KOGAS' EHS Training System is designed to provide EHS training to all employees accordingly. EHS training requirements are identified for every position (including contractors) and are incorporated in the annual training schedule. The training is categorized into three types; mandatory, general and advanced/specialized, and the training is scheduled by the EHS Department considering the resources available.

#### **Health Management**

#### Measuring Work Conditions and Exposure Assessments

To protect the health of employees and improve working conditions, our technicians conduct periodic inspections of worksites to monitor exposure to hazardous materials. The purpose of this bi-annual worksite inspection and exposure assessment program is to identify health hazards, to assess risks and to eliminate and mitigate them.

#### Material Safety Data Sheet (MSDS)

We regularly update our safety data and post the MSDS at worksites to ensure accessibility. The MSDS communicates to workers the potential hazards and risks of hazardous chemicals, with a focus on health and spill response issues.

#### Challenges for Tomorrow

Over the past 20 years, we have accumulated a vast amount of experience and expertise in safety issues, which are our employees' and contractors' fundamental tool for ensuring the credibility of a stable and safe supply of natural gas country-wide.

It is our competence and responsibility to ensure the safety of our employees and all stakeholder and we believe in this as our key value. Although we still have several issues to consider, we will strive to achieve our goals and our EHS Management System will be our vehicle to do so.

In particular, with regard to the recent gas leak in our LNG storage tanks at the Incheon Terminal, we are doing our best to mitigate the concerns of our customers and stakeholders by completing the repairing as soon as possible. The LNG in the tanks will be replaced and thorough inspections will be undertaken to identify the point of the leak for repair and the root cause so as to realize the lessons learned.

### PROTECTION OF THE ENVIRONMENT

Environmental Efforts in Line with the Convention on Climate Change



### Environmental Efforts in Line with the Convention on Climate Change (UNFCCC)

In our efforts to conform to the recommendations of the United Nations Framework Convention on Climate Change (UNFCCC), a treaty to combat global warming, we are continuing to expand the use of natural gas as a low pollution fuel and to develop natural gas vehicles and alternative energy sources.



We set up the first Consultative Committee for Environmental Tasks on climate change in February of 2005 in response to the signing of the Kyoto Protocol in the same year, and the second committee is being activated currently. Until 2007, the fundamental activities will be continued, such as the establishment of an Environmental DBCDM feasibility study in accordance with the short-term action plan, while the long-term environmental plan will be prepared in 2008 to answer and incorporate international and national policies.

#### • Action Planning (2006~2007)

	Major Activities	Schedule
GHG Reduction Project	<ul> <li>Identify potential possibilities and follow-ups</li> </ul>	- May 2006~Dec. 2007
CDM Project	<ul> <li>Feasibility Study for Cogeneration's CDM Project</li> <li>Study of Other Sectors</li> </ul>	<ul> <li>Nov. 2006~May 2007</li> <li>Feb. 2007~Dec. 2007</li> </ul>
Setting up Environmental DB	<ul> <li>LCA S/W Analysis and Management</li> <li>Developing Emission Coefficients</li> <li>Plans for Reductions and Analysis of Costs</li> <li>3rd Party Verification</li> </ul>	<ul> <li>July 2006~June 2007</li> <li>Oct. 2006~June 2007</li> <li>Jan. 2007~Sept. 2007</li> <li>Oct. 2007~Dec. 2007</li> </ul>
Training	<ul> <li>Developing and Implementing Training Program (Annual)</li> <li>Participating in Experts Training</li> </ul>	- Oct. 2006~Dec. 2007 - Year-round

#### Efforts at Reducing Greenhouse Gases

#### Recycling

When repairing pipelines, it is necessary to vent the natural gas in the lines to the air. A major component of natural gas is methane (CH<sub>4</sub>), which has 21 times global warming effect than does carbon dioxide when released into the air. Therefore, except in emergency situations, since 2003 we have endeavored to recycle the gases to save energy and curtail greenhouse gases, by utilizing re-compressing equipment.

From 2003 to 2006, we recycled 2,826 tons of natural gas, which allowed us to save about US\$1.5 million and reduce 59,000 tons of CO<sub>2</sub> in equivalent GHG emissions.









#### Reducing GHG with Improved Open-Rack Vaporizer (ORV)

There are two types of vaporizers, ORVs and SMVs, which gasify the LNG (-162°C) into natural gas. Seawater is used as the heat source for the ORV, and does not emit greenhouse gases, whereas the SMV, a gas combustion heat exchanger, installed to supply natural gas at peak times during the winter season, emits some quantities of GHGs. In 2005, we minimized the operating time of our SMVs by improving the performances of our ORVs, resulting in a reduction of 26,600 tons of CO<sub>2</sub> in equivalent GHG emissions from December, 2005 to March, 2006.

#### Voluntary Agreements to Save Energy

Although KOGAS is an energy providing company, we strive to save energy, and to this end, several programs were developed such as an energy saving committee to monitor and inspect the Company's energy saving performance and a program to recognize the office that is the best at saving. In addition, we actively participate in a national energy saving movement. Since 2005, the Pyeongtaek and Incheon Terminals participated in a voluntary agreement operated by government.

#### Energy Consumption Vs. Production

Year	Energy Consumption (TOE)	Production (thousands tons)	Equivalent (TOE/thousands tons)
2003	146,192	18,447	7.92
2004	174,025	21,322	8.16
2005	196,625	22,854	8.60
2006	189,741	23,500	8.07

\* TOE: Ton of Oil Equivalent

#### Efforts to Develop and Support CDM Projects

#### Supporting Clean Energy Alternatives Projects

In 2005, as a customer-support project, KOGAS offered consulting and technical guidance to support domestic CDM projects and to encourage more industrial use of natural gas in partnership with related organizations such as the Korea Energy Management Corporation.

Project Manager	Target Project	Contribution
Korea Energy Management Corp.	LG Chem Naju Factory: Fuel Switchover Project	KRW150 million
(Contribution from KOGAS)	Hyosung Corp. and 9 Other Companies	KRW200 million

#### Feasibility Study on CDM for Natural Gas

KOGAS is currently conducting a feasibility study on a CDM for natural gas in partnership with the Korea Energy Management Corp. and the Energy Climate Change Research Center at Ajou University. This study, targetted for completion by May, 2007, is designed to prepare a plan for a cogeneration-type CDM project and an analysis of its effectiveness at the national level.

We are working to expedite several other natural gas CDM projects such as one that utilizes LNG cryogenic energy. Furthermore, we are working in close cooperation with Osaka Gas of Japan to find new business opportunities through CDM projects.

