ELECTRICITY REVIEW JAPAN

The Federation of Electric Power Companies of Japan

2021

History of Japan's Electric Utility Industry

Electricity was first used in Japan on March 25, 1878 at the Institute of Technology in Toranomon, Tokyo when an arc lamp was switched on in commemoration of the opening of the Central Telegraph Office. In those days, electricity was still unfamiliar and uncommon not only in Japan but also in Europe and the United States. In 1886, Tokyo Electric Lighting, a private company, commenced operations as the nation's first electric power company, and began supplying electricity to the public in the following year.

In the early days, use of electricity grew primarily for lighting because of its safety and cleanness, and gradually found broader applications as a power source to replace the steam engine. By 1896, the number of electric utilities established throughout the nation reached a total of 33. The early 20th century marked the establishment of long-distance transmission technology. As larger thermal and hydro-power plants were introduced, generation costs fell and electricity came into wider use throughout the country. Consequently, electricity became an indispensable energy source for peoples' lives and industry.

In the years that followed, the electricity utility business grew in tandem with the modernization of Japan and development of its industry. At the same time, the electric utility industry experienced a major restructuring that led to the dissolution of 700 electric utilities, which merged to create five major electric utilities after the First World War. During the Second World War, the electric utility industry was completely state-controlled and utilities were integrated into Nihon Hatsusoden Co. (a nationwide power generating and transmitting state-owned company) and nine distribution companies.

After the end of World War II in 1945, supply and demand for electricity remained very tight in Japan. A series of intense discussions were held on restructuring the electric utility industry as one of the measures for democratizing the economy. As a result, nine regional privately owned and managed General Electricity Utilities— Hokkaido, Tohoku, Tokyo, Chubu, Hokuriku, Kansai, Chugoku, Shikoku and Kyushu Electric Power Companies — were established in 1951 and assumed the responsibility of supplying electricity to each region.

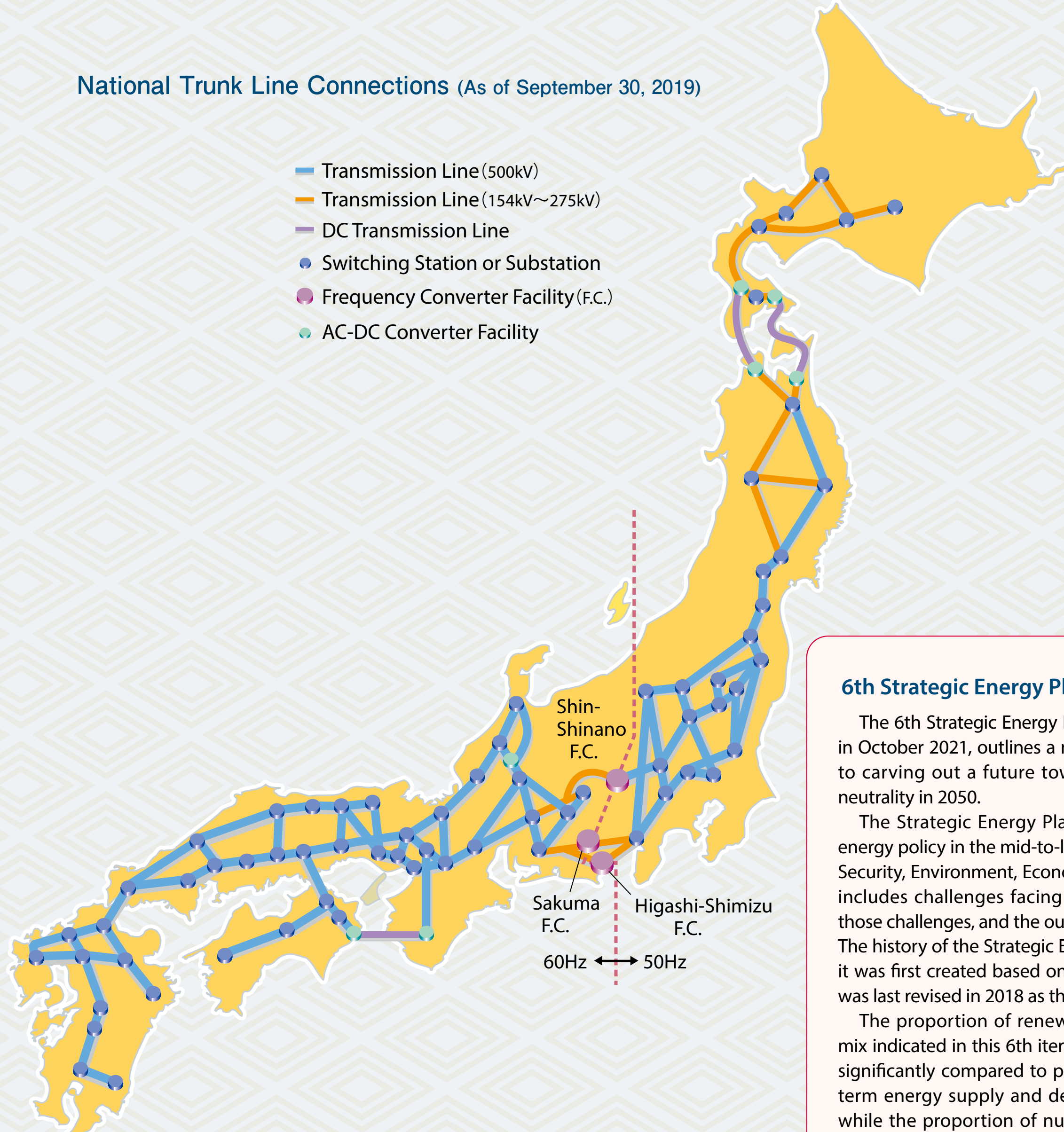
The Okinawa Electric Power Co. was established with the return of Okinawa to Japan in 1972.

At the end of the 20th century, a trend toward deregulation and competition took hold throughout society, and the electric utility industry started to be liberalized. In December 1995, organizations such as independent power producers (IPP) were allowed to provide electricity wholesale services, and in March 2000, electricity retail supply for extra-high voltage users (demand exceeding 2MW) was liberalized. The scope of retail liberalization was then expanded in April 2004 to users of more than 500kW, and subsequently in April 2005 to users of more than 50kW. Thus, a Japanese model of liberalization based on fair competition and transparency, while maintaining the vertical integration of generation, transmission and distribution to ensure a stable supply of electricity, was established.

With the Fukushima Daiichi Nuclear Power Station accident and subsequent tight demand and supply brought about by the Great East Japan Earthquake in March 2011 as a turning point, a policy to implement three-phase reforms of the electric power system was adopted in 2013.

In 2015, the Organization for Cross-regional Coordination of Transmission Operators, JAPAN (OCCTO) was established in the first phase of reform, in 2016, new entry into the electricity retail market was fully liberalized in the second phase, and in 2020, the transmission / distribution sector was legally unbundled in the third phase.

National Trunk Line Connections (As of September 30, 2019)



C O N T E N T S

Note: Nine Companies include Hokkaido, Tohoku, Tokyo, Chubu, Hokuriku, Kansai, Chugoku, Shikoku and Kyushu.
Ten Companies include the above Nine Companies plus Okinawa.

6th Strategic Energy Plan

The 6th Strategic Energy Plan, approved in a Cabinet meeting in October 2021, outlines a more "ambitious" than ever roadmap to carving out a future toward the goal of achieving carbon neutrality in 2050.

The Strategic Energy Plan dictates the direction of Japan's energy policy in the mid-to-long term with S+3E (Safety + Energy Security, Environment, Economic Efficiency) as its backbone, and includes challenges facing demand and supply, responses to those challenges, and the outlook for energy demand and supply. The history of the Strategic Energy Plan dates back to 2003 when it was first created based on the Basic Act on Energy Policy, and was last revised in 2018 as the 5th Strategic Energy Plan.

The proportion of renewable energy in the FY2030 energy mix indicated in this 6th iteration of the Plan has been increased significantly compared to previous targets (set out in the long-term energy supply and demand outlook published in 2015), while the proportion of nuclear power remains the same and thermal power was decreased. As a result, the proportion of non-fossil fuel energies will increase to approximately 60% of the energy mix. On the demand side, energy efficiency targets have been advanced to reduce use by 62Ml (megaliter) in crude oil equivalent (previous targets aimed to reduce use by 50.3Ml).

Key points in the 6th Strategic Energy Plan

Renewable energy	• Do the utmost to turn renewable power into a main power source • Follow the principle of deploying renewables as a top priority • Deploy renewables as much as possible while curbing the burden on the public and ensuring renewables can exist in harmony with the local region
Nuclear power	• Reduce reliance on nuclear power as much as possible • Restart nuclear power plants with safety as the top priority • Promote the nuclear fuel cycle policy • Conduct literature surveys in many areas for final disposal • Conduct demonstrations of small module reactor technologies in cooperation with other countries, etc.
Thermal power	• Reduce the percentage of thermal power in the power mix as much as possible while maintaining a certain level of facility capacity with stable supply as a major premise
Hydrogen/ ammonia	• Position hydrogen and ammonia as new resources and accelerate efforts toward application (advance demonstrations for co-firing and single-fuel firing in gas and coal-fired thermal power plants)

Japan's Energy Supply Situation

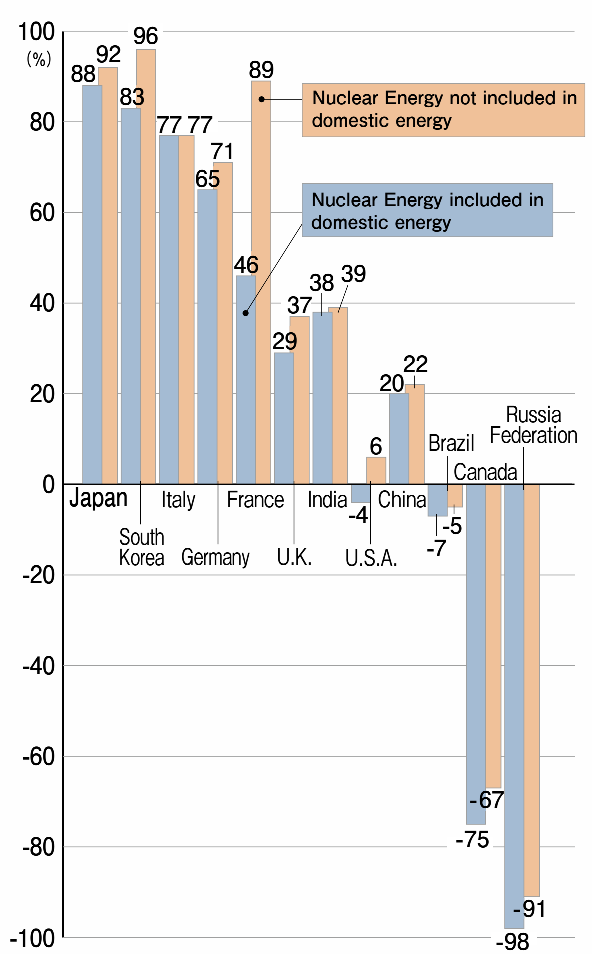
Resource-poor Japan is dependent on imports for nearly 90% of its energy. Thus, Japan's energy supply structure is extremely vulnerable. Following the two oil crises in the 1970s, Japan has diversified its energy sources through increased use of nuclear energy, natural gas and coal, as well as the promotion of energy efficiency and conservation.

Despite these improvements, oil still accounts for about 40% of Japan's primary energy supply, and nearly 90% of imported oil comes from the Middle East. Moreover, although Japan has one of the highest proportions of electricity demand in total energy demand exceeding 40%, prospects for importing electricity from neighboring countries are very poor because Japan is an island nation. In addition, there is an urgent need for global warming countermeasures such as reduction of carbon dioxide emissions from the use of energy. To ensure Japan's stable electricity supply, it is crucial to establish an optimal combination of power sources that can concurrently deliver energy security, economic efficiency, and environmental conservation, while making safety the top priority.

