Business Segments

Comprehensive Energy Business

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Director
Representative Executive Officer, Vice President

Overview

We seek to establish a solid position as a leading company in the energy sector in Japan by expanding our reach from existing electricity and gas businesses to encompass new energy businesses with utilizing the technological expertise and other assets we have cultivated, and by accelerating efforts toward overall optimization as a comprehensive energy business.

Electricity supply

As we work to lower the carbon intensity of the electric power supply with nuclear power and renewable energy sources as our two wheels, we aim to create a power structure with a good S+3E* balance. Moreover, we will provide customers with a wide range of "safe, comfortable and convenient" as well as economical energy services.

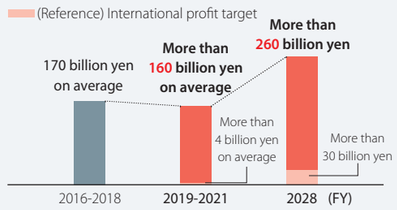
* Safety + Energy security, Economy and Environmental conservation

Gas supply

In addition to industrial and commercial facility customers, we have been selling city gas to households, retail stores and other customers since April 2017. As we provide such services as these that meet the needs of our customers, we are securely implementing gas safety maintenance services as well.

Medium-term Management Plan Targets

Ordinary Income (Comprehensive energy*, Transmission and Distribution business)



* Comprehensive energy business, engineering solution business and overseas power business

Business environment

- The supply-demand structure is changing, triggered by advanced energy saving and the massive introduction of renewable energy power sources, while competition among businesses intensifies due to market liberalization.
- The social momentum toward decarbonization and the emergence of new markets may create new values in electricity.
- Advanced technologies (digitalization, etc.) and diversifying social needs may lead to new services.

Medium-term Management Plan Strategies

What we aim to become in the future

We will accelerate our efforts toward the optimization of our comprehensive energy business as a whole and seek to establish our solid position as a Japan's leading company in the energy sector.

Efforts (3-year Medium-term Management Plan)

- Promote cost restructuring that utilizes digital technologies to the maximum extent
- Strive to reduce carbon in power supplies (nuclear power and renewable energy sources)
- Strengthen sales strategies that contribute to increasing profits in consideration of factors including the competitive environment
- Create new services using digital technology and improve usability for customers

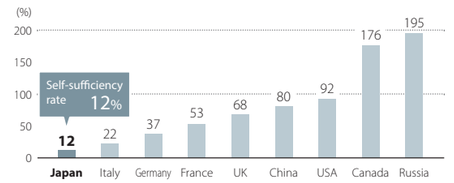
Performance for fiscal year 2019

Diversified power sources to ensure stable supply

Energy risks faced by Japan

Japan's energy self-sufficiency rate is around 12%, including nuclear power generation, which is a very low value compared to major countries in the world. For most of its fossil fuel needs, Japan must rely on imports. Since energy resources on the earth are not inexhaustible, stably securing energy resources is a top-priority issue for Japan. For continued stable supply of energy in the future, it is vital to combine various power generation methods in a well-balanced manner, while not relying on only a single power generation method.

Energy self-sufficiency rates of major countries (for 2017, except FY 2018 for Japan)

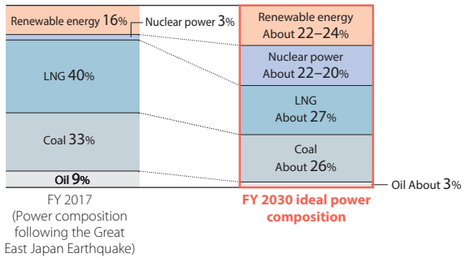


Source: "Consensus document on nuclear power", Federation of Electric Power Companies of Japan

Energy mix

In July 2015, the government established a long-term energy supply and demand outlook (energy mix) that expresses how energy supply and demand should be in Japan for fiscal 2030. Furthermore, the 5th Strategic Energy Plan formulated in July 2018 unveiled the government's intention to further step up efforts to ensure the realization of this energy mix. As for the power supply composition, nuclear power is specified to have a fixed ratio of 20–22%, and 22–24% is indicated for renewable energy.