### PROTECTION OF THE ENVIRONMENT

Air Pollution Reductions



#### **Air Pollution Reductions**

With a view to enhancing people's health through improving the air quality in cities, the Korean government is encouraging the use of Compressed Natural Gas (CNG) buses. We support this project by providing support for the promotion of LNG buses and especially, switchover projects, to change large vehicle engines from diesel to LNG.

#### **Promotion of CNG Vehicles**

To reduce the social costs of reducing emissions from diesel vehicles, the Ministry of Environment is scheduled to replace all 23,000 public buses with CNG ones by 2013. In line with this policy, KOGAS supports other projects such as the Basic Research Project, the CNG Recharging Station project and LNG vehicle development.

The project to promote the use of CNG buses nationwide is expected to cost a total of US\$765.6 million from 2000 through 2013. About 11,000 CNG buses were in service as of December, 2006.

	Expenditure (US\$ millions)	Purpose of Investment		
Basic Research Project	1.7	Development of vessel for CNG vehicles, etc.		
CNG Recharging Project	27.5	33 movable recharging stations		
LCNG Recharging Project	5.5	2 LCNG recharging stations		
LNG Vehicle Development	2.7	More range than CNG vehicles		
Total	37.4			







#### — CNG & LCNG Supply Chain



#### Completion of Pohang LCNG Station (Mar. 30, 2006)

The construction of the Pohang Recharging LCNG Station at the Public Car Shed in Yangdeok-dong, Buk-gu, Pohang City began in June of 2005, and was completed in February of 2006. Designed to use next-generation technologies, the recharging station will recharge LNG as well as CNG vehicles with natural gas at a pressure of  $250 \text{kg/cm}^2$ . The LNG is transported by tank lorry from an LNG Receiving Terminal and vaporized at the station.



▶ Nameplate Unveiling Ceremony of Ilsan M/S (Jan 10, 2006)



The Ilsan M/S in Baekseok-dong, Goyang-gu, Ilsan City completed its start-up operations on Dec. 31, 2005 and commissioned the charging of gas on January 2, 2006. Currently, we supply natural gas to daughter stations in the northern part of Gyeonggi Province and Goyang City through tank lorries from Ilsan M/S.

#### Blue Corridor Project - More LNG Vehicles Put Into Service

It is difficult for the Korean government to achieve its goals in terms of air quality around Seoul and in other cities across the nation due to the lack of possible replacements for large diesel vehicles. Consequently, the Ministry of Environment and KOGAS are planning to expedite the Blue Corridor Project to replace diesel vehicles with environmentfriendly LNG ones and to build LNG recharging stations near freeways, harbors and airports.

Along with the policy to promote CNG buses, the Blue Corridor Project, which forms a *#*-shaped formation in Korea, will be the basis for a more environment-friendly region alongside the national road network. The project aims to put 23,000 LNG vehicles into service and 100 LNG recharging stations into operation by 2015.

The project targets large-sized long-haul cargo trucks to switch to LNG engines due to potential annual fuel savings of US\$15 thousand per vehicle.



We are seeking ways in which labor and neighor can work hand-in-hand.



With an open mind, no walls exist between labor and management.

# **RELATIONSHIP**

Tearing down walls and meeting neighbors, everyone is of the same family.

We are here to uphold our corporate citizenship.

### OURSELVES

Labor-Management Relations

Joint Efforts of Labor-Management to Improve Productivity



We do our best to enhance productivity and value while securing the supply of natural gas on the basis of stable labormanagement relations as Korea's representative government energy company. To this end, we maintain productive and constructive relations based on better understanding and cooperation on labor-management issues.

#### **Guaranteeing Collective Bargaining**

KOGAS upholds the freedom of labor associations and the right of collective bargaining as we comply with all applicable labor laws and regulations, national and international. KOGAS' Labor Union belongs to the Korean Confederation of Trade Unions (KCTU). As of December, 2006, the labor union had 2,363 members, 86.2% of KOGAS' total employees.

#### • Status of Labor Union Membership

Registered Members	2,363 employees
Full-Time Members in Labor Union Office	10 members
Higher Labor Organization	Public Sector Alliance of KCTU

#### **Basic Directions**

We promote cooperation through the activation of on-site labormanagement conferences, joint workshops, and educational trips while ensuring reliability between labor and management through a regular labor-management conference. Thanks to such constructive labor-management relations, KOGAS completed its collective bargaining agreement earlier than any other government company in 2006.





▲ 2006 Collective Bargaining Agreement (May. 26)

#### Joint Labor-Management Committee

In order to improve the Company's competences through productive labor-management relations, we rolled out an active cooperation system that discusses and shares business issues between labor and management. In addition, we contribute to productivity through the rationalization of management.

#### Joint Labor-Management Communication Channels

Committee	Major Topics
Labor-Management Cooperation Committee	Management Issues and Cooperative Partnerships
Labor-Management Conference	Stabilizing Labor-Management relations by handling employees complaints such as the improvement of working conditions
Labor-Management Relation Line	General Issues
Welfare Fund Management Committee	Executing Fund's targeted projects to Improve Quality of Life
Human Resources Committee	Handling personnel issues



#### Cheongyeon Cultural Festival and Labor-Management Harmony Day

As part of efforts to encourage labor-management harmony and to improve productivity, we hold the Cheongyeon Cultural Festival and a Labor-Management Harmony Day. These events help us to secure our unique corporate culture by promoting understanding between labor and management and the formation of organizational unity among employees.

#### Activities

Activity	Frequency	Participants	Goals		
Labor- Management Harmony Day	Quarterly	Company-wide	<ul> <li>Prevention of Labor-Management Friction</li> <li>Sharing Current Issues and Bonds of Empathy</li> <li>Offering Opportunities to Make Suggestions for Development of Company and Employees</li> </ul>		
Cheongyeon Cultural Festival	Annually	Company-wide	<ul> <li>Establishing Unique KOGAS Culture</li> <li>Forming Sense of Unity through Participation of All Employees</li> </ul>		

These events promote regular dialogues between labor and management, as well as opportunities to handle employee complaints and reinforce employee satisfaction. The cultural festival promotes labor-management harmony and employee loyalty for KOGAS while improving productivity.

> 2006 Cheongyeon Cultural Festival "Turtle Marathon"



#### Joint Labor-Management Efforts to promote Productivity

#### New Employee Stock Ownership Plan (ESOP)

As a first for a government company, we rolled out a new Employee Stock Ownership Plan (ESOP) to promote productivity in 2003. We also promote productivity and competitiveness, and improve labormanagement cooperation by accepting qualitative changes and variations in employee demand for social benefits while utilizing government support such as tax benefits. The plan offers a total of three million KOGAS stocks from 2003 to 2007 (600,000 stocks per year).

