Special Features — Five Key Approaches to Achieving New Growth—

## (1) Steady Growth in Power Generation Facilities: Approaching the Construction of the Ohma Nuclear Power Plant

#### Background of J-POWER's Nuclear Power Plant Development

J-POWER has engaged in various surveys and studies on the development of nuclear power since 1954. From 1969, we began collaborating on design and planning, construction, and operation of the Fugen Advanced Thermal Reactor (ATR) developed by the Power Reactor and Nuclear Fuel Development Corporation (an independent administrative institution, now named the Japan Atomic Energy Agency), for the future development of nuclear power plants. Based on our accumulated nuclear power generation technologies and know-how, we are working on the Ohma project, our first nuclear power project. Through the support of the government and electric power companies (EPCOs), we are pushing ahead with this project and making steady progress.

#### The Significance of the Ohma Nuclear Power Plant Today

In addition to playing a vital part in the establishment of a stable and long-term business platform, J-POWER considers the Ohma Nuclear Power Plant as an important project in helping to fulfill its new vision: "building cleaner and more efficient business assets" as outlined in the fiscal 2007 Group Management Plan.

#### (1) Major contribution to stable and sustained earnings

Having concluded basic agreements with EPCOs for the provision of all of its electricity output, J-POWER is pushing ahead with the development of the Ohma Nuclear Power Plant, as well as the Isogo New #2 coal-fired power plant. Included as one of the major new sources in the electricity supply plans submitted by EPCOs to the government, the Ohma project will provide a stable earnings contribution over the long term by ensuring its safety and steady operation.

## (2) Contribution to reduce CO2 emissions per unit of electric power sales

In the generation process, nuclear power produces almost no CO2. Therefore, it will be an indispensable power source for J-POWER, whose mainstay operation is coal-fired power generation, in terms of its carbon risk management. The Ohma project will play a significant role in reducing CO<sub>2</sub> emissions per unit of electric power sales.

#### (3) Contribution to Japan's Nuclear Energy Policy

J-POWER will adopt a full MOX-ABWR at the Ohma Plant, which will have a capacity to consume approximately 25% of all domestically processed MOX fuel. As such, this project will contribute to promoting the "pluthermal" policy of the Japanese government.



Image of Ohma Nuclear Power Plant

Capacity Type of Reactor Fuel	1,383 MW ABWR (Advanced Boiling Water Reactor) Low enriched uranium and uranium plutonium mixed oxide (MOX)
Site Area Planned in operation	Approximately 1.3 M m2 March 2012 (according to the fiscal 2007 Electricity Supply Plan)

## **Approaching the Commencement of Construction**

J-POWER is currently undergoing a governmental safety review prior to the commencement of construction of the Ohma Plant, laying the preparatory work at the site (as of June 30, 2007). Aiming to commence commercial operations in March 2012, we continue making efforts to follow the construction schedule and reduce construction costs, with safety and reliability as top priorities.

#### History of the Ohma Nuclear Power Development

- 1983 Environmental survey of the construction site executed
- 1984 Resolution adopted by Oma-machi Council to accept nuclear power plant 1985 Request issued to Aomori Prefecture and three municipalities including Oma-
- machi to cooperate on a plan for an ATR demonstration reactor 1995 Plan for the ATR demonstration reactor cancelled and new plan for a full
- 1995 Plan for the ATR demonstration reactor cancelled and new plan for a full MOX-ABWR decided
- 1999 Original application for reactor establishment made
- 2003 Power plant layout plans amended
- 2004 Original application for reactor establishment withdrawn and reapplication made
  2005 Referred by Ministry of Economy, Trade and Industry (METI) to the Atomic Energy Commission and the Nuclear Safety Commission of Japan

#### **Training Technical Staff**

In order to acquire sufficient knowledge and capabilities for the construction and operation of the Ohma Plant and to develop its human resources, J-POWER dispatches technical staff for business training to nuclear power plants belonging to other companies.

In particular, our technical staff developed their skills in the management of the MOX fuel nuclear reactor core at the Fugen Advanced Thermal Reactor (\*1).

In addition to such practical training, technical staff are undergoing simulation exercises at training centers such as the BWR Operator Training Center to improve their operational techniques (\*2), and they are also learning the particulars of the ABWR and its operational singularity that makes use of CAI equipment (\*3) installed at the head office.

Thus, through such endeavors to train personnel, we are redoubling our efforts for the commencement of operations at the Ohma Plant.

The Ohma Nuclear Power Plant is an essential project for J-POWER in pursuing its cleaner and more efficient power source portfolio. With safety and reliability as top priorities, while also ensuring regulatory compliance, we will continue making efforts to enhance economic efficiency through strict control of construction schedules and costs.