This requires turning renewable power into a main power source, using nuclear power generation including the nuclear fuel cycle as much as possible with the major premise of safety, and the continued use of high-efficiency, low-carbonized or decarbonized thermal power to achieve a balanced energy mix.

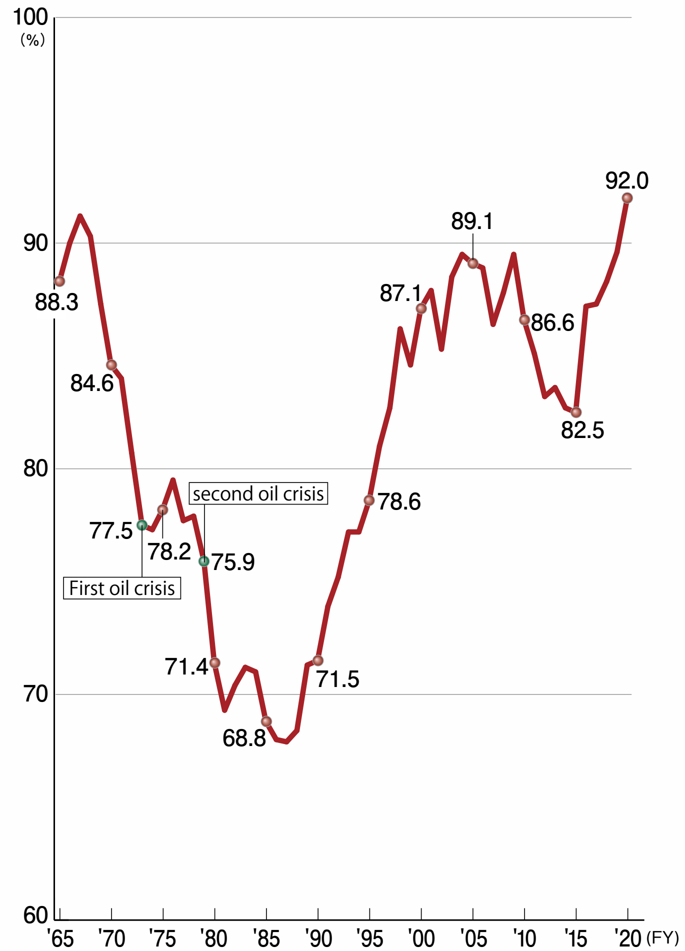
The "6th Strategic Energy Plan" revised by the Government in October 2021 also states that nuclear power, as an energy that does not emit greenhouse gasses during operation, is an important base load power source that can, strictly premised on safety, contribute to the long-term stability of the supply and demand structure of energy.

Dependence on Imported Energy Sources by Major Countries (2019)



Source: IEA "Data and statistics"

Japan's Reliance on Middle East Crude Oil of Total Imports



Source: Petroleum Association of Japan

Development of 2030 Energy Mix

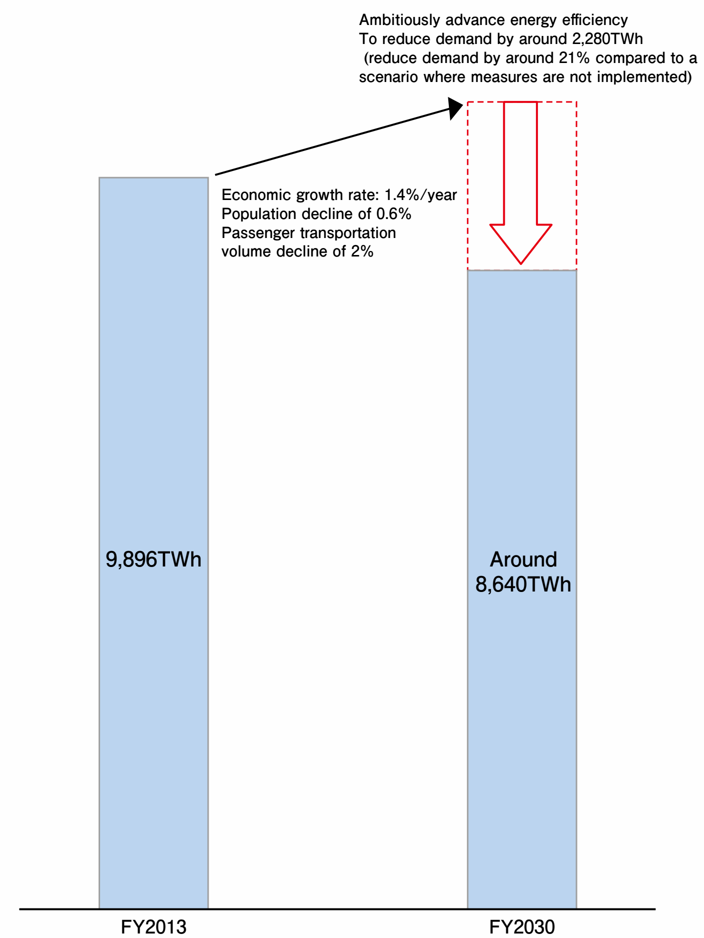
After the Great East Japan Earthquake, almost all nuclear power stations have been halted and thermal power generation accounts for most of the energy mix. As a result, Japan's energy self-sufficiency ratio has dropped from 20.2% at the time before the Earthquake to 6.4% in FY2014 and fuel costs have nearly doubled from 3.6 trillion yen to 7.2 trillion yen in the same time period. The increase in thermal power generation has also increased CO_2 emissions.

In October 2021, in light of these observations, the Government decided on an "Energy Mix" for FY2030 with the basic objectives of overcoming the challenges facing Japan's energy supply and demand structure and providing a roadmap for realizing the new reduction goals for 2050 carbon neutrality and reduction of emissions by 46% aiming for 50% from FY2013 levels in FY2030.

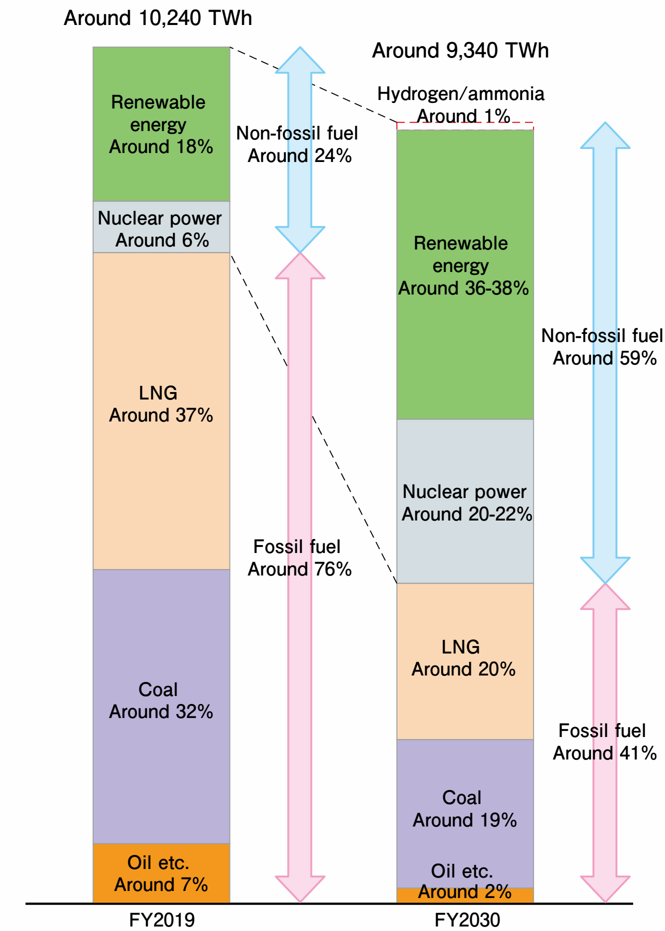
The Energy Mix proposes, in addition to a firm commitment to reduce overall energy consumption, that renewables should account for around 36-38%, nuclear for around 22-20%, hydrogen and ammonia for around 1%, and thermal power based on fossil fuels for around 41% (around 20% LNG, 19% coal, and 2% oil).

In view of the Energy Mix decided by the Government, electric power companies will actively strive to achieve carbon neutrality in 2050 with the S+3E as a premise.

Electric Power Demand



Power Source Mix



Source: METI "Long-term Energy Supply and Demand Outlook"

Electric Power Companies' Commitment to Safety Measures at Nuclear Power Plants

The Great East Japan Earthquake on March 11, 2011 led to a nuclear accident at the Fukushima Daiichi Nuclear Power Station, resulting in the release of radioactive materials into the environment.

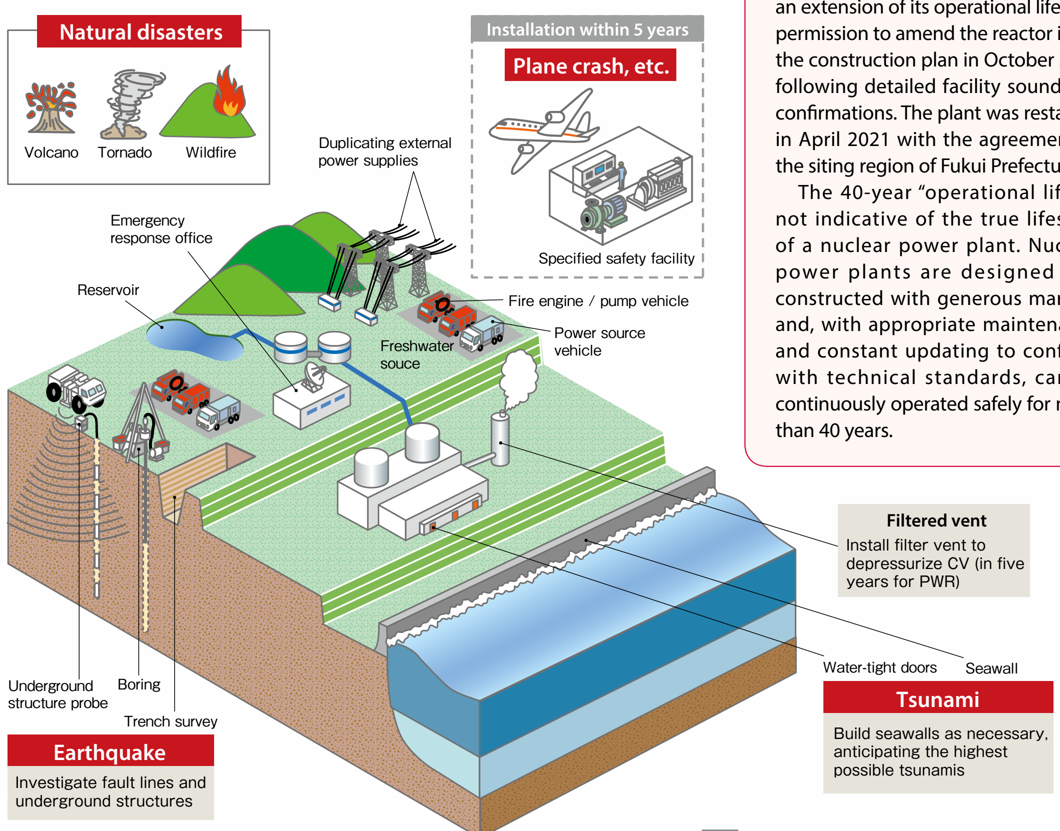
Determined to avoid a repeat of this accident, the electric power companies have been taking both tangible and intangible measures since immediately after the accident, starting with emergency safety measures including the installation of additional emergency power source vehicles and fire engines, as well as upgrading procedure manuals and conducting drills.

Even after implementing the emergency safety measures, electric power companies are working to further improve safety and reliability.

To enable these efforts to be constantly and objectively evaluated, the Japan Nuclear Safety Institute(JANSI), which evaluates the safety improvement activities of electric power companies and gives them technical advice, and the Nuclear Risk Research Center(NRRC), which uses Probabilistic Risk Assessment(PRA) and proposes solutions based on R&D, were established. The electric power companies take to heart the evaluations and recommendations and are striving to achieve the highest safety level in the world.