#### Sharing in Business Performances

KOGAS is executing a profit-sharing system to elevate productivity. Performance-based incentives are paid to employees within 100% of the monthly basic salary when annual goals for net incomes and sales are exceeded. This system builds a flexible management environment through the expansion of labor cost flexibility and contributes to improving productivity by executing profit-sharing to a level of 90% of average monthly salary from 2003 through 2006.

#### Improving Employee Satisfaction

Labor-management efforts to improve productivity are shown in the results of an employee satisfaction survey. The survey was conducted on the issue of pride in the Company, self-development, tasks and performance appraisals (evaluation and compensation). Employee satisfaction has improved since 2003 according to the results. In particular, the pride in the Company segment was 94.8 points, proving the importance of joint labor-management efforts. KOGAS will continue to develop its labor-management harmony.

### **OURSELVES**

Human Resources Development



#### Human Resources Development

Employee competence is considered to be a key element in KOGAS' ability to achieve our vision of "A Global KOGAS: Being with Customers." We have prepared various training programs to improve the competences of our employees and to help them realize their goals. We are committed to the development of our employees, their families and our communities.

#### KOGAS' Training Philosophy and Target Competences

Under our training philosophy, "Developing the Creative Side of Our Individuals Who Challenge the Future with Passion and Acceptance of Their Own Obligations," we have set up an educational system to meet the following expectations and to pursue the development of both the organization and individuals.

#### Target Competences

• Globalist Reaching Out to the World

Competing with global standard specialized skills and abilities

#### • Citizen Respecting Human Values

Ethical citizens who respect human dignity and corporate ethics contrary to excessive individualism and climate of mammonism

#### • Specialist Creating Core Competences

Dynamic creator striving to create added value for KOGAS through personnel diversity and creativity

#### Developer Leading Personal Development

Ambitious learner who actively and steadily works to improve him/ herself instead of remaining passive

#### Investments in Education and Training

To develop excellent manpower, we invest heavily in the educational sector. Our total investment costs for education reached US\$9,236 thousand and our per-capita education costs rose 10% to US\$3,316 in 2006 compared to the previous year.





#### Development of Specialized Global Manpower

#### Operation of the second state of the second

As a leading energy company, we provide employees with opportunities to study at college, at home or abroad so as to foster high quality specialized manpower and to enable employees to secure



management abilities comparable to international standards. We foster the development of regional experts through improving their understanding of the target region and their global management capabilities by dispatching employees to major energy-producing companies to experience local languages and cultures in person.

• Advanced Training (Unit: persons)					
	2003	2004	2005	2006	
College	13	41	44	28	
Local Experts	2	5	4	-	
Total	15	46	48	28	

#### Language Program

For the purpose of developing the global competences of employees, we rolled out intensive language programs in 2006 with the vision of "Achieving SEPT Level 5 on Average." The goal is to secure a pool of 600 employees who can conduct global business (higher than SEPT Level 5) within three years and to improve the value of employees through the enhancement of their practical language skills and abilities. The programs are conducted at the Jeongseon Training Center in Jeongsun, Gangwon Province, a special 12-week language course for 50 students, three times a year. In addition, another basic course of four weeks for ten students, is conducted five times a year.

#### Self-Managed Studying Culture

KOGAS endeavors to create a culture of self-managed studying in which jobs and studies are harmonized so that employees can enhance their own value and the competitiveness of the Company. The self-managed studying programs maximize the effectiveness of studying as employees volunteer and program it for their own selfdevelopment to improve their work capabilities. The Company helps such employees systematically in consideration of the needs of the Company and the needs of the individuals involved. Self-managed studying programs are linked with a variety of areas such as external educational organizations (colleges and graduate schools), internal OJT training programs, specialized license training, self-regulated study clubs and internal cyber education programs. The Company strives to motivate employees to participate and increase the benefits of studying while supporting employees financially; offering scholarships, supporting the language test fees and studying expenses and giving incentives for the acquiring of new licenses.

#### **Registration of Competent Employees**

In order to find and utilize competent people with professional knowledge, technological expertise and special qualifications/licenses, we are continually registering competent people. When competent specialists are needed, we check the lists of registered applicants first.

### Education & Training Program to Improve Individual and Organizational Competences

With the setting up of educational and training plans related to the corporate strategies and management of the KOGAS Business School, KOGAS has re-established a basic work training system. In addition, we support self-regulated study clubs and offer scholarships for self-development based on the analyses of business environments, core competences and basic needs. At the same time, we are reinforcing the activation of education through training programs with hands-on experience and weekend programs for families.

### **OURSELVES**

Equal Employment

#### Equal Employment

#### **Recruitment System**

KOGAS is a national energy company; it is our commitment and obligation to provide equal opportunities to all job applicants regardless of academic background.

#### **Employment Status**

As of November, 2006, the total number of employees was 2,742, and the average period of service was 11 years and seven months. By age, those in their 30s accounted for 58%, those in their 40s for 28%, those in their 20s for 8% and those in their 50s for 6%.

		2004	2005	2006
Number of Employees		2,724	2,725	2,747
Females	Number	204	205	204
	Ratio (%)	7.5	7.5	7.4
Physically-	Number	32	44	56
Challenged	Ratio (%)	1.2	1.6	2.0
Patriots and Veterans	Number	202	212	226
	Ratio (%)	7.4	7.8	8.2







#### **Culture of Gender Equality**

In compliance with the ideology of gender equality in Korea's Constitution and the nation's Gender Equality Employment Law, we guarantee equal opportunities and treatment for both men and women in employment and working conditions with no tolerance for any discrimination.

#### **Employment of Physically-Challenged People**

As of December, 2006, the total number of physically-challenged employees was 56, which is in line with the requirements stipulated by law. We give additional points to physically-challenged job applicants to boost their employment. In the future, we will remain on the road to fulfilling our social responsibilities as a national company.

#### **Encouragement of Childbirth and Motherhood Protection Program**

A sharp fall in the rate of childbirth will be a negative factor in Korea's future competitiveness. We are expanding our support programs in line with the government's policies for encouraging childbirth, including reinforcing welfare programs for social participation by females and taking care of physically-challenged children. In particular, we help working parents to take better care of their babies, and thanks to such efforts, we can minimize the employee's troubles while enabling them to work more efficiently and effectively.



