# Energy Human Future

## Rokkasho Village & The Nuclear Fuel Cycle 2016

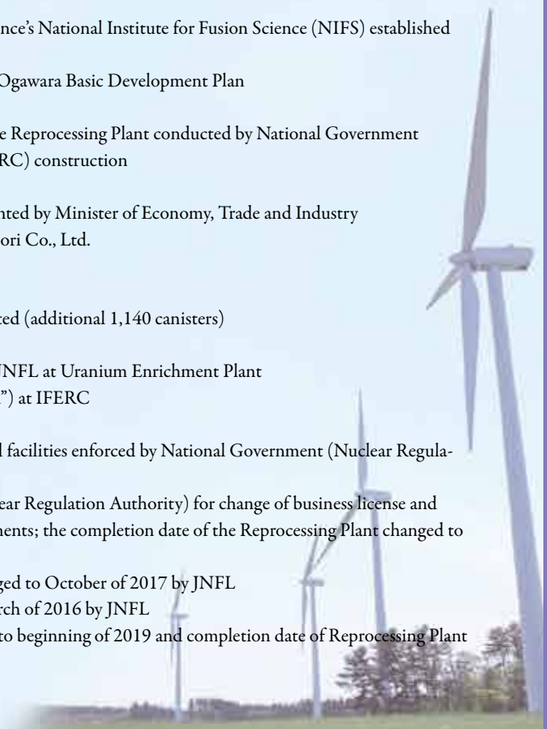
Rokkasho Village and Energy
http://www.rokkasho.jp/

# Energy Human Future

Influenced by *human* life, *energy* shapes the *future* making regional development possible. The times we live in require us to switch from using fossil fuel energy sources such as petroleum and coal to energy sources with future potential. Rokkasho Village, the "Village of Energy," takes *energy* seriously and thus demonstrates to the world its importance in this process. In Rokkasho one can observe how new *energy* forms carve out the *future* of the region and of *humanity*.

# Timeline of the Mutsu-Ogawara Industrial Park and the Nuclear Fuel Cycle Project

| | |
|---|---|
| 1969, May 30th | Cabinet decision made regarding new Comprehensive National Development Plan |
| 1970, April 1st | Mutsu Bay-Lake Ogawara Development Section established by Aomori Prefecture |
| 1971, March 25th | Mutsu-Ogawara Development Co., Ltd. established |
| 1972, September 14th | Cabinet verbal understanding given regarding first Mutsu-Ogawara Basic Development Plan |
| 1972, December 25th | Negotiations about land acquisition by Aomori Prefecture Mutsu-Ogawara Development Corporation commenced |
| 1975, December 20th | Second Mutsu-Ogawara Basic Development Plan decided by Aomori Prefecture |
| 1977, August 30th | Cabinet verbal understanding given regarding second Mutsu-Ogawara Basic Development Plan |
| 1977, September 13th | Mutsu-Ogawara Port designated a "Major Port" by National Government |
| 1977, December 2nd | Mutsu-Ogawara Port Plan approved by Minister of Transport |
| 1978, March 23rd | Basic Plan for Water System Construction at Takase River decided |
| 1978, December 6th | Basic Plan concerning the Lake Ogawara Comprehensive Development Project declared by Minister of Construction |
| 1979, May 8th | Urbanization promotion areas as well as urbanization control areas and zones within Rokkasho's Urbanization Plan decided and declared |
| 1979, October 1st | Formal decision made regarding the establishment of the National Petroleum Stockpiling Base (5.6 million kl) in Mutsu-Ogawara Industrial Park |
| 1980, March 1st | Japan Nuclear Fuel Service Co., Ltd. established |
| 1980, July 23rd | Mutsu-Ogawara Port groundbreaking ceremony |
| 1983, August 31st | Twelve tanks in the Mutsu-Ogawara National Petroleum Stockpiling Base completed |
| 1983, September 1st | Parts of the Mutsu-Ogawara Port Wharf begin operation (2,000 DWT, 1 berth) |
| 1984, April 20th | The Federation of Electric Power Companies of Japan submits cooperation request to the Governor of Aomori Prefecture regarding the establishment of nuclear fuel cycle facilities on the Pacific Ocean side of the Shimokita Peninsula |
| 1984, July 27th | The Federation of Electric Power Companies of Japan submits request to Aomori Prefecture and Rokkasho Village regarding cooperation with the establishment of three nuclear fuel cycle facilities in Rokkasho |
| 1984, August 30th | Council for Measures Regarding Nuclear Fuel Cycle Facilities established by Rokkasho Village |
| 1985, January 5th | Council for Measures Regarding Nuclear Fuel Cycle Facilities submits statement of opinion with thirty-seven requests to the Mayor of Rokkasho Village |
| 1985, January 16th | Above requests acknowledged by entirety of the Rokkasho Village Assembly Council |
| 1985, March 1st | Japan Nuclear Fuel Industries Co., Ltd. established |
| 1985, April 18th | Aomori Prefecture and Rokkasho Village accept The Federation of Electric Power Companies' request to build three nuclear fuel cycle facilities<br>Aomori Prefecture, Rokkasho Village, Japan Nuclear Fuel Industries Co., Ltd. and Japan Nuclear Fuel Service Co., Ltd. conclude the "Basic Agreement on Cooperation Regarding the Establishment of Nuclear Fuel Cycle Facilities" |
| 1985, April 26th | Cabinet verbal understanding given regarding modification of second Mutsu-Ogawara Basic Development Plan |
| 1985, October 26th | Rokkasho Visitors Center opens |
| 1986, August 5th | Mutsu-Ogawara Development Co., Ltd. holds groundbreaking ceremony for construction site of nuclear fuel cycle facilities |
| 1988, April 27th | Japan Nuclear Fuel Industries Co., Ltd. submits application for low-level radioactive waste disposal business license to National Government |
| 1988, August 10th | Uranium Enrichment Plant business license granted |
| 1988, October 14th | Start of Uranium Enrichment Plant construction |
| 1989, March 20th | Mutsu-Ogawara Regional and Industrial Development Foundation established |
| 1989, March 30th | Japan Nuclear Fuel Service Co., Ltd. submits application for reprocessing business as well as an application for waste management business license to National Government |
| 1990, November 14th | Mutsu-Ogawara Port 5,000 ton wharf completed and begins operation |
| 1990, November 15th | License for low-level radioactive waste disposal business granted |
| 1990, November 30th | Start of Low-level Waste Disposal Center construction |
| 1990, December 3rd | Institute for Environmental Sciences established |
| 1991, July 25th | Safety agreement concluded between Aomori Prefecture, Rokkasho Village and Japan Nuclear Fuel Industries Co., Ltd. regarding Uranium Enrichment Plant |
| 1991, September 20th | New Rokkasho Visitors Center opens |
| 1992, March 27th | Start of Uranium Enrichment Plant operation |
| 1992, April 3rd | License for vitrified waste storage business granted |
| 1992, May 6th | Start of Vitrified Waste Storage Center construction |
| 1992, July 1st | Japan Nuclear Fuel Service Co., Ltd. and Japan Nuclear Fuel Industries Co., Ltd. merge and become Japan Nuclear Fuel Limited (JNFL) |
| 1992, September 21st | Safety agreement concluded between Aomori Prefecture, Rokkasho Village and JNFL regarding Low-level Radioactive Waste Disposal Center |
| 1992, December 8th | Start of Low-level Radioactive Waste Disposal Center operation (First shipment received for Building No. 1) |
| 1992, December 24th | License for reprocessing business granted |
| 1993, April 28th | Start of Reprocessing Plant construction |
| 1993, May 1st | Rokkasho Visitors Center annex opens |
| 1993, November 18th | First uranium product shipment sent from Uranium Enrichment Plant |
| 1994, December 26th | Safety agreement concluded between Aomori Prefecture, Rokkasho Village and JNFL regarding Vitrified Waste Storage Center |
| 1995, January 30th | Rokkasho Village announces desire for International Thermonuclear Experimental Reactor (ITER) to enter Mutsu-Ogawara Industrial Park |
| 1995, March 7th | Inauguration of "Rokkasho Promotion Council for Fusion Energy Research Facility Establishment" |
| 1995, April 26th | Start of Vitrified Waste Storage Center operation and first shipment of high-level radioactive waste from overseas |
| 1995, June 16th | Rokkasho Village submits candidacy proposal to Aomori Prefecture regarding invitation of ITER |
| 1995, October 23rd | Aomori Prefecture announces desire for ITER to enter Mutsu-Ogawara Industrial Park |
| 1998, October 5th | Disaster Prevention Center Office established by Nuclear Safety Technology Center |
| 1999, December 3rd | Start of reprocessing business |
| 2000, August 4th | Mutsu-Ogawara Development Co., Ltd. dismantled and Shin-Mutsu-Ogawara Inc. established |
| 2000, November 20th | JNFL declared operating body of MOX fuel fabrication business |
| 2000, December 19th | First shipment of spent nuclear fuel from domestic nuclear power plants received |
| 2001, May 22nd | Aomori Prefecture, Aomori Prefectural Assembly and Rokkasho Village submit desire for ITER to enter Mutsu-Ogawara Industrial Park to the Ministry of Education and Culture as well as the Science and Technology Agency |
| 2001, June 14th | Start of easy-access Radiation Administrative Information Transmission System upgrade |
| 2001, July 9th | Start of operation of LCD color filter manufacturing plant by AIS Co., Ltd., the first company established under the Aomori Prefecture Crystal Valley Concept |
| 2001, August 24th | JNFL submits cooperation request to Aomori Prefecture and Rokkasho Village regarding the establishment of the MOX Fuel Fabrication Plant in Rokkasho |
| 2002, May 31st | Rokkasho Village accepted by the Cabinet as a domestic candidate for the location of ITER |
| 2002, December 1st | Start of Rokkasho Safeguards Center business |
| 2004, December 21st | JNFL brings in first shipment of depleted uranium for uranium testing |
| 2005, January 17th | JNFL begins uranium testing at the Reprocessing Plant |
| 2005, April 19th | "Basic Agreement Regarding Cooperation on the Establishment of the MOX Fuel Fabrication Plant in Rokkasho" concluded between Aomori Prefecture, Rokkasho Village and JNFL |
| 2005, April 20th | JNFL submits license application to National Government for nuclear fuel material processing business regarding MOX fuel fabrication business |
| 2005, June 28th | Construction site of ITER Enterprise in Cadarache, France decided |
| 2005, October 12th | Aomori Prefecture receives request for the establishment of Broader Approach Activities pertaining to ITER project |
| 2006, March 29th | "Agreement Regarding Regional Safety and Environmental Conservation with Concern to Receiving Spent Fuels as well as Handling Spent Fuels in Storage and During Active Testing at the Rokkasho Reprocessing Plant" concluded between Aomori Prefecture, Rokkasho Village and JNFL |
| 2006, March 31st | JNFL begins active testing at Reprocessing Plant |
| 2006, April 29th | Completion ceremony for Tōhoku Device Co., Ltd., the second company established under the Aomori Prefecture Crystal Valley Concept |
| 2007, May 28th | Rokkasho Research Center Department of Simulation Science's National Institute for Fusion Science (NIFS) established |
| 2007, June 1st | Broader Approach Agreement goes into effect |
| 2007, June 22nd | Cabinet verbal understanding given regarding new Mutsu-Ogawara Basic Development Plan |
| 2007, October 24th | ITER Agreement goes into effect |
| 2007, October 24th | Integrated Nuclear Emergency Response Drill regarding the Reprocessing Plant conducted by National Government |
| 2008, May 21st | Start of International Fusion Energy Research Center (IFERC) construction |
| 2010, April 27th | IFERC completion ceremony |
| 2010, May 13th | JNFL business license for MOX Fuel Fabrication Plant granted by Minister of Economy, Trade and Industry |
| 2010, September 30th | Tōhoku Device Co., Ltd. transfers business to OLED Aomori Co., Ltd. |
| 2010, October 28th | Start of MOX Fuel Fabrication Plant construction |
| 2011, March 11th | Tōhoku Earthquake |
| 2011, April 25th | JNFL expansion of Vitrified Waste Storage Center completed (additional 1,140 canisters) |
| 2011, December 1st | Start of ANOVA Co., Ltd. operation |
| 2011, December 28th | Start of operation of new type of centrifuge introduced by JNFL at Uranium Enrichment Plant |
| 2012, March 19th | Start of operation of supercomputer (nickname "Rokuchan") at IFERC |
| 2013, July 26th | Vitrification testing completed |
| 2013, December 18th | New regulatory requirements regarding nuclear fuel-related facilities enforced by National Government (Nuclear Regulation Authority) |
| 2014, January 7th | JNFL submits applications to National Government (Nuclear Regulation Authority) for change of business license and safety regulations in order to meet new regulatory requirements; the completion date of the Reprocessing Plant changed to October of 2014 |
| 2014, April 11th | Completion date of the MOX Fuel Fabrication Plant changed to October of 2017 by JNFL |
| 2014, October 31st | Completion date of the Reprocessing Plant changed to March of 2016 by JNFL |
| 2015, November 16th | Completion date of MOX Fuel Fabrication Plant changed to beginning of 2019 and completion date of Reprocessing Plant changed to beginning of 2018 by JNFL |

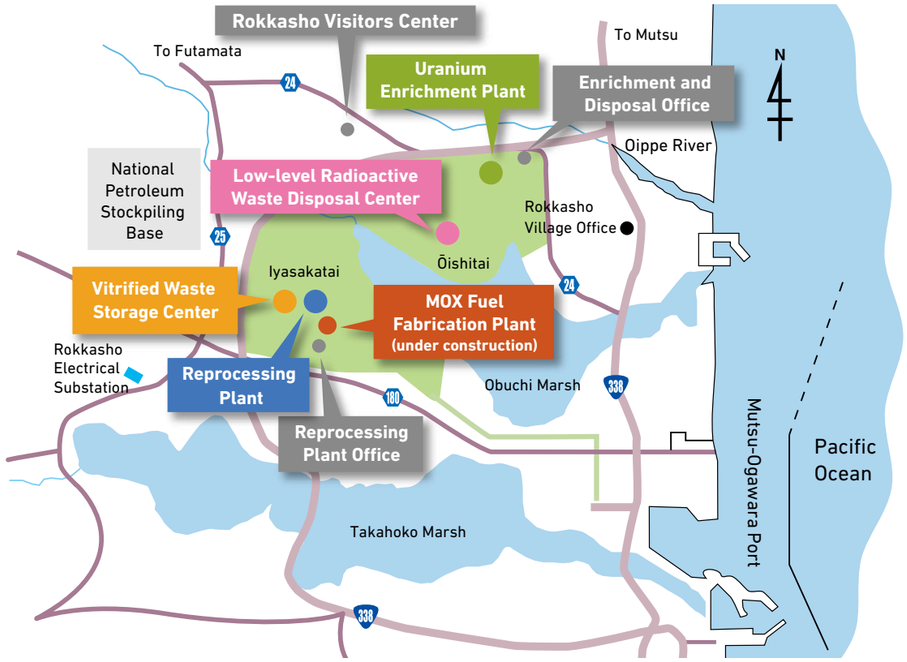


# Energy

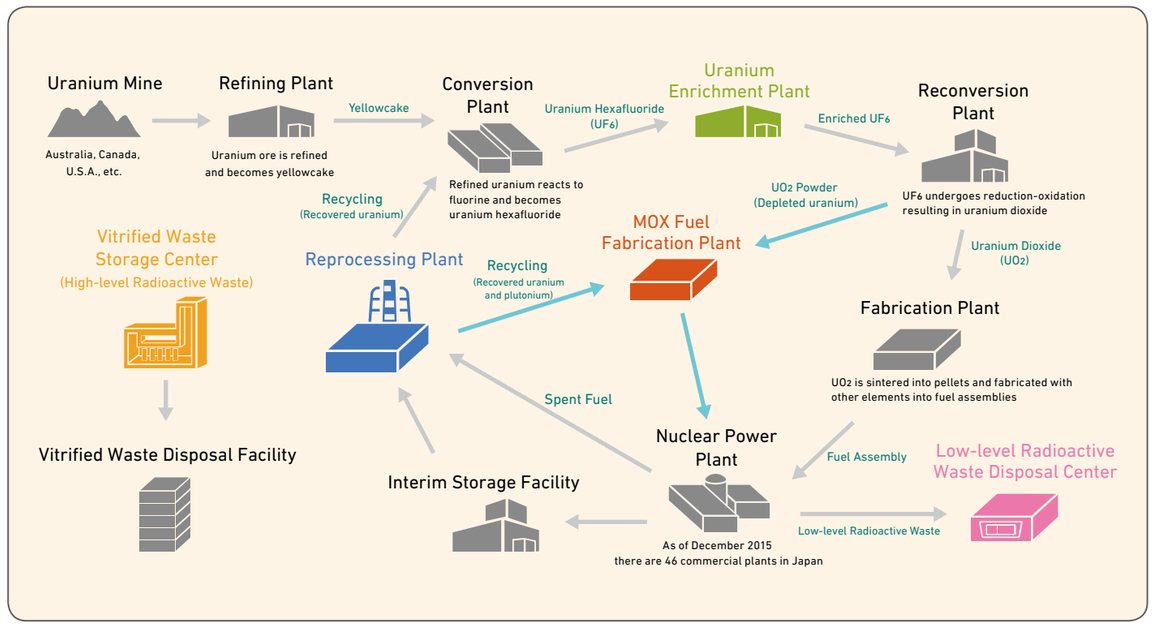
# Rokkasho Village and The Nuclear Fuel Cycle