In July 2018, so that these autonomous and continuous initiative of the nuclear industry become established practices, a new organization, the Atomic Energy Association (ATENA), was established to effectively utilize the knowledge and resources of the entire nuclear industry, formulate effective measures while engaging in a continuing dialogue with regulators and others, and encourage nuclear operators to incorporate these measures in their plant operations. The electric power companies will work to reliably incorporate the safety measures decided by ATENA in their safety improvement initiatives to continuously reduce risk and recover the trust of society.

Also, in July 2013, the new regulatory requirements set forth by the Nuclear Regulation Authority (NRA) were put into effect. As of December 2021, electric power companies have applied for a review of conformance with the new regulatory requirements for 27 units in 16 power stations. 17 units have passed the review, and ten of them have restarted commercial operation.



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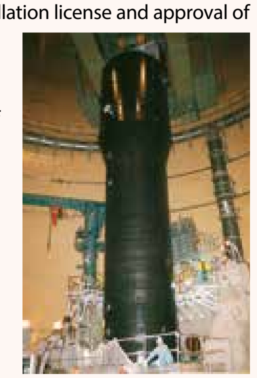
Operation for over 40 years of Mihama Unit 3

In the Nuclear Reactor Regulation Law revised and put into effect in 2013, the operational life of a nuclear power plant was set by regulators at 40 years with a one-time extension by up to 20 years contingent upon regulatory approval.

In addition to the safety measures to conform to the new regulatory requirements, the Kansai Electric Power Company's Mihama Unit 3, which started operating in 1976, was approved for an extension of its operational life in November 2016, after obtained permission to amend the reactor installation license and approval of the construction plan in October 2016 following detailed facility soundness confirmations. The plant was restarted in April 2021 with the agreement of the siting region of Fukui Prefecture.

The 40-year "operational life" is not indicative of the true lifespan of a nuclear power plant. Nuclear power plants are designed and constructed with generous margins and, with appropriate maintenance and constant updating to conform with technical standards, can be continuously operated safely for more than 40 years.



Steam generator of Mihama Unit 3 being replaced

Fair Competition and Transparency

The electric power market in Japan has been progressively liberalized to ensure competitive neutrality on the basis of a stable power supply by the former ten General Electricity Utilities, which consistently handle all functions from power generation to distribution.

In 1995, a law was revised to enable IPPs to participate in the electricity wholesale market in addition to conventional general electrical utilities. Then, in March 2000, use of the transmission/distribution network owned by the electric power companies was liberalized, and the retail market was partially liberalized to allow power producers and suppliers (PPSs) to sell electricity to extra-high voltage users requiring more than 2MW. The scope of liberalization was then expanded in April 2004 to users requiring more than 500kW, and subsequently in April 2005 to users requiring more than 50kW. Then, in April 2016, all users including individual households and retail stores were included in the scope of this liberalization so that everyone is free to choose an electric power company and price menu. Electric power companies have responded to this trend of liberalization by increasing their business efficiency while lowering electricity prices and offering a variety of pricing plans.

With the three goals of ensuring supply stability, suppressing electricity rates to the maximum extent possible, and expanding the options for consumers and the business opportunities for operators, the government has advanced the reforms in three phases through the three key measures of enhancing nationwide grid operation, full deregulation of the electricity retail and generation sectors, and futher ensuring neutrality in the transmission / distribution sector through the legal unbundling while thoroughly inspecting each phase to solve any issues and taking necessary measures based on the results of the inspections.

As practitioners, the electric power companies would like to continue taking an active role in the deliberation so the markets will be organized to secure the stable supply of electricity, including the market transactions that are already active, and so that the electric power system reform will truly bring benefits to the customers.

Column

Overview of the Electricity System Reform

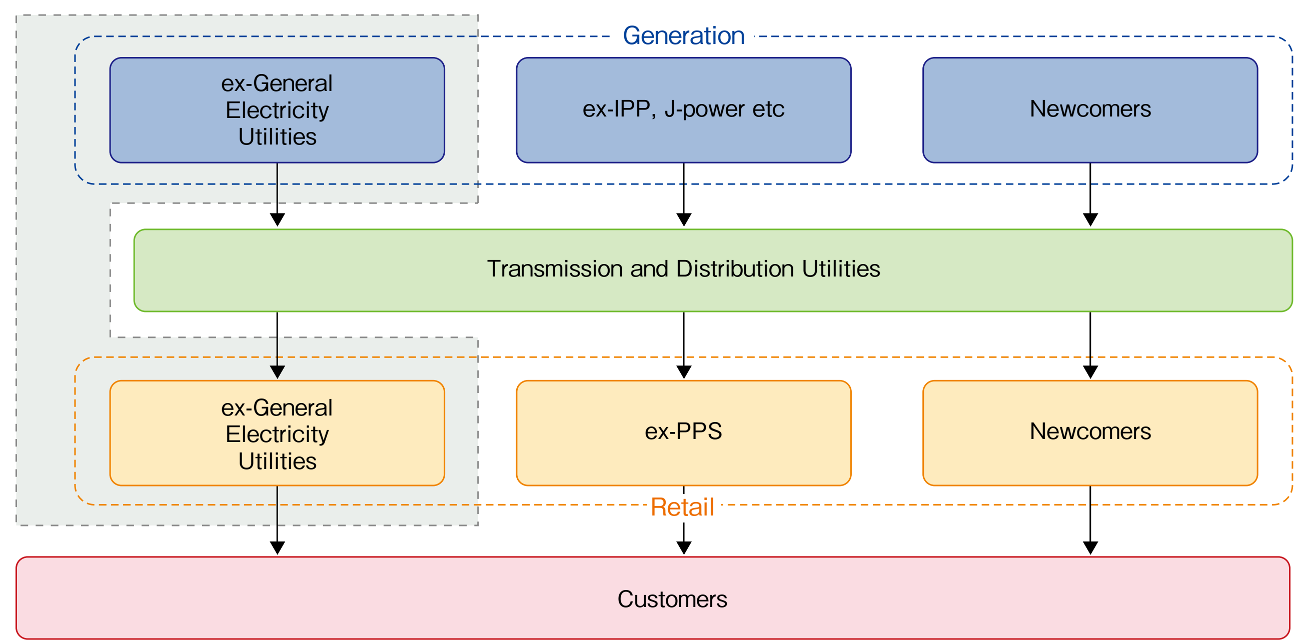
The following revisions to the Electricity Business Act related to the reforms of the electric power system were passed into law in November 2013.

Phase 1: Enforced in April 2015
(1) Establishment of the "Organization for Cross-regional Coordination of Transmission Operators, JAPAN" (Enhancement of nationwide grid operation)

Phase 2: Enforced in April 2016
(2) Full liberalization of entry to electricity retail business
Abolishment of wholesale regulations

Phase 3: Enforced in April 2020
(3) Implementation of the legal unbundling of the electricity transmission and distribution department (for ensuring further neutrality)
(4) Abolishment of the retail price regulations

The New Electricity Supply System (from April 2020)

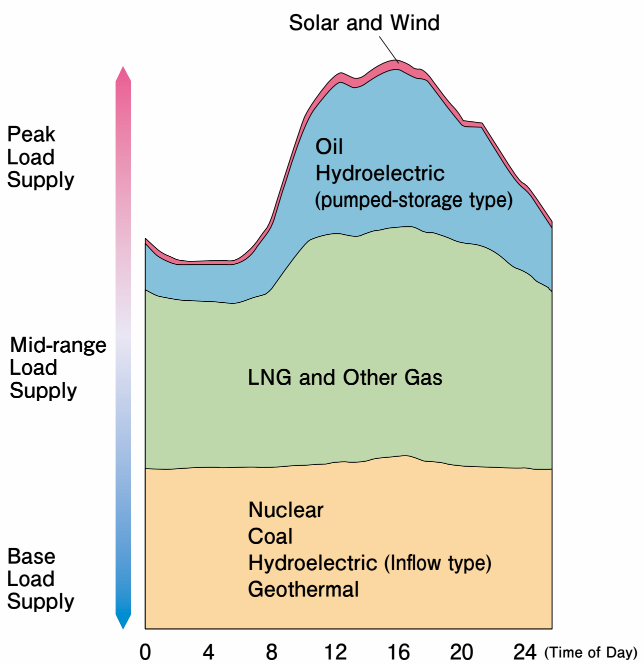


Optimal Combination of Power Sources

Electric power companies in resource-poor Japan are committed to developing an optimal combination of power sources including hydro, thermal and nuclear power in order to provide electricity, which is essential for modern living, in a stable manner at the lowest prices.

As electricity is nearly impossible to store in large quantities, electric power companies generate electricity by combining various power sources, considering optimal operational and economic performance, to ensure that fluctuating demand, such as during the daytime in the height of summer, can always be met.

(Example) Combination of Power Sources



Hydroelectric Power

Hydroelectric power has been one of the few self-sufficient energy resources in resource-poor Japan for more than 100 years. Hydroelectric power is an excellent source in terms of stable supply and generation cost over the long term. Though it used to compare unfavorably with thermal power for some time, hydroelectric power saw a renaissance following the oil crisis.

Although the steady development of hydroelectric power plants is desired, Japan has used nearly all potential sites for constructing large-scale hydroelectric facilities, and so recent developments have been on a smaller scale. As the gap in demand between daytime and nighttime continues to widen, electric power companies also has developed pumped-storage power generation plants to meet peak demand. As a result, the share of pumped-storage generation facilities of the total hydroelectric power capacity in Japan has grown year-by-year.

Okumino Hydroelectric Power Station (Pumped-storage)

Takami Hydroelectric Power Station

Thermal Power

Initially, coal was the dominant fuel for thermal power generation in Japan, but it later lost that place to oil. Today, a diverse range of fuels including coal, oil, and LNG are used for the important generating role that thermal power plants play. In particular, LNG-fired plants are playing a central role in regulating renewable energy supply, in response to global environmental concerns as LNG-fired plants emit less CO_2 and other pollutants.

To enhance thermal efficiency further, combined-cycle power plants with both gas and steam turbines have been installed. As a result, gross thermal efficiency (maximum designed value) has exceeded 60%. In the future, we will continue to research and develop new technologies in order to increase thermal efficiency as well as the use of integrated coal gasification combined cycle (IGCC) power generation.

Kawasaki Thermal Power Station (LNG Combined-cycle)

Yoshinoura Thermal Power Station (LNG-fired)

Nuclear Power

Japan's first commercial nuclear power plant started operation in Ibaraki Prefecture in 1966. The electric utility industry believes that nuclear power generation will retain an important position in the optimal combination of power sources from the viewpoint of assuring energy security and mitigating global warming.

Electric utilities are firmly committed to implementing extensive voluntary safety measures by adopting best practice from both Japan and overseas, while also complying with the new regulatory requirements following the accident at the Fukushima-daiichi Nuclear Power Station.

We will also continue to publish the latest information to contribute to the safety of nuclear power generation throughout the world.

Ohi Nuclear Power Station (PWR)

Ohma Nuclear Power Station (ABWR, Under Construction)

Japan's Nuclear Fuel Cycle

The nuclear fuel cycle is a series of processes consisting of reprocessing spent fuel that has been used at nuclear power plants and recovering and recycling plutonium and residual uranium as nuclear fuel.

Japan has chosen a closed nuclear fuel cycle policy since the dawn of its nuclear power generation development. Having few resources, Japan decided to recycle spent nuclear fuel domestically in order to establish nuclear power as a homegrown energy source. The benefits of a closed nuclear fuel cycle for Japan are significant: it conserves uranium resources; and it reduces the volume of high-level radioactive waste that must be disposed of.

Reprocessing is a chemical process that recovers plutonium and reusable uranium from spent fuel and separates radioactive wastes into more manageable forms. Once recovered, the plutonium is ready to be re-introduced into the nuclear power plants in the form known as uranium-plutonium mixed oxide (MOX) fuel. Under the policy of possessing no plutonium reserves without specified purposes, Japan's electric power companies have sincerely committed to a plan to utilize recovered plutonium – in the form of MOX fuel – as soon as possible.