### OURSELVES

Fair Performance Appraisal System



#### Major Agendas

- Financial support to encourage childbirth
- Expanding childcare facilities: operating childcare facilities at the headquarters and at worksites in Pyeongtaek and Ansan
- Giving allowances for physically-challenged children of employees and financial support for medical costs of employees having difficulty conceiving

Pregnancy	<ul> <li>90 days of vacation before and after childbirth (since Jan. 11, 2001)</li> <li>Safer work for pregnant women</li> <li>45 days of paid vacation for miscarriage</li> <li>Raise the childbirth subsidy</li> </ul>
Childcare Leaves	• Employees caring for baby of under one year, are eligible for childcare leaves of less than one year (Jan. 1, 2011)
Educational Support	<ul> <li>Operating English Camps for children of employees</li> <li>Offering English Camp programs at the Research &amp; Development Center in Ansan</li> </ul>

#### Fair Performance Appraisal System

#### **Promotion System**

We expanded the conditions for promotions by improving the traditional promotion management system to give promotions when they achieve certain goals and/or become competent in particular skills or abilities.

#### Appraisal System

We improve the management qualities of employees using fairness appraisals of competence, attitude and performance. In order to improve the fairness and effectiveness of human resources, we utilize the results of appraisals as standard information for promotions, transfers, training and education, and compensation decisions.

#### **Reward System**

We are rolling out an annual salary system for Second-Class managers and higher. Other employees are subject to a performancebased incentive system based on team and individual evaluations.

#### Reward System

	Annual Salary	Incentive				
Target	Higher than 2nd Class	Lower than 3rd class				
Consideration	Team's performance	Team and Individual performances				

#### Improvement in Performance-Based Reward System

• Expansion of appraisal items: We are strengthening our performance-based reward system in accordance with the system to separate positions and classes, and reorganization into teams.

• Position-oriented selection of appraiser: We widened the scope of evaluations by letting those responsible for tasks evaluate those who do not have responsibilities.

- Direct evaluations by the CEO: The CEO evaluates those who are team leaders and higher or those responsible for tasks.
- Enhancement of teamwork through evaluation: Evaluations encourage employees to create better teamwork and self-development.

We will grow into a globally competitive company through such improvements in the appraisal system.



### ENHANCEMENT OF QUALITY OF LIFE



We have prepared various programs to improve the welfare of employees and to raise their competitiveness through selfdevelopment. These programs are designed to steadily increase employee satisfaction and productivity.

	Number of Employees				Average Period of	Quarterly Salary	Per-Capita Salary		
	Admin.	Engin.	Others	Total	Service	(in US\$)	(in US\$)		
Male	402	1,784	357	2,543	11.6	36,973	58,156		
Female	54	45	105	204	10.5	2,161	42,388		
Total	456	1,829	462	2,747	11.5	39,134	56,985		



#### Welfare Systems for Better Quality of Life

As the demand for social benefits varies depending on age, we prepared differentiated welfare systems, thereby contributing to bettering the quality of life of employees while raising satisfaction. We aim to steadily develop systematic programs with the devising of a macroscopic welfare system to promote the effectiveness of the welfare systems.



#### Major Activities

- Selling off unsatisfactory company housing and preparing new and better housing
- Providing medical check-ups annually for every employee and making A-class health examinations compulsory for employees over 40 years of age
- Supporting high quality dental care services in cooperation with leading dental clinics

#### **Health Care**

In our efforts to take care of the health of our employees, we provide medical check-ups and operate on-site clinics and designated hospitals. To build the physical strength and team spirit of employees, we support athletic events quarterly on a designated workday as an Athletic Day. We also provide various welfare and recreational facilities including tennis courts and health clubs, which promote health-related club activities.

#### ► Non-Smoking Workplace

We promote activities to improve the health of employees such as with our designation of the Incheon and Tongyeong Terminal as smoke-free workplaces. We also encourage employees to quit smoking by offering classes in cooperation with local public health centers. We also furnish smoking areas with assistants for quitting smoking.





#### **Elective Welfare Systems**

As a pacesetter for a national company in Korea, we introduced an elective welfare system in 1999 and have continued this system successfully. By developing a variety of welfare programs based on age and class, the system has succeeded in raising employee satisfaction.

#### **Promoting Recreation**

We encourage the enjoyment of recreation activities by providing purchased or leased recreation facilities countrywide.

• Recreation Facility Availability : a total of 194 units

According to changes in preferences for recreation activities as brought about by the five-day workweek system, we expanded the number and variety of recreation programs; providing leasing pensions and other recreation facilities, for the purpose of meeting employee demand for new recreational options.

#### **Internal Welfare Funds**

Since 1990, we have operated an internal welfare fund committee, within 5% of pre-incomes the fund is provided to improve housing conditions and welfare for employees.

#### Main Activities

- Supporting expenses for congratulatory greetings and messages of condolence
- Supporting housing expenses and welfare expenses
- · Supporting medical expenses and to buy ESOP stocks



#### Industrial Health and Safety Activities

Our first priority is health, safety, environment, and quality (EHSQ), and in line with this policy, we ensure safe and environment-friendly work environments by improving our system continuously through active prevention activities. We expect these efforts will ensure excellent quality services to satisfy customers and to promote healthy living and a better quality life for employees and communities.

We provide safety and health training to new employees and to employees transferred to new positions, and special health and safety training before hazardous or dangerous work is undertaken. To improve the effectiveness of our safety and health management system, an Industrial Health and Safety Committee is operated to comply with Industrial Health and Safety Laws.

### NEIGHBORHOOD

Vision and strategy for social contributions Scholarships for young students Environmental conservation

As a responsible corporate citizen, we make various social contributions, actively participate in several programs and matching grants, and operate an internal volunteer group. As for social contribution activities, the Company and our people share good will with people in need.

#### Vision and Strategy for Social Contributions

#### **Vision for Social Contributions**

- Vision: Happy Society, Living Together
- Mission: Humanity, Social Happiness, Sharing

#### **Responsible Corporate Citizen**

As a responsible corporate citizen, we have actively participated in a variety of social contribution activities since 1999.

#### **Continuous and Systematic Social Contributions**

We strive to make our social contribution activities and the volunteer groups' activities systematic and ongoing.

As well as organizing an internal volunteer group, called the KOGAS Cheongyeon Volunteer Group, we support and sponsor social welfare, culture & art, volunteerism, sisterhood sponsorships and juvenile protection programs.

#### **Developing Social Contribution Programs**

Our social contributions go beyond mere donations and financial support. Many entities connected to us as well as individual employees contribute to society through active participation in a variety of activities. We also participate in these activities and develop a diversity of social volunteer programs to provide practical welfare services to marginalized neighborhoods.