## Setup and Implementation of the Nuclear Fuel Cycle

### Location of Nuclear Fuel Cycle Facilities




### Nuclear Fuel Cycle



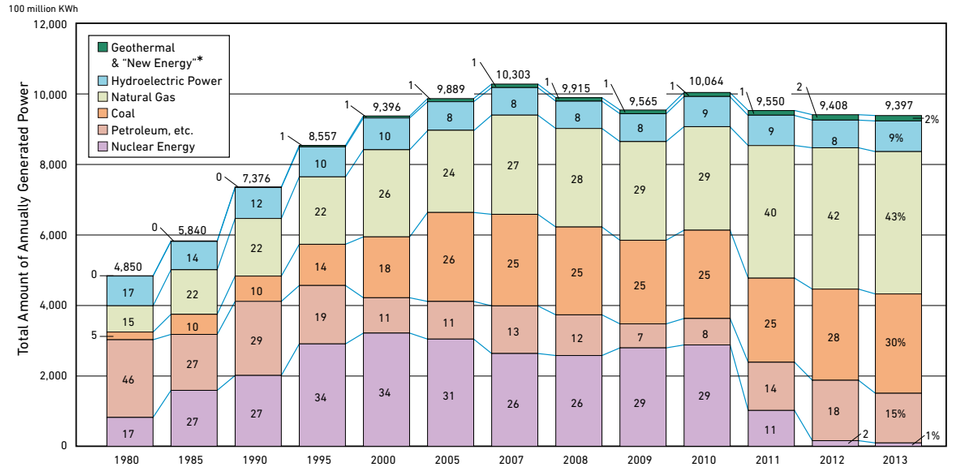



## Extracting Resources from Spent Fuels

In Japan, energy is generated in many different ways and fossil fuels such as petroleum and natural gas have generally been used. However, due to the limited nature of those fuels, nuclear power generation using uranium as an alternative fuel was developed. Uranium is also a limited resource, but unlike fossil fuels that end up as ash and carbon dioxide when burned, uranium can be reused repeatedly through reprocessing.

The "nuclear fuel cycle" is the chain of processes ranging from reprocessing spent fuels to reusing them, including safety control concerning radioactive waste generated in this cycle. With this cycle, efficient and long-term use of limited resources will be possible and a stable supply of energy can be realized in Japan where resources are rare.

### Historical Trend of Power Generation Volume by Power Source




Note:
- "Petroleum, etc." includes LPG, other gases and bituminous mixtures.
- Due to rounding the total values may not equal 100%.
- The amount of generated power is the total output of ten electric power companies.
- Figures within the graph represent the distribution percentages.

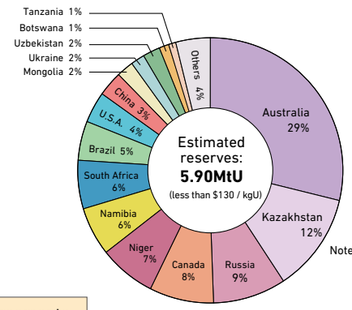
* "New energy" is a type of renewable energy that uses established technologies that require promotional assistance.

Source: Graphical Flip-Chart of Nuclear & Energy Related Topics 2015

### Proven Reserves and Japan's Procurement of Uranium

Uranium Source Reserves

(As of January 2013)




Note:
- Due to rounding the total values may not equal 100%
- tU = tons of metallic uranium

Japanese Uranium Purchase Agreements

(As of March 2013)

| Type of Import Contract | Trading Partners | Defined Contract Quantities ($U_3O_8$ short ton) |
|---|---|---|
| Long-term Contracts, Short-term Contracts and Product Purchases | Canada, U.K., South Africa, Australia, France, U.S.A. and others | Approx. 374,700 |
| Development and Import | Niger, Canada, Kazakhstan and others | Approx. 82,200 |
| Total | | Approx. 456,900 |

Note: 1 short ton = approx. 0.907 metric ton

Source: Graphical Flip-Chart of Nuclear & Energy Related Topics 2015

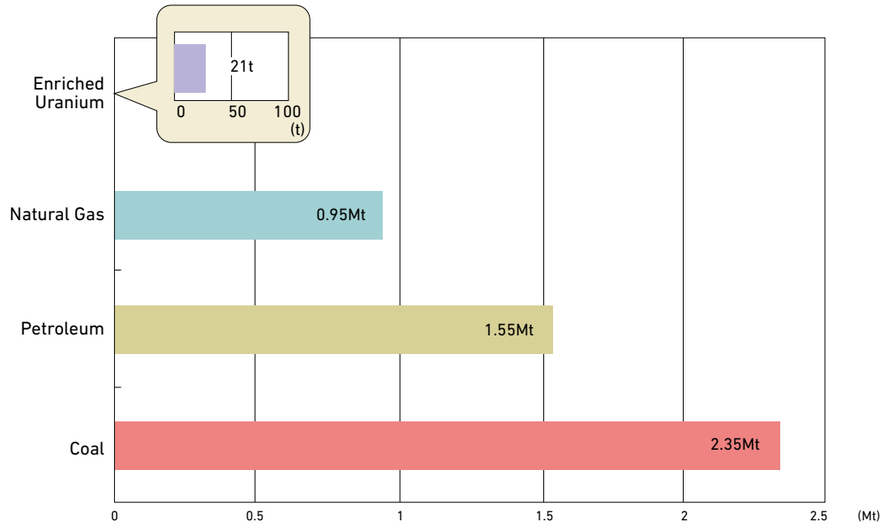
# Rokkasho Village and The Nuclear Fuel Cycle

Energy

## Uranium Fuel Recycling

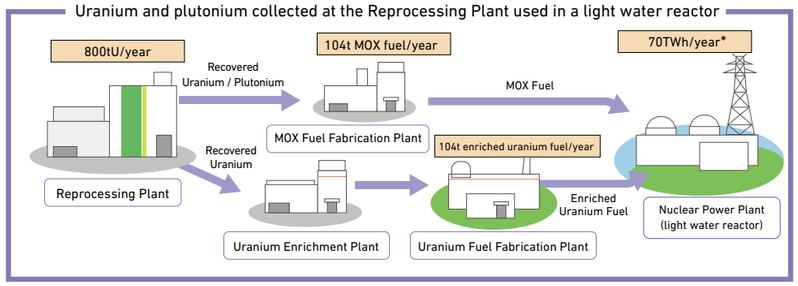
Natural uranium must undergo the process of refining, conversion, enrichment, reconversion and fabrication in order to become fuel that can be used for generating power at nuclear power plants. Uranium that has been spent can be reused by reprocessing it. The portion of uranium that can be reused as well as the newly produced plutonium are collected from the spent fuel through chemical processing, fabricated into MOX fuel at a MOX Fuel Fabrication Plant, and then used at a nuclear power plant. This ensures the long-term use and saving of uranium resources.

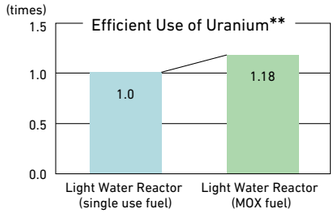
### Fuel required to operate a 1GW power plant for one year




Source: Graphical Flip-chart of Nuclear & Energy Related Topics 2015

### Recycling of Uranium Resources (Efficient Use of Resources)




* 70TWh is equivalent to the annual output of ten 1GW nuclear reactors (Source 1)
** By realizing the fast breeder cycle with increased plutonium use, it is expected that uranium usability will be increased about 30 times (Source 2)
Source 1) Material from the 5th, 7th and 8th New Nuclear Policy-Planning Council, Japan Atomic Energy Commission (2004)
Source 2) "Uranium 2003" by OECD and IAEA

Source: Graphical Flip-chart of Nuclear & Energy Related Topics 2015



## Present Status and Activities at Nuclear Fuel Cycle Facilities

Energy resource-poor Japan must import much of the fuel used at its power generation plants. Moreover, Japan also entrusted France and Britain with reprocessing fuels spent at its nuclear power plants. Since spent fuel can again become an energy resource through reprocessing, Japan Nuclear Fuel Limited has plans to operate a Reprocessing Plant and is currently building a MOX Fuel Fabrication Plant in order to ensure safe and reliable implementation of such reprocessing work in Japan. In Rokkasho Village, the following three facilities are already in operation: the Uranium Enrichment Plant, the Vitrified Waste Storage Center, and the Low-level Radioactive Waste Disposal Center. Once the Reprocessing Plant and the MOX Fuel Fabrication Plant are operating, a cycle of uranium enrichment, reprocessing, fuel fabrication and waste management will be completed, the next big step toward a stable supply of quasi-domestic energy.

### Outline of JNFL Nuclear Fuel Cycle Facilities

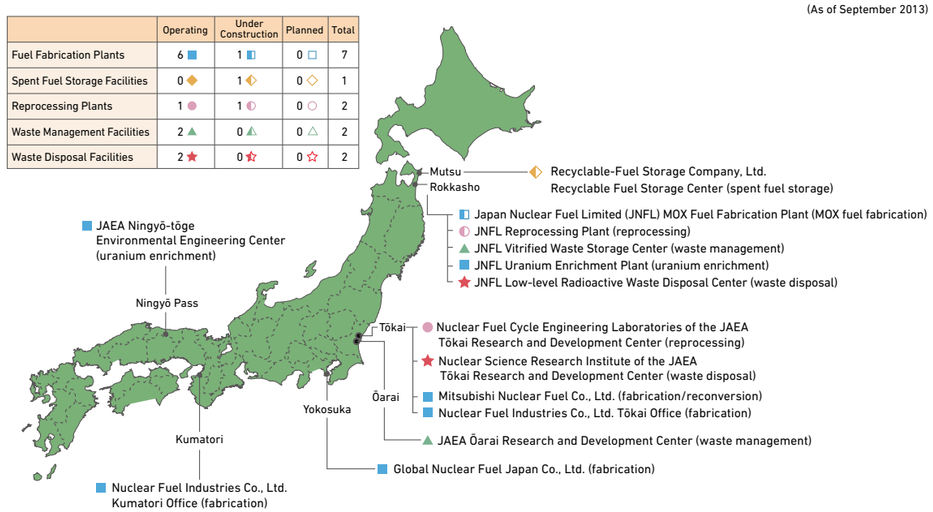
| | Reprocessing Plant | Vitrified Waste Storage Center | MOX Fuel Fabrication Plant | Uranium Enrichment Plant | Low-level Radioactive Waste Disposal Center |
|---|---|---|---|---|---|
| Location | Iyasakatai, Rokkasho Village, Aomori Prefecture | | | Ōishitai, Rokkasho Village, Aomori Prefecture | |
| Capacity | Maximum reprocessing capacity: 800tU / year<br>Storage capacity for spent fuel: 3,000tU | Storage capacity for waste returned from overseas 2,880 canisters of vitrified waste | MOX fuel assemblies for domestic light water reactors (BWR, PWR) 130tHM / year * | 1,050tSWU / year<br>Planned capacity of 1,500tSWU / year | Approx. 80,000m³<br>(equivalent to approx. 400,000 200ℓ drums)<br>Plan to expand to approximately 600,000 m³<br>(equivalent to approx. 3 million 200ℓ drums) |
| Construction Schedule | 1993 Start of construction<br>2018 Completion (planned) | 1992 Start of construction<br>1995 Start of operation | 2010 Start of construction<br>2019 Completion (planned) | 1988 Start of construction<br>1992 Start of operation | 1990 Start of construction<br>1992 Start of operation |
| Construction Costs | Approx. 2.193 trillion JPY | Approx. 125 billion JPY | Approx. 210 billion JPY | Approx. 250 billion JPY | Approx. 160 billion JPY ** |

* tHM (tons of heavy metal) indicates the mass of plutonium and uranium metallic content in MOX fuel
** Construction costs for approximately 200,000m³ for low-level radioactive waste (equivalent to 1 million 200ℓ drums)

### Location of Nuclear Fuel Cycle Facilities

(As of September 2013)

| | Operating | Under Construction | Planned | Total |
|---|---|---|---|---|
| Fuel Fabrication Plants | 6 ■ | 1 ◧ | 0 □ | 7 |
| Spent Fuel Storage Facilities | 0 ◆ | 1 ◈ | 0 ◇ | 1 |
| Reprocessing Plants | 1 ● | 1 ◐ | 0 ○ | 2 |
| Waste Management Facilities | 2 ▲ | 0 ◭ | 0 △ | 2 |
| Waste Disposal Facilities | 2 ★ | 0 ☆ | 0 ☆ | 2 |




Source: Graphical Flip-Chart of Nuclear & Energy Related Topics 2015

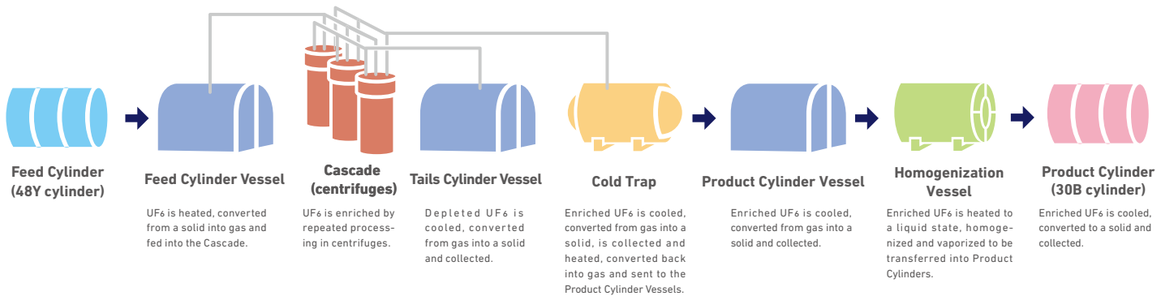
# Rokkasho Facilities Overview

Energy

## Uranium Enrichment Plant

Uranium, which is used as fuel at nuclear power plants, contains U-235 which burns easily and U-238 which does not burn easily. Since natural uranium ore contains only about 0.7% of U-235, it is necessary to increase the content to 3-5% in order to use as fuel. This process is conducted at a uranium enrichment plant. To increase the U-235 concentration, gaseous uranium compounds (uranium hexafluoride) are put in a centrifuge where high-speed rotation separates U-238 and U-235. The portion with a high concentration of U-235 is drawn off and sent to the next centrifuge. Enriched uranium that can be used as fuel is created by repeating this process.
In March of 1992, the Uranium Enrichment Plant in Rokkasho became Japan's first commercial uranium enrichment plant to begin operation. For more than twenty years this plant has built a strong track record of safety and stability. The technique used is a purely domestic one that features a high level of safety.
The plant is currently operating at a capacity of 1,050tSWU per year (equivalent to the fuel needed to run eight or nine 1GW class nuclear power plants for one year) and there are plans to increase capacity to 1,500tSWU per year at the ultimate stage. New centrifuges are currently being installed in stages.

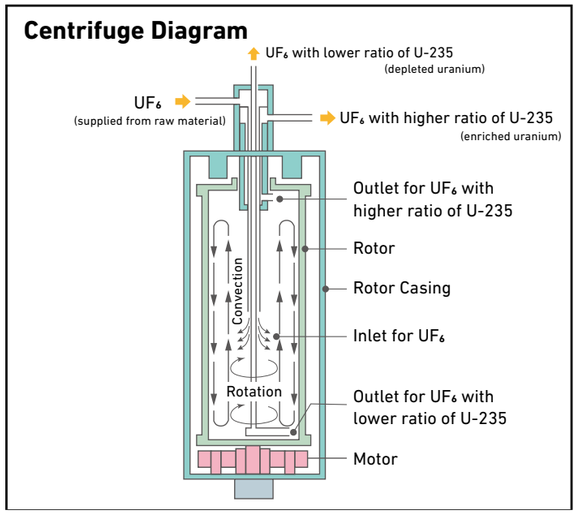
## Uranium Enrichment Process




### The Cascade

Since a single centrifuge can only enrich uranium by a slight degree, the process must be repeated by many centrifuges to attain the level of enrichment required. Therefore, a device that links multiple centrifuges is necessary for efficient operation. This is called a "Cascade."






