JERA

HIRONO
THERMAL POWER STATION

WELCOME TO HIRONO THERMAL POWER STATION!

Fueled by oil and coal

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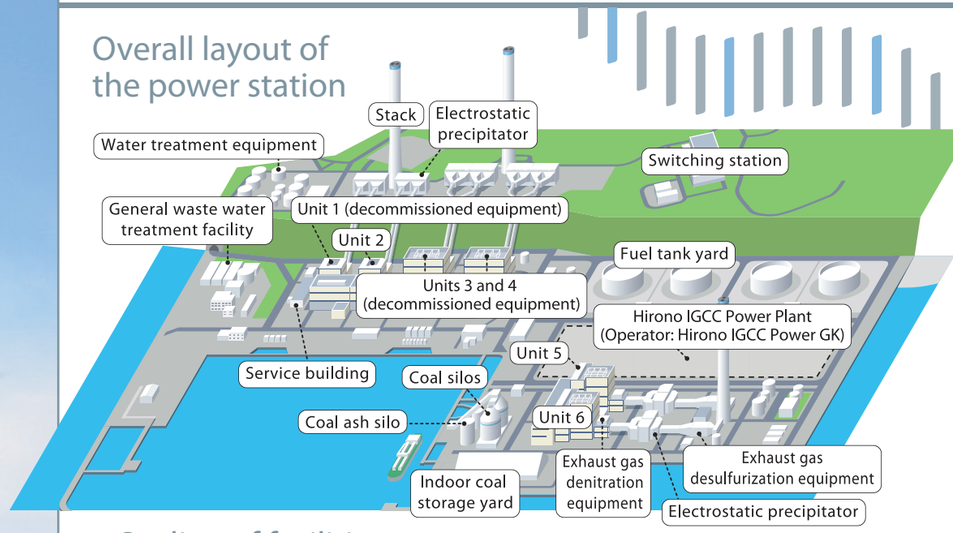
Since Unit 1 at the Hirono Thermal Power Station went into operation as Japan's first automatic thermal power unit in 1980, the Station has supplied stable electric power to various parts of Japan, including the Kanto region. It has played a key role as one of the largest thermal power stations in Japan (total output of Units 1 to 6: 4,400 MW). With Units 1, 3, and 4 having been decommissioned, the current total output is 1,800 MW.

The Hirono Thermal Power Station has two types of boiler equipment. Unit 2 runs on heavy oil and crude oil, while Units 5 and 6 are coal-fired. Unit 2 generates electricity depending on demand, while coal-fired Units 5 and 6 generate baseload electricity at low cost.

The power station was badly damaged as a result of the Great East Japan Earthquake in 2011, but with the understanding and cooperation of the citizens of Hirono, everyone involved worked tirelessly to repair it and succeeded in getting all the generators back on line in time for the summer peak in demand.

On the site of the power station, integrated gasification combined-cycle (IGCC) equipment, which is expected to play an important role in the reconstruction of Fukushima, was constructed by Hirono IGCC Power GK and put into operation in 2021. JERA is responsible for operation and maintenance of the IGCC. The power station continues to evolve together with Fukushima.

Overall layout of the power station



Outline of facilities

Unit No.	Output (MW)	Fuel	COD	Power generation type
Unit 2	600	Heavy oil, crude oil	July 1980	Steam
Unit 5	600	Coal	July 2004	
Unit 6	600		December 2013	

Name: Hirono Thermal Power Station Location: Hirono-machi, Futaba-gun, Fukushima Prefecture
Site area: Approx. 1,350,000 m²

CHECK! Features

View from the observation deck

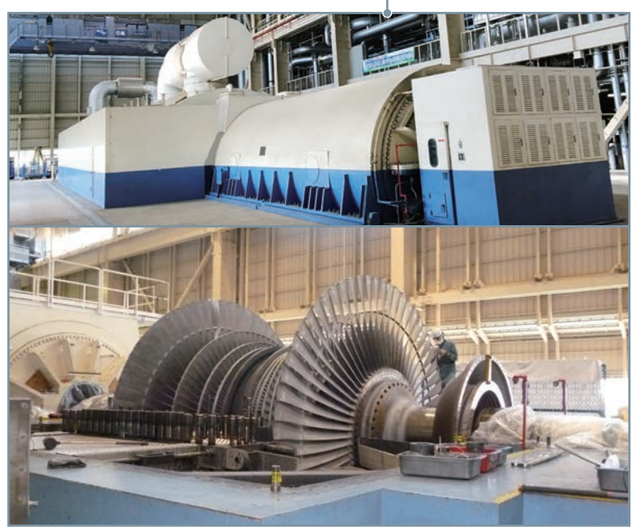
An observation deck with commanding views of the Pacific Ocean is located on the north side of the power station, and is well worth a visit.

