

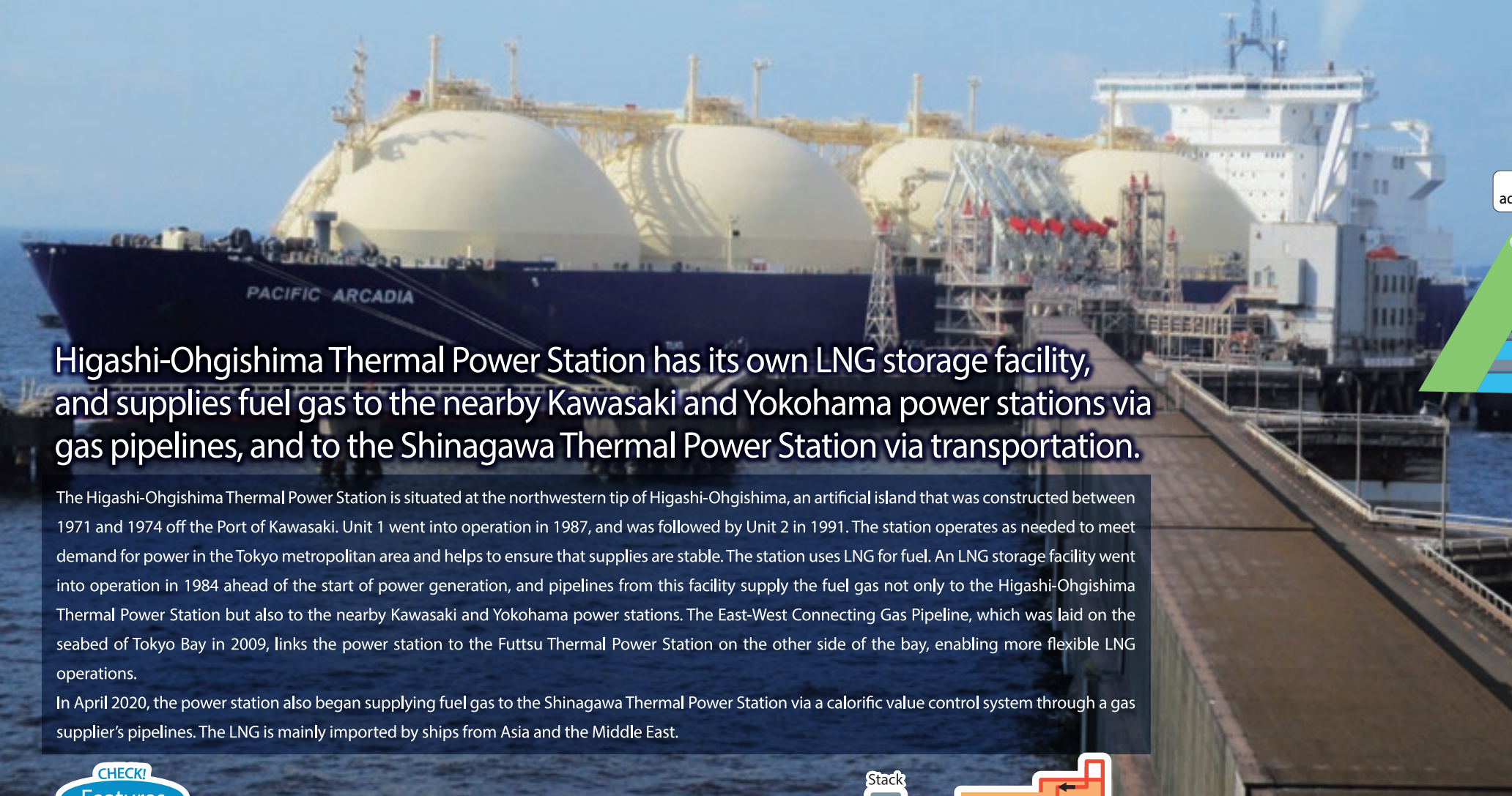
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HIGASHI-OHGISHIMA THERMAL POWER STATION

WELCOME TO HIGASHI-OHGISHIMA THERMAL POWER STATION!

