

Jera



KAWASAKI

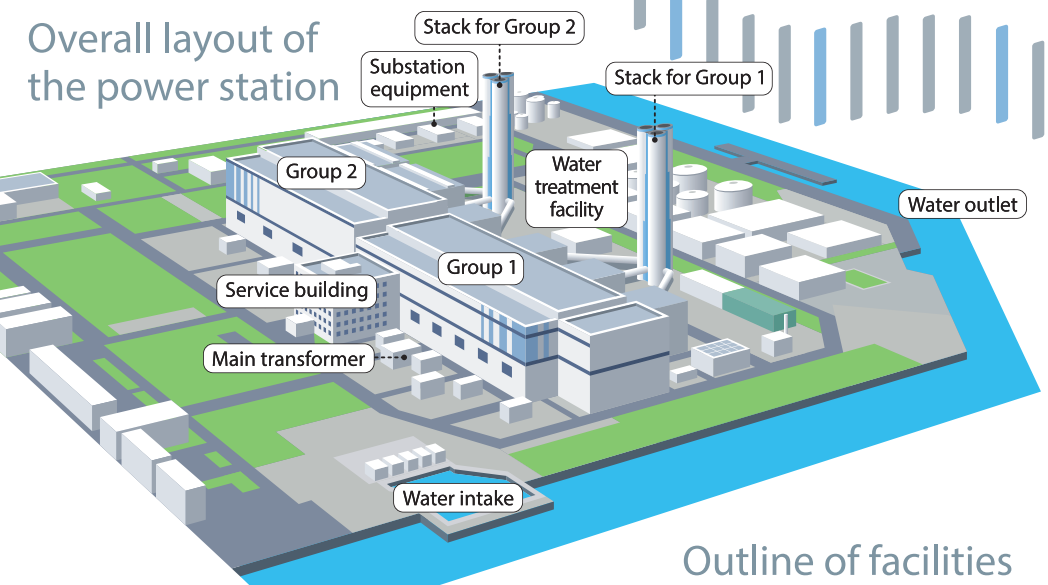
THERMAL POWER STATION

WELCOME TO KAWASAKI THERMAL POWER STATION!

Utilizes one of the world's largest
MACC & MACC II power generation systems

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The Kawasaki Power Station came into being in 1961 as a coal-fired thermal power station. Since then its fuel has changed from coal to naphtha and most recently to LNG. These changes reflect frequent changes in attitudes toward environmental concerns in the local area. Each change has been accompanied by proactive deployments of the latest technologies, enabling the station to supply power to the Tokyo metropolitan area and the Keihin petrochemical complex. A project to replace all the equipment was completed in March 2017, and this saw the station relaunched as a state-of-the-art LNG-fired plant that offers world-class performance. Generators 2 and 3 in Group 2 now burn gas at a temperature of 1,600°C. The amount of fuel used and the CO₂ emissions released have also been cut by around 30% thanks to the improved performance. As a supplier of base power, the station is currently doing everything it can to protect the environment, ensure safety and prevent accidents. It is endeavoring to be an eco-friendly thermal power station that offers a stable supply of electricity.



Outline of facilities

Unit No.	Output (MW)	Fuel	COD	GT combustion temperature (°C)	Power generation type
Group 1	1-1	LNG	February 2009	1,500	Combined cycle
	1-2		June 2008	1,500	
	1-3		June 2007	1,500	
Group 2	2-1		February 2013	1,500	
	2-2		January 2016	1,600	
	2-3		June 2016	1,600	