Heavy U-238 and light U-235 are separated by inserting the uranium hexafluoride ($UF_6$) gas into a centrifuge with a rapidly spinning rotor. The light U-235 gathers at the center of the rotor. By drawing off this gaseous $UF_6$ (with higher concentration of U-235) from the center, enriched uranium can be obtained.

Cascade

Central Control Room of Uranium Enrichment Plant

## Facility Timeline

**[Phase 1] (RE-1 [600tSWU / year])**

| | |
|---|---|
| 1987, May 26th | Application for nuclear fuel processing business license filed |
| 1988, August 10th | License to operate nuclear fuel processing business granted |
| 1988, October 14th | Start of construction |
| 1992, March 27th | Start of production at RE-1A (150tSWU / year) |
| 1992, December 8th | Start of production at RE-1B (150tSWU / year) |
| 1993, May 27th | Start of production at RE-1D (150tSWU / year) |
| 1994, September 21st | Start of production at RE-1C (150tSWU / year) |

**[Phase 2] (RE-2 [450tSWU / year])**

| | |
|---|---|
| 1992, July 3rd | Application for modification to nuclear fuel processing business license regarding expansion filed (450tSWU / year) |
| 1993, July 12th | License for expansion granted |
| 1993, September 9th | Start of construction |
| 1997, October 7th | Start of production at RE-2A (150tSWU / year) |
| 1998, April 1st | Start of production at RE-2B (150tSWU / year) |
| 1998, October 6th | Start of production at RE-2C (150tSWU / year) |
| 2008, December 6th | Application for modification to nuclear fuel processing business license regarding renovation filed (75tSWU / year out of 150tSWU / year at RE-2A) |
| 2010, January 21st | License for renovation granted |
| 2010, March 1st | Start of construction (75tSWU / year) |
| 2012, March 9th | Start of production at RE-2A (37.5tSWU / year) |
| 2013, May 21st | Start of production at RE-2A (37.5tSWU / year) |

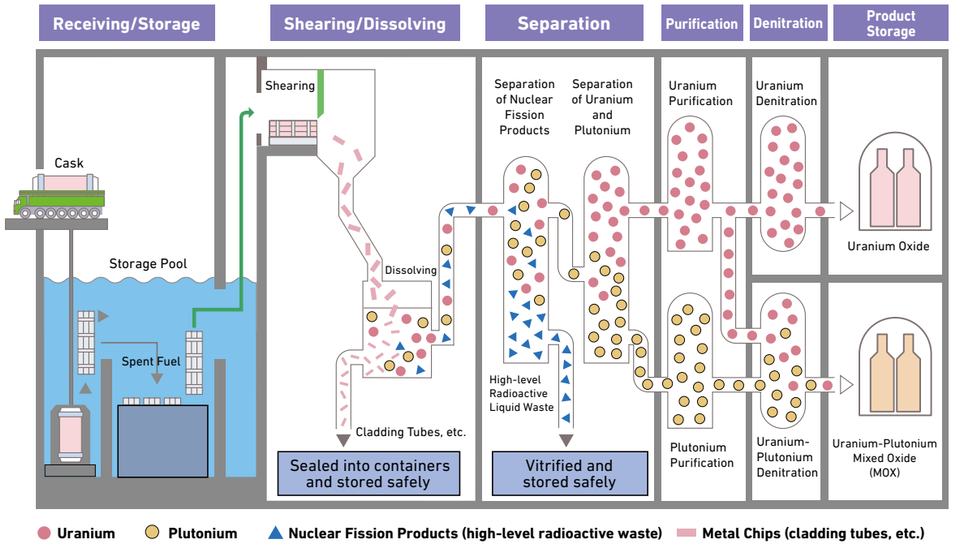
Feed and Product Cylinder Vessels

Homogenization Vessels

# Rokkasho Facilities Overview


Fossil fuels cannot be reused once burned. On the other hand, fuel spent at nuclear power plants can be reprocessed and then reused. The spent fuel contains uranium that remains unburned as well as plutonium and the role of a reprocessing plant is to collect and prepare them for reuse. Spent fuel from nuclear power plants located nationwide is transported in special containers called “casks” to the Reprocessing Plant. Casks are stored in the Storage Pool at the Reprocessing Plant until the radioactivity weakens sufficiently, and then spent fuel undergoes chemical treatment for the collection of uranium and plutonium. At the Reprocessing Plant in Rokkasho, these processes are conducted in separate buildings, with the solutions being sent to the next stage via pipes in an underground tunnel connecting the buildings. The plant has a maximum processing capacity of 800 tons of uranium per year — equivalent to the fuel spent at about forty 1GW class nuclear power plants. The plant is currently conducting active tests (using spent fuels) as a final check to verify the safety functions of its facilities and the performance of installed equipment.

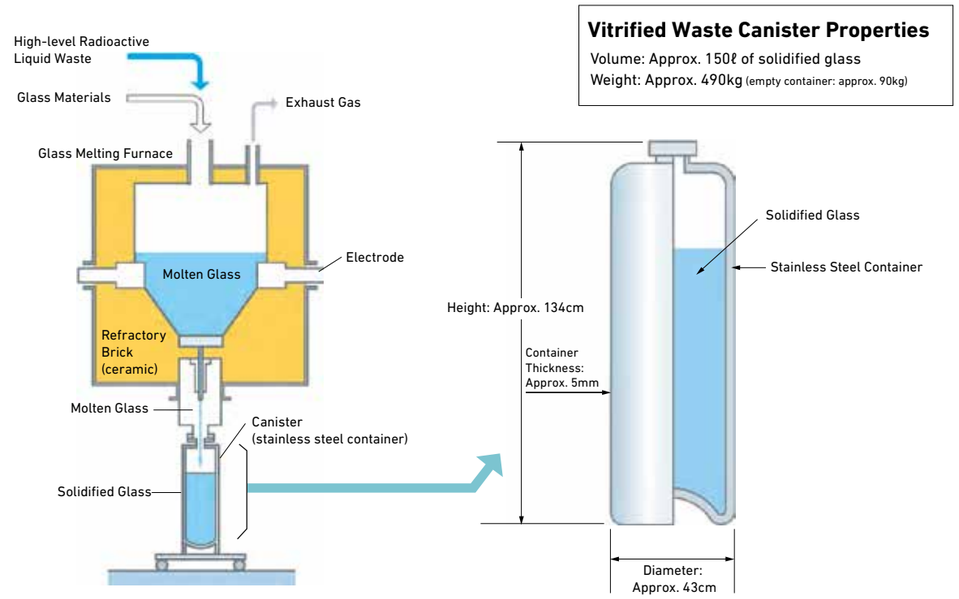
## Reprocessing Process








## Vitrification Process




Source: Graphical Flip-Chart of Nuclear & Energy Related Topics 2015

## Facility Timeline

| | |
|---|---|
| 1989, March 30th | Application for reprocessing business filed |
| 1992, December 24th | Approval for reprocessing business granted |
| 1993, April 28th | Start of construction |
| 1999, December 3rd | Start of operation |
| 2001, July 11th | Agreement with COGEMA (now AREVA NC) regarding technical assistance for uranium tests |
| 2004, December 21st | Start of uranium testing |
| 2006, January 22nd | End of uranium testing |
| 2006, March 31st | Start of active testing |

Central Control Room

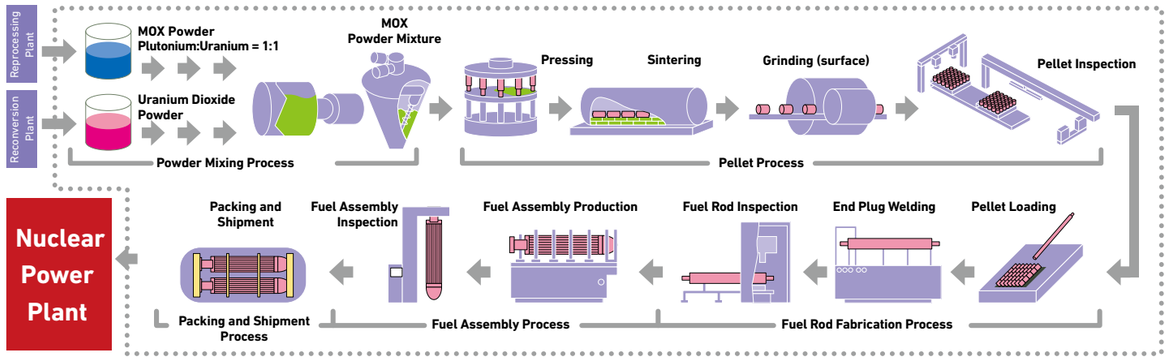
Cask Transport

Spent Fuel Storage Pool

# MOX Fuel Fabrication Plant

MOX stands for “mixed oxide” (uranium and plutonium). Natural uranium consists of U-235 which burns easily and U-238 which does not burn easily. Uranium fuel used at nuclear power plants is uranium where the U-235 content has been increased to 3-5%. MOX fuel is fuel that uses plutonium extracted from spent fuel at reprocessing plants instead of U-235. These fuel pellets have the same size and shape as those of uranium fuel pellets used at nuclear power plants. The MOX Fuel Fabrication Plant is being developed to fulfill the aim of producing MOX fuel.

## MOX Fuel Fabrication Process








## MOX Fuel Fabrication Facilities Worldwide

| Country | Operator | Location | Reactor Type | Annual Production Capacity (tHM*/ year) | Start of Operation |
|---|---|---|---|---|---|
| **France** | **AREVA NC** | Marcoule | **LWR** | 195 | 1995 |
| **Russia** | **VI Lenin Reserch Institute of Nuclear Reactors (NIIAR)** | Dimitrovgrad | **FBR** | 1 | 1975 |
| | **Mayak Production Association** | Chelyabinsk | **FBR** | 0.5 | 1980 |
| **Japan** | **Japan Atomic Energy Agency (JAEA)** | Tōkai Village, Ibaraki Prefecture | **FBR** | 10 | 1988 (under seismic retrofit) |
| | **Japan Nuclear Fuel Limited (JNFL)** | Rokkasho Village, Aomori Prefecture | **PWR, BWR** | 130 | 2019 (projected completion) |
| **Belgium** | **FBFC** | Dessel | **PWR, BWR** | 100 | 1997 |

*HM: The metal mass of plutonium and uranium in MOX fuel

Source: Graphical Flip-Chart of Nuclear & Energy Related Topics 2015

## Facility Timeline

| | |
|---|---|
| 1998, October 12th | Request for cooperation from the Federation of Electric Power Companies of Japan (FEPC) to Japan Nuclear Fuel Limited (JNFL) regarding feasibility studies for domestic MOX fuel fabrication |
| 1998, December 21st | JNFL begins studies |
| 1999, February 26th | Additional goal of MOX fuel production added |
| 1999, June 11th | Agreement concluded for technology cooperation with Japan Nuclear Cycle Development Institute (JNC) regarding feasibility studies |
| 2000, November 10th | JNFL feasibility study report submitted to FEPC |
| 2000, November 10th | FEPC requests JNFL become the operating body on the condition that the plant is located in Rokkasho |
| 2000, November 17th | JNFL declared the operating body for MOX fuel fabrication business |
| 2000, December 27th | Agreement concluded between JNFL and JNC for technology cooperation regarding building and operating the plant |
| 2001, August 24th | JNFL requests cooperation from Aomori Prefecture and Rokkasho Village regarding the establishment of the plant |
| 2005, April 19th | Basic cooperation agreement concluded between JNFL, Aomori Prefecture and Rokkasho Village regarding the establishment of the plant |
| 2005, April 20th | JNFL submits application for nuclear fuel fabrication business license to Ministry of Economy, Trade and Industry (METI) |
| 2007, February 20th | JNFL submits amendment to above license application to METI |
| 2007, May 18th | JNFL submits amendment to above license application to METI |
| 2008, October 7th | JNFL submits amendment to above license application to METI |
| 2009, April 16th | JNFL submits amendment to above license application to METI |
| 2009, June 26th | JNFL submits amendment to above license application to METI |
| 2009, December 4th | JNFL submits amendment to above license application to METI |
| 2010, May 13th | License granted for MOX fuel fabrication business |
| 2010, May 21st | JNFL notifies METI about modification of construction plan |
| 2010, October 28th | Start of construction |
| 2014, January 7th | JNFL applies to Nuclear Regulatory Commission (NRC) for modification to MOX fuel fabrication business license |

# Rokkasho Facilities Overview

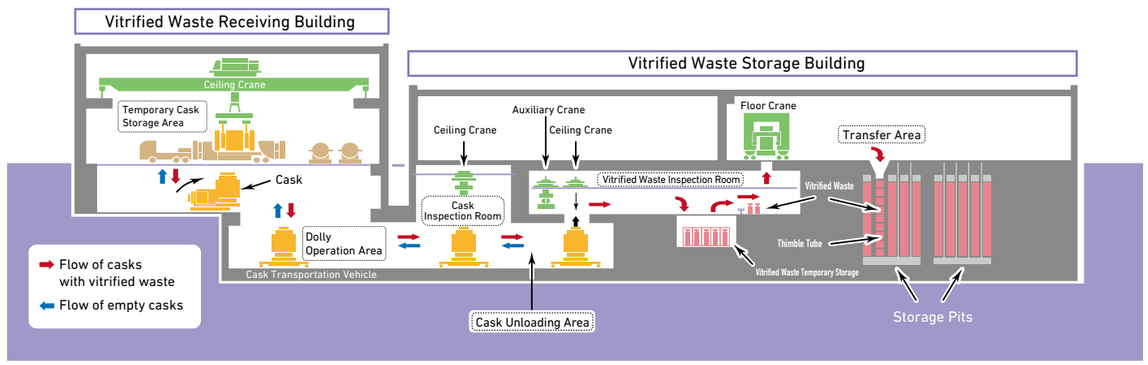
Energy


Vitrified Waste Inspection Room

Storage Pits

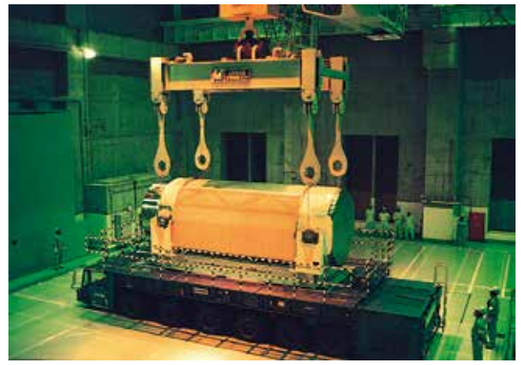
Japanese power companies have currently contracted a reprocessing plant in the United Kingdom to reprocess the spent fuel produced in Japan. Uranium and plutonium recovered in this plant are returned to Japanese power utilities to be reused as nuclear fuel. In addition, the high-level radioactive waste generated from reprocessing is vitrified, placed in containers called casks, and returned to Japan by sea. The Vitrified Waste Storage Center safely stores and manages the vitrified waste until final disposal. The storage and inspection areas are encased by reinforced concrete walls 1.5–2 meters thick to prevent radiation from escaping. Initially, the center had a storage capacity of 1,440 canisters but the facility has been expanded to accommodate 2,880 canisters of vitrified waste.