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The Higashi-Ohgishima Thermal Power Station is situated at the northwestern tip of Higashi-Ohgishima, an artificial island that was constructed between 1971 and 1974 off the Port of Kawasaki. Unit 1 went into operation in 1987, and was followed by Unit 2 in 1991. The station operates as needed to meet demand for power in the Tokyo metropolitan area and helps to ensure that supplies are stable. The station uses LNG for fuel. An LNG storage facility went into operation in 1984 ahead of the start of power generation, and pipelines from this facility supply the fuel gas not only to the Higashi-Ohgishima Thermal Power Station but also to the nearby Kawasaki and Yokohama power stations. The East-West Connecting Gas Pipeline, which was laid on the seabed of Tokyo Bay in 2009, links the power station to the Futtsu Thermal Power Station on the other side of the bay, enabling more flexible LNG operations. In April 2020, the power station also began supplying fuel gas to the Shinagawa Thermal Power Station via a calorific value control system through a gas supplier's pipelines. The LNG is mainly imported by ships from Asia and the Middle East.

CHECK!
Features

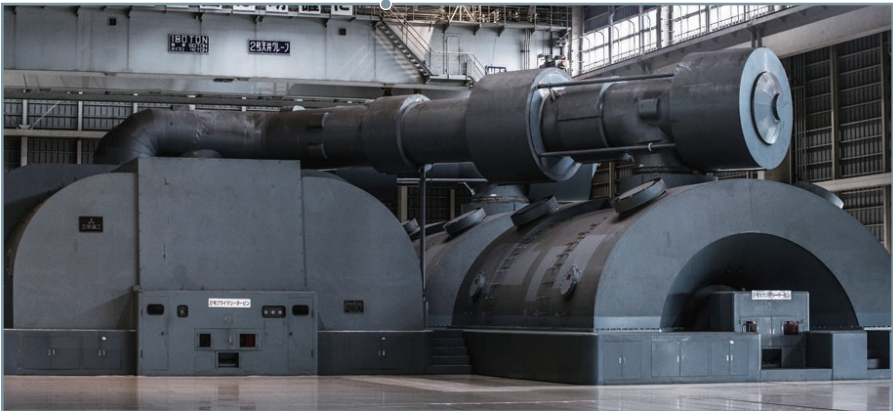
LNG berth with the largest number of vessels docked annually in Japan

An array of sophisticated LNG receiving operation technologies makes it possible to receive a large amount of LNG with the minimal tank storage capacity. The number of LNG vessels that can be docked per berth is the largest in Japan.