#### **Scholarships for Young Students**

#### Cheongyeon Scholarships

The Choengyeon Scholarship offers tuition scholarships to children of low-income families. The scholarships enable recipients to attend institutes of higher education and to improve their position in society so as to become better citizens.

#### Educational Facilities and Professional Education

We support schools and universities with various programs and financial aid. We support industrial cooperation and offer development funds while providing educational facilities, English and computer tutors, and tours for students to our Gas Science Center. By sharing our knowledge and experience, we help the next generation cultivate the responsibilities, qualities and capabilities needed for success in the future.









Cheongyeon Scholarship **Conferment Ceremony** 







#### ♦ Gas Science Center

Located on the premises of the Incheon Terminal, the Gas Science Center comprises a two-story dome-roofed main center and an 88mhigh cone tower. The center is free and open to the public and its mission is to provide knowledge of science and the environment to young minds, our future leaders and a cultural center for the community. The center is one way in which we are fulfilling our social responsibilities as a good corporate citizen. The exhibits, located in the basement and on the first and second floors, are prepared so as to give the impression of a space station floating on an ocean.

#### Visitors

Year	Visitors (persons)
2003	103,674
2004	100,432
2005	93,212
2006	101,262



#### **Protecting the Environment**

In order to enhance the growth of healthy green forests with clean air and water, and to protect ecosystems from pollution, we actively participate in green movements and campaigns in which each company takes care of one mountain, one river and one sea.

#### • Performance by Region (2006)

Activities	Pyeong- taek	In- cheon	Tong- yeong	Seoul	Gyeong- in	Chung- cheong	Jeolla	Gyeong- buk	Gyeong- nam	West coast	Gang- won	Total
One-Company One-River	-	1	1	5	12	12	3	4	1	4	2	45
Sea Cleaning	2	1	4	-	1	-	-	-	-	-	1	9
Street Campaign	1	2	2	2	2	2	3	2	2	2	3	23
Cooperation with Related Institutions	3	1	1	5	4	1	3	1	3	2	2	26
Total	6	5	8	12	19	15	9	7	6	8	8	103

One-company one-river

One-company one-mountain





#### Protecting Cultural Legacy

Having signed an agreement for the protection of Korea's cultural legacy with the Cultural Heritage Administration on August 31, 2005, we execute gas safety inspections and cleaning services at the premises of 56 cultural assets.

### **NEIGHBORHOOD**

Regional Development Volunteer Services



#### **Regional Development**

#### Establishment of Sisterhood Relationship

#### Center-Village Sisterhood Relationships

For the sake of promoting mutual development through a diversity of exchanges between cities and rural areas, each regional center established a sisterhood relationship with one rural village.

#### Center-School Sisterhood Relationships

With the establishment of sisterhood relationships between each of our regional centers and local schools, we participate in the establishment of an industrial network in education.

- One-Center One-Village Sisterhood Ceremony
- One-Center One-School Sisterhood Ceremony





#### One-Center One-Troop Sisterhood Relationships

KOGAS supports Korea's military troops through various activities. Having developed sisterhood relationships with local troops, we provide books and various programs including sports activities.

#### **KOGAS ACADEMY**

KOGAS offers lectures on culture through the KOGAS Academy. Every month, to satisfy employee and community interest in culture, we invite renowned lecturers on various subjects to our headquarters or to regional centers. The purpose of the lectures is to promote mutual growth between the Company and the community through a balance of work and life. To this end, the KOGAS Academy offers lectures on a diverse range of topics from children's education, health & beauty to financial technologies. These lectures have proved to be very popular with employees and the community.

#### Cultural Lectures



#### **Cultural & Sports Development Programs**

In actively supporting and participating in the promotion of regional sports activities, we operate our own Taegwondo team. We continuously invest in culture & art to enhance the quality of community life.



#### **Volunteer Services**

#### **Participation in Volunteer Services**

	2005	2006	Increase
Participants	1,782	3,370	1,588
Service Hours	11,952	26,960	15,008
Average Service Hours	8	8	

#### **Cheongyeon Volunteer Group**

As a responsible corporate citizen that aims to fulfill our social responsibilities, we provide various programs and volunteer services. In 1999, we organized the Cheongyeon Volunteer Group, headed by our Sr.Executive Vice president. The Cheongyeon Volunteer Group not only provides financial aid, but also shares time and energy with marginalized neighbors.

► Spring excursion with physically-challenged children





Visiting and serving at

charities

#### **Collecting Donations**

The most important corporate social contribution comes in the form of financial donations. We mobilize our funds and those collected through a matching grant system for donations to feed children in need and marginalized neighbors.

#### **Matching Grants**

In the matching grant program, the Company matches funds raised by employees with its own funds, which are then donated to various causes. The aim of this program is to encourage employees to donate to good causes and to foster organized support for charitable activities.

flood damage



Helping with restoration work flood damage



► Helping with restoration work ► Free photo-shoot for senior



Free photo-shoot for senior



KOGAS is a company that puts into practice the social contribution spirit of sharing and co-prosperity.




# ASSURANCE STATEMENT

## Det Norske Veritas AS hereby states that The CSR Report 2006 of KOGAS (Korea Gas Corporation) is consistent with

- the analysed management systems and operational processes
- the data and the information produced by the operational entities

### Introduction

DNV Industry (DNV) has been commissioned by the management of KOGAS to carry out an assurance engagement on KOGAS's 2006 CSR report ("the Report") and its contents.

KOGAS is responsible for the collection and presentation of information within the report. Our responsibility in performing this work is to the management of KOGAS only and in accordance with terms of reference agreed with them. DNV expressly disclaims any liability or responsibility for any decisions, whether investment or otherwise, based upon this assurance statement.

The Report is found to be prepared by KOGAS in compliance with the relevant internal processes, routines and positions demonstrated in the corporation.

The sections "Scope of Assurance", "Verification Methodology" and "Principal Considerations" described below are integral parts of this statement.

# Scope of Assurance:

The Scope and process for this work agreed upon with KOGAS include all the following:

Social/environmental and health & safety indicators during the period of the year 2006

- Reporting boundaries include head-office and production sites in Korea but exclude distributing sales offices
- KOGAS' co-operation with its distributors is treated in the report. However, the distributors own operations, as well as those of KOGAS subsidiaries, are not covered by this verification.

# Verification methodology:

Our assurance team includes environmental and social assurance specialists from our global environment and sustainability network. The verification was conducted by DNV during February-March 2007. Our assurance engagement has been planned and performed in accordance with DNV's Verification Protocol for Sustainability Reporting.