Fiscal 2030 energy mix



Source: "Energy of Japan 2019", Agency for Natural Resources and Energy, the Ministry of Economy, Trade and Industry

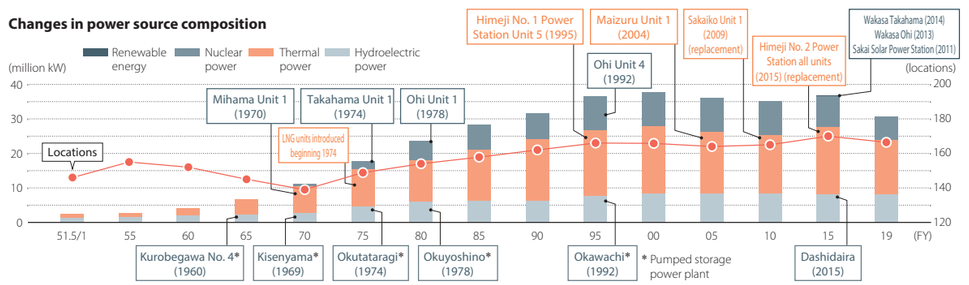
Facility configuration based on S+3E

In order to fulfill our mission of delivering high-quality and economical electricity to our customers, we seek to realize S+3E whereby Safety (S) is our top priority whilst seeking to simultaneously achieve Energy security, Economy and Environmental conservation (3E). As a leading decarbonization company, we will accelerate our efforts focused on both nuclear power and renewable energy.

Power generation facility capacity ratio by power source (End of fiscal 2019)

Renewable energy	Nuclear power	Thermal power	Hydroelectric power
0.04%	22%	52%	27%

Changes in power source composition



* Pumped storage power plant

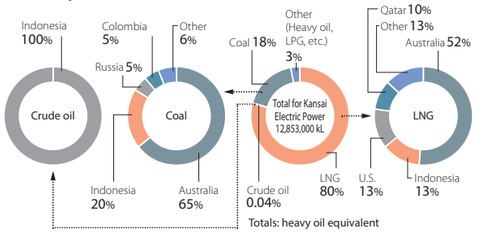
Approach for stable fuel procurement

We place a premium on safe, cost-effective and flexible procurement of thermal power generation fuel while diversifying procurement sources, offering flexible pricing options and seeking alliance opportunities with other companies.

As part of these efforts, we aim to expand our business operations, focusing on upstream (stake acquisition) and middle-steam (transportation) operations in the LNG value chain. Fossil fuel faces a variety of problems, such as concentration in certain regions and political instability in the producing countries.

In order to procure fossil fuels stably, economically and flexibly, our Company is involved in every stage from fuel production to receiving. We also work to diversify procurement sources and pricing formula.

Our fuel procurement in fiscal 2019



* The total may not add up to 100% due to rounding.

Enhanced spot trading for agile LNG procurement and sales

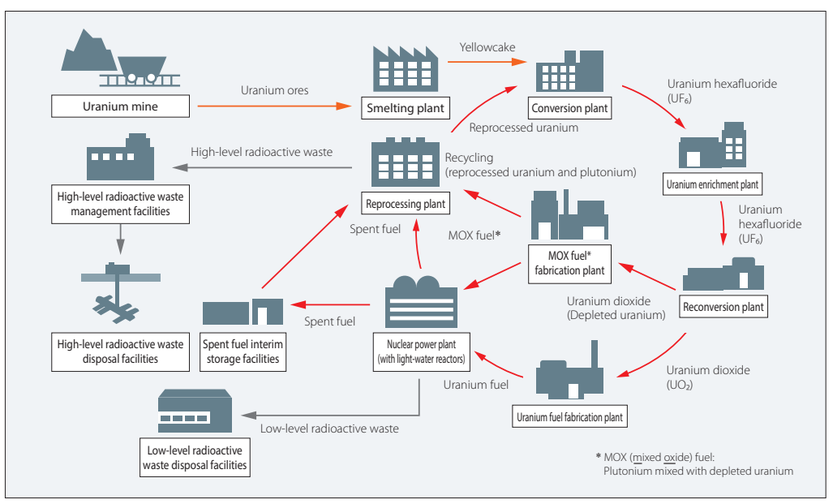
In an effort to deal with demand fluctuations, KE Fuel Trading Singapore Pte. Ltd., which was established in April 2017 to secure the procurement of LNG and expand our sales network, plays a pivotal role in extending our information gathering network based in Singapore, which is the LNG trading hub in the Pacific region.

The role of KE Fuel Trading Singapore includes timely gathering of information such as spot LNG trading and establishment of flexible LNG procurement/sales systems.

Developing a full-scale nuclear fuel cycle

Nuclear fuel cycle

Uranium, a fuel for nuclear power generation, is produced in politically stable nations, which enables a stable supply. It can also be a "semi-domestic energy resource" mainly because a small amount of uranium is required for long-term power generation and spent fuel can be reprocessed and used again as fuel. Promotion of the "nuclear fuel cycle," a cycle of re-using uranium and plutonium out of fuels used at nuclear power plants, is a practical way to effectively use energy resources and secure stable energy for Japan, a resource-poor country.