120,000t of coal stored at the coal silo and indoor coal storage yard

Environmentally friendly silos and an indoor coal storage yard are used for the storage equipment in order to prevent coal dust from being scattered.

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 curved asymmetric profile design based on fluid mechanics to maximize the performance.



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 pipes. Boiler combustion turns the water in the water tubes pipes into high-temperature, high-pressure steam, which is sent to the turbine generator.

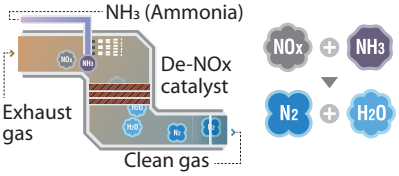

Boiler combustion status

Environmental Initiatives

Preventing air pollution

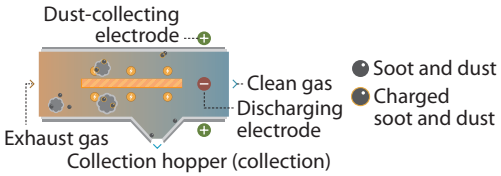
A range of measures have been taken to ensure that the environment in the area surrounding the power station is pleasant. Air pollutants such as NOx, soot, and SOx which are produced during the combustion of coal, are removed using exhaust gas denitration equipment, electrostatic precipitators, and exhaust gas desulfurization equipment, and the treated exhaust gas is then released into the air from a stack.

Exhaust gas denitration equipment (removal of NOx)



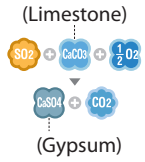
Ammonia is injected into the exhaust gas. The de-NOx catalyst stimulates a chemical reaction that turns the nitrogen oxides into harmless nitrogen and water.

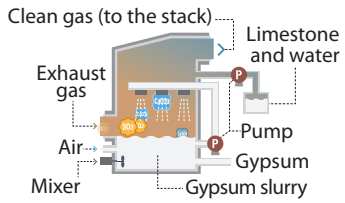
Electrostatic precipitator (removal of soot and dust)



The high voltage power between the discharge electrodes and dust-collecting electrodes electrifies the soot and dust. The dust-collecting electrodes then capture the particulates to reduce their concentration in the exhaust gas.

Exhaust gas desulfurizer (removal of SOx)





Sulfur oxides (SOx) in the exhaust gas react with limestone slurry and are removed in the form of gypsum.

Keeping the oceans clean

The equipment cleaning water and general waste water generated at the power station 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

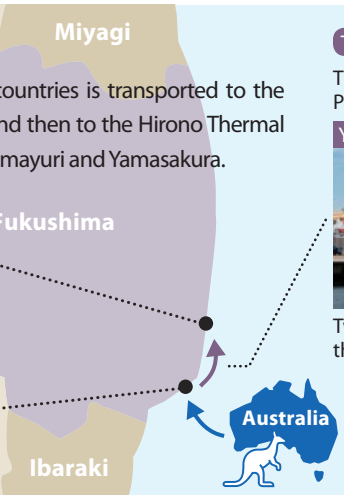
Since power stations make use of the earth's enriched resources, it is important to achieve high level of thermal efficiency when generating electricity due to preservation of the global environment. In addition, greater generating efficiency means that less carbon dioxide, which causes global warming, 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.

Delivering the coal

Coal imported from Australia and other countries is transported to the Onahama Coal Center at Onahama port and then to the Hirono Thermal Power Station by coastal vessels, named Yamayuri and Yamasakura.

Hirono Thermal Power Station

Onahama Coal Center



The process after receiving coal

The coal takes around three to four hours to reach Hirono Thermal Power Station from Onahama Port.

Two coastal vessels transport the coal to the power station from the Onahama Coal Center.

Coal from Australia arrives at the Onahama Coal Center.

Processing of coal ash

Coal ash produced by Units 5 and 6 is first placed in a transit silo. From there, it is transported by compressed air to a fly-ash silo (for land transportation) or a fly-ash shipping silo. After that, coal ash is loaded onto a transport vessel by a shiploader and shipped to be reused as a raw material for cement.

Top: Coal ash transport ship (the Kibo)
Bottom: Shiploader for loading coal ash

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