## Building Overview




## Facility Timeline

| | |
|---|---|
| 1989, March 30th | Application for waste management business license filed |
| 1992, April 3rd | License for waste management business granted |
| 1992, May 6th | Start of construction |
| | **[Return of vitrified waste from France begins]** |
| 1995, April 26th | Start of operation, first shipment of vitrified waste received (1 cask, 28 canisters) |
| 1997, March 18th | 2nd shipment of vitrified waste received (2 casks, 40 canisters) |
| 1998, March 13th | 3rd shipment of vitrified waste received (3 casks, 60 canisters) |
| 1999, April 15th | 4th shipment of vitrified waste received (2 casks, 40 canisters) |
| 2000, February 23rd | 5th shipment of vitrified waste received (4 casks, 104 canisters) |
| 2001, February 21st | 6th shipment of vitrified waste received (8 casks, 192 canisters) |
| 2001, July 30th | Application for modification to waste management business license regarding expansion filed |
| 2002, January 23rd | 7th shipment of vitrified waste received (6 casks, 152 canisters) |
| 2003, July 24th | 8th shipment of vitrified waste received (6 casks, 144 canisters) |
| 2003, December 8th | License for expansion granted |
| 2004, March 4th | 9th shipment of vitrified waste received (5 casks, 132 canisters) |
| 2005, April 20th | 10th shipment of vitrified waste received (5 casks, 124 canisters) |
| 2006, March 24th | 11th shipment of vitrified waste received (7 casks, 164 canisters) |
| 2007, March 28th | 12th shipment of vitrified waste received (6 casks, 130 canisters) |
| | **[All vitrified waste from France is returned]** |
| | **[Return of vitrified waste from U.K. begins]** |
| 2010, March 9th | 13th shipment of vitrified waste received (1 cask, 28 canisters) |
| 2011, April 25th | Vitrified Waste Storage Building B completed |
| 2011, September 15th | 14th shipment of vitrified waste received (3 casks, 76 canisters) |
| 2013, February 27th | 15th shipment of vitrified waste received (1 cask, 28 canisters) |
| 2014, April 22nd-23rd | 16th shipment of vitrified waste received (5 casks, 132 canisters) |



Cask Unloading Crane

# Rokkasho Facilities Overview


Low-level radioactive waste (waste that has a low degree of radioactivity) is created during the operation or inspection of nuclear power plants. Such waste includes the water used for cleaning, the metal equipment used to purify this water afterwards and insulators. The liquid waste is evaporated and condensed while burnable waste is incinerated, stored in drums and then solidified with cement, etc. Solids such as metals are cut, compressed or melted as required, stored in drums, and then solidified using cement-based fillers. The waste is then stored in the storage facility of each nuclear power plant, subjected to various inspections, and then transported to the Low-level Radioactive Waste Disposal Center. Waste drums arriving at the Center are inspected, stored in reinforced concrete pits constructed on a solid foundation and then strictly controlled until the level of radioactivity decreases. The Center currently operates with a business license that grants an area of about 80,000m$^3$ for the disposal of waste at Disposal Facilities No. 1 and No. 2 (equivalent to 400,000 200ℓ drums). There are plans to expand the disposal area to 600,000m$^3$ in order to accept future low-level radioactive waste created by nuclear fuel cycle facilities.

## Disposal Process

**Transportation**
Waste drums are transferred from the nuclear power plant to Mutsu-Ogawara Port by a dedicated transport ship.

**Receiving/Inspection**
Drums are inspected to ensure conformity with technical standards.

**Stacking**

Drums are stacked inside disposal facility.

**Filling with Mortar**
Cement-based filler (mortar) is poured in the spaces between the drums.

**Covering with Concrete**

Reinforced concrete is placed on top of the disposal facility and resembles a single rock.

**Covering with Soil**
An inspection tunnel is added and then a bentonite (clay) and soil mixture is used to cover the disposal facility, increasing impermeability. Earth is then placed on top along with vegetation.

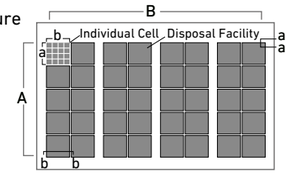




## Disposal Facility Illustration

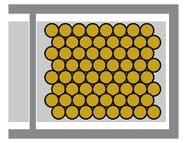
### Disposal Facility No. 1

• Overall Structure
A: 132m
B: 231m
a: 24m
b: 24m

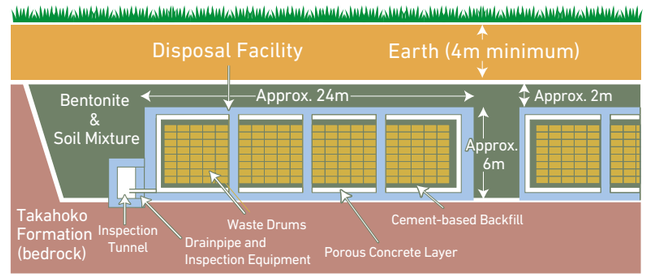



Cross-section of Cell (along a-a axis)

The drums are stacked eight deep in five rows of eight.

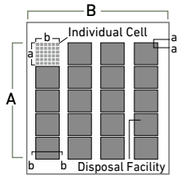


• Cross-section of the Disposal Facility (along b-b axis)



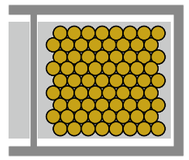

### Disposal Facility No. 2

• Overall Structure
A: 152m
B: 191m
a: 36m
b: 37m

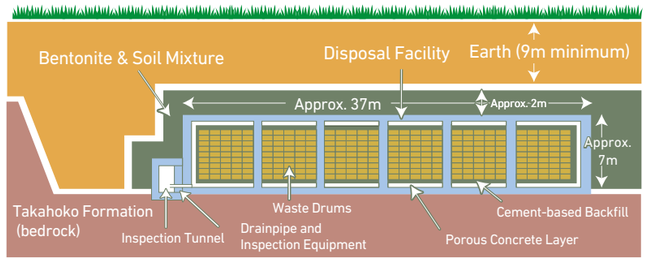



Cross-section of Cell (along a-a axis)

The drums are stacked nine deep in six rows of eight.



• Cross-section of the Disposal Facility (along b-b axis)

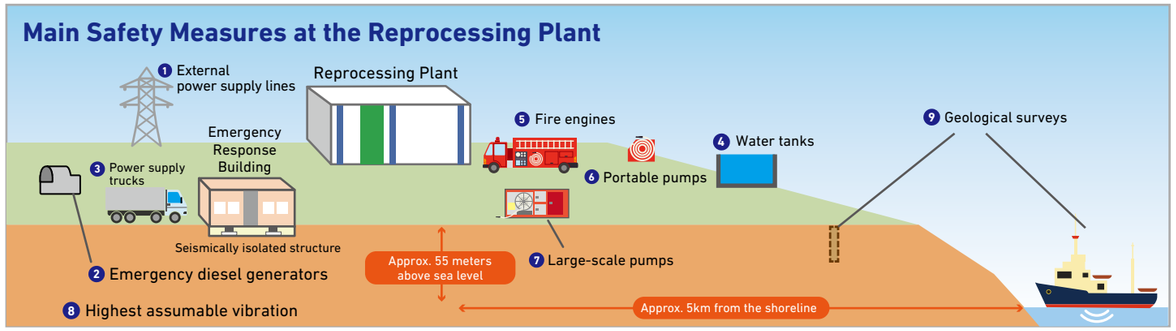



## Facility Timeline

| | |
|---|---|
| 1988, April 27th | Application for waste disposal license filed (Disposal Facility No. 1: 40,000m$^3$ [equivalent to 200,000 200ℓ drums]) |
| 1990, November 15th | License for waste disposal granted |
| 1990, November 30th | Start of Disposal Facility No. 1 construction |
| 1990, December 8th | Start of Disposal Facility No. 1 operation |
| 1997, January 30th | Application for expansion license filed (Disposal Facility No. 2: 40,000m$^3$ [equivalent to 200,000 200ℓ drums]) |
| 1998, October 8th | License for expansion granted |
| 1998, October 12th | Start of Disposal Facility No. 2 construction |
| 2000, October 10th | Start of Disposal Facility No. 2 operation |

## Safety Measures

In addition to safety measures that have been implemented autonomously, nuclear fuel cycle facilities are currently working on new measures in order to conform to the new regulatory requirements established by the National Government in December of 2013. These regulatory requirements were based on lessons learned from the accident at the Fukushima Daiichi Nuclear Power Plant.




### Ensuring Power Supply

At the Reprocessing Plant a constant power supply is indispensable in order to maintain important safety features such as cooling spent fuels and high-level radioactive liquid waste. Therefore, the plant is taking many measures to ensure the power supply remains stable.

**1. Two External Power Supply Lines**

Power is supplied via two external transmission lines from the power company.

**2. Emergency Diesel Generators**

In the event the power supply from the power company is disrupted, the power necessary to maintain safety features is insured.

**3. Power Supply Trucks**

In the case of a malfunction of the emergency diesel generators, etc. power supply trucks have been deployed.

### Maintaining Cooling Functions

In the event that the equipment responsible for cooling spent fuels and high-level radioactive liquid waste stops working due to power failure or failures in the system, the cooling function is maintained by a backup system that secures a supply of necessary equipment and water.

**4. Water Tanks**

The stored water has a volume of 20,000m³. In addition there are also emergency fire protection water tanks, etc. on-site. Moreover, there are plans to set up a new water tank with increased earthquake resistance in order to meet the new regulatory requirements. This new tank will double the amount of the present volume of water (20,000m³) .

**5. Fire Engines 6. Portable Pumps 7. Large-scale Pumps**

In addition to the water tanks, it has also been confirmed that water from nearby Obuchi Marsh can be used. By using all of this equipment, it is possible to transport water to the target facility.

### Preparation for Earthquakes

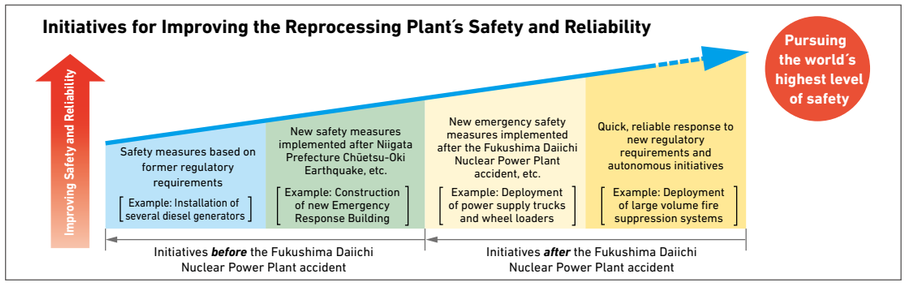
In accordance with the strict estimations defined by the new regulatory requirements, the earthquake resistance of the Reprocessing Plant's main facilities, equipment and instruments must be sufficient to withstand the strongest assumable earthquake.

**8. Highest Assumable Vibration (seismic intensity)**

Reevaluating earthquake resistance safety, various earthquakes that could affect the facilities are taken into consideration and previous maximum values (design basis earthquake ground motion) are increased.

**9. Geological Surveys**

In order to expand the geological data from previous surveys, trench surveys of surrounding areas and marine sonic profiling are conducted. Moreover, marine boring surveys are conducted using the drilling ship Chikyū which can drill deep into the ocean seabed.








## Disaster Prevention Systems

### Preparation for Disaster

To prepare for the case of a nuclear disaster, Rokkasho Village is putting a disaster prevention system in place along with implementing emergency procedures at public facilities.

**1. Emergency Drills**

In order to keep loss to a minimum, emergency drills are conducted regularly with local residents. The region's disaster prevention system is strengthened when every inhabitant of the village has proper knowledge about nuclear disaster prevention.

**2. Radiation Protection Measures for Emergency Shelters**

In order to prevent village residents from receiving exposure to radiation in the case radioactive material is released after an accident at a nuclear facility, some of the public facilities that serve as emergency shelters were renovated into extremely airtight buildings and high efficiency particulate air filters were installed. By this, radioactive material is prevented from entering the emergency shelters.

**3. Fire Protection Water Tanks**

Fire protection water tanks with a volume of 100m³ have been installed. In the case of a fire at the emergency shelters, residences, etc. a wide area can quickly be covered.

Emergency Drill

### Research Regarding the Influence on the Environment

The facility operators and related organizations monitor radioactive material which is discharged from nuclear fuel-related facilities and surveys and research are conducted regarding the influence of the radioactive material on the environment and living organisms.

**1. Environmental Monitoring**

The gas and liquid radioactive waste generated in nuclear fuel cycle facilities is processed in a dedicated device inside the facility and then discharged after ensuring the emissions are sufficiently safe. However, to monitor the effect on the environment, Aomori Prefecture and the facility operators measure the amount of radiation in the air of the surrounding area and regularly collect and analyze soil samples, agricultural and livestock products, plants, water samples from streams and the ocean, marine products, etc. to make sure that the level of radiation is well below that specified in the laws and regulations. Furthermore the data regarding the radiation in the air, etc. is published via internet services as well as via displays in public facilities in Rokkasho Village and neighboring municipalities, at Aomori Prefectural Public Health and Environment Center and at the Prefectural Office where radiation levels, etc. can be understood at a glance.

**2. Surveys and Research Regarding the Effect on the Environment and Living Organisms**

At the Institute for Environmental Sciences research is conducted regarding the effect of discharged radioactive material on the environment and living organisms. The results of the surveys and research are published to provide information regarding this effect.

Institute for Environmental Sciences

### Measures in the Case of Disaster

Nuclear fuel-related facilities execute various safety measures to avoid a nuclear disaster but in the event of one, Aomori Prefecture, Rokkasho Village, the police departments, fire departments and medical facilities, etc. cooperate with the National Government and the facility operators for a quick response.

The second floor of the Nuclear Disaster Prevention Research Plaza is designated as an "Off-site Center" (emergency response measures center) and in the case of a serious incident, related organizations such as the National Government, municipalities and facility operators come together, form a joint council for countermeasures against nuclear disasters and share information.

Nuclear Disaster Prevention Research Plaza

# Energy

# Strategic Energy Plan

Based on the Basic Act on Energy Policy (June 2002), the Government of Japan is tasked with defining a strategic plan concerning energy supply and demand in order to design the promotion of long-term measures in a comprehensive and systematic manner.
The previous revision of the Strategic Energy Plan was implemented in June of 2010. The current version (4th) is the first revised version after the accident in March of 2011 at the Fukushima Daiichi Nuclear Power Plant operated by TEPCO and was approved by the Cabinet on April 11th, 2014.

## 1. Issues Related to the Energy Supply and Demand Structure in Japan

- Japan depends greatly on overseas energy resources and the domestic supply system is vulnerable to changes in the Middle East, etc.
- It is expected that there will be further mid to long-term changes in the energy demand structure through population decrease and technology innovation, etc.
- Due to increased energy demand in developing countries the resource prices are unstable. Moreover, global greenhouse gas emissions are increasing.

## 2. Basic Policy Regarding Measures Concerning Energy Supply and Demand

### Principles for the Energy Policy and Viewpoint on Reform

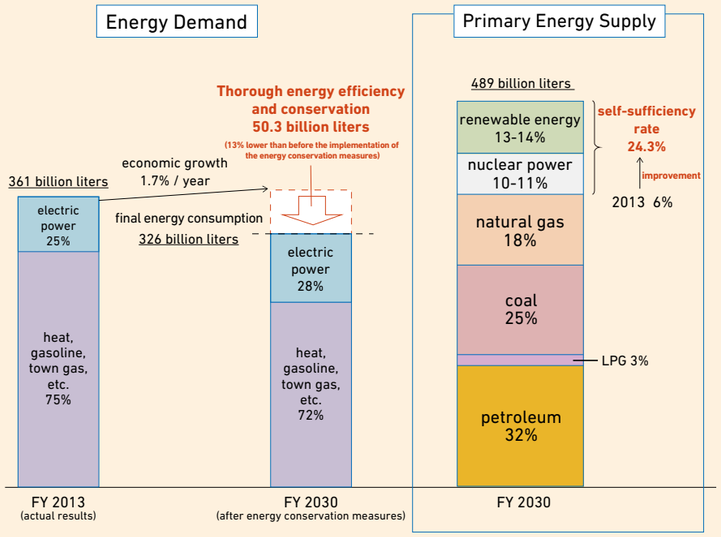
- The purpose of the energy policy is to first and foremost ensure a stable supply, labeled *Energy Security*, and realize low cost energy supply by enhancing its *Economic Efficiency*, all on the premise of the concept *Safety*. At the same time great efforts are being made to pursue environmental suitability (*Environment*). In addition to *3E+S*, it is also important to have a *Global Viewpoint* and consider *Economic Growth*.
- It is important to create a strong, realistic and multi-layered supply structure which maximizes the strengths of each energy source and complements their weaknesses.
- Through structural reforms diverse entities will participate in the energy supply structure and a variety of choices will be provided. This will lead to a more flexible and effective energy supply and demand structure.
- In the Strategic Energy Plan, the basic direction for the energy policy is summarized, taking into account a mid and long-term (20 year) viewpoint regarding the energy supply and demand structure. Specifically, the years between 2018 and 2020 are dedicated as a period for intensive reform implementations in order to ensure a stable energy supply and demand structure. This will determine the direction for energy policies during this period.

### Position of Each Energy Source and Policy Timeframe

- An outlook on long-term energy supply and demand ("energy mix") based on the position of each energy resource should be specified promptly by considering the restart of nuclear power plants, the introduction of renewable energy forms based on a feed-in-tariff system and finally, the circumstances surrounding the international debates regarding the escalation of global warming.