Source: "Nuclear Power and Energy Drawings", Japan Atomic Energy Relations Organization

Recyclable fuel storage center

Spent fuels are stored in a spent fuel pool inside power stations for a certain period of time and then transported to a reprocessing plant. In case the pool is filled to capacity, the power station cannot be operated. For this reason, spent fuels have to be taken out in a planned manner. Installation of a recyclable fuel storage center (interim storage facility), in which spent fuels are temporarily stored, enables the stable operation of power plants into the future. Our Company prepared a "Plan to promote measures for spent fuel" in 2015, and we are working as a unified company on efforts toward obtaining sites and promoting understanding about the necessity and safety of it widely among the public in power consuming areas.

Initiatives prioritizing safety at nuclear power plants

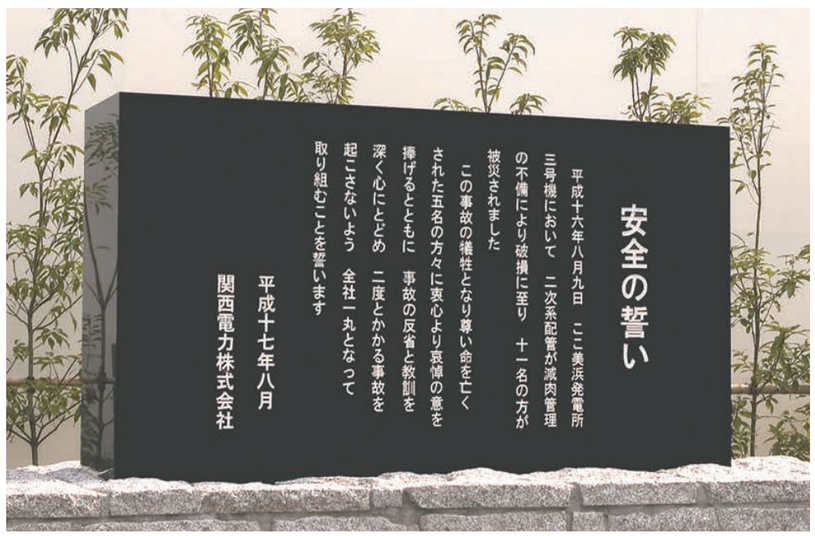
To prevent the lessons of the Mihama Nuclear Power Station Unit 3 accident from fading away

On August 9, 2004, an accident involving the rupture of secondary system piping occurred at Mihama Nuclear Power Station Unit 3. Based on the President's Declaration "Ensuring safety is my mission, and the mission of the Company," we have strictly implemented recurrence-prevention measures, with a firm determination that we shall never cause such accidents. The Nuclear Power Division has established Five Basic Principles as preventive measures that form part of our quality policy concerning the operation of nuclear power businesses with safety as the top priority. These measures are revised as necessary for safety improvement purposes. Making every August 9th our "Safety Vow Day," every employee observes a moment of silence. We are working to cultivate a safety culture in order to implement business management with safety as the top priority and prevent the lessons of the Mihama Nuclear Power Station Unit 3 accident from fading.

Commitment to enhancing nuclear safety

In response to the accident at the Tokyo Electric Power Fukushima Daiichi Nuclear Power Station, we established our Commitment to Enhancing Nuclear Safety, which clearly states our idea about nuclear power safety, as a company proclamation that is one of our most important company rules. The company proclamation underlines our determination to constantly improve safety in nuclear power generation, whereby all executives and employees fully understand the characteristics and risks of nuclear power generation and always remind themselves of the potential magnitude of an accident, with the President playing a leading role in making company-wide efforts to protect local communities, society and environment.

Preface	Every one of us shall remember the lessons learned from the Fukushima-Daiichi nuclear accident and ceaselessly strive to enhance nuclear safety to protect the people not only in the plant-hosting communities but also the whole country, and to preserve the environment.
Characteristics of nuclear power generation and risk awareness	Nuclear power generation has superior characteristics in terms of energy security, prevention of global warming and economic efficiency, and is an essential power source for the future. On the other hand, nuclear power generation has risks of radiation exposure and environmental contamination. Every one of us shall always bear in mind that once a severe accident happens due to lack of proper management, it could cause enormous damage to the people and the environment.
Continuous removal/ reduction of risk	To enhance nuclear safety, we shall fully understand the characteristics and risks of nuclear power generation and continually remove or reduce such risks while identifying and evaluating them, never believing at any moment that we have reached the goal of ensuring safety. These efforts shall be conducted at each level of the Defense-in-Depth.
Development of safety culture	Safety culture is the basis for continuously removing or reducing risks. Since the accident of Mihama Unit No. 3, we have been reviewing and improving our safety culture, and we shall develop such safety culture. To this end, we shall always be ready to question anything, learn from others and listen to the voices of society and discuss issues uninhibitedly while respecting diverse opinions with further efforts.
Commitment to enhancing nuclear safety	Enhancing nuclear safety is the overriding priority in the company. It is also important to promote two-way communications with the people in the plant-hosting communities and the whole country, and to share common perceptions on nuclear safety. Under the President's leadership, every one of us shall work together to tirelessly enhance nuclear safety.