- \*1 The Fugen ATR was operated from 1979 to 2003. Currently, an independent administrative institution, the Japan Atomic Energy Agency, is examining a plan to discontinue the facility.
- \*2 The BWR Operator Training Center, which is a company jointly established by domestic power generators (nine EPCOs and the Japan Atomic Power Company) in cooperation with nuclear power plant manufacturers (Hitachi and Toshiba), is called "BTC" for short. BTC owns and manages training centers for BWR plant operators in Fukushima Prefecture and Niigata Prefecture.
- \*3 Learning equipment with computer aided instruction.

#### Safety and Reliability of Full MOX-ABWR

MOX fuel is being used at approximately 5,300 assemblies (as of December 2005) and has been used safely for over 30 years. It has also been used at the Tsuruga Nuclear Power Plant and the Fugen ATR in Japan.

ABWR is a leading-edge reactor that builds on the expertise developed by the government, plant manufacturers and EPCOs to further enhance safety and reliability, based on the accumulated experience in constructing, operating and maintaining nuclear power plants. In Japan, ABWRs have been adopted already at the Kashiwazaki-Kariwa Nuclear Power Station Unit Nos. 6 and 7, which are owned by the Tokyo Electric Power Company and at other nuclear power plants. They have achieved excellent results.

The basic specifications of the full MOX-ABWR adopted at the Ohma Plant are the same as other ABWRs, ensuring that the design of the facilities provides ample safety.

#### Japan's Pluthermal Plan and Full MOX-ABWR

Currently, domestic nuclear power, accounting for approximately 30% of Japan's total electricity output, is playing an important role in the stability of Japan's electricity supply and has another advantage of being almost free of CO2 emissions in the generation process.

As Japan imports more than 90% of its energy resources from overseas, it is essential for us to promote the reuse of plutonium and uranium from spent fuels to maintain a stable supply of energy for the future.

Heading toward the establishment of this ''nuclear fuel cycle'', the government is promoting ''pluthermal'' in order to reuse plutonium as MOX fuel in light-water reactors.

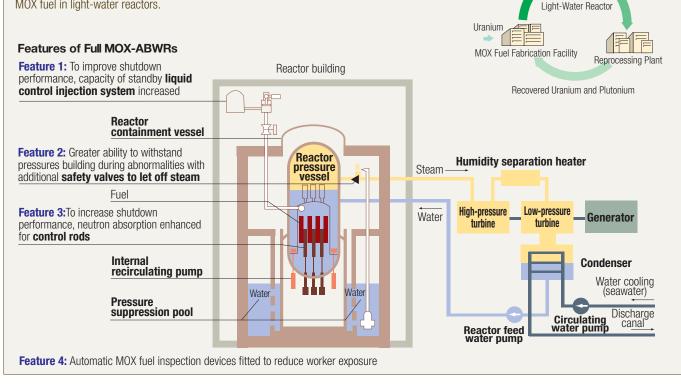
Japan's pluthermal plan aims to implement pluthermal power operations at 16 to 18 reactors by 2010, and J-POWER's Ohma Nuclear Power Plant, which can be operated by MOX fuel alone, is expected to play a vital role in Japan's pluthermal plan.

MOX Fuel

Pluthermal Scheme

Uranium Fuel

Spent Fuel



(2) New Project Development using Innovative Technology **Challenge to the Next-Generation** 

#### The Significance of Coal Usage Today

**Coal-Fired Power Projects** 

#### The Largest Power Source

China

India

German

USA England

Japan

World

0%

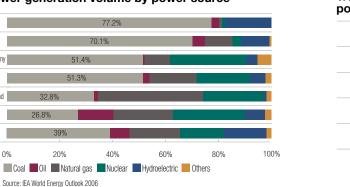
Coal resources are widely distributed around the world. Among fossil fuels, coal is the most economical and the most readily available resource. As Japan is highly reliant upon imported energy sources, it is important to maintain a balance between each power-generating method. Currently, approximately 30% of the total electricity output in Japan is generated by coal-fired power. Coal is the leading energy source in a number of countries around the world, and coal-fired power generation in China accounts for approximately 80% of its total electricity output, while coal-fired power generation in the USA accounts for approximately 50% of its total electricity output. On a worldwide scale, coal is the largest power source, generating approximately 40% of total electricity output on global average. Therefore, it is an indispensable resource for meeting growing global energy demand.



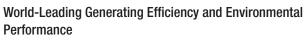
EAGLE pilot-scale testing facilities (Wakamatsu Research Institute, Fukuoka Prefecture)

in Japan at the Isogo New No. 1 Thermal Power Plant. Through the introduction of environment-friendly facilities, this plant has also achieved a performance on par with gas-fired plants in terms of SOx and NOx emissions. We will continue making efforts to achieve cleaner power generation and meet the challenges of coal-fired power projects for the next generation.