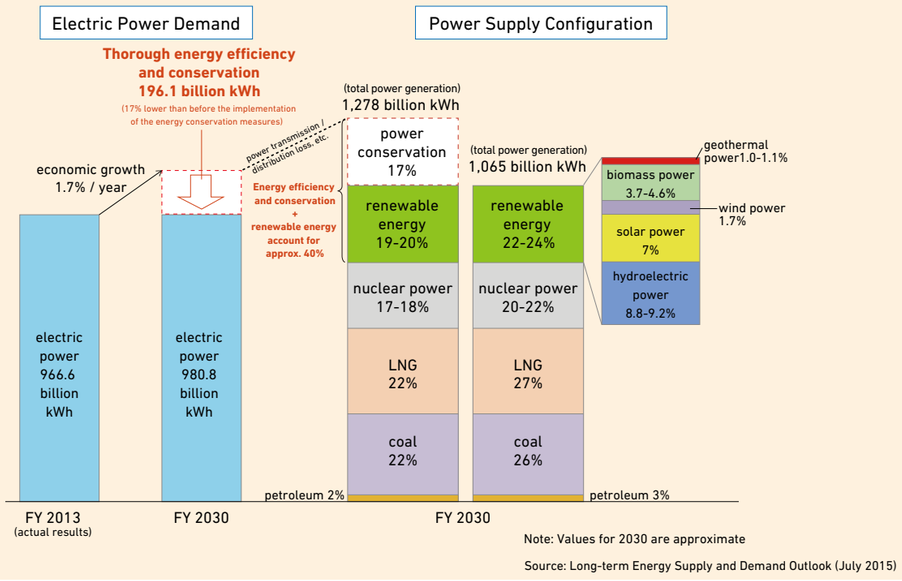
** The National Government decided the outlook on long-term energy supply and demand on July 16th, 2015 and specified the energy demand and power supply configuration for the fiscal year 2030 as below.*

## Energy Demand and Primary Energy Supply Structure






## Power Supply Configuration




## 3. Long-term Measures Regarding Energy Supply and Demand to be Implemented in a Comprehensive and Systematic Manner

### Accelerating the Introduction of Renewable Energy

- Japan aims at introducing standards that exceed the standards in former versions* of the Srategic Energy Plan and then examines the "energy mix" based on these.
- Efforts are made to develop technologies in order to lower costs and increase efficiency, to develop and demonstrate large storage batteries and to upgrade the power grids, all while further promoting a stable and adequate operation of a feed-in-tariff system as well as promoting deregulation such as reducing the period of environmental assessment.

** Formulated in the "Long-term Outlook on Energy Supply and Demand (recalculation)" in August of 2009 (At that time the goal for 2020 was for the percentage of renewable energy to be 13.5% of the amount of generated power [141.4 billion kWh])*

### Reestablishment of the Nuclear Energy Policy:

***Continual safety improvement regarding the use of nuclear power and the establishment of a stable business environment***

- In the case that the Nuclear Regulation Authority confirms the conformity of nuclear power plants with the new regulatory requirements, which are of the most stringent level in the world, then the judgement will be respected and Japan will proceed with the restart of the nuclear power plants. In this case, the nation will stand at the forefront and make efforts to acquire the municipal parties' understanding and cooperation.
- The operators will establish a risk management system and implement objective and quantitative risk assessment methods.
- In addition to strengthening nuclear disaster measures, the enhancement of nuclear concerned municipalities' evacuation plans will be supported.

***Steady approach without delaying the implementation of measures (promotion of nuclear fuel cycle policies)***

- From the viewpoint of effectively using resources, decreasing high-level radioactive waste as well as reducing the degree of hazard, etc., Japan's basic policy is the promotion of the nuclear fuel cycle in which spent fuel is reused and the collected plutonium, etc. can be used effectively.
- In order to provide a solution to the problem of disposing spent fuels and to decrease the risk and burden for the next generation, reprocessing and the use of thermal reactors is promoted while past and present circumstances are sufficiently considered and efforts are continuously made to gain understanding from the nuclear concerned municipalities and the international community.
- The promotion of thermal reactors, the completion of the Rokkasho Reprocessing Plant, the construction of the MOX Fuel Fabrication Plant and the completion of the Mutsu Interim Storage Facility, etc. is advanced under the premise of ensuring safety.

## 4. Promotion of Strategic Technology Development

- Efforts are put into the development of innovative technologies which reduce the cost of storage batteries and fuel cells, increase the efficiency of coal and natural gas thermal power generation, reduce the amount of nuclear waste products and the degree of hazard, allow for the storage and transportation of hydrogen and enable the research and development of fusion energy and the Space Solar Power System (SSPS).

## 5. Communication with all Levels of Japanese Society and Deepening of Energy-related Understanding

- Energy-related understanding at all levels of Japanese society is promoted.
- Two-way communication is enhanced.

Source: Cycle Eye No. 1

# Energy

六ヶ所村 Rokkasho Next Generation Energy Park
次世代エネルギーパーク

Deepen your understanding of next-generation energy by tours and hands-on experiences!

## What is a "Next Generation Energy Park"?

Against the background of global warming escalation and steep increases in fuel prices, there is a growing need to quickly introduce and expand the use of "new energy" such as solar power, wind power and biomass energy. In order to give more people the opportunity to get in touch with and to deepen their understanding of next-generation energy (which includes "new energy") the Agency for Natural Resources and Energy promotes the development of Next Generation Energy Parks in areas with a concentration of related facilities.

## Why Rokkasho?

Rokkasho Village is a unique area in Japan where many energy-related facilities are concentrated, including nuclear fuel cycle facilities, wind power generation facilities, the International Fusion Energy Research Center and the National Petroleum Stockpiling Base. By creating the Next Generation Energy Park in the middle of this unique village, village residents and visitors are given the opportunity to learn about energy.

## Three Concepts of the Rokkasho Next Generation Energy Park

### Provision of Firsthand Information

A park where visitors can deepen their understanding by viewing and handling next-generation energy forms in "hands-on" experiences.

### Former, Present and Future Forms of Energy

A park where visitors can understand the importance of energy by learning about the historical background and structure of energy, as well as the transitions relative to former, present and future forms of energy.

### Autonomous and Cooperative Park Operation

A park operated by facilities that maintain autonomy, yet cooperate with each other closely in terms of relaying information and services to visitors.

### Solar-Energy Power Generation

The Ene One Solar Park in Rokkasho is a large-scale solar power generation plant which is jointly operated by Saisan Co., Ltd., a company engaged in industries affecting everyday life and which concentrates on gas and energy, and Shinwa Energy Inc., a company which works on the construction and management of power plants.

• Ene One Solar Park in Rokkasho

### Concentration of Advanced Wind Power Industries

Rokkasho Village aims at the effective use of wind generated energy and by soliciting wind power related industries becoming a region in which advanced wind power is concentrated.

### Promoting Eco-friendly Vehicles



By using "clean energy vehicles" that are environmentally friendly and can be charged with the power supply available in general households, the nationwide promotion of these vehicles is encouraged.

### Petroleum Stockpiling Base

The Mutsu-Ogawara National Petroleum Stockpiling Base was the first Petroleum Stockpiling Base in Japan and started operating in 1983 in order to ensure a stable petroleum supply. The 51 crude oil storage tanks contain enough petroleum to secure nationwide consumption for twelve days.

• Mutsu-Ogawara National Petroleum Stockpiling Base

# Fossil Fuels



# Eco-Energy

### Solar-Energy Power Generation

A solar power generation system was established at the Rokushu Shōchū Brewery, which produces *shōchū* (a Japanese alcoholic beverage) called "Rokushu" from Chinese yams. Here visitors can observe and study the mechanisms of solar power generation and the process of conversion using a power conditioner, etc.

• Solar-Energy Power Generation System at Rokushu Shōchū Brewery

### Wind Farms
#### (Large-scale wind power generation facilities)

Rokkasho is characterized by the Northeastern winds (*yamase*), the Western winds that come from the Tsugaru Peninsula and by other strong winds throughout the year. There are many wind power generation facilities which take advantage of this regional characteristic, leading to the most extensive wind farm area in Japan.

• Eco Power Co., Ltd. (Mutsu-Ogawara Wind Farm)
• Japan Wind Development Group
  Japan Wind Development Co., Ltd.
  Futamata Wind Development Co., Ltd.
  Fukkoshidaichi Wind Development Co., Ltd.
• Aomori Wind Development Co., Ltd. (Mutsusakae Wind Farm)

We run a center as a point of contact for visitors to the Energy Park and provide a park tour connecting all the facilities. This is the gateway to Rokkasho, the Village of Energy.

### Solar-Energy Power Generation

The Eurus Energy Holdings Corporation, which develops wind power and solar power generation businesses globally, uses the large area of the Mutsu-Ogawara Industrial Park and operates Japan's biggest large-scale solar power plant.

• Eurus Rokkasho Solar Park

### Fusion Energy Development and Research

In order to realize fusion energy as soon as possible, the International Fusion Energy Research Center (IFERC) promotes "Broader Approach Activities," a joint project between Japan and Euratom. These activities aim at supporting the ITER project and assist in the pursuit of the demonstration power plant (DEMO), the next step after the ITER project.

• International Fusion Energy Research Center (IFERC)

### Nuclear Fuel Cycle

The Japan Nuclear Fuel Limited site contains various facilities necessary for the operation of nuclear fuel cycle activities. The processes at these facilities are explained at the Rokkasho Visitors Center run by JNFL.

• Rokkasho Visitors Center

### Research on Radiation Safety

Survey research is conducted on the movement of radioactive material in the environment that has been discharged from nuclear fuel cycle facilities as well as the material's effect on living organisms.

• Institute for Environmental Sciences

### Tri-generation System

The company uses an energy supply system called the "Tri-generation System" to grow flowers, in which heat, electricity and $CO_2$ are produced by burning natural gas.

• Floritech Japan Co., Ltd.

### Next-generation New Town

The Next-generation New Town, which promotes the introduction of "new energy" by using geothermal heat pipes, is established in Obuchi Laketown North.

### Biomass Related Facilities

Rokkasho Village is considering the production of biodiesel from vegetable oil and the energy production from agriculture, livestock and fishing industry waste.

# Environment Surrounding the Nuclear Fuel Cycle Facilities

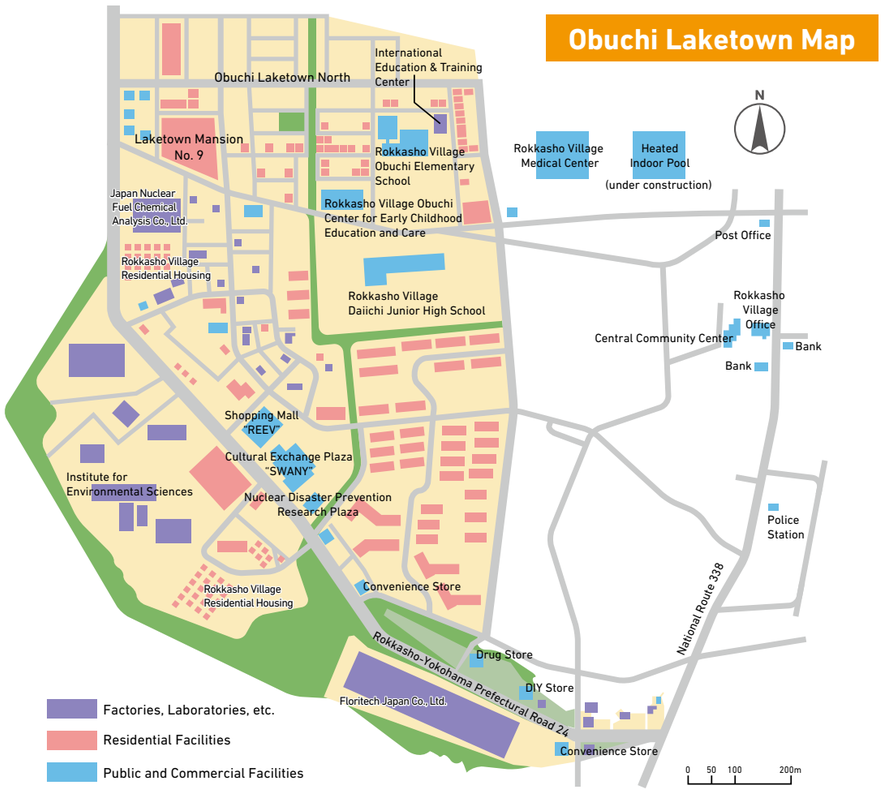
Human

## Obuchi Laketown

Obuchi Elementary School

Rokkasho Village Medical Center

The Obuchi Laketown district is located in the center of Rokkasho Village and offers many residential facilities that are also convenient for people commuting to places nearby. Besides company housing and offices, Obuchi Laketown features the user-friendly Shopping Mall "REEV," the Cultural Exchange Plaza "SWANY" with an attached library as well as public schools, etc.
The infrastructure development of Obuchi Laketown North has been completed and the residential land has been subdivided. In addition to the schools and the Obuchi Center for Early Childhood Education and Care, there are also facilities such as the Rokkasho Village Medical Center nearby, leading to a comfortable living environment.






## Iyasakatai Subdivision


The Iyasakatai district, located in the center of the Mutsu-Ogawara Industrial Park (with the north and central areas facing the main roads), has been developed as a subdivision. The district will be subdivided depending on the size of the facilities to be built, although in part of it office buildings, etc. of major construction companies have already been established.

## Transportation Network

Rokkasho Village is accessible in less than an hour and a half by plane from major cities in Japan to Aomori Airport or Misawa Airport. Therefore, a one-day business trip from the Greater Tokyo Area or the Kansai region is possible. The village can also be accessed via an extensive overland transportation network, including the Tōhoku Expressway and the Tōhoku Shinkansen (bullet train).

### Access

**• By car**

| | |
|---|---|
| Rokkasho – Aomori | 1h 40min |
| Rokkasho – Noheji | 40min |
| Rokkasho – Mutsu | 60min |
| Rokkasho – Misawa | 45min |
| Rokkasho – Hachinohe | 1h 20min |

**• By car (via Tōhoku Expressway)**

| | |
|---|---|
| Hachinohe – Morioka | 1h 30min |
| Hachinohe – Sendai | 3h 30min |
| Hachinohe – Tokyo | 7h |

**• By Tōhoku Shinkansen (bullet train)**

| | |
|---|---|
| Hachinohe – Tokyo | 3h |
| Hachinohe – Sendai | 1h 20min |
| Shichinohe-Towada – Tokyo | 3h 10min |
| Shichinohe-Towada – Sendai | 1h 30min |

**• By train**

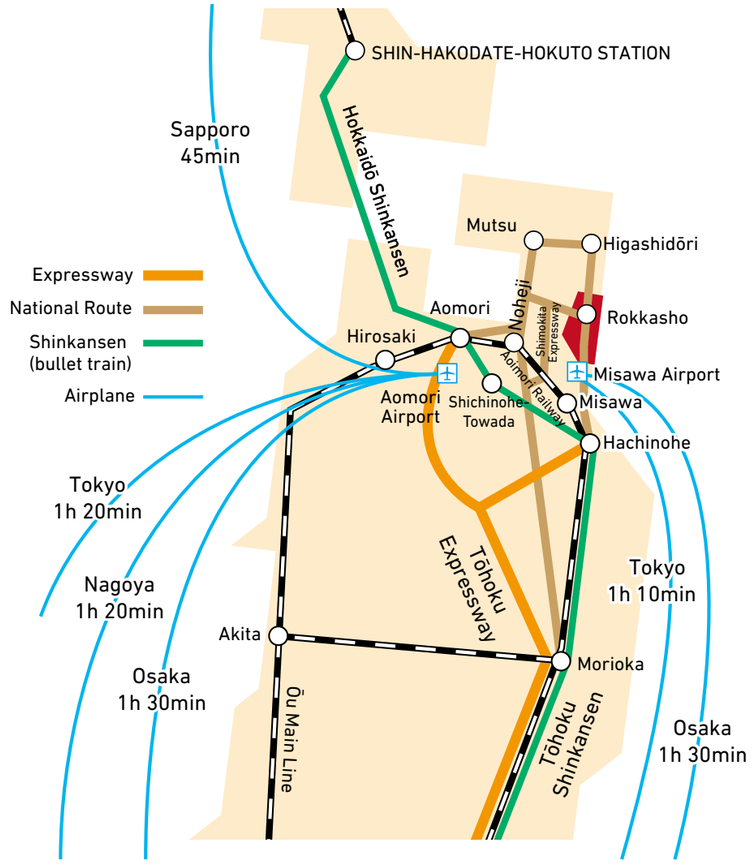
| | |
|---|---|
| Noheji – Hachinohe | 45min |
| Noheji – Aomori | 45min |

