

1. POWER PLANTS AND POWER TRANSMISSION SYSTEM
 2. CITY GAS PRODUCTION

1. Power Plants and Power Transmission System

The number of power plants in Japan as of March 31, 1974, totaled about 2,200 with a power generating capacity totaling 95,500,000 kW (in terms of maximum output). For many years, hydroelectric power generation exceeded thermal power generation in Japan but the situation has reversed since 1963. In 1974, hydroelectric power generation amounted to 22,590,000 kW, thermal power generation (including geothermal power generation) 70,620,000 kW, and nuclear power generation 2,300,000 kW. Thermal power generation now produces 74% of the total output.

Many hydroelectric power plants are located in mountains far apart from consumption areas, and are small in scale. Of about 1,530 hydroelectric power plants, only 28 are equipped to produce the maximum output of more than 100,000 kW. By river systems, the power generation capacity (maximum output) exceeded 2,000,000 kW for the river systems of Agano Gawa and Sinano Gawa. Japan's total hydraulic power is 52,300,000 kW, about 40% of which has already been developed.

Thermal power plants are situated near consumption areas, and many of them are large in scale. There were about 640 thermal power generation plants in Japan, of which 54 were equipped to produce the maximum output of 100,000-500,000 kW and 46 had a maximum output of more than 500,000 kW.

There were five nuclear power generation plants. The Hukusima Nuclear Power Plant has a maximum output of 1,240,000 kW, whereas the

maximum output of other nuclear power plants is less than 1,000,000 kW. There are also three geothermal power plants whose maximum output amounted to 39,000 kW.

Of the power transmission lines linking power generation plants to consumption areas, power transmission lines of more than 110kV in voltage measure 24,500 km, of which the power transmission lines with 187-275 kV measure 3,800 km and those with more than 275 kV measure 5,900 km. The total installed capacity of power generation plants is 190,000,000 kVA.

The frequency of power supplied is 50 Hz in the areas east to Niigata, Gunma, Saitama, Yamanashi and Kanagawa prefectures and also in the areas east to the Huzi Gawa in Sizuoka Prefecture. The frequency of other areas is 60 Hz.

Salient Points of the Legend and Map Compilation

This map shows the distribution of power plants with a maximum output of more than 1,000 kW, transmission lines with a voltage of more than 100 kV, and transformer substations with a capacity of more than 500,000 kVA. The names of large power plants were indicated for reference purposes.

Sources

1. Electric power companies, Handbook of Power Plant Facilities.
2. Electric power companies, Transmission Lines Maps.
3. Data from the Ministry of International Trade and Industry.
4. Ministry of International Trade and Industry, 1973 Handbook of Electric Enterprises.
5. The Federation of Electric Companies, 1974 Handbook of Electric Enterprises.

2. City Gas Production

Engaged in gas enterprises in 1972 were 72 public enterprises and 171 private enterprises, and the plants totaled 350. The total city gas output was 58,700,000,000 kcal, of which 72% was produced by gas enterprises at their own plants and the remaining 28% purchased from other plants.

Classified by kind of resource, 32% of the city gas was produced with coal gas, generator gas and other gases of the coal system, 55% with liquefied oil gas and other gases of the oil system, and 15% with natural gas and liquefied natural gas.