High-efficiency power generation in itself leads to lower CO2 emissions. In the case of introducing Japan's world-leading coal-firing technologies to top CO2-emitting countries-China, the United States and India-it is calculated that these countries would be able to reduce CO2 emissions by an amount equivalent to 80% of Japan's total emissions. Therefore, preparing for and promoting the transfer and proliferation of these technologies have major significance for us.

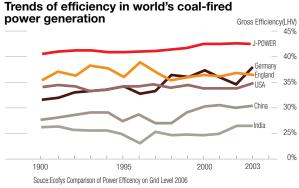






J-POWER and other coal-fired power producers in Japan are using a method of generation that raises the pressure and temperature of steam turbines extremely-to ultra-super critical (USC) level. Compared to methods adopted by Europe and other Asian countries, our method attains a greater level of generating efficiency. Having improved combustion methods and introduced environment-friendly facilities in terms of sulfur oxide (SOx) and nitrogen oxide (NOx) emissions per unit of power production, our technical capabilities are superior to those of other advanced countries, and the emissions level is extremely low.

In particular, as a top operator among Japan's coal-fired power producers, we have attained the highest level of generating efficiency



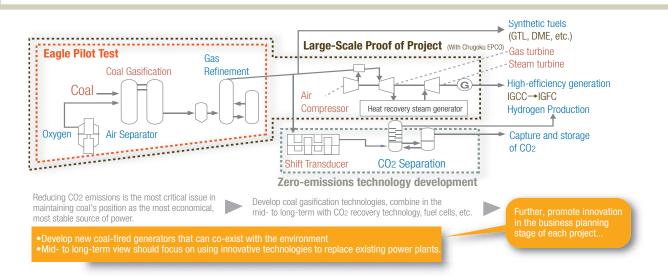
#### emissions per volume of thermal power generation (g/kWh) 5 3.7 - 3 2.6 2 2 - 2 1.7 15 0.7 0.6 0.3 0.2 0.01 0.07 0 USA England Germany Japan Isogo Thermal France (2002)(2002) (2002)(2002)(2005) (2006) SOx NOx



\*Figures for Japan include combined data from 10 EPCOs and J-POWER, figures for Isogo Thermal represent FY2006 data

# International comparison of SOx and NOx

J-POWER, whose mainstay business is coal-fired power, is keenly aware of its role and responsibility in addressing the global warming issue. Accordingly, we are engaged in the next-generation coal-fired power projects designed to facilitate continuous and more efficient use of coal resources by turning coal into a cleaner energy source.



## **Coal-fired Power Projects for the Next-Generation. Outlook of the EAGLE Project (the development of oxygen-blown coal gasification technologies)**

#### **Global Warming Issue and Energy Security Solutions**

J-POWER is working toward the practical application of coal-gasification power generating systems (IGCC, IGFC), which are expected to be future coal-fired power generating systems, and we are also working to promote the development of oxygen-blown coal gasification technologies.

The generating efficiency (net efficiency: HHV basis), making use of Japan's leading-edge pulverized coal-firing (PCF) technology, stands at approximately 40%. However, after Integrated coal Gasification Combined Cycle (IGCC) and Integrated coal Gasification Fuel Cell Combined (IGFC) technologies are established and applied to next-generation coal-firing systems, the generating efficiency will make a substantial leap, and it will be possible to cut CO2 emissions significantly.

In the oxygen-blown method, the concentration of CO<sub>2</sub> in the producing gases is high, and it is relatively easy to capture CO<sub>2</sub> in comparison with other methods of coal gasification. Therefore, this method is applicable in working toward zero CO<sub>2</sub> emissions.

Although Europe and the United States pioneered the practical applications of coal gasification technologies, our EAGLE (the Coal Energy Application for Gas, Liquid & Electricity) Project meets the challenges through a unique approach, aiming for a further evolution of the technology to provide greater efficiency and reliability, as well as a broader range of system applications.

In May 2007, we completed and successfully accomplished a pilot-scale test of the EAGLE Project, with a continuous test operation of over 1,000 hours, confirming the high level of facility reliability. This marked significant progress toward the next step of creating demonstration equipment for a coal gasification system centering on oxygenblown coal gasification technology.

#### Outlook

Based on the success of the EAGLE Project, we are aiming for viable commercial applications for Integrated Gasification Combined Cycle (IGCC) technology. We are currently investigating the implementation of large-scale trials in collaboration with the Chugoku Electric Power Co., Inc., a company that uses coal for a significant share of its power generation business and shares a keen interest with us in the efficient application of coal resources.