**• By bus**

| | |
|---|---|
| Rokkasho – Noheji | 1h |
| Rokkasho – Misawa | 1h |

**• By airplane**

See illustration on the right



# Incentives for Company Establishment

## Grants

### Aomori Prefecture Grant for the Promotion of the Establishment of Companies in Mutsu-Ogawara Industrial Park

- **Grant Target:** Land acquisition expenses (land for factories and plants, and land for welfare facilities for those employed)
- **Target Group:** Companies to be established within the Mutsu-Ogawara Industrial Park
- **Requirements:**
  1) In principle, anticipated start of operation must be within three years after land acquisition
  2) Five or more people should be employed within one year following the start of operation
  3) The area of acquired land must be more than 1,200m²
- **Amount:** 5,000 JPY per m² (In the case national grants are received, 2,500 JPY per m²)

### Aomori Prefecture Grant for the Promotion of the Establishment of Industries

- **Grant Target:** Building, machinery and equipment acquisition expenses (including leases for new construction)
- **Target Group:** Solicited companies within Aomori Prefecture as well as companies that lease buildings, machinery and equipment to the solicited companies in Aomori Prefecture
- **Requirements:**
  1) Companies must fall under manufacturing business, specified key facilities' siting business, research and development business, medical, health and welfare related business, "Aomori Agriculture and Manufacturing Best Mix - New Industry Creation Concept" related business, telecommunication related business or recycling and energy related business (including research institutes)
  2) Specific amount of capital investment as well as a number of new employees
- **Amount:** 100 million JPY (5%) or 2 billion JPY (10%)

  ** Grant rate in parentheses. The rate depends on the amount of capital investment and the number of new employees.*

## Financing System

### Low-interest Loan System for Establishing Companies: Aomori Prefecture Funds for the Promotion of the Establishment of Industries

- **Loan Target:** Land acquisition expenses for factories, etc., site preparation expenses and construction expenses for factories, structures, etc.
- **Target Businesses:** Manufacturing, software and information processing services, eco-energy supply (local industries only), etc.
- **Requirements:**
  1) Planned capital investment amount must be more than 30 million JPY
  2) Three or more new employees must be hired
- **Loan Rate:** 1.5%
- **Loan Period:** 15 years
- **Loan Limit:** 500 million JPY, special cases 1 billion JPY

## Discount System for Electricity Charges

### Nuclear Power Establishment Benefit (as of April 1st, 2015)

- **Benefit Target:** Companies and households in the area surrounding nuclear power plants, etc.
- **Target Businesses:** No specifications
- **Requirements:** Must have electricity contract with a power company as of October 1st each year
- **Amount:** Companies 450 JPY / kW per month, households 1,800 JPY / contract per month
- **Calculation Method:** Unit price × contracted power (kW) × number of months

  Example: Annual discount

  A company with 225kW of contracted power: 450 JPY / kW per month × 225kW × 12 months = 1.215 million JPY

### Benefit for Supporting Company Establishment in Areas Surrounding Nuclear Power Plants, etc.

- **Benefit Target:** Companies in areas surrounding nuclear power plants, etc.
- **Target Businesses:** Manufacturing and specific businesses that prepare a support system in municipalities
- **Requirements:** Companies that build or expand factories, office buildings, etc. and fulfill the following requirements
  1) There must be an increase of contracted power as a result of construction or expansion
  2) Three or more new employees must be hired
  3) To receive additional benefit the investment amount must be more than 5 million JPY for construction (2.5 million JPY for expansion)
- **Benefit Limit:** Will be calculated based on a defined calculation method

## Village Support System

### Incentive Measures based on the "Rokkasho Village Incentive Ordinance for Establishing Factories, etc." (1-3)

- **Incentive Target:** Solicited companies with factories, etc. that have been designated by the Mayor
- **Requirements:**
  1) Fixed capital investment must be at least 23 million JPY
  2) One year after start of operation the number of village residents employed full-time must be at least 15 people (specified businesses 10 people)

### 1. Lease of Village Common Property

- **Lease Amount:** Free or low-cost lease
- **Lease Period:** Up to 10 years

### 2. Employment Incentive

- **Incentive Amount:** 100,000 JPY per person when exceeding 15 people in the case of construction (specified businesses 10 people) and 10 people in the case of expansion (specified businesses 5 people)
- **Period:** Three years
- **Limit:** 20 million JPY per year

### 3. Welfare Facilities Incentive

- **Incentive Amount:** Equivalent to the fixed asset tax of the next facility built within five years of start of operation
  1) Residential facilities such as dormitories
  2) Childcare and sports facilities
- **Period:** Three fiscal years
- **Limit:** 3 million JPY

## Other Supporting Systems

### Employment Incentive for Newly Graduated Students (as of April 1st, 2015)

- **Incentive Target:** Offices in the village that fulfill the requirements
- **Requirements:** Companies that hire full-time for six months, students that graduated from specified schools and who either graduated from a school within Japan in FY 2014 and are registered in the village, or are not registered in the village but graduated from Rokkasho High School in FY 2014
- **Payment:** Six months after hiring newly graduated students
- **Limit:** 300,000 JPY (50,000 JPY per month per person for the six month period)

## Tax Incentives

### Promotion of Establishment of New Business Facilities Act

- **Target Businesses:** Manufacturing, telecommunication, ICT, transport and wholesale trade businesses as well as natural science research institutes
- **Requirements:** Acquisition costs must exceed 200 million JPY (Agriculture, forestry and fishery related businesses 50 million JPY)
- **Incentive:** Tax exemption for real estate acquisition tax, tax exemption or taxation on a differential basis for fixed asset tax (3 years)

### Special Measures Concerning Development of Areas Surrounding Nuclear Power Plants and Other Facilities Act

- **Target Businesses:** Manufacturing, road freight transport, warehousing, packing and wholesale trade businesses
- **Requirements:** Acquisition costs must exceed 27 million JPY
- **Incentive:** Taxation on a differential basis for real estate acquisition tax and fixed asset tax (3 years)

### Ordinance Concerning Incentives for Establishing Factories, etc. in Rokkasho Village

- **Incentive Target:** Solicited companies with factories, etc. that have been designated by the Mayor
- **Target Businesses:** Manufacturing, road freight transport, warehousing, packing and wholesale trade businesses
- **Requirements:** Acquisition costs must exceed 23 million JPY
- **Incentive:** Tax exemption for fixed asset tax (5 years)





# Rokkasho Village Overview

## History

Since long ago, the area where Rokkasho Village stands has been composed of six communities. These communities were Kurauchi, Hiranuma, Takahoko, Obuchi, Deto and Tomari. After feudal domains were abolished and prefectures were established in 1871, the communities then belonged to Shichinohe Prefecture. In September of the same year, Shichinohe Prefecture was renamed Aomori Prefecture and the communities were then under this jurisdiction. In March of 1873, when the large and small ward system was implemented, Aomori Prefecture was divided into 10 large wards and 72 small wards and the area of Rokkasho Village was incorporated into the 7th large ward. When the large and small ward system was abolished in October of 1878 and the county system was implemented instead, the area came under Kamikita County and a village office was set up in Hiranuma, representing the six communities. Upon enforcement of the Municipal System in April of 1889, the six communities were united and named "Rokkasho Village," meaning "six places." In May of 1920, the village office was relocated to Obuchi. In October of 1926, Japan's first general election (electing village assembly representatives) was held and the same system has remained since. In 2009 Rokkasho Village celebrated the 120th anniversary of the implementation of the Municipal System.

# Rokkasho Village Overview

## Geography

Rokkasho Village is located at the base of Shimokita Peninsula in Aomori Prefecture. The village faces the Pacific Ocean in the east, and in the west there are boundless plains as well as Mount Fukkoshi-Eboshi (507.8m above sea level) in the Tanasawa Mountain Range where it neighbors Yokohama Town and Noheji Town. In the south, the village borders Lake Ogawara, Misawa City and Tōhoku Town, and in the north at the edge of Mount Gassan (419.2m above sea level) in the Tanasawa Mountain Range it borders Higashidōri Village (Shimokita County). The terrain is mostly flat and features uncultivated fields, ponds, marshes, forests, sandy soil and wilderness. Since ancient times the area was mainly used as grazing land for cattle and horses while cultivated land was uncommon. However, in the course of large scale settlement and development projects after the Second World War, the largest dairy area in the prefecture was built. Moreover, in 1969, Rokkasho Village became the area of interest for the Mutsu-Ogawara Industrial Park and thereafter the National Petroleum Stockpiling Base and nuclear fuel cycle facilities were established.

Furthermore, in the instance of the international joint project ITER, which aims at the development of nuclear fusion energy, in Japan and Europe the Broader Approach Activities are developed which support the ITER project as well as conduct related research. In addition, the International Fusion Energy Research Center (IFERC) was built and the Engineering Validation and Engineering Design Activities for the International Fusion Material Irradiation Facility (IFMIF/EVEDA) take place in Rokkasho.

- Latitude: 40°50'S, 41°08'N
- Longitude: 141°24'E, 141°14'W
- Width and Length:
  14km (east-west), 33km (north-south)
- Area: 252.68km$^2$
- Surroundings:
  East: Pacific Ocean, West: Noheji Town and Yokohama Town, South: Misawa City and Tōhoku Town, North: Higashidōri Village

The Village Flower:
Daylily

The Village Bird:
White-tailed Sea-Eagle

The Village Tree:
Japanese Black Pine

## Village Emblem

The emblem's design is reminiscent of the Japanese *kanji*-symbol for "6"(六), which is part of the village's name, Rokkasho, meaning "six places." The top part of the symbol represents rapid progress, while the two bottom lines represent harmony between the residents. (Established in February 1966)

## Rokkasho in Numbers

- Population: 10,636 (as of December 31st, 2015)
- Number of Households: 4,651 (as of December 31st, 2015)
- Medical Facilities: Clinics……3 (2 public, 1 private)
- Educational Facilities: Center for Early Childhood Education and Care …1
  Nurseries ……4
  Elementary Schools ……4
  Junior High Schools ……4
  High School ……1

Number of Village Assembly Representatives: 18
Number of Registered Voters: 8,812 (as of September 1st, 2015)
Real Debt Service Ratio: 4.8% (Japanese Fiscal Year of 2014)
Ordinary Balance Ratio: 70.7% (Japanese Fiscal Year of 2014)
Financial Capability Indicator: 1.619 (Japanese Fiscal Year of 2015, 3-year average)





# Statistics

## Population and Number of Households

### Population and Number of Households

As of March 31st each year

| Year | Number of Households | Population | | |
|---|---|---|---|---|
| | | Total | Male | Female |
| 1970 | 2,553 | 13,901 | 7,055 | 6,846 |
| 1975 | 2,716 | 12,995 | 6,671 | 6,324 |
| 1980 | 2,882 | 12,539 | 6,405 | 6,134 |
| 1985 | 3,099 | 12,251 | 6,229 | 6,022 |
| 1990 | 3,218 | 11,636 | 5,926 | 5,710 |
| 1995 | 3,616 | 11,622 | 6,029 | 5,593 |
| 2000 | 4,008 | 11,639 | 6,114 | 5,525 |
| 2005 | 4,430 | 11,883 | 6,288 | 5,595 |
| 2010 | 4,433 | 11,225 | 5,938 | 5,287 |
| 2012 | 4,519 | 11,047 | 5,864 | 5,183 |
| 2015 | 4,519 | 10,685 | 5,672 | 5,013 |

Source: Civil Registration and Certificate Section (Basic Resident Register)

### Changes in Population and Number of Households According to the National Census

As of October 1st each year

| Year | Number of Households | Population | | |
|---|---|---|---|---|
| | | Total | Male | Female |
| 1970 | 2,461 | 11,749 | 5,840 | 5,909 |
| 1975 | 2,520 | 11,321 | 5,612 | 5,709 |
| 1980 | 2,881 | 11,104 | 5,463 | 5,641 |
| 1985 | 2,875 | 11,003 | 5,425 | 5,578 |
| 1990 | 2,921 | 10,071 | 4,924 | 5,147 |
| 1995 | 3,997 | 11,063 | 5,914 | 5,149 |
| 2000 | 5,021 | 11,849 | 6,746 | 5,103 |
| 2005 | 4,729 | 11,401 | 6,317 | 5,084 |
| 2010 | 4,571 | 11,095 | 6,186 | 4,909 |

Note: The data from the national census and the Basic Resident Register do not match.
Source: National Census

### Age Structure of Population According to the National Census (five year periods)

As of October 1st each year

| Age Group \ Year | 1970 | 1975 | 1980 | 1985 | 1990 | 1995 | 2000 | 2005 | 2010 |
|---|---|---|---|---|---|---|---|---|---|
| 0-4 | 1,242 | 1,086 | 897 | 911 | 621 | 566 | 536 | 604 | 499 |
| 5-9 | 1,499 | 1,241 | 1,081 | 920 | 817 | 636 | 564 | 519 | 482 |
| 10-14 | 1,843 | 1,463 | 1,216 | 1,070 | 839 | 830 | 645 | 526 | 472 |
| 15-19 | 853 | 676 | 749 | 696 | 677 | 640 | 586 | 418 | 456 |
| 20-24 | 810 | 855 | 662 | 545 | 465 | 672 | 740 | 583 | 533 |
| 25-29 | 605 | 807 | 888 | 776 | 551 | 709 | 944 | 849 | 693 |
| 30-34 | 774 | 590 | 817 | 941 | 694 | 656 | 835 | 951 | 828 |
| 35-39 | 868 | 776 | 605 | 820 | 796 | 779 | 797 | 740 | 864 |
| 40-44 | 807 | 846 | 744 | 581 | 760 | 962 | 874 | 746 | 708 |
| 45-49 | 622 | 798 | 810 | 714 | 563 | 909 | 1,104 | 845 | 749 |
| 50-54 | 491 | 596 | 767 | 756 | 680 | 659 | 939 | 969 | 805 |
| 55-59 | 380 | 460 | 537 | 712 | 694 | 699 | 663 | 855 | 914 |
| 60-64 | 339 | 372 | 430 | 508 | 647 | 700 | 643 | 544 | 820 |
| 65-69 | 264 | 316 | 323 | 386 | 467 | 632 | 669 | 572 | 522 |
| 70-74 | 161 | 220 | 280 | 291 | 352 | 437 | 589 | 590 | 527 |
| 75-79 | 119 | 119 | 177 | 199 | 246 | 288 | 356 | 499 | 530 |
| 80-84 | 50 | 79 | 78 | 117 | 132 | 181 | 207 | 272 | 410 |
| 85-89 | 18 | 18 | 38 | 46 | 60 | 83 | 116 | 130 | 174 |
| 90-94 | 4 | 3 | 4 | 13 | 8 | 23 | 40 | 49 | 52 |
| 95-99 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 14 | 17 |
| 100+ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 126 | 37 |
| Total | 11,749 | 11,321 | 11,104 | 11,003 | 10,071 | 11,063 | 11,849 | 11,401 | 11,095 |

Note: The data from the national census and the Basic Resident Register do not match.
Source: National Census