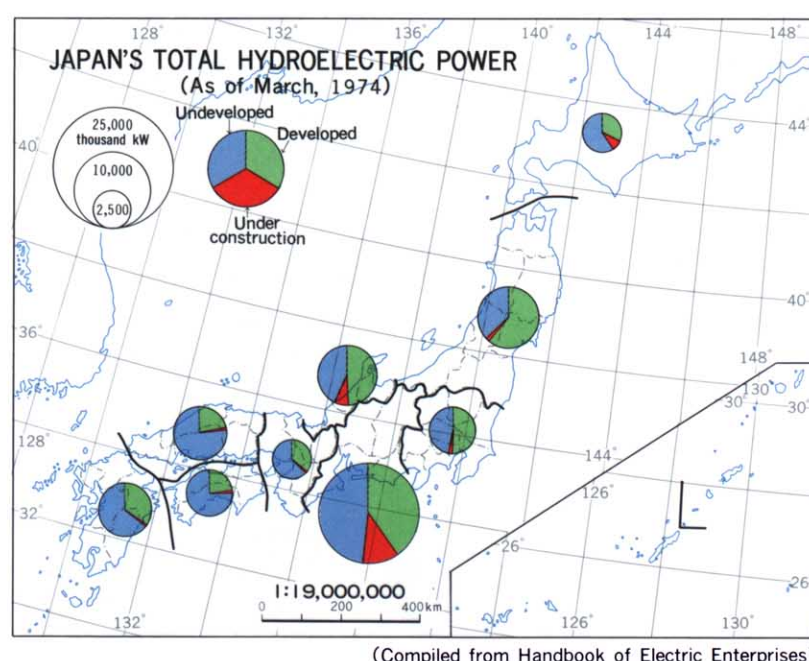
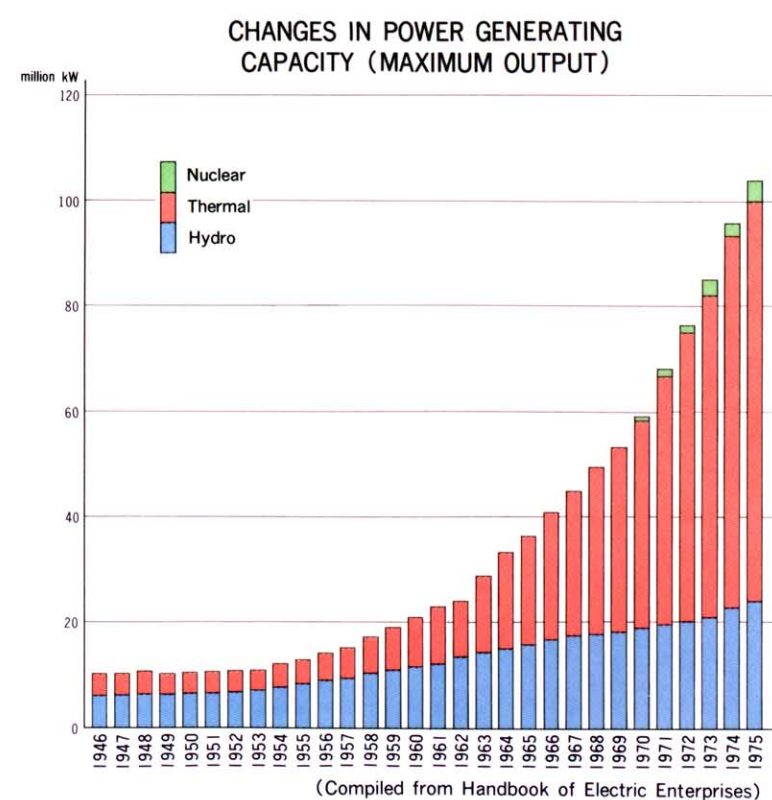
The natural gas collected in Akita, Yamagata, Niigata and Tiba prefectures is used as city gas. For use in Tōkyō and other places, the natural gas produced in Niigata Prefecture is carried by natural gas pipelines laid from Niigata Prefecture to Tōkyō Prefecture.

Salient Points of the Legend and Map Compilation

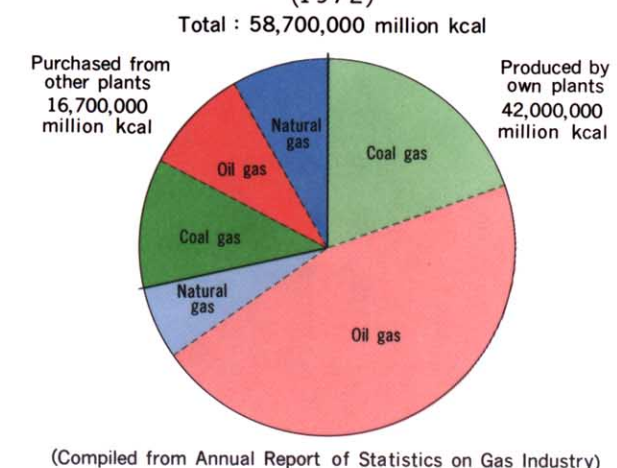
The annual output of city gas, including the purchases, was indicated with circular symbols put on the sites of plants in the map. For the plants producing more than 100,000,000 kcal, the names of the enterprises and plants were shown for reference purposes.

Sources

1. Agency of Natural Resources and Energy, 1972 Annual Report of Statistics on Gas Industry.
2. Data from the Ministry of International Trade and Industry.



OUTPUT OF CITY GAS BY KIND OF RESOURCE (1972)



**POWER PLANTS AND
POWER TRANSMISSION SYSTEM**
(1973)

POWER PLANTS (Generating capacity in 1,000 kW)

1-5 5-10 10-25 25-50 50-100 100-250 250-500 500-1000 1000-2000

POWER SOURCES BY TYPE

- Hydro
- Thermal
- Nuclear and geothermal

Transformer substation with 500,000kVA capacity and over

Status as of October 31, 1973

TRANSMISSION LINES

- 100kV and over but less than 187kV
- 187kV and over but less than 275kV
- 275kV and over

1:2,500,000