In that respect the Report has been evaluated against the following criteria:

- Adherence to the principles of Materiality, Completeness, Accuracy, Neutrality and Comparability as set out in the AA1000 Assurance Standard, and
- The Global Reporting Initiative 2006 Sustainability Reporting Guidelines.

As a part of the verification we have

- Examined documents, data and other information made available to DNV by KOGAS.
- Performed interviews with twenty-two individuals with differing responsibilities in the company
- Performed sample-based audits of the mechanisms for implementing KOGAS' own ethical policies
- Reviewed documents, data and information made available to us by KOGAS
- Performed interviews and visited production sites of Incheon and Pyungtaek
- Performed sample-based audits of the processes for generating, gathering and managing the quantitative and qualitative data
- Reviewed the process for acquisition of information and data from the year 2006
- Review of approach to stakeholder engagement
- Sampling-review of the acquisition of data from the ISO9001, 14001 and OHSAS18001 certified management systems
- Sampling-review of processes for determining 'material' issues to be included in the report

# Conclusions/Principal considerations:

### Materiality

Based on our review, we consider that the KOGAS 2006 CSR report provides a balanced representation of material aspects concerning KOGAS' CSR performance. The report describes actions taken throughout the year as well as ongoing challenges.

### Completeness

We have tested and challenged claims and statements made in the Report by obtaining supporting evidence from KOGAS. Based on our review:

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# DNV Verification Protocol for Sustainability Report-Operating Manual

We are not aware of any material issues excluded or misstatements made in relation to the information on which KOGAS has made judgements in respect of the content of the Report.

We are not aware of any material reporting units that have been excluded in KOGAS' management's review of social, health, safety and environmental performance.

We have reviewed information or explanations on the statements on KOGAS CSR activities presented in the Report and we are not aware of any misstatements in the assertions made.

#### Accuracy

Based on our review

We do not have reason to believe that the report is not accurate.

#### Neutrality

Based on our findings, we conclude that the information contained in the report is unbiased.

#### Comparability

We have not found any material inaccuracies that may affect significantly the comparability of selected KPIs.

#### Responsiveness

KOGAS demonstrates responsiveness in their transparent and active dialogue on this subject through the identification and dialoguing with their main stakeholders.

Based on the above, our opinion has come to believe that KOGAS' processes in place for implementing the KOGAS policies, identifying, monitoring, managing and reporting social, environmental, health and safety risks and aggregating data are effective, or that statements made in the Report are not fairly stated.

### **Opportunities for improvement**

The following is an excerpt of some of the observations and opportunities reported back to KOGAS management. However, these do not affect our conclusions on the Report, and are indeed generally consistent with the management objectives already in place.

- Identified major risks in the CSR area are Fires, Explosions, Leaks in Safety, Power Failures and Gas supply shortage risks in Social. DNV recommends that senior management improve their understanding of related risks not only on site but affecting surrounding areas.
- Increase controls over implementation of EHS policies. Monitoring mechanisms to evaluate the effectiveness of EHS policies should also be in place.
- Extend EHS training throughout the workforce
- It is recommended that stricter standards for the discharge of pollutants than those required by law should be clearly mentioned in the report.
- Continue enhancement of the data collection systems in place accompanied by appropriate levels of control, in particular actual statistics on accidents and incidents. It is recommended that KOGAS develop relevant KPIs for the prevention of accidents.
- Despite the fact that KOGAS Social Report describes plans and, to a certain degree, goals for 2007, more specific goals would have improved the readers ability to evaluate the progress. We therefore recommend to set more specific SMART (Specific, Measurable, Achievable, Realistic and Time bound) targets at Corporation/Division/Site levels.
- Progress adoption of more formalized EH&S management systems for the Corporation's most significant sites or areas
- KOGAS gives a clear impression of being sincere and motivated in their work with CSR, and they are aware of the challenges that go with their high ambitions. The implementation of the ethical code of conduct, 'Clean KOGAS' and 'Our Promise 30' are considered good progress, but further implementation is necessary.
- Increase transparency in communicating with interested parties. During the review it was noticed that recent LNG leakage issues from residential areas near the Incheon site should have been communicated more proactively to interested parties together with the master plan for improvement.

Det Norske Veritas AS expressly disclaims any liability or co-responsibility for any decision a person or entity would make based on this Verification Statement.

Esther GARCIA / CSR Senior Verifier	Signed:	우옸
Dong-Hwan, Kim/CSR Lead Verifier	In-Kyoon, Ahn/Management Representative	$\Phi $

2007-03-20 Det Norske Veritas Industry, Seoul, Korea

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# GLOSSARY

### Gas Hydrate

A Gas Hydrate is a crystalline solid, its building blocks consist of a carbon-hydrogen molecule surrounded by a cage of water molecules. Thus it has a similar structure to ice or snow. It can be generated at an atmosphere pressure below 0°..., but at higher pressures higher temperatures are possible. At low temperatures the humidity in the natural gas and/or light carbon-hydrogen can be formed into hydrates in high-pressure pipelines causing the blockage of filters.

#### **Kyoto Protocol**

The Kyoto Protocol is an agreement under which industrialized countries are required to reduce greenhouse gas emissions to 5.2% below 1990 levels by 2008~2012. The Kyoto Protocol was adopted at the third session of the Conference of Parties to the UNFCCC (COP3) in 1997 in Kyoto, Japan.

#### **City Gas Company**

A company that distributes the natural gas to end-users, as provided a wholesaler such as KOGAS

#### Vent

To release natural gas into the air for the purpose of repairing and/or emergencies

#### Odorant

Although natural gas is by nature colorless and odorless, odorants are usually added to assist in identifying leaks. Odorants must not be harmful to humans or the environment, and must be clearly distinguishable from other odors. Odorants such as t-butyl-mercaptan and tetra-hydro-thiophene are capable of stimulating the senses even in extremely low concentrations.

#### **3-D Elastic Wave Exploration**

The 3-D Elastic Wave Exploration technology is used to explore the state of the ocean floor via a 3-D video system using a type of ultrasonic wave. This technology is used in determining the presence of gas hydrates.

#### **Elective Welfare System**

An Elective Welfare System is a customized welfare support system that allows employees to design their own welfare items within allocated budgets.

#### Spot Market

Natural gas sales are typically contracted on a long-term basis, but surpluses from production sites can be sold by the cargo unit on the spot market.