Moreover, at our Chigasaki Research Institute, we are conducting research in a solid oxide fuel cell (SOFC) with the long-term goal of developing applications for IGFC technology.

Based on such pioneering technologies, we will work to bring a variety of innovations to our business development. In the medium term, we will apply IGCC systems in constructing new thermal power plants and replacing existing thermal plants. Over the long term, we will enhance our capability to launch new projects based on IGFC technologies.

#### Integrated coal gasification Integrated coal gasification Pulverized-coal fired fuel cell combined cycle combined cvcle (PC) (IGFC) (1500°C-class IGCC) FC ST ST ST Gasifier Gasifier Boiler Gross Efficiency: 42% Gross Efficiency: 51-53% Gross Efficiency: over 60% Net Efficiency: 40% Net Efficiency: 46-48% Net Efficiency: over 55% (Comparative basis) CO2 Reduction -15% CO2 Reduction -30%

 Pulverized-coal fired (PC) plant, a method of power production in which electric power is produced using only a stream turbine (ST) Integrated coal gasification combined cycle (IGCC) integrates a gas turbine (GT) with an ST
 Integrated coal gasification fuel cell combined cycle (IGFC) is a triply-integrated type of power production that combines fuel cells (FC) with IGCC

·Efficiency-related rates shown above are on HHV basis

#### **Coal-fired Power Technology for the Next-Generation**

J-POWER's R&D activities are conducted mainly at the Technology Development Center, Chigasaki Research Institute (in Chigasaki, Kanagawa Prefecture) and the Wakamatsu Research Institute (in Kita-Kyushu, Fukuoka Prefecture).



#### **IGCC and IGFC Technologies**

The use of coal gasification technology greatly improves power generation efficiencies compared

with existing pulverized coal-firing (PCF) technology. While PCF technology relies solely on steam turbines, the IGCC generating system is based upon a double set of power generators consisting of gas turbines and steam turbines. The IGFC generating system enables electricity production by a triple set of power generators combining fuel cells, gas turbines and steam turbines.

Aiming to achieve practical application of these technologies, J-POWER is currently conducting R&D on oxygen-blown gasification technology (the EAGLE Project) and solid oxide fuel cell (SOFC) systems.



#### EAGLE Project for Development of Oxy gen-Blown Coal Gasification Technology

In order to realize the practical application of IGCC and IGFC technologies, it will require high efficiency in gasifying coal, as well as the capacity to effectively reduce and purify dust and sulfur in the gas. Toward these ends, J-POWER is engaged in joint research with the New Energy and Industrial Technology Development Organization (NEDO). As part of these efforts, we conducted pilot tests of Coal Energy Application for Gas, Liquid & Electricity (EAGLE) at our Wakamatsu Research Institute from fiscal 2002 to 2006. These tests were to examine the basic performance and long-term reliability of using such technology, and we obtained the necessary trial data that will enable us to enlarge the scale of applications. From fiscal 2007, we will implement three-year testing under stage two of the EAGLE Project, during which we will work to enhance the efficiency of coal gasification technologies and demonstrate the application of technology for separating CO2 from gas during the gasification process.



#### Solid Oxide Fuel Cell (SOFC)

Generating electricity from fuel cells differs from traditional systems that convert heat from the combustion of fuels into electricity, because it transforms chemical en-



SOFC cogeneration system with an Atmospheric pressure (150 kw class) (Chigasaki Research Institute)

ergy directly into electrical energy with lowering energy losses and delivering high efficiency.

The SOFC being developed by J-POWER is made of ion electroconductive ceramics. As it produces heat of between 900°C and 1,000°C during electrochemical reactions, it provides better generating efficiency than other fuel cells when integrated in combined cycle systems. At our Chigasaki Research Institute, we are currently testing an atmospheric pressure (150 kW class) SOFC cogeneration system with the world's largest output capacity.



## **Carbon Dioxide Capture and Storage** Technology

#### CO<sub>2</sub> Capture from Produced Gas

Since the oxygen-blown method of gasifying coal is being applied in the EAGLE Project pilot testing, the density of nitrogen in the produced gas is low, and the primary components of the produced gas are carbon monoxide (CO) and hydrogen (H2). Through a shift reaction (CO+ H2O CO2+ H2), CO is converted into the higher concentration density CO2, enabling efficient recovery of CO2 and proving beneficial in working toward zero CO2 emissions. Leveraging these features, J-POWER will set up equipment to demonstrate CO2 capture at the EAGLE Pilot Testing Plant and conduct verification tests.

Following the separation of CO<sub>2</sub>, the produced gas contains high-concentration hydrogen gas, enabling clean power generation in fuel cells and chemical feedstock applications.

#### **CO2 Capture at PCF Plants**

PCF is currently the most widely used method of power generation in systems fueled by coal, and recovery of CO<sub>2</sub> from combustion exhaust is likely to become common in the future.

