

Power and Gas Supplies

ELECTRICITY

Electricity is supplied by CLP Power Hong Kong Limited and The Hongkong Electric Company Limited which are investor-owned and do not operate on a franchise basis. The companies have entered voluntarily with the Government into mutual agreements (Scheme of Control Agreements) concerning their financial affairs.

CLP Power Hong Kong Limited (CLP Power), founded in 1901, supplies electricity to Kowloon and the New Territories, including Lantau, Cheung Chau and most of the outlying islands.

CLP Power's local maximum demand in 2015 was 6 878 MW, while local sales amounted to 33.0 billion kWh. At the year end, the company had about 2.49 million customers.

At present, electricity is generated by three power stations, namely, Castle Peak (4 108 MW), Black Point (2 500 MW) and Penny's Bay (300 MW), with the total installed capacity being 6 908 MW. All these power stations are owned by Castle Peak Power Company Limited (CAPCO), 70 per cent of which is owned by CLP Power and 30 per cent by China Southern Power Grid International (HK) Company, Limited (CSG HK). CLP Power has contracted to purchase about 70 per cent (on a temporary basis from October 2014 to 2018, CLP Power purchases some additional 10 per cent) of the power generated at the two 984 MW pressurised water reactors at the Guangdong Daya Bay Nuclear Power Station, some 50 kilometres from Hong Kong, to help meet the long term demand for electricity in its supply area. It also has the right to use 50 per cent of the 1 200 MW capacity of Phase 1 of the Guangzhou Pumped Storage Power Station, at Conghua.

Wholly owned by CLP Power, the transmission system operates at 400kV and 132kV while distribution is mainly at 33kV, 11kV and 380V. The supply is 50Hz alternating current, at 220V single-phase or 380V three-phase. For bulk customers, supply is available at 132kV, 33kV and 11kV.

An extra high voltage transmission system, at 400kV, transmits power from the Castle Peak and Black Point Power Stations to the various load centres. It comprises 503 kilometres of double-circuit overhead line encircling the New Territories, 52 kilometres of cables and 11 extra high voltage substations.

By the end of 2015, CLP Power had 226 primary and 14 019 secondary substations in its transmission and distribution network.

The company's power system has been interconnected with the Guangdong power system since April 1979 and electricity is exported to Guangdong Province. 80 per cent of the profit is given back to CLP Power's local customers.

The Hongkong Electric Company Limited (HKE), founded in 1889, supplies electricity to Hong Kong Island, Ap Lei Chau and Lamma Island. Electricity is supplied from the Lamma Power Station. At the end of 2015, the total installed capacity of the station was 3 757 MW.

The maximum demand in 2015 was 2 427 MW, and sales of electricity for the year amounted to 10.9 billion kWh. At the year end, the company had about 0.57 million customers.

The transmission system of HKE operates at 275kV and 132kV, whereas distribution is effected mainly at 22kV, 11kV and 380V. The supply is 50Hz alternating current, at 220V single-phase or 380V three-phase. With

the exception of a few short lengths of 132kV overhead transmission lines, the entire transmission and distribution system is composed of underground cables.

By the end of 2015, HKE had 51 switching/zone substations and 3 818 consumer substations.

The interconnection of the company's transmission system with that of the CLP Power by a cross-harbour link has an installed capacity of 720 MVA enabling the provision of emergency support to each other during generator failure and hence reduces potential loss of supply to customers.

GAS

Town gas and liquefied petroleum gas (LPG) are the main types of fuel gas used in Hong Kong for domestic, commercial and industrial purposes. LPG is also used as a fuel by nearly all taxis and over 65 per cent of public light buses while natural gas is used for electricity generation and production of town gas.

Hong Kong has about 2.27 million gas customers in the domestic, commercial and industrial sectors of which town gas and LPG respectively accounted for 87.6 per cent and 12.4 per cent of total fuel gas sold in these sectors in terms of heating values.

Town gas is manufactured at plants in Tai Po and Ma Tau Kok, which have daily throughput capacities of about 10.0 and 2.6 million cubic metres respectively. A pipe network of some 3 600 kilometres supplies town gas to about 1.84 million customers.

LPG is imported into Hong Kong by sea and stored at five terminals on Tsing Yi Island before being distributed to approximately 430 000 customers and 67 LPG filling stations for LPG vehicles.

Natural Gas is imported from the Mainland China via submarine pipelines to the Black Point, Castle Peak and Lamma Power Stations for electricity generation and to Tai Po Plant for production of town gas.

On August 28, 2008, the Hong Kong SAR Government and the National Energy Administration signed the Memorandum of Understanding (MoU) on the enhanced supply of natural gas to Hong Kong, among other things, in the coming two decades. With the concerted efforts of all parties, the MOU has been implemented gradually, including the extension of nuclear electricity supply from Daya Bay Nuclear Power Station for another 20 years up to 2034 and the completion of the Hong Kong Branch Line of the Second West-East Natural Gas Pipeline in 2012. At present, new natural gas is being supplied to Hong Kong for power generation. Hong Kong can benefit from improved air quality by increasing the use of clean energy and reducing the emission of power plants.