In the past, Japan has relied on countries such as the U.K. and France to reprocess most of the spent fuel it produced. However, to place Japan's domestic nuclear fuel cycle on a firmer footing, Japan Nuclear Fuel Limited (JNFL) is preparing for completion of construction of a reprocessing plant at a site in Rokkasho-mura in the northern prefecture of Aomori. JNFL's spent fuel reprocessing plant passed the Nuclear Regulation Authority's conformance review in July 2020 and the plant is scheduled to be completed in the first half of FY2022.

In addition, JNFL engages in uranium enrichment, temporary storage of vitrified waste, and disposal of low-level radioactive waste. It has also working on constructing a MOX fuel fabrication plant which also passed the Nuclear Regulation Authority's conformance review in December 2020 and the plant is scheduled to be completed in first half of FY2024.

Electric utilities regard nuclear power as an important power source for Japan from viewpoints such as assuring energy security and mitigating global warming. We will make the utmost effort to establish the nuclear fuel cycle on the premise of securing thorough safety.

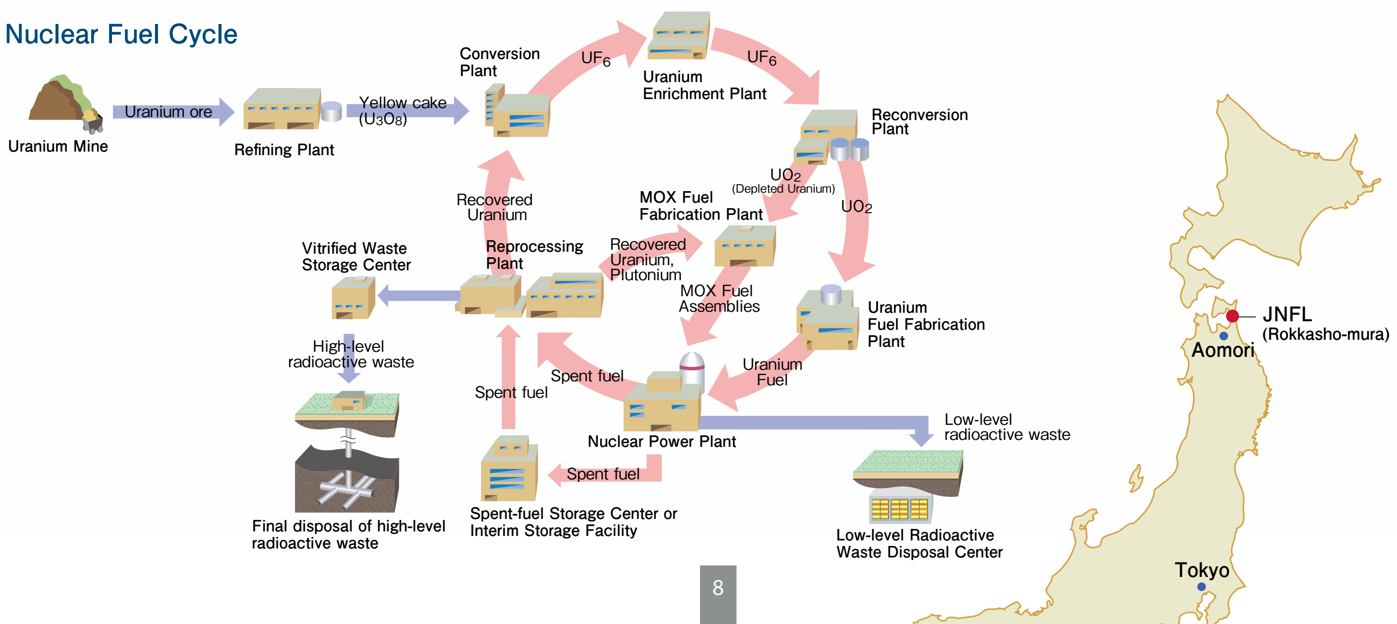
Outline of JNFL's Nuclear Fuel Cycle Facilities (as of February, 2022)

Facility	Reprocessing Plant	MOX fuel fabrication plant	Vitrified waste storage center	Uranium enrichment plant	Low-level radioactive waste disposal center
Site	Iyasakatai, Rokkasho, Kamikita-gun, Aomori Prefecture			Ooishitai, Rokkasho, Kamikita-gun, Aomori Prefecture	
Capacity	Maximum capacity: 800 ton-U/year Storage capacity for spent fuel: 3,000 ton-U	Maximum capacity: 130 ton-HM/year (*)	Storage capacity for wastes returned from overseas plants: 2,880 canisters of vitrified waste	Design capacity 1,500 ton-SWU/year (*)	Planned to be expanded to 600,000m³ (equivalent to 3 million of waste drums)
Current Status	Under construction	Under construction	Cumulative number of received canisters: 1,830	In operation using the new centrifuge	Cumulative number of received drums: about 334,235
Schedule	Start of construction: 1993 Completion of construction: The first half of FY2022 (planned)	Start of construction: 2010 Completion of construction: The first half of FY2024 (planned)	Start of construction: 1992 Start of storage: 1995	Start of construction: 1988 Start of operation: 1992	Start of construction: 1990 Start of operation: 1992

(*) "ton-HM" stands for "tons of heavy metal" which indicates the weight of plutonium and uranium metallic content in MOX.
"SWU" stands for "Separative Work Unit" which is a measure of the work expended during an enrichment process of uranium

Sources: JNFL's website and others

Nuclear Fuel Cycle



The Peaceful Use of Nuclear Energy

Japan's electric power companies are fully committed to implementing the closed nuclear fuel cycle and plutonium utilization consistent with all domestic laws and international nonproliferation standards. Since 1955, the domestic laws of Japan require that all nuclear activities, including commercial activities, be conducted only for peaceful purposes. Also, since 1968, Japan has embraced the "Three Non-Nuclear Principles," which state that Japan will not possess, produce, or permit the entry of nuclear weapons into its territory.

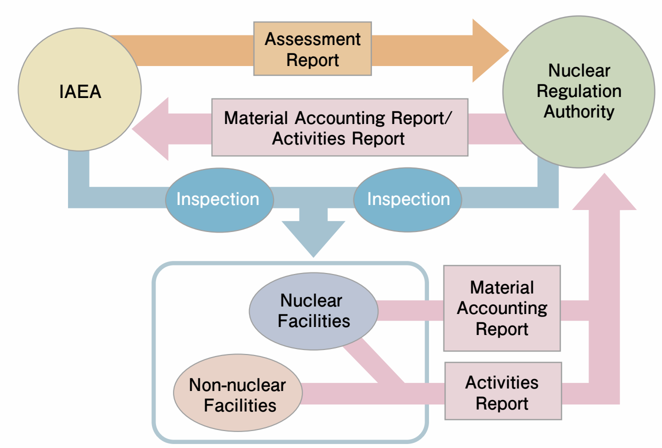
In addition, in 1976, the Government of Japan ratified the Nuclear Non-Proliferation Treaty (NPT) and thereby obligated itself to a national policy not to produce or acquire nuclear weapons. In order to ensure the application of more extensive safeguards, Japan signed the IAEA Additional Protocol in 1998, which allows the IAEA to carry out a range of additional inspection measures. In accordance with national laws, Japan's electric power companies submit reports on material accounting and safeguards activities to the Minister of Education, Culture, Sports, Science and Technology, and accept joint inspections by the IAEA and Japanese regulatory authorities to check the reports.

The results of each of these Japanese initiatives were reflected in the IAEA's conclusion in June 2004, which stated that all the nuclear materials in Japan are protected under IAEA safeguards and are not being diverted to the manufacture of nuclear weapons. As a result, more effective and efficient IAEA safeguards known as integrated safeguards came into effect in Japan in September 2004.

Furthermore, the 6th Strategic Energy Plan states the following concerning the handling of plutonium. Japan will maintain the policy of possessing no plutonium reserves without specified purposes and using it only for peaceful purposes, while steadily advancing the use of plutonium in order to reduce the plutonium stockpile while contributing to nuclear non-proliferation and gaining the understanding of the international community. To make these efforts effective, Japan will manage and use plutonium appropriately by further promoting pluthermal* while paying due consideration to the balance of plutonium collected and utilized, and promote R&D of fast reactors through international cooperation with the United States and France.

* the use of plutonium - uranium mixed oxide fuel at nuclear power plants

The Safeguards Program



Discharge of ALPS Treated Water into the Sea from the Fukushima Daiichi Nuclear Power Station

The national government issued its policy on discharging ALPS treated water generated at TEPCO's Fukushima Daiichi Nuclear Power Station into the sea in April 2021. TEPCO is preparing for discharge scheduled to start 2 years the determination of said policy. The government and TEPCO will secure safety by ensuring that the all indicators for the ALPS treated water are significantly below regulatory requirements, and intends to curb reputational damage due to discharge. With local municipalities and people in the agriculture, forestry and fishery industries, monitoring of indicators before and after discharge will be ramped up. TEPCO will be disseminating the objectivity and transparency of monitoring and the safety of the treated water with the cooperation of the International Atomic Energy Agency (IAEA).

Column

On the Start of the Literature Survey on the Final Disposal of High-Level Radioactive Waste

Literature surveys were started in Suttsu-cho and Kamoenai-mura, Hokkaido in November 2020, beginning the final disposal site selection process for high-level radioactive waste.

There are three stages to the high-level radioactive waste site selection process, the "literature survey", which involves desk research into areas that are not well-suited to being disposal sites, the "preliminary investigation", which involves drilling to analyze the characteristics of the geographical layers, and the "detailed investigation", where a facility for investigation will be built underground to investigate the ground layers in detail.

The local community's opinion will be consulted at each stage of the investigation and the law requires that the investigation be stopped with if they are opposed.

Status of MOX Fuel Utilization

In the New Pluthermal Program published in December 2020, the electric power industry is looking at all operating reactors to introduce MOX fuel in as many units as possible by way of as a mid-to-long term effort premised on the understanding of the local community. It aims to introduce MOX fuel in at least 12 reactors by FY2030.

So far 27 units have applied for a review of conformance with the new regulatory requirements, out of which 9 units have received permission to introduce MOX fuel and have gained the understanding of the local municipalities. 4 units have restarted operation using MOX fuel thus far.

The electric power companies recognize the importance of improving the transparency of the MOX fuel project. Based on the outlook of individual companies toward restarting nuclear power plants and considering the schedule and other details of the plan to start up the reprocessing plant, we compiled and announced the Plutonium Utilization Plan.

Measures by the Electric Utility Industry to Suppress CO_2 Emissions

In 21st Session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP21) held in December 2015, the Paris Agreement, an international framework for climate change after 2020, was adopted and put into effect in November 2016.

The Paris Agreement set out a global long-term target of keeping the average rise in global temperature from before the industrial revolution to below 2°C, and requires all signatory countries to set out emission reduction targets to work toward.

In December 2018, countries came together again in COP24 to agree on rules to implement the Agreement and started full-scale efforts in January 2020.

In COP26 held in November 2021 in Glasgow, England, countries came to an agreement on the remaining challenge of trading carbon emissions, completing the Paris Agreement rulebook. Efforts based on this Rulebook is expected to help cut the world's carbon emissions.

On the domestic front in October 2020, the Japanese government declared that it will aim to achieve carbon neutrality by 2050, and in April 2021, announced a new reduction target of reducing greenhouse gas emissions by 46% striving toward 50% from FY2013 levels in 2030. The cabinet also approved of the new "Plan for Global Warming Countermeasures" and "Japan's Long-term Strategy under the Paris Agreement" based on these targets in October 2021.

To achieve these targets, the supply side, which is responsible for approximately 40% of Japan's carbon emissions, will need to turn renewable energy into a main power source, maximally use nuclear power, and turn thermal power into a low-carbonized or decarbonized power source in order to decarbonize whole power sources.