#### Fuel Cell

A fuel cell is an electrochemical device that combines hydrogen and oxygen to produce electricity. Fuel cells are highly efficient and very environment-friendly in generating power, and some types can be operated using fossil fuels. Compared to conventional fossil fuel generators, fuel cells are more efficient and emit fewer pollutants.

#### SMV: Submerged Combustion Vaporizer

SMVs are heat exchangers that heat the water through the combustion of natural gas in the water. Using tubes installed in the water, the LNG is pumped in the tubes to be gasified.

#### **Natural Gas**

Natural gas is found in underground reserves and usually remains in a gaseous form when brought to the surface. Natural gas mostly consists of hydrocarbons in the paraffin group with methane as a main component.

#### **ORV: Open Rack Vaporizer**

ORVs use seawater as a heating source to gasify LNG into a gas. An ORV sprinkles water on the surface of heat exchange tubes and then passes the LNG through the tubes. ORVs are used for base loads.

#### **Cargo Containment**

LNG storage facilities in LNG carriers

#### B&F (Best & First)

 $\mathsf{B}\&\mathsf{F}$  is a KOGAS slogan that describes the Company's management innovations.

#### CNG (Compressed Natural Gas)

The critical temperature of natural gas is very low, therefore it remains in a gaseous form when compressed.

#### CoP (Community of Practice)

A CoP is an official gathering of people who share and exchange common interests, experiences and information to accomplish common goals.

### DME (Di-Methyl Ether)

Di-Methyl Ether (CH30CH3), used as a fuel for diesel engines, is a clean-burning alternative to liquefied petroleum gas. Easy to compress and combust, DME is a synthetic gas (C0, H2) made from natural gas, coal, or biomass.

### E&P (Exploration & Production)

 $\mathsf{E\&P}$  indicates an "upstream operation" such as exploration and production of natural gas.

#### ERM (Enterprise Risk Management)

ERM is an integrated risk management system designed to handle all types of risk that may damage a company's reputation, environmental or other types of accidents.

#### ESOP (Employee Stock Ownership Plan)

KOGAS recently adopted a new ESOP, which is an employee stock ownership plan to which a corporate donation system has been added. The plan is based on Korea's Laborer Welfare Law. KOGAS' old ESOP increased its capital by allowing employees to buy treasury stocks when a company went public whereas the new system apportions treasury stocks to employees in addition to allowing preferred stocks.

#### **GRI (Global Reporting Initiative)**

The GRI was formed by the Coalition for Environmentally Responsible Economies (CERES) and UNEP in 1997. The Global Reporting Initiative (GRI) aims to develop, disseminate and update sustainability reporting guidelines on a regular basis in line with changing social, environmental and economic conditions.

#### **Intelligent Pig**

An intelligent pig is a device used to inspect the inner surfaces of pipes for corrosion by moving in the pipe using fluid flow. Various inspection devices can also be loaded on the intelligent pig.

#### LCA (Product Life Cycle Assessment)

A Life Cycle Assessment (LCA) is a systematic evaluation of the environmental aspects of a product or service system through all stages of its life cycle.

#### LCNG Recharging Station

An LCNG recharging station receives LNG from LNG receiving terminals by tank lorry and stores it for charging LNG vehicles while CNG is charged to natural gas buses.

#### LNG (Liquefied Natural Gas)

Liquefied natural gas is natural gas that has been liquefied for transport. Natural gas exists in the form of a gas at normal temperatures, but when frozen at -162°... it is transformed into liquid. This reduces its volume by 1/600th and the liquid is stored in cryogenic storage tanks.

#### Membrane Type

An aluminum membrane with a contracting characteristic, which is installed on the inner wall of a cryogenic LNG storage tank

#### Mother-daughter Recharging Station

A Mother-daughter Recharging Station is a system for the transport of natural gas in the storage containers on a vehicle. Natural gas is stored at supply facilities in districts in which natural gas piping cannot reach. The natural gas is charged via an injector.

#### MSDS (Material Safety Data Sheet)

MSDS is an information sheet provided by suppliers, which describes the hazards and mitigation information for each chemical.

#### PNG (Pipeline Natural Gas)

PNG is a pipeline system for transporting natural gas from a production site without using a liquefying process.

#### **Polyurethane Foam Insulation**

Polyurethane Foam Insulation is an insulating material commonly used in LNG storage facilities.

#### TDR (Turn Down Ratio)

A TDR indicates the gap ratio in demand for natural gas in winter and summer.

# CODE OF ETHICS (CLEAN KOGAS)

In an effort to foster transparent management and thus help KOGAS become a clean energy supplier, we have prepared a code of ethics that is built on the trust of customers, shareholders and the local community. Therefore, the code will provide a clear direction for all KOGAS employees to follow when they have to make ethical decisions.

#### ▶ The 1<sup>st</sup> mission is to firmly establish a basic framework for practicing ethical management in the workplace.

- Handling affairs fairly in the workplace and putting the interests of the Company before anything else.
- Fostering mutual trust and respect among all KOGAS employees regardless of rank.
- Ensuring KOGAS' clean reputation by being fair and transparent with stakeholders and any other colleagues.

#### ▶ The 2<sup>nd</sup> mission is to act responsibly in dealing with other KOGAS workers.

- Evaluating and promoting workers based on their ability and performance.
- Ensuring and supporting our employees' competence and creativity.
- Pursuing cooperative industrial relations for peaceful coexistence.

#### ▶ The 3<sup>rd</sup> mission is to fulfill duties and obligations to shareholders and customers.

- Ensuring a stable supply of safe natural gas.
- Maximizing investment return for shareholders and practicing "open" ?management.
- Respecting our customers and shareholders right to know, thus sharing business information with stakeholders transparently.

#### > The 4<sup>th</sup> mission is to fulfill duties and obligations to the local community and the nation as a whole.

- Making society cleaner by engaging in activities to protect the environment.
- Engaging in and actively providing support for volunteer social services.