At J-POWER's Matsushima Thermal Power Plant, the Group is conducting trials in collaboration with Mitsubishi Heavy Industries, Ltd. regarding the chemical absorption method. Trial operations began in fiscal 2006, and tests confirmed the suitability of this method for application at existing PCF facilities, including by demonstrating the impact of trace substances in exhaust gases.



Equipment for demonstrating CO2 capture at the Matsushima Thermal Plant, Unit 2

#### Surveys of CO<sub>2</sub> Stored Underground

J-POWER is taking part in the government project designed to enable the future storage of CO2 in the ground.

## ③ Enhancing Value of Business Assets: Targeting Stable Supply and Profitability



Nukabira Power Plant (Hokkaido Prefecture), where we are executing comprehensive upgrades of major

J-POWER is facing the progressive aging of its facilities, which inevitably raises the maintenance costs. Putting priority on the reinforcement of its competitiveness and financial structure in line with market deregulation so far, to cope with facility degradation through aging, we have executed the required repairs, partial replacements and upgrades. "Enhancing the value of business assets" is a further approach, which pursues the enhancement of total value of facilities from the long-term perspective. By implementing value-enhancing investment, we can reduce life-cycle costs, improve the efficiency of the facilities and increase electricity sales. Consequently, we will accomplish both to maintain electricity supply stability and to improve profitability. From fiscal 2006 we have been optimizing the company organization and drawing up facility maintenance plans by assessing the condition of each facility. Continuing such efforts, we are working to further establish and cultivate this approach throughout the Group.

#### **Thermal Power**

Coal-fired power generation is J-POWER's core business domain, accounting for approximately 60% of its sales. Our current operating environment is becoming more severe, with the progressive aging of facilities and the necessity of full-fledged action to counter the global warming issue. To deal with such problems, we are promoting facility investment to improve harmony with the environment and strengthen competitiveness, as well as cost reduction.

## Replacement of Turbine Rotor at Takehara Thermal Power Plant Unit 3

As a steam turbine progressively loses mechanical strength as a result of operation under high temperature and high pressure conditions over the years, its replacement is required in accordance with its working life assessment. After over 24 years since the commencement of operation, the turbine rotor at the Takehara Thermal Power Plant Unit 3 has already reached the stage of replacement. Together with its replacement to recover the mechanical strength, we employ the latest efficiency-enhancing technologies for the turbine blades and other aspects in pursuit of a reduction of operating cost and CO2 emissions resulting from lower fuel consumption.

#### **Hydroelectric Power**

Hydroelectric power generation is a stable earnings source for J-POW-ER, accounting for approximately 20% of its sales. Our hydroelectric power plays an important role in a stable power supply, since it is a pure domestic energy source and our generation facilities are especially superior in responding to demand peaks. As a CO2-free power source, hydroelectric power maintains great significance in the power source portfolio of J-POWER, whose mainstay operation is coal-fired power generation. We have been engaged in and cultivated hydroelectric power generation for more than 50 years. To cope with the aging of facilities in recent years, we have carried out systematic value-enhancing measures, such as efficient maintenance work and facility upgrades.

## Comprehensive Upgrades at the Tago kura and Nukabira Power Plants

After over 40 years since the commencement of operations, the Tagokura and the Nukabira Power Plants are facing a degradation of facilities caused by aging. We decided on comprehensive upgrades of major equipment instead of partial replacements as its conventional approach by examining the conditions of facilities to ascertain the most appropriate measures to enhance the total value of the plants from a long-term perspective. At the Tagokura Plant, we started the upgrade work of 4 hydraulic turbines, power generators, and main transformers from 2004. When the upgrades over 9 years are completed, the output capacity will increase by 20MW to 400MW. We are also executing a comprehensive upgrade over 4 years at the Nukabirar Plant from 2006, which will increase the output capacity by 2MW to 44MW. Thus, in addition to improving efficiency and reliability, we will also accomplish an increase in electricity sales.

#### **Power Transmission / Transforming**

Power transmission and transforming facilities, which are vital infrastructures for a stable electricity supply, need to be maintained and managed properly. As major transmission lines and transformers are also utilized by PPS and other new entrants, we have a social need to comply with regulations, maintaining fairness and transparency in network utilization. In order to realize such demands, we will take strategic measures to enhance the value of business assets.

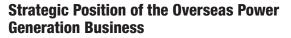
## Replacement of Control Equipment at Kitahon Linkage Facilities, etc.