To address these challenges, in May 2021, we published our initiatives for achieving carbon neutrality in 2050.

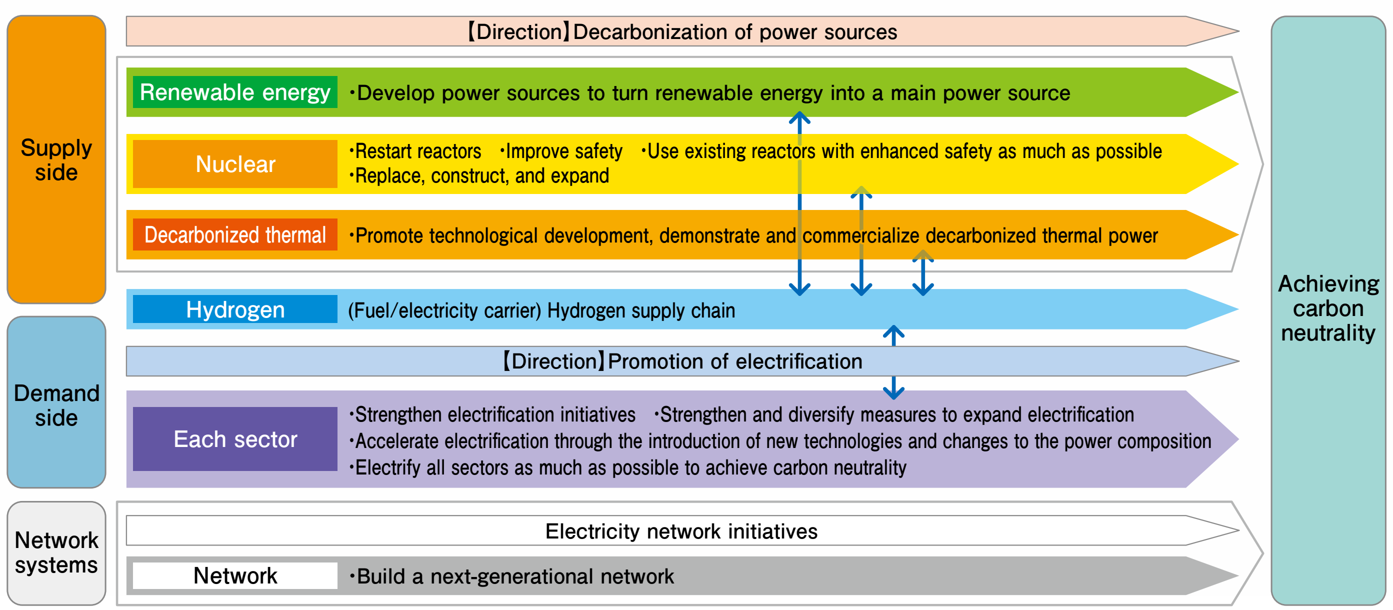
We will gather all our technologies and knowledge to actively work on decarbonizing power sources on the supply side and promote electrification as much as possible on the demand side premised on S+3E (safety + energy security, economic efficiency, environment).

In July 2015, 35 electricity power companies jointly constructed a voluntary framework for a low carbon society and prepared an "Action Plan for a Low-Carbon Society" that laid out specific efforts to be made. In February 2016, "the Electric Power Council for a Low-Carbon Society (ELCS)" was founded to facilitate efforts toward this goal (a membership of 65 companies as of December 2021).

In October 2021, amidst rising interest and expectations for achieving carbon neutrality in 2050, we renamed the "Action Plan for a Low-Carbon Society" as the "Carbon Neutrality Action Plan" to powerfully push forward these measures.

The end-user CO_2 emission factor currently at around 0.37kg- CO_2/kWh is being reviewed by the council according to the Carbon Neutrality Action Plan in light of the Government's 2030 energy supply and demand outlook. Moreover, a reduction of about 11 million tons of CO_2 can be expected if all goes according to plan using economically achievable best available technologies (BATs) when building new thermal power plants.

Initiatives for Achieving Carbon Neutrality in 2050



Low-carbonization/decarbonization of Energy on the Supply-side

Promoting nuclear power generation while assuring safety, improving the thermal efficiency of thermal power plants further, and developing decarbonization technologies

Nuclear power emits no carbon dioxide (CO_2) in the process of power generation, and even considering CO_2 emissions over the entire life cycle of various energy sources, those from nuclear power are lower than those from thermal power, and are even lower than those from solar or wind power. However, because of the extended shutdown of nuclear power plants following the Great East Japan Earthquake, and subsequent increase in thermal power generation, the CO_2 emission factor remains at high levels.

Considering that nuclear power generation will continuously play a key role in combating global warming, the industry is committed to making the utmost effort to improve the safety of nuclear power generation and to restore the trust of citizens.

The electric power companies are also continuing to strive to maintain and improve the efficiency of thermal power plants by introducing highly efficient plants of the latest design, replacing aging thermal power plants, choosing highly efficient equipment when introducing new equipment, and appropriate operation and maintenance of the existing equipment. We are pursuing innovation and adoption of a wide range of technologies including hydrogen/ammonia generation, CCUS and carbon recycling, without betting exclusively on one to realize thermal power decarbonization.

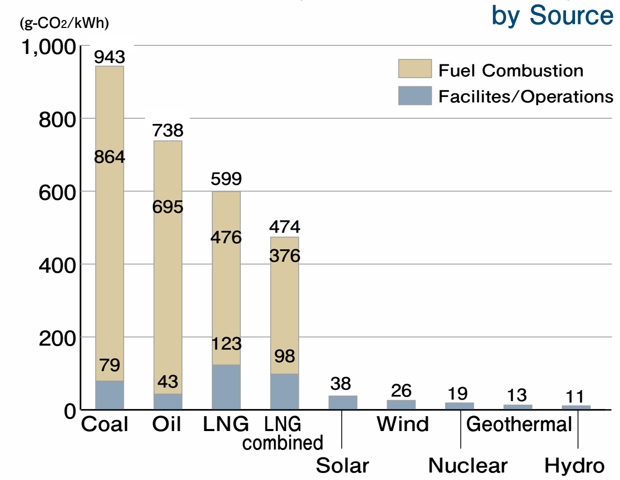
Currently operating state-of -the-art gas turbine combined cycle power plants have achieved the world's highest level of 62% (LHV) in thermal efficiency by, for example, raising the combustion temperature at the gas turbines. (JERA's Nishi-Nagoya Thermal Power Station Unit 7-1 has achieved the world's highest thermal efficiency of 63.08% (LHV) (as of March 2018))

As for conventional coal-fired power plants, the steam conditions (temperature and pressure) are being made better to improve thermal efficiency, and ultra-supercritical (USC) thermal power generation with a main steam temperature of 600°C is now commercially available. Moreover, research and development of the Integrated coal Gasification Combined Cycle (IGCC), in which gasified coal is used in combination with gas turbines and steam turbines to generate electricity, has been advanced, and in June 2013, Joban Joint Power's Nakoso Power Station Unit 10 started operation as Japan's first commercial IGCC plant. Low carbonization initiatives continue to progress steadily—a large scale IGCC plant is being constructed and preparation for a demonstration project of Integrated Coal Gasification Fuel Cell Combined Cycle (IGFC) that combined fuel batteries with IGCC is underway in Osakikamijima in Hiroshima Prefecture.

Demonstration tests and investigations to realize hydrogen/ammonia generation and CCUS are also underway.

Coal, LNG, and oil as fuel for thermal power generation, each have their own unique characteristics including level of geopolitical risk, and we believe that Japan will need to strike the right fuel balance for energy security.

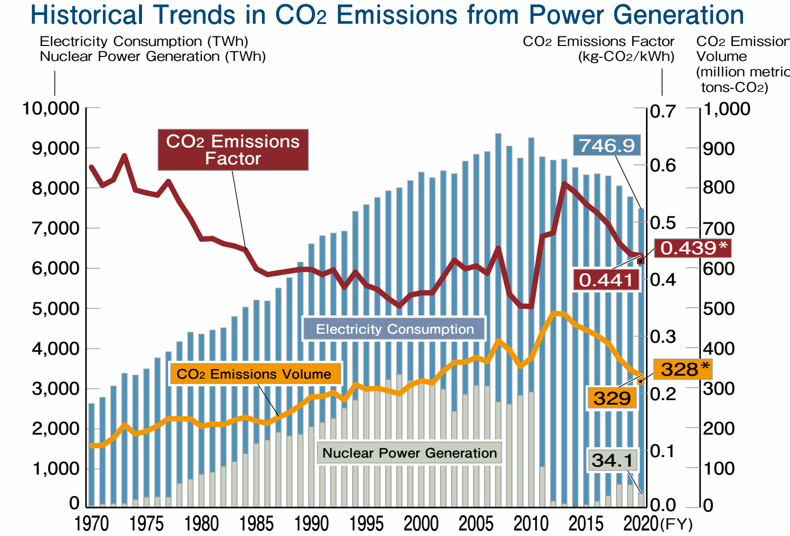
CO_2 Emissions Intensity over the Entire Lifecycle by Source



Note: (1) Based on total CO_2 emissions from all energy consumed in energy extraction, transportation, refining, plant operation and maintenance, etc. in addition to burning of the fuel.
(2) The figure of nuclear power generation is calculated including the reprocessing of spent fuel, use of MOX fuel, and the disposal of high-level radioactive waste.

Source: Report of the Central Research Institute of Electric Power Industry, etc.

Historical Trends in CO_2 Emissions from Power Generation



Note: Data up until 2007 is reported by FEPC.
Data from 2007 to 2014 is reported by FEPC and some PPSs.
Data from 2014 onward is reported by ELCS.
Up until 2014, the figures for nuclear power generation are on a gross-output basis as reported by FEPC, whereas the figures from 2015 onward are on a net-output basis as reported by ELCS.
The figures with an asterisk are adjusted values taking into account CO_2 credits and other adjustments.

Decarbonization of Energy on the Supply-side

Development and expansion of the use of renewable energy sources

The feed-in tariff system for renewable energy began in July 2012, whereupon the electric power companies are obliged to buy such electricity at a fixed price for a certain period. The cost of purchasing this electricity is finally borne by customers in the form of a surcharge, which in principle is proportional to the amount of electricity consumed.

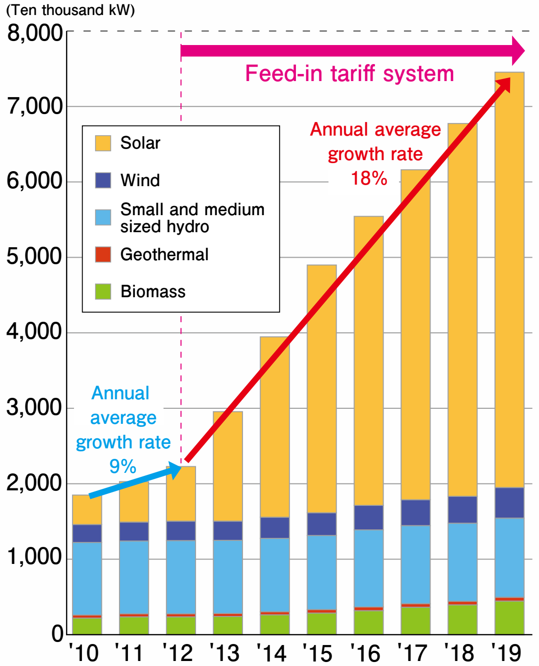
The Revised FIT Act was enacted in April 2017, making changes to the FIT system including creating a new authorization system, revising the method of setting purchase prices, and revising businesses obliged to purchase FIT electricity, under the policy of "maximizing the amount of renewable energy to be introduced while suppressing the burden on the public".

Photovoltaic power and wind power are susceptible to changes in power output depending on the weather.

To maintain stable energy supply and quality when photovoltaic power, wind power, and other renewable energies are deployed on a large-scale, we are researching and developing a demand and supply control system that combines renewables' output prediction, control with existing power sources and demand response (DR).