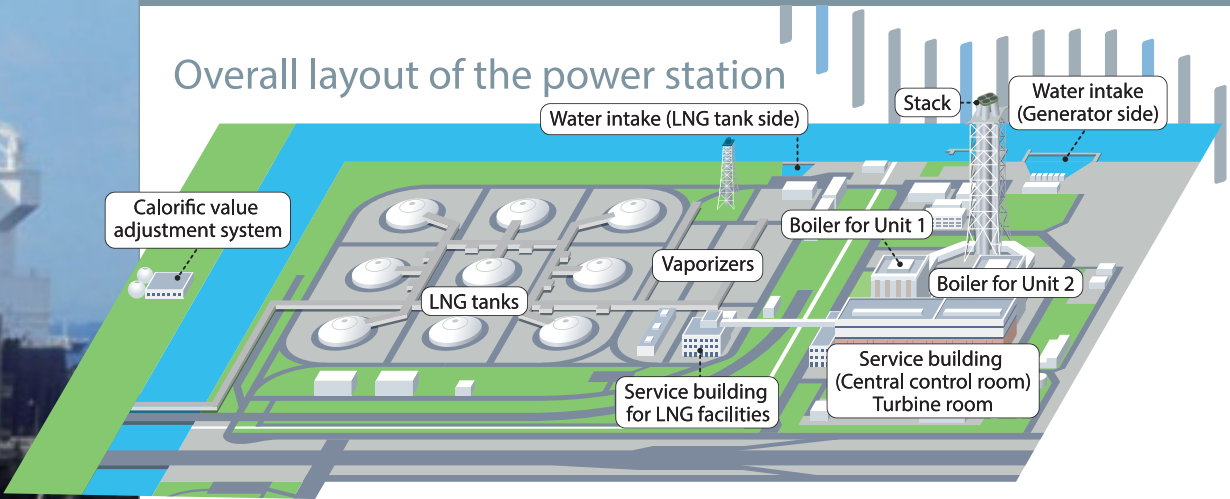
LNG underground tank

The liquid storage tank is installed below the ground level. This safe structure prevents LNG outflow in the event of liquid leakage. The excavated ground surface is reinforced by concrete, and a thin film (membrane) is provided to maintain fluid and air tightness. The liquid load and gas pressure at the bottom and on the sides are absorbed by the peripheral concrete structure.



Steam turbine

A steam turbine converts the energy of high-temperature, high-pressure steam into mechanical energy. The blades are processed to attain a special asymmetrical curved surface with torsion based on hydromechanics to maximize the performance.



Outline of facilities

Unit No.	Output (MW)	Fuel	COD	Power generation type
Unit 1	1000	LNG	September 1987	Steam
Unit 2	1000	LNG	March 1991	Steam

Name: Higashi-Ohgishima Thermal Power Station Location: Kawasaki-ku, Kawasaki City, Kanagawa Prefecture Site area: Approx. 470,000 m²



Boiler

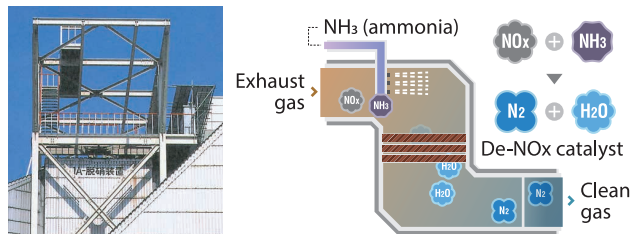
A boiler is a huge box-shaped structure. The energy produced by the combustion of fuel is used to heat water to generate the required steam. The internal walls consist of water tubes. Boiler combustion turns the water in the water tubes into high-temperature, high-pressure steam, which is sent to the turbine generator.

Environmental Initiatives

Preventing air pollution

The power station is fueled with LNG and therefore does not discharge SOx which are the cause of particulate matter and acid rain. The use of low-NOx burners and exhaust gas denitration equipment has also reduced the discharge of nitrogen oxides. The white smoke rising from the plant stacks on cool days is steam.

Exhaust gas denitration equipment (removal of NOx)



Ammonia is injected into the exhaust gas. The de-NOx catalyst stimulates a chemical reaction that turns the nitrogen oxides into harmless nitrogen and water.

Keeping the oceans clean

The equipment cleaning water and general waste water generated at the power station at first undergoes pre-processing such as oil separation and neutralization. It is then purified by means of condensation, sedimentation, filtration and neutralization, and the water quality is checked before it is discharged.

Protecting the global environment

Since power stations make use of the earth's enriched resources, it is important to achieve high level of thermal efficiency when generating electricity due to preservation of the global environment. In addition, greater generating efficiency means that less carbon dioxide, which causes global warming, is produced. We are committed to conserve the earth's finite resources and curb global warming by leveraging the technical capabilities we have accumulated over the years and by introducing highly efficient power generating equipment.

What is LNG?