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# OUR PROMISE 30 (ACTION CODE)

- 1) KOGAS employees should be fully cooperative toward their colleagues and other departments and teams, and should assign prime importance to others' work and requests.
- 2) KOGAS employees should put the interests of the Company before their own when the two conflict.
- 3) KOGAS employees should be honest and accurate at all times when reporting, and should not knowingly change or omit contents in a report.
- 4) KOGAS employees should not use information, technologies and patents obtained in the course of conducting business for personal gain or disclose such information, technologies and patents to an interested party.
- 5) KOGAS employees should not use tangible assets and corporate funds without prior approval.
- 6) Superiors should lead by example and make reasonable requests of their subordinates. Subordinates are advised to be more active and creative in performing their workplace duties.
- 7] Position titles should be used when addressing other workers, and all conversations in the workplace must be based on mutual respect.
- 8) Gatherings and connections based on school or regional background should be avoided to prevent factionalism.
- 9) No monetary transactions are allowed among KOGAS employees. Examples include loans, joint debt guarantees and cross payment guarantees.
- 10) KOGAS employees should not give or receive gifts of any kind. However, an exception is made when a superior gives a present to a subordinate or when members of a team or a department exchange presents of equivalent monetary value.
- 11) Business with interested parties should be conducted at the office or an open and public location. Strong efforts should be made to avoid meeting interested parties after business hours.
- 12) KOGAS employees should not take advantage of their bargaining power in dealing with interested parties.
- 13) Information needed for closing deals and the results of and progress data on transactions should be disclosed in a timely and fair manner according to set procedures.
- 14) Wining and dining with interested parties are not allowed. However, an exception is made for meals and favors received from others that are acceptable in light of general business practices.
- 15) KOGAS employees should not notify interested parties of dates of family occasions, such as weddings and funerals, or take flowers or money for such occasions. If the amount of money received from a person in relation to any such family occasion exceeds KRW100,000, a report should be filed voluntarily.
- 16) KOGAS employees should not have an interested party pay for overseas business trips and training expenses either directly or indirectly.
- 17) Fairness should be sought through rational and predictable personnel management that considers individual ability and equity appropriately.
- 18) Neither school/regional background nor seniority is considered for personnel management, job training, etc.
- 19) KOGAS employees will be provided with more and better long- and short-term training opportunities so they can properly develop themselves and thus hone their professional skills.
- 20) KOGAS will seek to implement ways to help employees from different levels of the hierarchy to communicate better with different departments or teams.
- 21) Labor and management shall respect each other and resolve problems through dialogue and compromise.
- 22) When it comes to operational decision-making, the highest priority should be the safe and stable supply of natural gas.
- 23) The value of the Company should be maximized through endless pursuit of innovation and growth, aggressive IR campaigns and adequate dividend payouts.
- 24) All accounting transactions should be handled according to set principles, and no intentional or arbitrary adjustment is allowed for, say, tinkering with profit amounts.
- 25) Reasonable customer requests, inquiries or complaints should be handled in one day. If not possible, the customer should, at the least, be notified of a solution.
- 26) All materials for disclosing results of company operations should be updated based on the latest data at the end of each month.
- 27) Applicable environmental laws and regulations should be strictly adhered to in pursuing the construction/manufacturing of LNG bases and main pipes and maintaining equipment and facilities for product supply.
- 28) KOGAS employees should participate in sound volunteer social service programs and the Company should support such endeavors.
- 29) Environment-friendly activities and programs should be vigorously developed and implemented so as to help maintain the Company°Øs image.
- 30) KOGAS should fulfill its tax-payment and job-creation obligations through sound business activities.

# OUR APPROACH TO REPORTING:

A sustainability report integrates the economic, environmental and social performances of a company. The importance of sustainability reports is growing as such reports allow companies to set more effective channels of communication with various stakeholders. In addition, the publication of sustainability reports is recognized as being beneficial in enhancing long-term corporate value.

The role and relative importance of stakeholders are increasing in today<sup>o</sup>Øs more complicated business circumstances. It requires the preparation of more open communication channels with internal and external stakeholders whose scope is being expanded beyond traditional customers as mere consumers. Furthermore, it is much more necessary for companies to cooperate with each other to find answers to current environmental issues.

KOGAS published its first environmental report in 1998 and since then has published it every two years. In 2004, the Company published an integrated EHSQ Report to communicate with stakeholders regarding our environmental and safety performance.

This 2006 report is our first Sustainability Report, after having formed a Task Force Team to analyze and identify the issues relevant to KOGAS in terms of sustainability. The issues are analyzed to prioritize and identify the key sustainable issues through the internal and external stakeholders as categorized into five sectors; Customer, Investor, Contractor, Community and Government. The gaps between internal and external stakeholders are incorporated in the sustainability strategy.

To prepare this report, we studied the sustainability reports of well-known companies well-respected nationally and internationally and prepared the report in line with the Global Report Initiative (GRI). We allotted several pages to the issues of key importance to stakeholders such as safety management. Although there are still some improvement opportunities on the completeness and inclusiveness compared to the GRI guidelines and some gaps in providing clear sustainable performance indicators, these will be incorporated in the sustainable strategy to improve them in the future.

To ensure the accuracy and credibility of this report, the report was verified by an independent third-party organization.

DNV (Det Norske Veritas) carried out the verification. The DNV conducted on-site inspections at the Incheon and Pyeongtaek Terminals in accordance with the AA1000 and DNV Verification Guidelines. Along with on-site verification, DNV representatives visited KOGAS°Ø headquarters and reviewed the contents of the report and data collection processes.

DNV provided KOGAS with extensive, detailed and comprehensive comments on the sustainability report, the sustainability strategy, action planning, data collection and control process, and external audits of the sustainability activities. The comments offered by DNV were partially incorporated, where feasible, in this report, and others will be considered in the next sustainability activities.

This report is mailed to stakeholders and is made available to the public on our website. We are also collecting feedback on the report through our on-line and/or off-line channels. We intend to reflect the feedback in the next sustainability reports. We will strive to carry out sound and sustainable activities, which will enable us to improve our sustainability reports in the future, as befitting KOGAS as a leading global E&P company.

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# A FUTURE FOR SUSTAINABILITY



Leaders never cease in their efforts to seek a better future. Challenges create the energy to open the doors to the future. Responsibilities provide the power to run corporate hearts.

# CONTACT INFORMATION RELATED TO THE REPORT:

Your opinions on this report are very important to us. Please send us your feedback to the following address, e-mail or by telephone.

Address: KOGAS Best & First Team, KOGAS, 215, Jeongja-dong, Bundang-gu, Seongnam City, Gyeonggi Province (Zip Code: 463-754) Email: sustainability@kogas.or.kr Tel: +82 (0)31 710 0084

For more information about KOGAS:

This report reports on the sustainability performance of KOGAS. Please refer to the following web addresses for more information related to the report.

Profile, Safety, Environmental Management: http://www.kogas.or.kr Management Innovation: http://www.kogas.or.kr/innovation Ethical Management: http://www.kogas.or.kr/moral Gas Science Hall: http://www.kogas.or.kr/museum/index.jsp Bidding Information: http://bid.kogas.or.kr/jsp/index.jsp R&D Center: http://www.kogas.re.kr Financial Information: 2006 Annual Report