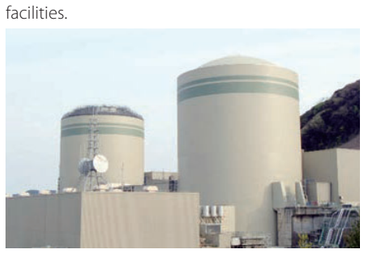
Safe and stable operation of power plants

We will continue to safely and carefully operate and maintain our nuclear power plants, thereby ensuring the safe and stable operation of Units 3 and 4 of the Takahama Nuclear Power Station and the Ohi Nuclear Power Station, each of which has resumed operations.

Preparing for operation beyond 40 years

Nuclear power – a well-balanced energy source contributing to 3E (Energy security, Economy and Energy conservation) – is essential in resource-poor Japan. As a result, nuclear power generation should be maintained at a certain level to ensure energy security and develop technical/human resources, whereby accident-proof nuclear power plants can be operated for over 40 year-spans. Therefore, we will be making the most of our nuclear power plants, placing a premium on their safe operation.

We are undertaking face-to-face communication, including power plant tours by the Nuclear Power Division and explanations in various locations to deepen public understanding about the operation of our plants beyond 40 years. We will continue to promote active communication with people in the communities including those who live near our facilities.



Takahama Nuclear Power Station Units 1 and 2 containment vessel upper shield installation work

Reliable decommissioning processes

Decommissioning status of Mihama Nuclear Power Station Units 1 and 2 and Ohi Nuclear Power Station Units 1 and 2

Decommissioning is conducted in four stages, which all together takes a total of about 30 years. While Stage 1 (dismantling) is underway, proper measures are in place for safe decommissioning.

Radioactivity investigations and the dismantling of equipment in turbine buildings are underway at Mihama Nuclear Power Station Units 1 and 2, along with system decontamination and the dismantling of equipment in turbine buildings at Ohi Nuclear Power Station Units 1 and 2.

Voluntary efforts to enhance nuclear safety

Learning lessons from the accident at Mihama Nuclear Power Station Unit 3, we place a premium on nuclear safety. Specifically, the accident at Tokyo Electric Power's Fukushima Daiichi Nuclear Power Station made us aware that our understanding and preparedness for risks unique to nuclear power generation were not necessarily sufficient. We, therefore, established a roadmap to "step-up voluntary/continuous efforts to improve nuclear safety," based on which various measures are being implemented.

Safety improvement activities

Promoting safety improvement measures

Large-scale renovation work is underway at Mihama Nuclear Power Station Unit 3 and Takahama Nuclear Power Station Units 1 and 2 to deliver over 40 years of safe operation.
Examples of construction work to improve safety:

- Large equipment, pumps and piping are being replaced while central control panels are being upgraded to their digital counterparts to enable timely and accurate monitoring and operation.
- Earthquake-proof steel-framed concrete gantries* were set up at Mihama Nuclear Power Station Unit 3, preparing for a possible collapse of the hill nearby, which could damage the reactor building, access routes, etc.

* Access platforms for reactor containment vessels, etc.

Boosting the accident response capacity

Comprehensive disaster drills are conducted at all nuclear power plants as a precaution in the event of a nuclear disaster, with efforts underway to strengthen our capacity to respond to accidents. Specific improvements are being made – based on lessons learned from previous drills – to prevent, in a timely and accurate manner, the spread and expansion of damage caused by accidents.