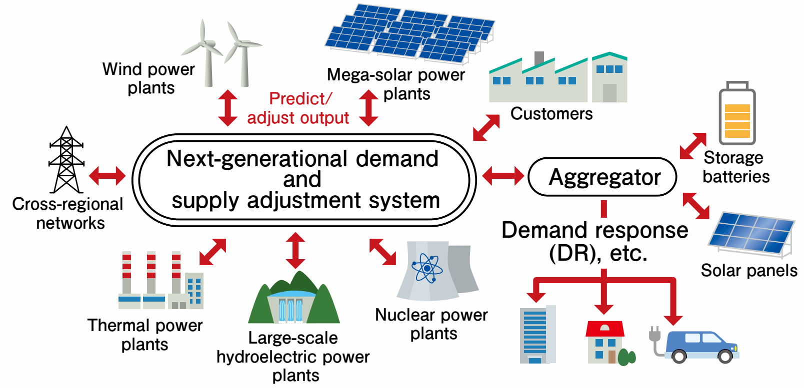
In March 2017, the Organization for Cross-regional Coordination of Transmission Operators, JAPAN (OCCTO) significantly shifted its approach toward electricity network operation and facility configuration by presenting a direction where "maximum use would be made of existing electricity networks to comprehensively minimize long-term electricity source and distribution costs while continuing to meet electric source connection needs through expanded adoption of renewable energies and other measures". Given this new policy, discussions are being held on measures on flexibly utilizing existing transmission lines' capacity to enable connection under certain conditions. Measures that have been approved in discussion will be implemented sequentially. In June 2020, the Act for Establishing Energy Supply Resilience (Act on the Partial Revision of the Electricity Business Act and Other Acts for Establishing Resilient and Sustainable Electricity Supply Systems) was passed into law. Starting in FY2022, the FIP system (electricity is bought back at a premium on the market price) will be introduced, in addition to the existing FIT system. Renewable energy operators will be engaging in market transactions under the FIP system which is expected to encourage generating behavior that reflects market price fluctuations. The FIP system will be adopted for "competitive power sources" such as utility photovoltaic power and wind power, while FIT system will continue to be used for "regional vitalization power sources" such as small-scale photovoltaic power and biomass.

Introduction Amount of Generating Capacity (Renewable Energy)*



* Excludes large-scale hydroelectric power generation Source: METI

Development of a Next-generational Demand and Supply Adjustment System



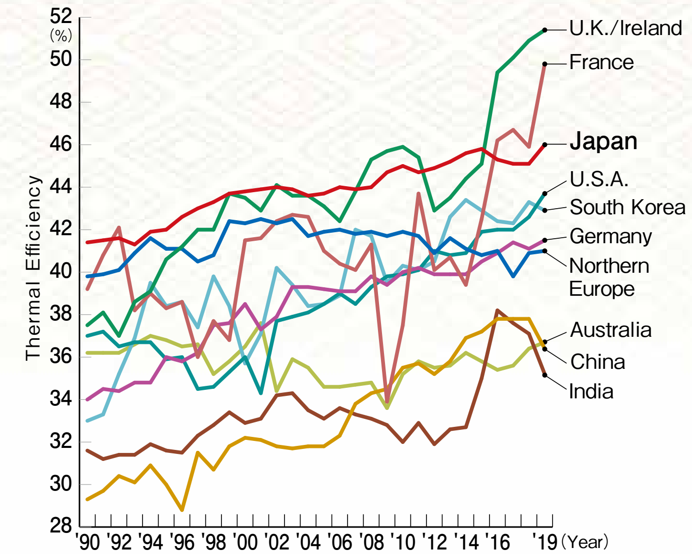
Mikuni Solar Power Station

Sharing Japan's Top-level Power Generation Technologies with the World

Japan has achieved the world's top-level in energy efficiency by introducing various technologies for higher energy efficiency to thermal power plants. Based on this achievement, the electric utility industry in Japan has been making efforts to establish a mechanism for sharing such advanced technologies with electric power industries in other countries.

With high-efficiency plants to be introduced and the improvement of operation and maintenance technologies, coal-fired plants' CO_2 reduction potential in OECD countries and developing countries in Asia in FY 2030 is estimated to be a maximum of 900 million t- CO_2/year. The electric utility industry of Japan will contribute to the reduction of global CO_2 emissions with Japan's expertise and advanced technologies.

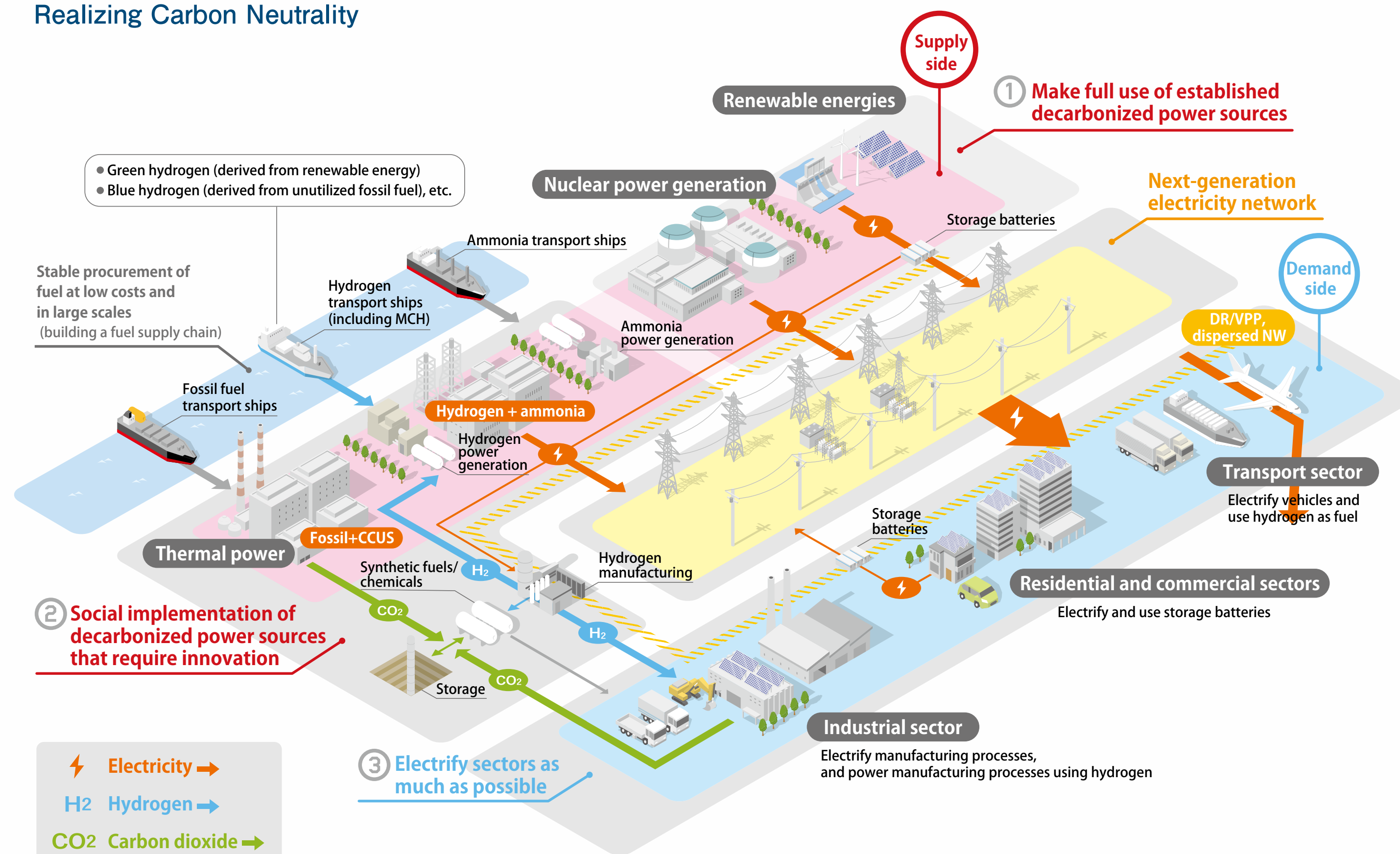
Comparison of Thermal Power Plant Efficiency in Japan and Other Countries



Source: ECOFYS "INTERNATIONAL COMPARISON OF FOSSIL POWER EFFICIENCY AND CO_2 INTENSITY (2021)"

Note: Values listed for heat efficiency are gross thermal efficiency values: a weighted average of the heat efficiency of coal, oil, and gas (lower heating value standard). Subject facilities are those of operators whose main business is selling electricity to third parties. Japan's values are fiscal year values.

Realizing Carbon Neutrality



Demand-side Efforts for CO2 Reduction

In addition to promoting further use of hot water supply systems (EcoCute) with CO_2 refrigerant heat pumps, which significantly reduce CO_2 emissions compared to conventional water heaters, the industry is actively working to promote more widespread use of heat pumps in the office and industrial sectors.

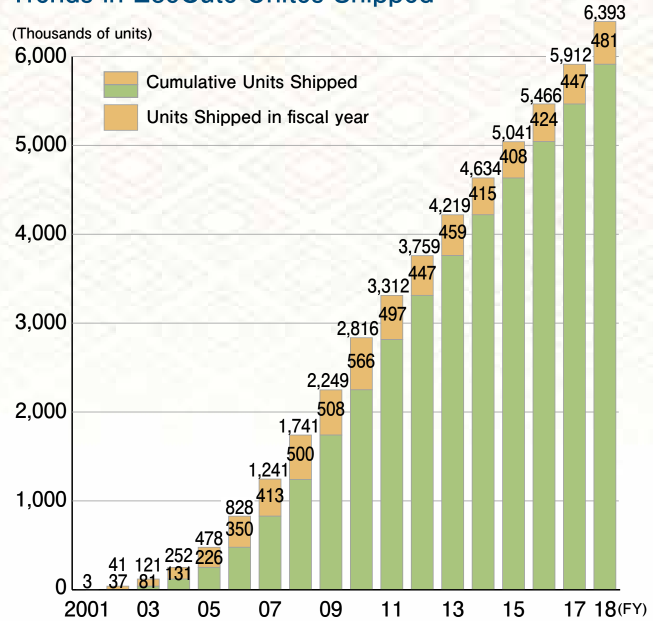
EcoCute heats water by transferring renewable thermal energy in air to water by means of refrigerants. With a single unit of electric energy for heat pump operation and more than two units of thermal energy from air, it can produce more than three units of thermal energy.

If heat pump appliances replaces boilers and other equipment which are used to meet the heat demands of the consumer (residential and commercial) and industrial sectors, the amount of CO_2 emissions that could be reduced in FY2030 will amount to 37.54 million t-CO_2/year from FY2018 levels.

In the transportation sector, popularization of electrical vehicles (EVs and PHVs) is considered one effective solution that can contribute to countering climate change. As a moving battery, electric vehicles could play a part in the electricity network and as an emergency power source in disasters.

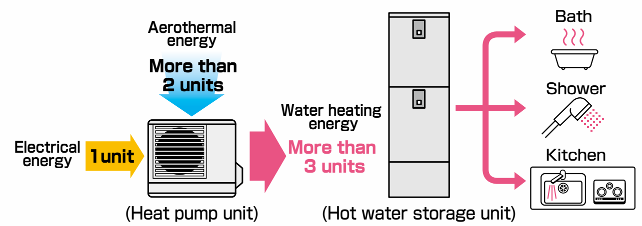
We will bolster the development and spread of electric vehicles by developing necessary charging infrastructure for EV deployment in wider society.

Trends in EcoCute Unites Shipped



Source: The Japan Refrigeration and Air Conditioning Industry Association

Principles of EcoCute



Column

Promotion of Electrification for a Decarbonized Society

The Green Growth Strategy Through Achieving Carbon Neutrality in 2050 announced by the Japanese government in December 2020 and fleshed out in June 2021 takes the decarbonization of the electricity sector as one of its fundamental premises and indicates a policy of maximally using renewable energy, using thermal power along with carbon dioxide capture, pursuing hydrogen generation as an option, and restarting nuclear power plants that meet the world's strictest standards for safety.