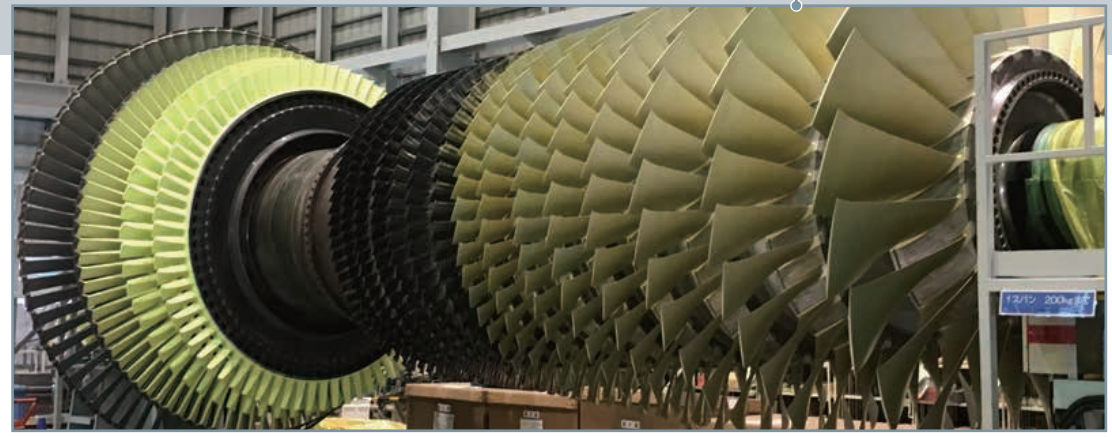
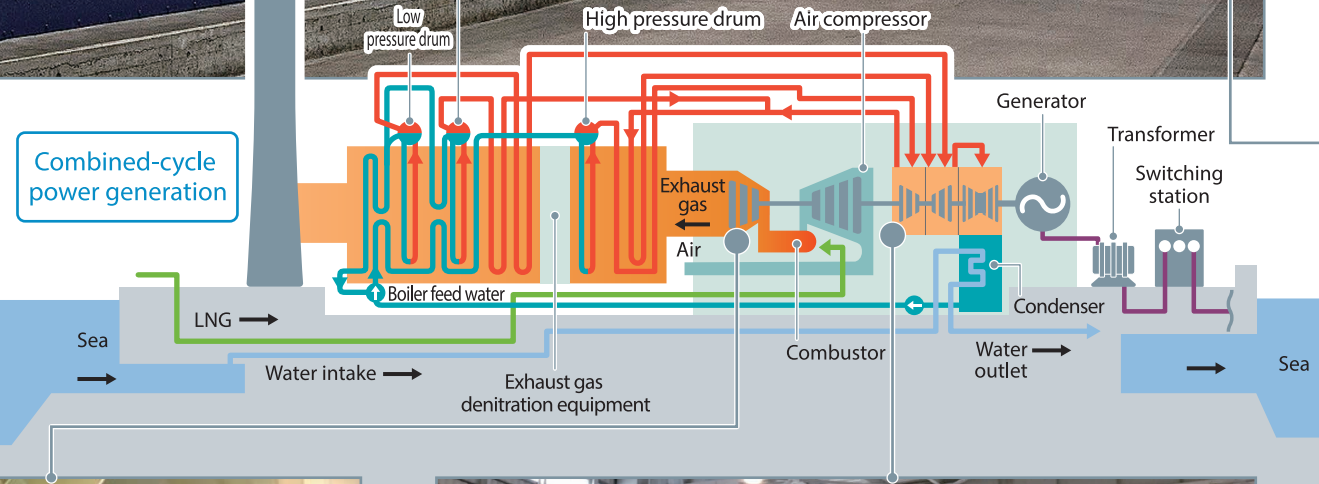
Name: Kawasaki Thermal Power Station Location: Kawasaki-ku, Kawasaki City, Kanagawa Prefecture Site area: Approx. 280,000 m²

CHECK!
Features

Various environmental initiatives

Part of the steam used by the steam turbines at the power station is supplied to facilities in the vicinity to help reduce CO₂ emissions. Approximately 25% of the site area of the power station is covered with greenery to help conserve the environment.

Combined-cycle power generation



World-class highly efficient gas turbines of 1,500°C and 1,600°C class

The thermal efficiency has been improved by increasing the temperature of the combustion gas. The gas turbines are easy to start up and shut down (approximately one hour from startup to base load in the Daily Start and Stop (DSS) operation) and can thus respond quickly and appropriately to fluctuations in electricity demand.



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.



Heat recovery steam generator

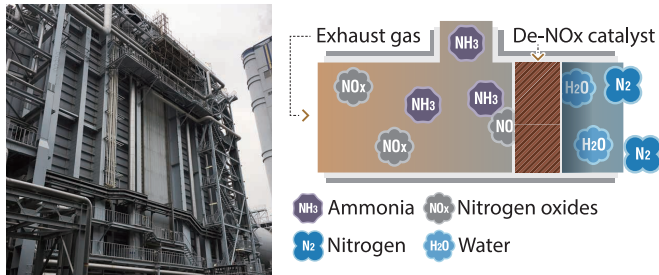
The heat recovery steam generator plays a key role in utilizing the waste heat of the exhaust gas from the gas turbine to generate steam for driving the steam turbine.

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 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.

Using Kawasaki Thermal Power Station's steam for saving energy and reducing CO₂ across the local community

The Kawasaki Thermal Power Station participates in a joint project to supply steam, generated in its steam turbines, to the nine different factories based in the Chidori/Yako Industrial Complex. Previously, companies in the industrial complex used their own boilers to generate steam for heating raw materials, etc. Using the steam supplied in this project saved them fuel equivalent to 28,000 kiloliters of crude oil in FY2018 and reduced CO₂ emissions by approx. 63,000 tons. This is equivalent to the annual energy consumption of approx. 32,000 average households and the annual CO₂ emissions of approx. 14,000 households.

This project has been selected for the New Energy and Industrial Technology Development Organization's (NEDO) program to support businesses that are streamlining their energy use. The design on the piping surface is based on the work that won the grand prize in the Kawasaki Coastal Area Landscape Design Competition ("Changing Water Movement").



Pipe supplying steam