J-POWER has operated the Kitahon Linkage Facility Unit 1 (300MW) ultrahigh-voltage DC transmission line linking Hokkaido with and Honshu by submarine cable for 26 years. Its operation was started with a capacity of 150MW in 1979, and another 150MW was added in 1980. Currently, together with measures to counter degradation caused by aging, we are promoting facility upgrades from 2006 to improve further the reliability of the facilities and operating functions for the recommencement of operations in the first half of fiscal 2008.

## (4) Global Business Expansion:

## **Overseas Power Generation Business**

—Establishing as "Next Major Business Domain"



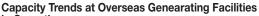
Business opportunities in Japan's electricity market are limited. Demand for electricity is expected to increase only 1% annually. In such an environment, the overseas power generation business is a driving force for J-POWER's sustainable growth.

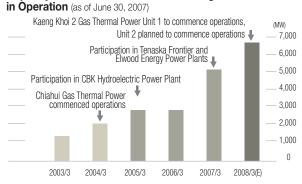
Recently, the global electricity market has been moving toward privatization and deregulation. In addition, independent power producers (IPP) have taken the leading role in power plant development. Business opportunities for IPPs are surging, especially in Asia, where electricity demand is expected to grow rapidly. We believe that the horizontal move of the power generation business into those markets will support our continuous growth.

Our competence in power generation is comprehensive expertise in the power generation business, ranging from site selection, design and planning, and management of construction, to operation and maintenance, acquired through over 50 years of experience in the domestic electricity industry. In particular, we have a state-of-art coalfired plant operation system and environmental technologies that reduce emissions of sulfur oxides (SOx) and nitrous oxides (NOx).

As the first step of our business expansion abroad, we began with relatively small-scale projects in Thailand and other Southeast Asian countries, leveraging our excellent customer relationships and business networks established through technical consulting services in 61 countries and region over 50 years. Since then, we have been steadily increasing the number and scale of our investments, as well as our equity stake, while gaining business knowledge in global electricity markets.

As of 30 June 2007, we are operating 15 IPP projects in five countries and region, with a combined gross capacity of approximately 5,700 MW (a net capacity on an equity basis of approximately 1,900 MW). We are also constructing two new IPP facilities.





\*The amount in 2008/3 is estimated based on projects participated in as of June 30,2007



#### Overseas Power Generation Projects (In operation as of June 30, 2007)

Project Name	Electricity Generation Source	Project Name	Electricity Generation Source	
Thailand		USA		
Roi-Et	Chaff	Tenaska Frontier Gas CCGT		
Rayong	Gas CCGT	Elwood Energy Gas simple cycle		
Thaioil Power	Gas CCGT	Philippines		
Independent Pow	er Gas CCGT	Layte	Geothermal Heat	
Gulf Cogeneration		CBK	Hydroelectric	
(Kaeng Khoi)	Gas CCGT	Total 15 projects in 5 countries/region		
Samutprakarn	Gas CCGT			
Nong Khae	Gas CCGT	Taiwan 10% Other 3%		
Yala	Rubber Wood Waste			
Kaeng Khoi #2				
(Unit No.1)	Gas CCGT	Dellinging		
Taiwan		Philippinès 12% Thailand		
Chiahui	Gas CCGT	42%		
China		l	A	
Tianshi	Coal waste	33%		



#### **Our Future**

For higher returns from the overseas power generation business, J-POWER will increase its equity stake in projects, and strengthen both management initiatives and involvement in plant operation and maintenance, as well as engineering services.

We have already established local subsidiaries in the United States and Thailand. We will set up more subsidiaries in other major markets and build/reinforce overseas organizational structures to manage our projects properly and in a timely manner.

As for the fuel type, most of our overseas power plants are gasfired now. However, in the mid and long term, we are planning to develop coal-fired projects, in which our competence is competitive and advantageous.

The global warming issue has a direct impact on coal-related industries, but the economics and supply stability of coal provide a strong background for the growing demand for efficient and clean coal technology. We are committed to seeking opportunities in which our environment-friendly technology and managerial expertise in power plant operation can contribute to society. J-POWER is expanding its power generation business, which is its primary business domain, in fast-growing overseas markets. With technological strengths, global business know-how and networks, we are increasing our commitment to competitive power projects in those markets, which is an important profit-making source for us after the domestic electricity business. Our initiatives in project development and management, including risk management, are vital for a further improvement in earnings.

#### Our Target Markets

Southeast Asia (especially Thailand), the United States and China are J-POWER's key markets. We continue to focus our marketing activities on these markets.

In Thailand, our most important market outside of Japan, we are steadily stepping up investments. Unit 1 (734 MW) of the Kaeng Khoi #2 Gas-Fired Thermal Power Plant commenced its commercial operation in May 2007. We are seeking new business opportunities such as IPP tenders for coal-fired power projects.