## Industry

### Number of Employees by Industry

As of October 1st each year

| Industry \ Year | 1970 | | 1975 | | 1980 | | 1985 | | 1990 | | 1995 | | 2000 | | 2005 | | 2010 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Number of Employees | % | Number of Employees | % | Number of Employees | % | Number of Employees | % | Number of Employees | % | Number of Employees | % | Number of Employees | % | Number of Employees | % | Number of Employees | % |
| **Primary Sector** | 4,133 | 78.9 | 3,334 | 70.0 | 2,319 | 48.0 | 1,907 | 40.9 | 1,498 | 32.7 | 1,176 | 19.9 | 957 | 13.9 | 930 | 15.0 | 872 | 14.0 |
| Agriculture | 3,189 | 60.9 | 2,558 | 53.7 | 1,706 | 35.3 | 1,385 | 29.7 | 1,103 | 24.1 | 852 | 14.4 | 697 | 10.1 | 674 | 10.9 | 605 | 9.7 |
| Forestry | 24 | 0.5 | 17 | 0.4 | 40 | 0.8 | 33 | 0.7 | 16 | 0.3 | 26 | 0.4 | 13 | 0.2 | 16 | 0.3 | 11 | 0.2 |
| Fishing | 920 | 17.6 | 759 | 15.9 | 573 | 11.9 | 489 | 10.5 | 379 | 8.3 | 298 | 5.0 | 247 | 3.6 | 240 | 3.9 | 256 | 4.1 |
| **Secondary Sector** | 177 | 3.4 | 381 | 8.0 | 1,085 | 22.5 | 1,027 | 22.0 | 1 | 28.8 | 2,578 | 43.7 | 3,073 | 44.7 | 2,562 | 41.3 | 2,443 | 39.1 |
| Mining | - | - | - | - | 1 | 0.0 | 5 | 0.1 | 19 | 0.4 | 30 | 0.5 | 27 | 0.4 | 12 | 0.2 | 19 | 0.3 |
| Construction | 134 | 2.6 | 290 | 6.1 | 934 | 19.3 | 818 | 17.6 | 857 | 18.7 | 1,722 | 29.2 | 2,464 | 35.8 | 989 | 16.0 | 1,050 | 16.8 |
| Manufacturing | 43 | 0.8 | 91 | 1.9 | 150 | 3.1 | 204 | 4.4 | 443 | 9.7 | 826 | 14.0 | 582 | 8.5 | 1,561 | 25.2 | 1,374 | 22.0 |
| **Tertiary Sector** | 926 | 17.7 | 1,021 | 21.4 | 1,418 | 29.4 | 1,712 | 36.8 | 1,762 | 38.4 | 2,148 | 36.4 | 2,836 | 41.3 | 2,678 | 43.2 | 2,926 | 46.8 |
| Electricity, Gas, Heat Supply and Water | 8 | 0.2 | 13 | 0.3 | 12 | 0.2 | 10 | 0.2 | 12 | 0.3 | 15 | 0.3 | 23 | 0.3 | 18 | 0.3 | 24 | 0.4 |
| Information and Communications | 69 | 1.3 | 81 | 1.7 | 105 | 2.2 | 225 | 4.8 | 168 | 3.7 | 195 | 3.3 | 199 | 2.9 | 5 | 0.1 | 45 | 0.7 |
| Transport | | | | | | | | | | | | | | | 192 | 3.1 | 201 | 3.2 |
| Wholesale and Retail Trade | 306 | 5.8 | 344 | 7.2 | 444 | 9.2 | 481 | 10.3 | 495 | 10.8 | 619 | 10.5 | 646 | 9.4 | 430 | 6.9 | 397 | 6.4 |
| Accommodations, Food and Beverage Services | | | | | | | | | | | | | | | 212 | 3.4 | 234 | 3.7 |
| Finance and Insurance | 14 | 0.3 | 22 | 0.5 | 51 | 1.1 | 58 | 1.2 | 47 | 1.0 | 53 | 0.9 | 39 | 0.6 | 42 | 0.7 | 38 | 0.6 |
| Real Estate | | | 6 | 0.1 | 12 | 0.2 | 10 | 0.2 | 6 | 0.1 | 63 | 1.1 | 9 | 0.1 | 18 | 0.3 | 51 | 0.8 |
| Medical and Welfare Services | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 263 | 4.2 | 308 | 4.9 |
| Education and Learning Support | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 139 | 2.2 | 128 | 2.0 |
| Compound Services | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 119 | 1.9 | 67 | 1.1 |
| Services, N.E.C. | 397 | 7.6 | 421 | 8.8 | 611 | 12.7 | 751 | 16.1 | 833 | 18.2 | 1,009 | 17.1 | 1,676 | 24.4 | 1,003 | 16.2 | 1,191 | 19.1 |
| Government Services | 132 | 2.5 | 134 | 2.8 | 183 | 3.8 | 177 | 3.8 | 201 | 4.4 | 194 | 3.3 | 244 | 3.5 | 237 | 3.8 | 242 | 3.9 |
| **Unclassifiable** | 2 | 0.0 | 25 | 0.5 | 7 | 0.1 | 12 | 0.3 | 4 | 0.1 | 2 | 0.0 | 9 | 0.1 | 26 | 0.4 | 9 | 0.1 |
| Total | 5,238 | 100.0 | 4,761 | 100.0 | 4,829 | 100.0 | 4,658 | 100.0 | 4,583 | 100.0 | 5,904 | 100.0 | 6,875 | 100.0 | 6,196 | 100.0 | 6,250 | 100.0 |

Source: National Census

## Resident Livelihood

### Village Resident Income Per Capita

| Year | Income Per Capita, 1,000 JPY | | | Income Per Capita, Percentage | | |
|---|---|---|---|---|---|---|
| | Village | Prefecture | Country | Village / Prefecture | Village / Country | Prefecture / Country |
| 1970 | 239 | 379 | 586 | 63.1 | 40.8 | 64.7 |
| 1975 | 611 | 851 | 1,109 | 71.8 | 55.1 | 76.7 |
| 1980 | 889 | 1,223 | 1,706 | 72.7 | 52.1 | 71.7 |
| 1985 | 1,214 | 1,563 | 2,104 | 77.7 | 57.7 | 74.3 |
| 1990 | 1,861 | 2,169 | 2,786 | 85.8 | 66.8 | 77.9 |
| 1995 | 2,867 | 2,491 | 3,029 | 115.1 | 94.7 | 82.2 |
| 2000 | 3,047 | 2,448 | 2,998 | 124.5 | 101.6 | 81.7 |
| 2005 | 2,215 | 2,230 | 2,928 | 99.3 | 75.6 | 76.2 |
| 2010 | 12,355 | 2,333 | 2,755 | 529.6 | 448.5 | 84.7 |
| 2012 | 13,671 | 2,422 | 2,761 | 564.5 | 495.1 | 87.7 |

Source: Municipal Accounts and Aomori Prefecture Accounts

## Finances

### General Revenue Dedicated Accounts

| Category \ Year | 1970 | | 1975 | | 1980 | | 1985 | | 1990 | | 1995 | | 2000 | | 2005 | | 2010 | | 2011 | | 2014 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % |
| Village Tax | 32,950 | 5.4 | 228,098 | 8.6 | 445,944 | 10.7 | 1,692,128 | 30.0 | 1,687,121 | 26.8 | 3,514,411 | 34.1 | 7,516,013 | 70.6 | 3,514,411 | 34.1 | 7,516,013 | 70.6 | 6,967,104 | 52.4 | 7,881,026 | 52.6 |
| Local Transfer Tax | - | - | 9,334 | 0.4 | 31,333 | 0.8 | 32,332 | 0.6 | 77,816 | 1.2 | 99,181 | 1.0 | 62,266 | 0.6 | 99,181 | 1.0 | 62,266 | 0.6 | 60,670 | 0.5 | 53,000 | 0.4 |
| Interest Tax Subsidy | - | - | - | - | - | - | - | - | 19,989 | 0.3 | 18,797 | 0.2 | 35,316 | 0.3 | 18,797 | 0.2 | 35,316 | 0.3 | 3,239 | 0.0 | 2,866 | 0.0 |
| Dividends Tax Subsidy | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1,301 | 0.0 | 6,451 | 0.0 |
| Capital Gains (Stocks, etc.) Tax Subsidy | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 258 | 0.0 | 2,680 | 0.0 |
| Local Consumption Tax Subsidy | - | - | - | - | - | - | - | - | - | - | - | - | 112,705 | 1.1 | - | - | 112,705 | 1.1 | 170,058 | 1.3 | 201,873 | 1.3 |
| Golf Course Use Tax Subsidy | - | - | - | - | - | - | - | - | - | - | - | - | 2,276 | 0.0 | - | - | 2,276 | 0.0 | 6,048 | 0.0 | 6,154 | 0.0 |
| Automobile Acquisition Tax Subsidy | 4,361 | 0.7 | 11,632 | 0.4 | 16,619 | 0.4 | 18,799 | 0.3 | 30,693 | 0.5 | 38,624 | 0.4 | 29,497 | 0.3 | 38,624 | 0.4 | 29,497 | 0.3 | 12,482 | 0.1 | 6,811 | 0.0 |
| Subsidy for Municipalities Supplying Locations for use by U.S. Forces | 1,839 | 0.3 | 4,769 | 0.2 | 5,605 | 0.1 | 5,325 | 0.1 | 5,534 | 0.1 | 8,268 | 0.1 | 5,943 | 0.1 | 8,268 | 0.1 | 5,943 | 0.1 | 6,207 | 0.0 | 8,528 | 0.1 |
| Special Local Tax Subsidy | - | - | - | - | - | - | - | - | - | - | - | - | 36,248 | 0.3 | - | - | 36,248 | 0.3 | 24,733 | 0.2 | 3,064 | 0.0 |
| Local Allocation Tax | 287,500 | 47.1 | 577,525 | 21.7 | 1,219,487 | 29.4 | 659,731 | 11.7 | 1,429,994 | 22.7 | 798,370 | 7.8 | 2,032 | 0.0 | 798,370 | 7.8 | 2,032 | 0.0 | 81,804 | 0.6 | 8,634 | 0.1 |
| Special Traffic Safety Measures Subsidy | 62 | 0.0 | 440 | 0.0 | 778 | 0.0 | 1,371 | 0.0 | 1,962 | 0.0 | 2,173 | 0.0 | 1,632 | 0.0 | 2,173 | 0.0 | 1,632 | 0.0 | 1,219 | 0.0 | 1,047 | 0.0 |
| Allotted Charges and Burden Fees | 7,438 | 1.2 | 10,462 | 0.4 | 48,329 | 1.2 | 67,600 | 1.2 | 59,815 | 0.9 | 193,284 | 1.9 | 119,209 | 1.1 | 193,284 | 1.9 | 119,209 | 1.1 | 259,450 | 2.0 | 118,499 | 0.8 |
| Rental Fees and Commissions | 6,698 | 1.1 | 8,952 | 0.3 | 33,007 | 0.8 | 70,240 | 1.2 | 94,930 | 1.5 | 53,050 | 0.5 | 62,065 | 0.6 | 53,050 | 0.5 | 62,065 | 0.6 | 147,466 | 1.1 | 129,205 | 0.9 |
| National Treasury Disbursements | 114,053 | 18.7 | 791,462 | 29.7 | 614,101 | 14.8 | 807,474 | 14.3 | 1,513,958 | 24.0 | 4,128,798 | 40.1 | 1,111,656 | 10.4 | 4,128,798 | 40.1 | 1,111,656 | 10.4 | 3,220,286 | 24.2 | 3,244,744 | 21.7 |
| Prefectural Disbursements | 32,522 | 5.3 | 117,235 | 4.4 | 498,475 | 12.0 | 383,767 | 6.8 | 241,172 | 3.8 | 408,932 | 4.0 | 717,362 | 6.7 | 408,932 | 4.0 | 717,362 | 6.7 | 675,959 | 5.1 | 1,270,702 | 8.5 |
| Property Income | 2,541 | 0.4 | 1,801 | 0.1 | 300,526 | 7.2 | 563,492 | 10.0 | 160,835 | 2.6 | 102,320 | 1.0 | 19,970 | 0.2 | 102,320 | 1.0 | 19,970 | 0.2 | 19,591 | 0.1 | 85,219 | 0.6 |
| Contributions | - | - | - | - | - | - | - | - | - | - | 1,100 | 0.0 | 650 | 0.0 | 1,100 | 0.0 | 650 | 0.0 | 750,150 | 5.6 | 1,040 | 0.0 |
| Transfers | 25,000 | 4.1 | 176,500 | 6.6 | 45,062 | 1.1 | 709,989 | 12.6 | 471,613 | 7.5 | 124,310 | 1.2 | 185,467 | 1.7 | 124,310 | 1.2 | 185,467 | 1.7 | 325,303 | 2.4 | 250,784 | 1.7 |
| Balance Brought Forward | 27,617 | 4.5 | 78,406 | 2.9 | 34,071 | 0.8 | 47,158 | 0.8 | 97,498 | 1.5 | 42,518 | 0.4 | 44,805 | 0.4 | 42,518 | 0.4 | 44,805 | 0.4 | 87,993 | 0.7 | 370,499 | 2.5 |
| Miscellaneous Income | 6,150 | 1.0 | 247,290 | 9.3 | 458,729 | 11.1 | 324,682 | 5.8 | 134,572 | 2.1 | 432,354 | 4.2 | 139,233 | 1.3 | 432,354 | 4.2 | 139,233 | 1.3 | 369,031 | 2.8 | 997,488 | 6.7 |
| Village Bonds | 61,600 | 10.1 | 398,800 | 15.0 | 398,670 | 9.6 | 260,000 | 4.6 | 268,910 | 4.3 | 330,400 | 3.2 | 441,100 | 4.1 | 330,400 | 3.2 | 441,100 | 4.1 | 109,900 | 0.8 | 325,300 | 2.2 |
| Total | 610,331 | 100.0 | 2,662,706 | 100.0 | 4,150,736 | 100.0 | 5,644,088 | 100.0 | 6,296,412 | 100.0 | 10,296,890 | 100.0 | 10,645,445 | 100.0 | 10,296,890 | 100.0 | 10,645,445 | 100.0 | 13,300,252 | 100.0 | 14,975,614 | 100.0 |

Source: Financial Statements

### Changes in Village Tax Revenue

| Category \ Year | 1970 | | 1975 | | 1980 | | 1985 | | 1990 | | 1995 | | 2000 | | 2005 | | 2010 | | 2011 | | 2014 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % |
| Village Inhabitant Tax | 6,690 | 20.3 | 117,479 | 51.5 | 252,529 | 56.6 | 205,755 | 12.2 | 353,530 | 21.0 | 542,779 | 15.4 | 562,126 | 7.5 | 702,930 | 9.0 | 849,214 | 12.2 | 849,214 | 12.2 | 1,013,982 | 12.9 |
| Property Tax | 10,451 | 31.7 | 39,928 | 17.5 | 98,309 | 22.0 | 1,392,686 | 82.3 | 1,271,985 | 75.4 | 2,851,772 | 81.1 | 6,780,166 | 90.2 | 7,011,175 | 89.4 | 5,979,238 | 85.8 | 5,979,238 | 85.8 | 6,722,984 | 85.3 |
| Light Automobile Tax | 1,772 | 5.4 | 2,038 | 0.9 | 3,479 | 0.8 | 6,309 | 0.4 | 8,416 | 0.5 | 10,740 | 0.3 | 13,460 | 0.2 | 16,820 | 0.2 | 20,887 | 0.3 | 20,887 | 0.3 | 22,812 | 0.3 |
| Village Tobacco Tax | 10,092 | 30.6 | 16,091 | 7.1 | 34,761 | 7.8 | 42,813 | 2.5 | 47,128 | 2.8 | 69,282 | 2.0 | 132,531 | 1.8 | 107,230 | 1.4 | 117,765 | 1.7 | 117,765 | 1.7 | 121,246 | 1.5 |
| Electricity Tax | 2,734 | 8.3 | 4,533 | 2.0 | 15,623 | 3.5 | 33,603 | 2.0 | - | - | - | - | - | - | - | - | | - | | - | | - |
| Lumber Transaction Tax | 1,211 | 3.7 | 966 | 0.4 | 1,882 | 0.4 | 1,072 | 0.1 | - | - | - | - | - | - | - | - | | - | | - | | - |
| Special Landholder Tax | - | - | 47,063 | 20.6 | 39,361 | 8.8 | 9,890 | 0.6 | 6,062 | 0.4 | 39,838 | 1.1 | 27,730 | 0.4 | - | - | | - | | - | | - |
| Total | 32,950 | 100.0 | 228,098 | 100.0 | 445,944 | 100.0 | 1,692,128 | 100.0 | 1,687,121 | 100.0 | 3,514,411 | 100.0 | 7,516,013 | 100.0 | 7,838,155 | 100.0 | 6,967,104 | 100.0 | 6,967,104 | 100.0 | 7,881,024 | 100.0 |