The Strategy states that "sectors other than the electricity sector" such as industrial, transport, office, and household sectors, "will center around electrification" and aims to have all sales of new passenger vehicles be electrically-driven vehicles by 2035. In the residences and buildings, Japan will pursue a life cycle carbon minus (LCCM) approach and build net zero energy house and buildings (ZEH/ZEB), while also remodeling existing houses to be more energy efficient and increasing the scale of photovoltaic power generation as much as possible.

According to the Strategy, "electricity demand in 2050 will need to increase by a certain level as a result of the electrification of the industrial, transport, and household sectors."

In order to realize a decarbonized society, there will need to be drastic reform in the way energy is used and drastic and structural reform of our lifestyles to change the structure of our society to a decarbonized structure. Discussions looking forward to 2050 will need to start immediately and measures implemented in a timely manner.

Strengthening International Communication and Cooperation

Japan's electric power companies remain active on a worldwide basis. In order to cope with global warming and to ensure the safety of nuclear power generation, international cooperation is indispensable. Each of the electric power companies in Japan has individual agreements with overseas utilities in order to facilitate exchanges on a wide range of information such as power generation, customer relations, distribution and quality control. The industry's top executives actively participate in international meetings such as the International Electricity Summit and the World Association of Nuclear Operators (WANO) to exchange views, while we also accept trainees from overseas. We import most of our fuel such as oil and coal from overseas countries and also keep our doors open to foreign companies for the purchase of equipment such as generators.

Overseas Offices

Please feel free to contact your nearest office.

WASHINGTON, D.C.

The Federation of Electric Power Companies of Japan, Washington Office

The Federation's Washington Office was established in January 1994. Its principal objectives are to study U.S. energy policies and to exchange information with U.S. energy opinion leaders in order to promote a greater understanding of the Japanese electric power industry.

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Tel: (202) 466-6781 Fax: (202) 466-6758
Established in 1994

Tokyo Electric Power Company Holdings, Inc., Washington Office
2121 K Street, N.W., Suite 910, Washington, D.C. 20037, U.S.A.
Tel: (202) 457-0790 Fax: (202) 457-0810
Established in 1978

Chubu Electric Power Co., Inc., Washington Office
900 17th Street, N.W., Suite 1220, Washington, D.C. 20006, U.S.A.
Tel: (202) 775-1960
Established in 1982

LONDON

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4th Floor, Marlborough Court, 14-18 Holborn, London, EC1N 2LE U.K.
Tel: (020) 7405-5299 Fax: (020) 7831-3065
Established in 1982

Chubu Electric Power Co., Inc., London Office
2nd Floor, 210 High Holborn, London WC1V 7EP, U.K.
Tel: (020) 7409-0142
Established in 1985

PARIS

The Kansai Electric Power Co., Inc., Paris Office
13-15 Boulevard de la Madeleine 75001 Paris, FRANCE
Tel: (01) 43 12 81 40 Fax: (01) 43 12 81 44
Established in 2008

DOHA

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4th Floor, Salam Tower, Al Corniche P.O.Box 22470,
Doha-QATAR
Tel: (974) 4483-6680
Established in 2007

BEIJING

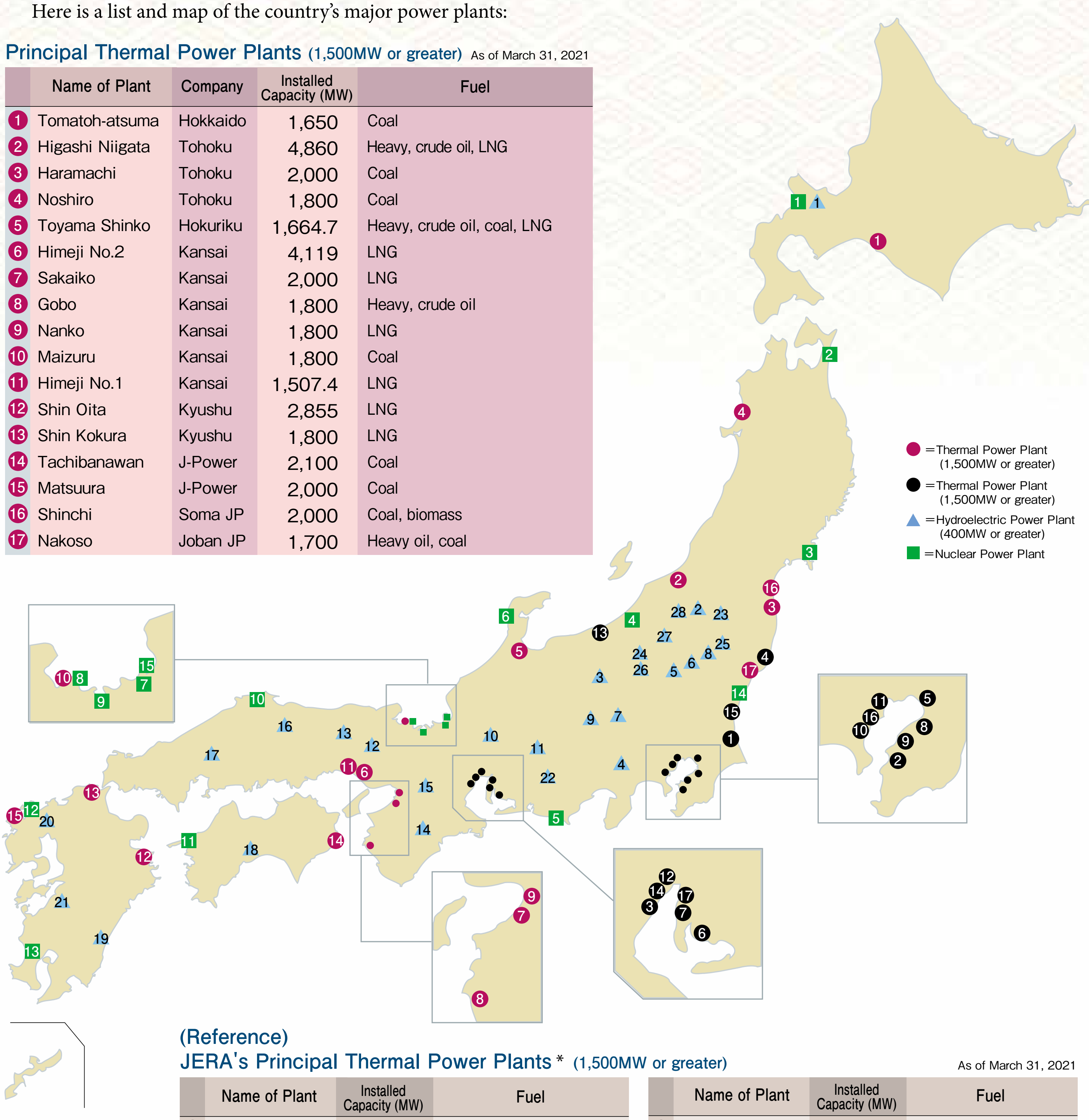
Tokyo Electric Power Company Holdings, Inc., Beijing Office
Unit 4, Level 8, Tower E3, Oriental Plaza,
No.1 East Chang An Avenue, Dong Cheng District, Beijing 100738, CHINA
Tel: (10) 8518-7771 Fax: (10) 8518-7770
Established in 2011

Major Power Plants

Here is a list and map of the country's major power plants:

Principal Thermal Power Plants (1,500MW or greater) As of March 31, 2021

	Name of Plant	Company	Installed Capacity (MW)	Fuel
1	Tomatoh-atsuma	Hokkaido	1,650	Coal
2	Higashi Niigata	Tohoku	4,860	Heavy, crude oil, LNG
3	Haramachi	Tohoku	2,000	Coal
4	Noshiro	Tohoku	1,800	Coal
5	Toyama Shinko	Hokuriku	1,664.7	Heavy, crude oil, coal, LNG
6	Himeji No.2	Kansai	4,119	LNG
7	Sakaiko	Kansai	2,000	LNG
8	Gobo	Kansai	1,800	Heavy, crude oil
9	Nanko	Kansai	1,800	LNG
10	Maizuru	Kansai	1,800	Coal
11	Himeji No.1	Kansai	1,507.4	LNG
12	Shin Oita	Kyushu	2,855	LNG
13	Shin Kokura	Kyushu	1,800	LNG
14	Tachibanawan	J-Power	2,100	Coal
15	Matsuura	J-Power	2,000	Coal
16	Shinchi	Soma JP	2,000	Coal, biomass
17	Nakoso	Joban JP	1,700	Heavy oil, coal



(Reference)
JERA's Principal Thermal Power Plants* (1,500MW or greater) As of March 31, 2021

	Name of Plant	Installed Capacity (MW)	Fuel
1	Kashima	5,660	Heavy, crude oil, utility gas
2	Futtsu	5,160	LNG
3	Kawagoe	4,800	LNG
4	Hirono	4,400	Heavy, crude oil, coal
5	Chiba	4,380	LNG
6	Hekinan	4,100	Coal
7	Chita	3,966	LNG
8	Anegasaki	3,600	LNG, LPG
9	Sodegaura	3,600	LNG
10	Yokohama	3,541	LNG
11	Kawasaki	3,420	LNG
12	Shin Nagoya	3,058	LNG
13	Joetsu	2,380	LNG
14	Nishi Nagoya	2,376	LNG
15	Hitachinaka	2,000	Coal, biomass
16	Higashi Ohgishima	2,000	LNG
17	Chita Daini	1,708	LNG

* JERA: Related company of TEPCO HD and Chubu Electric Power,not FEPC member.

Nuclear Power Plants

●In Operation

As of March 31, 2021

	Name of Plant	Unit Number	Company	Installed Capacity (MW)	Type of Reactor	Start
1	Tomari	1	Hokkaido	579	PWR	1989.6
		2		579	PWR	1991.4
		3		912	PWR	2009.12
2	Higashidori	1	Tohoku	1,100	BWR	2005.12
3	Onagawa	2	Tohoku	825	BWR	1995.7
		3		825	BWR	2002.1
4	Kashiwazaki Kariwa	1	Tokyo	1,100	BWR	1985.9
		2		1,100	BWR	1990.9
		3		1,100	BWR	1993.8
		4		1,100	BWR	1994.8
		5		1,100	BWR	1990.4
		6		1,356	ABWR	1996.11
		7		1,356	ABWR	1997.7
5	Hamaoka	3	Chubu	1,100	BWR	1987.8
		4		1,137	BWR	1993.9
		5		1,380	ABWR	2005.1
6	Shika	1	Hokuriku	540	BWR	1993.7
		2		1,206	ABWR	2006.3
7	Mihama	3	Kansai	826	PWR	1976.12
8	Takahama	1	Kansai	826	PWR	1974.11
		2		826	PWR	1975.11
		3		870	PWR	1985.1
		4		870	PWR	1985.6
9	Ohi	3	Kansai	1,180	PWR	1991.12
		4		1,180	PWR	1993.2
10	Shimane	2	Chugoku	820	BWR	1989.2
11	Ikata	3	Shikoku	890	PWR	1994.12
12	Genkai	3	Kyushu	1,180	PWR	1994.3
		4		1,180	PWR	1997.7
13	Sendai	1	Kyushu	890	PWR	1984.7
		2		890	PWR	1985.11
14	Tokai No.2		Japan Atomic Power Co.	1,100	BWR	1978.11
15	Tsuruga	2	Japan Atomic Power Co.	1,160	PWR	1987.2
	Total	33 Units		33,083MW		

●Under Construction

(Estimated start)

Name of Plant	Unit Number	Company	Installed Capacity (MW)	Type of Reactor	Start
Higashidori	1	Tokyo	1,385	ABWR	U.D
Shimane	3	Chugoku	1,373	ABWR	U.D
Ohma		J-Power	1,383	ABWR	U.D
Total	3 Units		4,141MW		