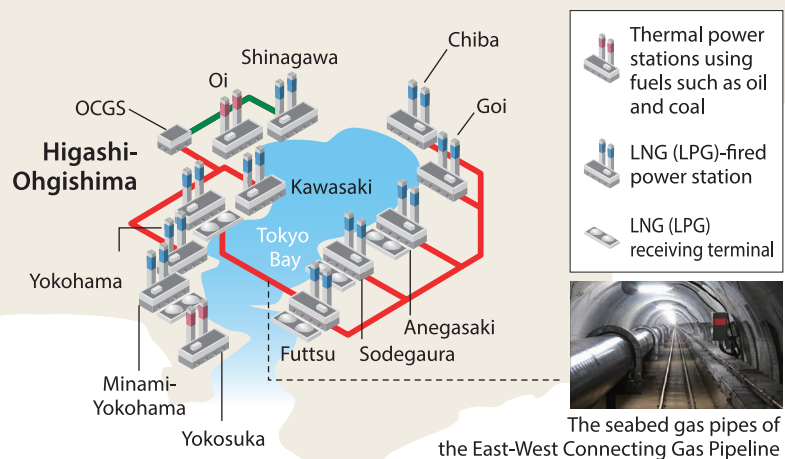
LNG stands for Liquefied Natural Gas (predominantly methane), that has been cooled to around -162°C to be liquefied. Cooling and liquefaction reduce the volume of natural gas to approximately 1/600th, allowing it to be transported and stored in large quantities. So the gas is converted into LNG in the countries where it is produced before being transported to Japan. During the process of liquefaction, dust, moisture, sulfur are removed. Moreover, SOx is not generated during combustion, so LNG is a clean form of energy. Another advantage is that it produces less carbon dioxide, which is a cause of global warming, when it is burned than oil and coal do.

Gas pipelines

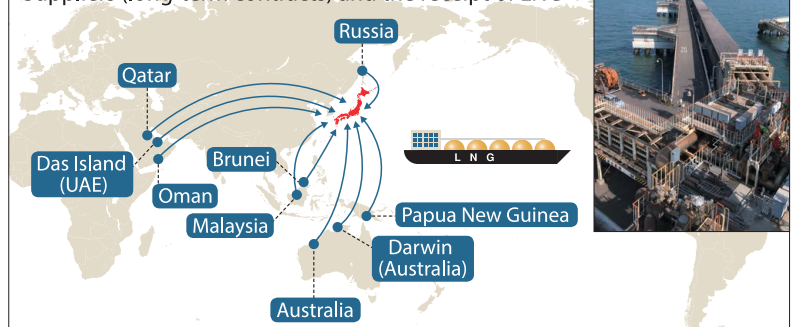
The LNG storage facility at the power station supplies fuel gas to the Kawasaki and Yokohama power stations through the company's own pipelines. It also supplies city gas-equivalent fuel gas to the Shinagawa Thermal Power Station via a calorific value control system through a gas supplier's pipelines.

The Futtsu Thermal Power Station on the other side of the bay supplies fuel gas to thermal power stations in the Chiba area.

The East-West Connecting Gas Pipeline, which was laid on the seabed, links the power station with the Futtsu Thermal Power Station, ensuring a stable fuel gas supply.



Suppliers (long-term contracts) and the receipt of LNG



The Higashi-Ohgishima Thermal Power Station's role as LNG storage facility

The power station contains nine underground tanks that can hold up to 60,000 kL of LNG, which is enough to generate 9,400 MW of electricity. The power station supplies fuel gas equivalent to more than 10,500 MW of electricity, including the fuel gas supplied to the Shinagawa Thermal Power Station via transportation (equivalent to 1,140 MW of electricity). The power station receives approximately 10% of Japan's total LNG imports mainly from countries in Asia and the Middle East. About 110 LNG tankers dock at the power station annually. Thus, Higashi-Ohgishima is one of Japan's largest thermal power stations in terms of both the number of vessels docked and the volume of LNG received per berth.