In the United States, future expansion of power generation capacity as well as more strict environmental regulations is expected. We consider the United States an attractive market in which we can leverage our leading-edge coal technologies and expertise. Through our subsidiary established in Chicago in 2005, we have surveyed a number of selected projects. As a result of these efforts, we acquired equity interests in Tenaska Frontier Power Plant and Elwood Power Plant (both of which are gas-fired plants) in fiscal 2006. We continue to strengthen our marketing efforts in the United States.

China is the largest potential market in the world. Our participation in a coal waste-fired thermal power project in Shanxi Province, together with our technical consulting services over many years, has deepened our business expertise in China. We will further expand our



#### **Prospects for Earnings Contributions**

J-POWER is increasing its commitment to overseas power projects step-by-step. We carefully examine the long-term power purchase agreements, the technological reliability of the facilities, and the credibility of off-takers and business partners of each project, and see whether we will gain returns higher than the hurdle rates that are set for each project.

In fiscal 2006, the acquisition of operating power plants pushed overseas net capacity on an equity basis to over 10 % of our domestic net capacity. Overseas equity-method earnings reached approximately JPY5 billion, contributing to the steady growth of company earnings.

To make the overseas power generation business as our next major business domain, under the fiscal 2007 Group Management Plan, we will invest approximately JPY120 billion over the next six years. In terms of consolidated ordinary income, we are targeting approximately JPY10 billion from overseas business in the next two to three years and JPY15 billion in next six to eight years. To achieve these targets, we, together with our local partners, will improve our project management system.



The Kaeng Khoi #2 Gas-Fired Thermal Power Plant Project in Thailand -Project Promotion by J-POWER

Overview of the Kaeng Khoi #2 Gas-Fired Thermal Power Plant ProjectCapacity1,468 MW (734 MW x 2)FuelNatural gasConstructionDec. 2004ConstructionDec. 2004ScheduleMay 2007Operation of Unit 1 commencedMar. 2008Operation of Unit 2 scheduled to commenced

Providing consulting services on over 20 projects for 45 years in Thailand, J-POWER is well known among the local electric industry and relevant authorities. We also became familiar with the local electricity market. Thus, we have successfully committed to nine projects on gas-fired, cogeneration and biomass power plants, collaborating with reliable local partners.

In particular, our business relationship with Generating Public Company Limited (EGCO), the largest IPP company in Thailand, has been so important that we have been able to develop many power projects with them. In the Kaeng Khoi #2 Gas-Fired Thermal Power Plant Project, Gulf Power Generation Company (GPG), a wholly owned subsidiary of Gulf Electric Public Company Limited (GEC, 49% owned by J-POWER and 50% owned by EGCO) is constructing and operating Thailand's largest gas combined-cycle power plant of 1,468 MW. Even on an equity basis, this plant is the largest overseas green field project for us. The recent commencement of operation of Unit 1 of the plant was a major milestone in our global business history.

Today, three technical advisors from J-POWER are working at the plant. They are engaged in performance management, operation and maintenance planning at Unit 1, and they are also carrying out construction supervision at Unit 2.

Our technical advisors are contributing to the smooth progress of the project, working with engineers from Thailand, Japan, the United States and Europe, participating in weekly technical meetings, and verifying data on construction and management of the project through daily and monthly reports.

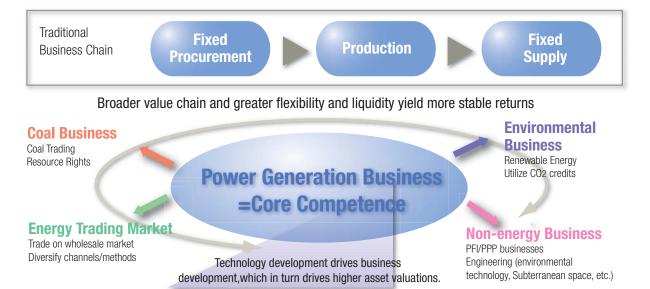
In addition, J-Power Generation (Thailand) Co., Ltd., a subsidiary established in September 2006, is directly managing projects by monitoring events affecting profitability, budget outlays and cash flows, in cooperation with the departments of Asset Management, Treasury and Business Promotion at GEC.

# 5 Power Generation as the Core of a Diversified Business Seeking "Harmonization of Energy and the Environment"



Blair Athol Coal Mine(Australia)

-The first coal mine development project of J-POWER (equity interests acquired in 1982)



#### **Self-Innovation to Spur New Growth**

J-POWER's business model is specialized in power generation, to provide EPCOs with a long-term wholesale electricity supply. However, in light of the growing business risks-for example, the slowing growth of Japan's electricity demand, the increasing global demand for resources, the obviously growing global warming issue-we are keenly aware of the necessity to innovate in order to cope with these risks, without sticking to the current business model.