Source: Financial Statements

### General Expenditure Dedicated Accounts

| Category \ Year | 1970 | | 1975 | | 1980 | | 1985 | | 1990 | | 1995 | | 2000 | | 2005 | | 2010 | | 2011 | | 2014 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % | Amount, 1,000 JPY | % |
| Local Assembly Expense | 13,241 | 2.4 | 41,899 | 1.6 | 68,804 | 1.7 | 93,660 | 1.7 | 110,243 | 1.8 | 147,560 | 1.5 | 149,730 | 1.4 | 123,126 | 1.0 | 126,988 | 1.0 | 157,891 | 1.2 | 137,151 | 0.9 |
| General Administration Expense | 62,018 | 11.1 | 225,379 | 8.6 | 411,444 | 10.1 | 846,059 | 15.1 | 2,170,254 | 35.2 | 4,630,416 | 45.7 | 1,736,455 | 16.5 | 1,594,798 | 13.5 | 2,944,120 | 22.0 | 2,147,400 | 16.7 | 2,489,259 | 16.9 |
| Welfare Expense | 45,186 | 8.1 | 194,394 | 7.4 | 594,582 | 14.6 | 450,997 | 8.1 | 641,095 | 10.4 | 1,015,449 | 10.0 | 879,765 | 8.4 | 1,019,663 | 8.6 | 1,636,336 | 12.3 | 2,630,939 | 20.4 | 2,335,254 | 15.8 |
| Healthcare Expense | 50,369 | 9.0 | 67,374 | 2.6 | 139,933 | 3.4 | 657,080 | 11.7 | 212,359 | 3.4 | 424,105 | 4.2 | 671,338 | 6.4 | 641,106 | 5.4 | 657,791 | 4.9 | 730,057 | 5.7 | 1,280,345 | 8.7 |
| Labor Expense | 343 | 0.1 | 2,042 | 0.1 | 2,888 | 0.1 | 2,967 | 0.1 | 3,202 | 0.1 | 2,785 | 0.0 | 2,285 | 0.0 | 1,046 | 0.0 | 645 | 0.0 | 653 | 0.0 | 523 | 0.0 |
| Agriculture, Forestry and Fishing Expense | 57,369 | 10.3 | 197,275 | 7.5 | 794,697 | 19.5 | 466,485 | 8.3 | 549,662 | 8.9 | 747,003 | 7.4 | 498,058 | 4.7 | 1,149,151 | 9.7 | 912,486 | 6.8 | 939,556 | 7.3 | 1,178,981 | 8.0 |
| Commerce Expense | 275 | 0.0 | 1,120 | 0.0 | 4,458 | 0.1 | 16,571 | 0.3 | 26,772 | 0.4 | 149,059 | 1.5 | 135,434 | 1.3 | 848,041 | 7.2 | 168,600 | 1.3 | 384,838 | 3.0 | 191,519 | 1.3 |
| Civil Engineering Expense | 18,628 | 3.3 | 162,689 | 6.2 | 634,472 | 15.6 | 424,018 | 7.6 | 510,132 | 8.3 | 680,176 | 6.7 | 1,327,196 | 12.6 | 1,875,758 | 15.8 | 1,222,109 | 9.2 | 1,530,004 | 11.9 | 954,406 | 6.5 |
| Fire Fighting Expense | 13,810 | 2.5 | 44,669 | 1.7 | 146,144 | 3.6 | 210,944 | 3.8 | 280,218 | 4.6 | 387,581 | 3.8 | 517,520 | 4.9 | 556,222 | 4.7 | 617,495 | 4.6 | 617,522 | 4.8 | 850,813 | 5.8 |
| Education Expense | 218,256 | 39.2 | 805,821 | 30.7 | 620,168 | 15.2 | 1,486,661 | 26.5 | 732,001 | 11.9 | 919,617 | 9.1 | 916,427 | 8.7 | 1,052,881 | 8.9 | 3,116,975 | 23.3 | 1,668,734 | 13.0 | 2,243,847 | 15.2 |
| Disaster Restoration Expense | 2,060 | 0.4 | 364,205 | 13.9 | 28,552 | 0.7 | 6 | 0.0 | 124,613 | 2.0 | 32,017 | 0.3 | 24 | 0.0 | 0 | 0.0 | 0 | 0.0 | 4,410 | 0.0 | 5,491 | 0.0 |
| Public Debt Expense | 18,232 | 3.3 | 61,119 | 2.3 | 236,301 | 5.8 | 428,443 | 7.6 | 396,306 | 6.4 | 345,949 | 3.4 | 394,319 | 3.8 | 381,312 | 3.2 | 450,420 | 3.4 | 450,252 | 3.5 | 591,904 | 4.0 |
| Miscellaneous Expenses | 57,185 | 10.3 | 459,500 | 17.5 | 388,664 | 9.5 | 518,303 | 9.3 | 403,476 | 6.6 | 660,616 | 6.5 | 3,280,179 | 31.2 | 2,604,164 | 22.0 | 1,501,429 | 11.2 | 1,621,539 | 12.6 | 2,494,915 | 16.9 |
| Reserve Fund | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Total | 556,972 | 100.0 | 2,627,486 | 100.0 | 4,071,107 | 100.0 | 5,602,194 | 100.0 | 6,160,333 | 108.9 | 10,142,333 | 100.0 | 10,508,730 | 100.0 | 11,847,268 | 100.0 | 13,355,394 | 100.0 | 12,883,795 | 100.0 | 14,754,408 | 100.0 |

Source: Financial Statements



# Subsidy System Under the Three Laws for Power Source Development



## Subsidy Outline

There is a subsidy system based on the Three Laws for Power Source Development which supports electric power development. This support is available for the following: the development of power supply regions, the promotion of the national cooperation and understanding regarding the establishment of power supply facilities and the promotion of local understanding regarding the assurance of safety and preservation of the environment. In Rokkasho Village the following subsidies and grants are available with respect to the establishment of the nuclear fuel cycle facilities and the nearby Higashidōri Nuclear Power Plant.

### Subsidized Projects for the Development of Power Supply Regions

- **Measures for planning and creating regional development:** Projects for the promotion of understanding regarding power generation facilities, etc. These projects include regional development planning, tours of developed areas, seminars, lectures, examinations as well as the creation of posters, flyers and pamphlets.
- **Measures related to thermal effluent:** Projects for the promotion of fisheries. These projects include seedling production, feed supply, fishery workshops, experimental research, surveys of developed areas, supervision/training/public relations, environmental surveys of fishing grounds, surveys of fishery resources, surveys for planning fishery promotion and basic surveys for the introduction of effective thermal effluent use.
- **Measures for upgrading public facilities:** Projects for upgrades, repair and operation maintenance of public facilities and industry promotion facilities. These projects include roads, water services, sports facilities, education and culture facilities, medical and social welfare facilities.
- **Measures for the solicitation of companies and industrial vitalization:** Projects for upgrades and operation maintenance of facilities that support the following: the promotion of solicitation of the commerce, agriculture and forestry, fishery and tourism industries as well as modernization of regional industries and promotion of industry-related technology.
- **Measures for social welfare:** Projects that aim at increasing the welfare of local residents. These projects include medical and social welfare facility upgrades and operation as well as the Home Helper Project. Additional projects include grants and capital investment related to welfare measures.
- **Measures for regional vitalization:** Projects which vitalize the region. These include projects which support local industries, projects which market the use of local resources that take advantage of regional characteristics, projects which promote welfare services and projects that foster local human resources, etc.
- **Measures for assistance regarding the administration of benefits:** Projects which assist those who administrate benefits that substantially reduce electricity fees of general households and factories, etc. that are supplied with electricity from general power supply companies.

### Subsidized Projects for Public Relations/Research Subsidies (formerly Measures for Public Relations/Safety Subsidies) under the Electric Power Development Promotion Subsidies

- Increasing knowledge regarding nuclear power generation
- Research regarding effect on surrounding residential life
- Coordinating communication regarding effect on surrounding residential life

### Subsidized Projects for Grants Regarding Support of Industrial Cultivation in Power Supply Regions

- Projects for the creation of a vision regarding industrial cultivation and for invitation of specialists in regional development
- Projects which foster human resources
- Projects regarding industrial cultivation financing
- Marketing projects
- Projects which introduce new technologies
- Projects which support regional vitalization events

Heated Indoor Pool (Concept)

### Subsidized Projects for Nuclear Fuel Cycle Subsidies

- Projects for regional vitalization
- Projects for welfare measures
- Projects for upgrading public facilities
- Projects for solicitation of companies and industrial vitalization

International Education and Training Center

# Subsidy System Under the Three Laws for Power Source Development

## Overview of Project Results

**Subsidized Projects for the Development of Power Supply Regions and Subsidized Projects for Electric Power Development Promotion (Japanese FY 1981-2014)**

Unit: JPY

| Project Category | Facility / Project Name | | Total Expenses | Subsidy Amount | Amount of Applications | Main Projects |
|---|---|---|---|---|---|---|
| Hard (constructions, etc.) | Roads | | 4,061,985,456 | 3,850,507,000 | 63 | Hiranuma Takase River Road, Tomari Central Road, etc. |
| | Parks | | 1,441,439,509 | 1,394,933,000 | 17 | Makado River Park, Wild Bird Observation Park, etc. |
| | Water Services | | 4,636,463,750 | 4,454,094,000 | 42 | Chitose Water Reservoir Extension, Obuchi Laketown North Waterpipe, etc. |
| | Communication Infrastructure | | 2,507,104,372 | 2,468,235,000 | 9 | Disaster Prevention Broadcast Receivers, etc. |
| | Sports and Recreational Facilities | | 862,689,291 | 783,208,000 | 12 | Refurbishment of the Third Baseball Ground, shed for the Ôishi Swimming Pool, etc. |
| | Environmental Facilities | | 1,320,720,600 | 1,302,592,000 | 16 | Landfill site, snow plows, etc. |
| | Education and Culture Facilities | | 9,405,503,098 | 8,848,283,000 | 43 | SWANY, Daini Junior High School, International Education and Training Center, etc. |
| | Medical Facilities | | 5,724,064,954 | 4,077,271,000 | 16 | Medical equipment for clinics, Chitosetai Clinic, etc. |
| | Social Welfare Facilities | | 3,552,791,794 | 3,463,200,000 | 20 | Bonten (special nursing home for the elderly), Kakehashi (facility for people with special needs), etc. |
| | National Land Conservation Structures (around rivers) | | 125,531,000 | 122,000,000 | 3 | Improvement of Tokusari Mae River |
| | Industrial Promotion Facilities | Agriculture, Forestry and Fishing | 6,275,064,600 | 5,679,657,000 | 64 | Fishing ground radar, Uchikonai Park, etc. |
| | | Tourism | 363,952,981 | 357,956,000 | 8 | Events Square in Tomari, sightseeing information boards, etc. |
| | | Commerce, etc. | 715,470,000 | 685,914,000 | 2 | Rokushu Shōchū Brewery |
| | Firefighting Facilities | | 287,928,000 | 278,270,000 | 4 | Water fire engines, large chemical fire engines |
| | Total | | 41,280,709,405 | 37,766,120,000 | 319 | |
| Soft (events, etc.) | Events | | 112,766,326 | 84,399,346 | 6 | Snow Carnival, triathlon competition, etc. |
| | PR / Research Projects | | 49,811,360 | 49,200,000 | 1 | Visitation opportunities for nuclear fuel cycle facilities, etc. |
| | Regional Vitalization Projects | | 7,838,893,055 | 7,026,108,000 | 94 | SWANY and Obuchi Clinic operation, computers for education, etc. |
| | Projects Supporting the Promotion of the Agriculture, Forestry and Fishing Industry | | 512,264,275 | 511,697,000 | 18 | Ocean fertilization projects, acquisition of manufacturing technology for dairy products, etc. |
| | Projects Supporting the Establishment of Companies | | 120,000,000 | 120,000,000 | 1 | Projects for industrial promotion regarding the Crystal Valley Plan |
| | Projects Supporting Measures for Planning and Creating Regional Development | | 37,977,738 | 37,000,000 | 3 | Projects to support the creation of a vision for community development |
| | Nuclear Power Supply Location Benefit | | 6,471,017,212 | 6,405,380,398 | 30 | Nuclear Power Establishment Benefit for households and companies |
| | Projects for Public Relations/Research Subsidy (nuclear fuel cycle facilities) | | 616,810,090 | 604,753,555 | 31 | Visitations, workshops, pamphlets, etc. |
| | Projects for Public Relations/Research Subsidy (Higashidōri Nuclear Power Plant) | | 137,220,606 | 132,157,000 | 34 | Visitations, workshops, pamphlets, etc. |
| | Total | | 15,896,760,662 | 14,970,695,299 | 218 | |
| | **Total** | | 57,177,470,067 | 52,736,815,299 | 537 | |

## Breakdown by Subsidy Type regarding the Subsidized Projects for the Development of Power Supply Regions and Subsidized Projects for Electric Power Development Promotion

### Development of Power Supply Regions Subsidies

Unit: 1,000 JPY

| | Total |
|---|---|
| Subsidies for initial measures concerning the establishment of power supply facilities | 4,204,200 |
| Subsidies for promotional measures concerning the establishment of power supply facilities | 26,878,867 |
| Subsidies for areas surrounding nuclear fuel cycle facilities, etc. (including prefectural benefits) | 8,572,108 |
| Subsidies for prefectural power exports, etc. | 347,399 |
| Subsidies for long-term development of regions with power supply facilities such as nuclear power | 3,314,900 |
| Subsidies concerning nuclear fuel cycle facilities | 8,276,284 |

### Electric Power Development Promotion Subsidies

Unit: 1,000 JPY

| | Total |
|---|---|
| Nuclear fuel cycle subsidies | 320,050 |
| PR/Research Subsidies (formerly Measures for Public Relations/Safety Subsidy) | 736,911 |
| Grants Regarding Support of Industrial Cultivation in Power Supply Regions | 86,096 |

## Subsidy Results for each Japanese Fiscal Year

| | Development of Power Supply Regions Subsidies | Electric Power Development Promotion Subsidies |
|---|---|---|
| 1981 | | 1,400 |
| 1982 | | 1,400 |
| 1983 | | 1,400 |
| 1984 | | 1,400 |
| 1985 | | 10,400 |
| 1986 | | 10,400 |
| 1987 | | 10,400 |
| 1988 | 148,770 | 10,400 |
| 1989 | 311,897 | 15,600 |
| 1990 | 1,226,602 | 15,600 |
| 1991 | 974,053 | 26,613 |
| 1992 | 1,628,904 | 29,100 |
| 1993 | 2,660,266 | 33,300 |
| 1994 | 3,421,434 | 30,150 |
| 1995 | 3,960,802 | 29,250 |
| 1996 | 3,909,529 | 35,199 |
| 1997 | 670,402 | 36,909 |
| 1998 | 998,877 | 47,400 |
| 1999 | 967,721 | 47,400 |
| 2000 | 771,865 | 43,838 |
| 2001 | 888,012 | 39,778 |
| 2002 | 911,664 | 27,900 |
| 2003 | 1,660,697 | 27,900 |
| 2004 | 1,780,926 | 27,900 |
| 2005 | 1,640,882 | 27,900 |
| 2006 | 1,983,752 | 29,250 |
| 2007 | 2,284,164 | 29,360 |
| 2008 | 1,634,745 | 29,588 |
| 2009 | 2,202,441 | 23,750 |
| 2010 | 2,282,998 | 22,706 |
| 2011 | 2,624,546 | 72,250 |
| 2012 | 3,156,882 | 65,100 |
| 2013 | 3,862,663 | 123,091 |
| 2014 | 3,028,264 | 159,025 |
| Total | 51,593,758 | 1,143,057 |



# Message from the Mayor of Rokkasho Village



Mayor of Rokkasho Village

Mamoru Toda

## Rokkasho, Center of Energy

Rokkasho Village came into existence over 120 years ago, when the Municipal Government Act went into effect. During this long history the village never yielded to any hardships, but instead developed into an important center for the nation's energy policies, including those regarding nuclear power, all while cherishing the efforts and spirit of its ancestors who shaped the village's history, natural environment and culture.

More than 30 years have passed since the village accepted the request for cooperation concerning the establishment of the nuclear fuel cycle project in 1985 in which many companies have been involved. Nowadays, the nuclear fuel cycle project plays a central role for the development of the village's economy and the promotion of its industries.

However, after the accident at the Fukushima Daiichi Power Plant operated by TEPCO, the "Act on Regulations Concerning Nuclear Fuel Reactors, etc." was amended and based on this, new regulatory requirements were enacted. These necessitated the strengthening of the safety measures at nuclear fuel-related facilities and the measures concerning nuclear accidents, which led to the postponing of the completion of the Reprocessing Plant and the MOX Fuel Fabrication Plant.

Ensuring the security of nuclear fuel-related facilities is an ongoing process, and the operating bodies as a whole are continuously working on accommodating the new regulatory requirements in order to realize the operation of the nuclear fuel cycle facilities.

Rokkasho Village does not only feature nuclear fuel cycle facilities, but also a great variety of other energy-related facilities such as the National Petroleum Stockpiling Base, the International Fusion Energy Research Center, large-scale wind farms and mega-solar facilities. The village aims at using these facilities effectively in order to create new industries and conduct research on new energy forms and will continue to play its role as an important center for the national energy policy.

I hope that this booklet will contribute to a better understanding of Rokkasho Village.

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