●Preparing for Construction

(Estimated start)

Name of Plant	Unit Number	Company	Installed Capacity (MW)	Type of Reactor	Start
Higashidori	2	Tohoku	1,385	ABWR	U.D
Higashidori	2	Tokyo	1,385	ABWR	U.D
Hamaoka	6	Chubu	1,400 Class	ABWR	U.D
Kaminoseki	1	Chugoku	1,373	ABWR	U.D
	2		1,373	ABWR	U.D
Sendai	3	Kyushu	1,590	APWR	U.D
Tsuruga	3	Japan Atomic Power Co.	1,538	APWR	U.D
	4		1,538	APWR	U.D
Total	8 Units		11,582MW		

●Others

Name of Plant	Company	Installed Capacity (MW)	Type of Reactor
Fugen	Japan Atomic Energy Agency	165	ATR(Prototype) End of Operation
Monju	Japan Atomic Energy Agency	280	FBR(Prototype) End of Operation

Principal Hydroelectric Power Plants (400MW or greater)

As of March 31, 2021

	Name of Plant	Company	Installed Capacity (MW)	Type
1	Kyogoku	Hokkaido	400	Pumped Storage
2	Dai-ni Numazawa	Tohoku	460	Pumped Storage
3	Shin Takasegawa	Tokyo	1,280	Pumped Storage
4	Kazunogawa	Tokyo	1,200	Pumped Storage
5	Tanbara	Tokyo	1,200	Pumped Storage
6	Imaichi	Tokyo	1,050	Pumped Storage
7	Kannagawa	Tokyo	940	Pumped Storage
8	Shiobara	Tokyo	900	Pumped Storage
9	Azumi	Tokyo	623	Pumped Storage
10	Okumino	Chubu	1,500	Pumped Storage
11	Okuyahagi No.2	Chubu	780	Pumped Storage
12	Okutataragi	Kansai	1,932	Pumped Storage
13	Okawachi	Kansai	1,280	Pumped Storage
14	Okuyoshino	Kansai	1,206	Pumped Storage
15	Kisenyama	Kansai	466	Pumped Storage
16	Matanogawa	Chugoku	1,200	Pumped Storage
17	Nabara	Chugoku	620	Pumped Storage
18	Hongawa	Shikoku	615	Pumped Storage
19	Omarugawa	Kyushu	1,200	Pumped Storage
20	Tenzan	Kyushu	600	Pumped Storage
21	Ohira	Kyushu	500	Pumped Storage
22	Shintoyone	J-Power	1,125	Pumped Storage
23	Shimogo	J-Power	1,000	Pumped Storage
24	Okukiyotsu	J-Power	1,000	Pumped Storage
25	Numappara	J-Power	675	Pumped Storage
26	Okukiyotsu No.2	J-Power	600	Pumped Storage
27	Okutadami	J-Power	560	
28	Tagokura	J-Power	400	

●End of Operation

(End)

Name of Plant	Unit Number	Company	Installed Capacity (MW)	Type of Reactor	End
Onagawa	1	Tohoku	524	BWR	2018.12
Fukushima Daiichi	1	Tokyo	460	BWR	2012.4
	2		784	BWR	2012.4
	3		784	BWR	2012.4
	4		784	BWR	2012.4
	5		784	BWR	2014.1
	6		1,100	BWR	2014.1
Fukushima Daini	1	Tokyo	1,100	BWR	2019.9
	2		1,100	BWR	2019.9
	3		1,100	BWR	2019.9
	4		1,100	BWR	2019.9
Hamaoka	1	Chubu	540	BWR	2009.1
	2		840	BWR	2009.1
Mihama	1	Kansai	340	PWR	2015.4
	2		500	PWR	2015.4
Ohi	1	Kansai	1,175	PWR	2018.3
	2		1,175	PWR	2018.3
Shimane	1	Chugoku	460	BWR	2015.4
Ikata	1	Shikoku	566	PWR	2016.5
	2		566	PWR	2018.5
Genkai	1	Kyushu	559	PWR	2015.4
	2		559	PWR	2019.4
Tokai		Japan Atomic Power Co.	166	GCR	1998.3
Tsuruga	1	Japan Atomic Power Co.	357	BWR	2015.4
Total	24 Units		17,423MW		

Note: PWR=Pressurized Water Reactor, BWR=Boiling Water Reactor, APWR=Advanced Pressurized Water Reactor, ABWR=Advanced Boiling Water Reactor, GCR=Gas Cooled Reactor, ATR=Advanced Thermal Reactor, FBR=Fast Breeder Reactor

The Federation of Electric Power Companies

Close cooperation among electric utilities is essential to effectively supply Japan's electricity. In 1952, the nine electric power companies established the Federation of Electric Power Companies (FEPC) to promote smooth operations within the industry. Since then, FEPC has played an important role as a base for close communication between the electric power companies and as a forum for exchanging views to create the electric power industry of the future. Moreover, FEPC undertakes various activities to ensure stable operations of the electric power industry, with an awareness of its role in the energy industry of Japan.

With the return of Okinawa to Japan in 1972, the Okinawa Electric Power Company rejoined Japan's electric power industry, becoming an FEPC member in March 2000.

Board of Directors

As of April 1, 2022


Chairman
Kazuhiro Ikebe

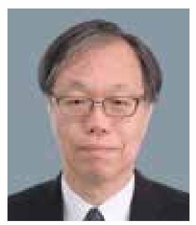

Vice Chairman
Mareshige Shimizu


Vice Chairman
Yutaka Fujii


Vice Chairman
Head of Nuclear Waste Final Repository Promotion Headquarters
Toshiharu Sasaki

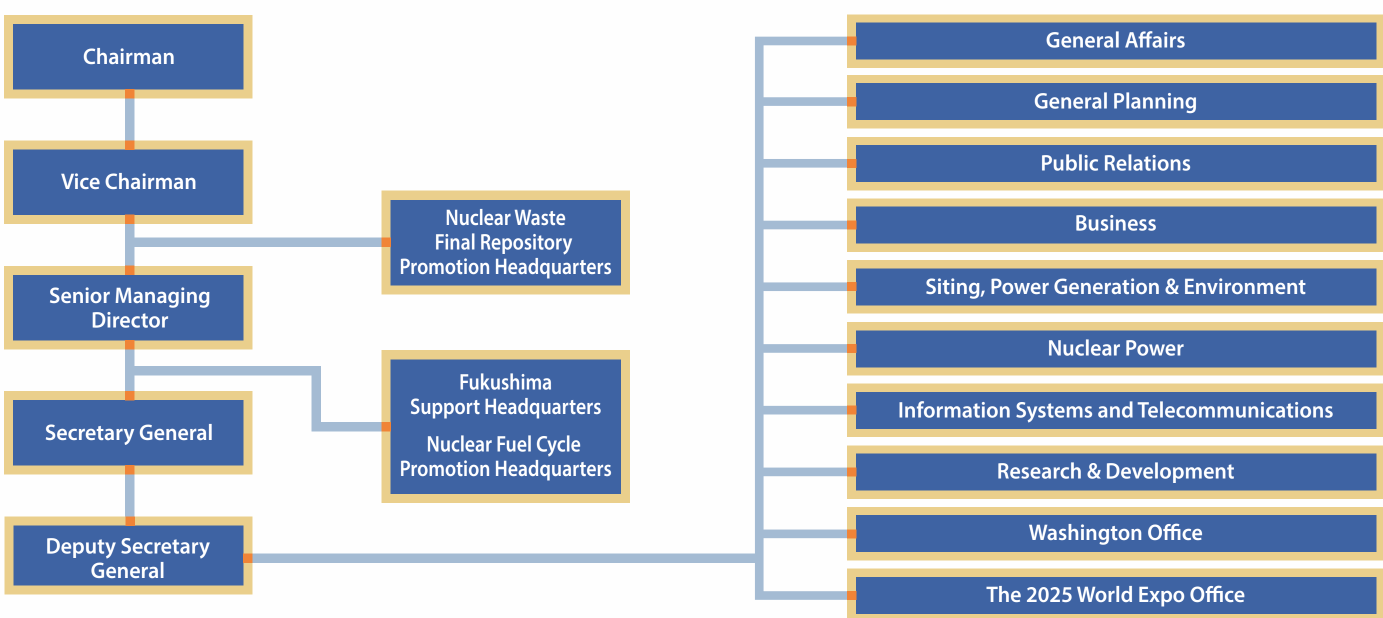

Senior Managing Director
Head of Fukushima Support Headquarters
Atsushi Soda

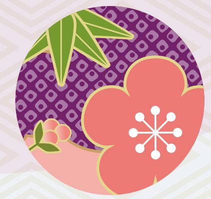

Director
Secretary General
Hideaki Sasaki


Director
Deputy Secretary General
Yoshihiro Tomioka


Director
Deputy Secretary General
Osamu Okamura

Organization of FEPC





Business Addresses

The Federation of Electric Power Companies of Japan (FEPC)
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Hokkaido Electric Power Co., Inc.
2, Higashi 1-chome, Odori, Chuo-ku, Sapporo, Hokkaido 060-8677, Japan
Tel: (011) 251-1111 URL https://www.hepco.co.jp

Tohoku Electric Power Co., Inc.
1-7-1 Honcho, Aoba-ku, Sendai, Miyagi 980-8550, Japan
Tel: (022) 225-2111 URL https://www.tohoku-epco.co.jp

Tokyo Electric Power Company Holdings, Inc.
1-1-3 Uchisaiwai-cho, Chiyoda-ku, Tokyo 100-8560, Japan
Tel: (03) 6373-1111 URL https://www.tepco.co.jp

Chubu Electric Power Co., Inc.
1, Higashi-shincho, Higashi-ku, Nagoya, Aichi 461-8680, Japan
Tel: (052) 951-8211 URL https://www.chuden.co.jp

Hokuriku Electric Power Co., Inc.
15-1, Ushijima-cho, Toyama-shi, 930-8686, Japan
Tel: (076) 441-2511 URL https://www.rikuden.co.jp

The Kansai Electric Power Co., Inc.
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The Chugoku Electric Power Co., Inc.
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Tel: (082) 241-0211 URL https://www.energia.co.jp

Shikoku Electric Power Co., Inc.
2-5, Marunouchi, Takamatsu-shi, Kagawa 760-8573, Japan
Tel: (087) 821-5061 URL https://www.yonden.co.jp

Kyushu Electric Power Co., Inc.
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Tel: (092) 761-3031 URL https://www.kyuden.co.jp

The Okinawa Electric Power Co., Inc.
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Tel: (098) 877-2341 URL https://www.okiden.co.jp

Electric Power Development Co., Ltd. (J-Power)
6-15-1, Ginza, Chuo-ku, Tokyo 104-8165, Japan
Tel: (03) 3546-2211 URL https://www.jpower.co.jp

The Japan Atomic Power Company (JAPC)
5-2-1, Ueno, Taito-ku, Tokyo 110-0005, Japan
Tel: (03) 6371-7400 URL http://www.japc.co.jp

Japan Nuclear Fuel Limited (JNFL)
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Tel: (0175) 71-2000 URL https://www.jnfl.co.jp

Japan Atomic Energy Agency (JAEA)
765-1, Funaishikawa, Tokai-mura, Naka-gun, Ibaraki 319-1184, Japan
Tel: (029) 282-1122 URL https://www.jaea.go.jp

Central Research Institute of Electric Power Industry (CRIEPI)
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Japan Electric Power Information Center, Inc. (JEPIC)
15-33, Shibaura 4-chome, Minato-ku, Tokyo 108-0023, Japan
Tel: (03) 6361-8210 URL https://www.jepic.or.jp

World Association of Nuclear Operators Tokyo Centre (WANO-TC)
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Atomic Energy Association (ATENA)
Keidanren-kaikan, 1-3-2, Otemachi, Chiyoda-ku, Tokyo 100-8118, Japan
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The Federation of
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Keidanren-kaikan,
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https://www.fepc.or.jp/english/index.html