Based on the current value chain centering on the power generation business, by diversifying the businesses that make use of our competencies, we will enhance the flexibility and liquidity of our entire business process from procurement to sales. Consequently, we think that this approach will bring us the stabilization of future earnings and opportunities for new growth.

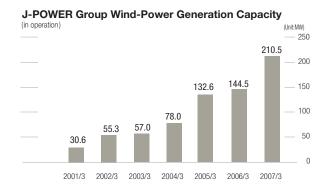
#### **Environmental Business**

Under the theme of "harmonization of energy and the environment," J-POWER is working to further develop renewable energy sources such as wind power and biomass power generation, in addition to acquiring CO2 credits by utilizing the Kyoto Mechanisms.

Our wind-power generation business is already ranked in the top class in Japan in terms of its business scale. As we launched operations at Koriyama-Nunobiki Kogen Wind Farm, which is the largest wind farm in Japan, with a total capacity of 66 MW in fiscal 2006, we consequently manage nine wind-power generation plants currently in operation, with a total capacity of 210 MW. Leveraging its strengths in such areas as the analysis and forecasting of wind conditions, the design and planning of wind-turbine layouts, and construction, we will put to full use the abilities that were accumulated through activities in project development and wind farm operation so far, and we will continue to launch new development projects in Japan and overseas.



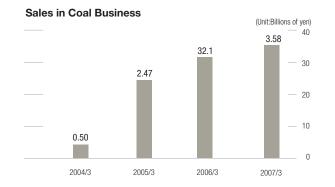
Construction of the Koriyama-Nunobiki Kogen Wind Farm, which is located at Aizu Nunobiki-Kogen of Koriyama City in Fukushima Prefecture, began in May 2005. The wind farm, which is the largest farm in Japan, boasts 33 turbines with a total capacity of 65,980 kW. All the power generated there is sold to the Tokyo Electric Power Co., Inc. J-POWER is working on a diversified business making use of its core competencies in the coal business, energy trading market and environmental business. Through these businesses, we are striving to broaden our value chain centering on power generation, stabilize the earnings source and further refine our core competencies.



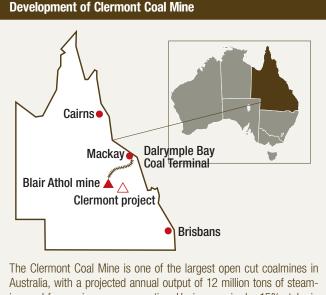
#### **Coal Business**

While implementing coal procurement as the largest steaming coal user in Japan, J-POWER has been involved in the versatile operations of the coal chain, from upstream to downstream, including investment in coalmines, management of maritime transport by coal-specific bulk carriers and other operations. The expertise and experience accumulated through these operations have become strong advantages of the Group. Developing these strengths, we are pushing ahead with initiatives to increase the sales of coal in Japan and overseas and to improve access to upstream resource interests.

In recent years, demand for coal has been on the rise in the Asia-Pacific region, and this demand is expected to continue for the time being. Therefore, maintaining a careful watch on the coal market, we will enhance operations to expand the sales volume of coal, working to meet various customer needs by leveraging our bargaining power, resulting from procuring nearly 20 million tons of coal annually, along with the marketing channels we have accumulated so far.



Previously, all coal procured by us was consumed in Group plants. In recent years, however, within a range that does not affect the operation of our power plants, we are engaged in coal sales in Japan and overseas, steadily expanding the scope of these sales year by year.



# The Clermont Coal Mine is one of the largest open cut coalmines in Australia, with a projected annual output of 12 million tons of steaming coal for use in power generation. Having acquired a 15% stake in the mine, J-POWER is proceeding with a project aimed at launching production in 2010.

#### Market Trading of Electricity

Market trading of electricity in Japan was launched in earnest in fiscal 2005. Through the Japan Electric Power Exchange (JEPX), established in the same year, while the scale of transactions are still relatively small, JEPX enables the spot-trading of electricity and other transactions that were not possible previously.

Having partially altered long-term agreements with EPCOs regarding part of the capacity at existing power plants, J-POWER began selling electricity through JEPX and other wholesale markets from fiscal 2005.

Furthermore, since fiscal 2006, Setouchi Power Co., Ltd, jointly established by the Chugoku Electric Power Co., Inc. and by J-POWER, is also engaged in selling electricity through JEPX.

Such new initiatives have great significance in terms of accumulating experience and expertise at market trading and the diversification of sales networks and customer bases, and they also help the healthy progression of market liberalization.

Looking ahead, by achieving synergies between the coal business, market trading of electricity and environmental businesses such as CO2 credits and Renewable Portfolio Standard (RPS) activities, we expect to enhance the flexibility of our value chain and generate new business opportunities.