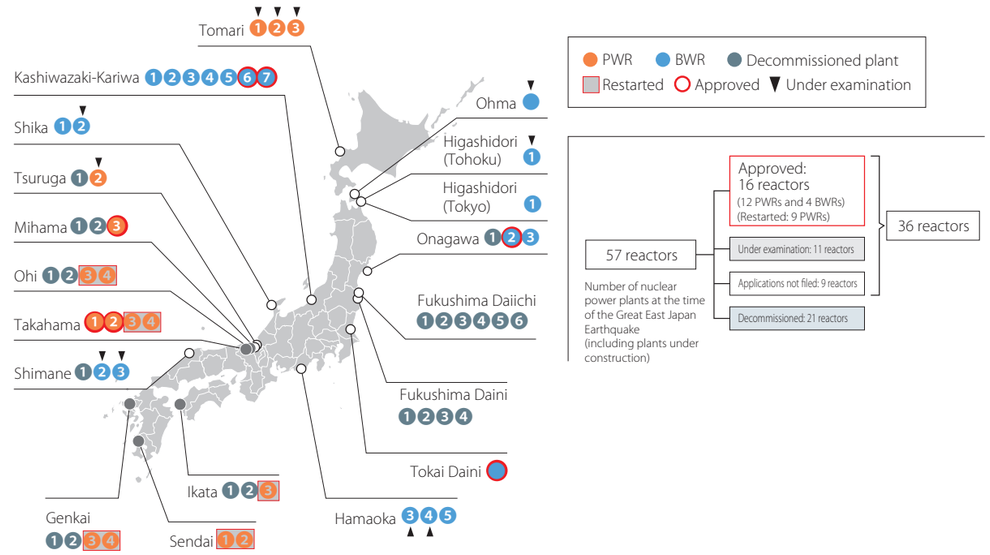
There are also programs to develop leadership capacity in preparation for an emergency. One such example is the TAIKAN training program*1 conducted at the Takahama Nuclear Power Station and the Ohi Nuclear Power Station. The program is designed to develop communication skills and decision-making capacity under stressful conditions so that plant task force leaders can control and guide subordinates in an appropriate manner in the event of a serious incident.

Efforts to improve our capacity to deal with nuclear disasters also include cooperating with and participating in disaster drills jointly conducted by the five power companies*2 in West Japan.
Examples of drills:

- The five companies jointly conducted a logistic support drill at the Chugoku Electric Power's Shimane Nuclear Power Station.
- Support staff were dispatched to cooperate with municipalities and conduct review inspections at the time of evacuation.
  - Training programs and disaster drills including one organized by the national government with Tottori and Shimane Prefectures, along with drills organized at the prefectural government level by Ehime, Ishikawa and Kagoshima, with Saga, Fukuoka and Nagasaki Prefectures holding a joint drill.

*1 Developed by the Institute of Nuclear Safety System, Incorporated (INSS).
*2 Hokuriku Electric Power Company, our Company, the Chugoku Electric Power Co., Inc., Shikoku Electric Power Co., Inc., and Kyushu Electric Power Co., Inc.

Status of nuclear power plants and new regulatory requirements throughout Japan (as of October 31, 2020)



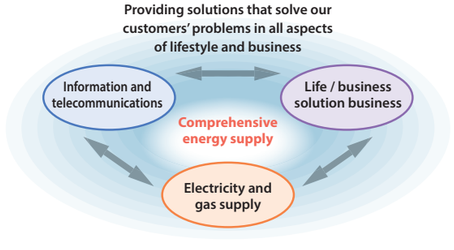
Providing services as a consolidated group

Aiming to be "the best partner in daily life and in business"

Our Group has been meeting the various demands of our customers and society by offering total solutions that combine our services, including comprehensive energy supply which is mainly offering electricity, as well as telecommunications, daily life and businesses.

Along with the global trend of electrification, the demands of our customers and society are becoming increasingly diverse. In order for the services offered by the Group to continue to be selected by customers, we will continue expanding the scope of our services in addition to our existing push toward "total electric conversion" and our provision of electricity and gas as a combination. From the standpoint of our customers, we will offer a wide variety of "safe, comfortable and convenient" as well as economical energy services. The Group has cultivated engineering as our core strength, and by leveraging this core strength we have committed to providing solutions that solve our customers' problems in all aspects of lifestyle and business. By providing these solutions we will play a role that exceeds our customers' expectations.

Business areas for strong growth



Services for residential customers

In addition to "total electric conversion" that realizes a comfortable and convenient lifestyle, since February 2018 we have offered a new plan that combines our electricity and gas services.

We also offer services that are helpful for our customers' daily lives, including a service to dispatch support personnel to customers experiencing problems, such as a sudden power outage, as well as a points program through which points are earned according to the amount of energy usage.

As a comprehensive energy company, we will promote initiatives that satisfy our customers.

Services for corporate customers

Our Group promotes a variety of services, providing optimal energy systems and management methods designed to meet individual customer needs and help reduce energy consumption, costs, and CO_2 emissions.