



# Singapore



## Singapore's Business Environment

Singapore is one of the most conducive nations in the Asian region to do business. A strong government ensures a sound financial system with high banking standards. Its strategic position right in the heart of Southeast Asia is enhanced by its level of technology, excellent infrastructure, and its economic and political stability. The country is an ideal investment location given these factors on top of its free trade outlook. The competitive market remains a magnet for investors looking for a blend of east and west. The economic focus has moved from low end manufacturing and services to high value activities in a bid to attract foreign investments. MNCs find this an ideal place to set up a foreign base where they can coordinate regional procurement, production, marketing and distribution of their operations.

The investment promotion strategy now finds itself shifting towards knowledge-intensive manufacturing and service activities. Hong Kong aside, Singapore is Southeast Asia's financial hub. It has a successful and mature free market economy. Natural gas consumption in Singapore is forecast to increase as new combined-cycle gas turbines (CCGTs) come online and old power plants are re-engineered to use clean fuels. The increase in natural gas utilization complements the government policy aimed at reducing carbon dioxide and sulphur emissions. It also serves to achieve Singapore's vision as a regional gas trading hub.

A recent benchmarking study using

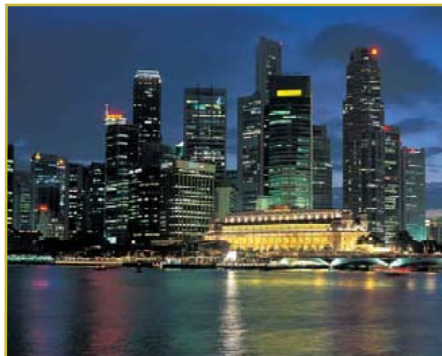


Photo: Bloomberg

2005/06 data has mapped Singapore with major cities globally, in terms of network performance and the grid charges that customers pay. KEMA Consulting, a renowned engineering and regulation consultancy, concluded that Singapore's network performance was rated the best in the world and that the grid charges were competitive. Customers in Singapore enjoyed the lowest shortest disruption and least frequent disruptions amongst the sample cities

## Overview

Prior to 1995, the electricity industry in Singapore was vertically integrated. Today, the electricity industry has been restructured for greater efficiency and competition. Companies that operate in the competitive parts of the industry (e.g. generation and retail businesses) have been separated from those that operate

## PROFILE

Capital	Singapore	Installed Capacity	10,606 MW
Area	704 km <sup>2</sup>	Population Electrified	100%
Population	4.59 million	Main Voltages (kV)	400, 230, 66, 22, 6.6
GDP	S\$229.123 billion	Natural Resources	–
Currency	Singapore Dollar		

the natural monopolies (e.g. the transmission and distribution business) at the ownership level.

The electricity retail market has also been liberalised to allow contestable consumers (currently those with annual consumption of 120,000 kWh and above) to buy electricity from retailers of their choice.

Singapore is totally dependent on

Generation Company	Singapore
Senoko Power Ltd	3,300
PowerSeraya Ltd	3,100
Tuas Power Ltd	2,670
Sembcorp Cogen Pte Ltd	785
National Environment Agency	251.2
Keppel Merlimau Cogen Pte Ltd	1,400
Island Power Company Pte Ltd	800
Keppel Seghers Tuas Waste-to-Energy Plant Pte Ltd	24

imported fuel for power generation. But it is self-sufficient in its energy production. It does not import or export electricity. There are currently seven generation companies in commercial operation. Another company, Island Power Company is expected to commence commercial operation in 2008.

There are currently 6 generation companies in commercial operation. Keppel Seghers is expected to commence commercial operation in 2009 whereas Island Power Company is expected to commence commercial operation in 2010.

### Demand Vs Supply - Past, Present & Future

In 2005, the peak demand for energy reached

5,475 MW. In 2006, energy demand reached a peak with 5,624MW. While 100 percent of the rural sector received electricity, the per capita consumption of electricity for the years 2002 to 2006 was 7,453 Kwh, 7,643 Kwh, 7,823 Kwh, 7,989 Kwh, 8,018 Kwh.

The generation of electricity on the other hand too has witnessed a steady growth over the years 2002 to 2006. Generation of all categories (hydro, thermal, nuclear, and others) was 34,664.5 Gwh in 2002, 35,330.6 Gwh in 2003, 36,809.6 Gwh in 2004, 38,212.7 Gwh in 2005 and 39,442.1 Gwh in 2006.

Future projections of the growth in power generation for all categories are: "add 800 in 2008," "add 450" in 2010 and "add 450" in 2011.

### Tariff

Electricity tariffs are reviewed and adjusted quarterly to account for changes in fuel costs. They are not subsidised.

Non-contestable consumers (mainly the households and small companies) buy electricity at regulated electricity tariffs. The electricity tariffs are reviewed and adjusted quarterly to account for changes in fuel costs. Fuel cost makes up about half the cost of producing electricity, making it the single largest cost component in producing electricity.

As Singapore produces no fuel of its own, it is totally dependent on imported fuel to generate electricity. Therefore, when fuel prices increase or decrease, electricity prices have to follow accordingly.

Contestable consumers (currently those with annual consumption of 120,000 kWh and above) can choose to buy electricity from the wholesale electricity market or from licensed electricity retailers.

If they buy from the wholesale electricity market, they will pay for electricity at half-hourly spot prices, which depend on the competition in the wholesale electricity market. If they buy from licensed retailers, they could negotiate an electricity price package with their retailer.

### Environment

Implementation to promote energy efficiency and policies for Environmental Preservation:

Singapore has ratified the United Nations Framework Convention for Climate Change (UNFCCC) and has acceded to the Kyoto Protocol in April 2006. As a non-Annex I party to the UNFCCC, Singapore is subjected to general commitments to respond to climate change.

These include, for example, compiling an inventory of greenhouse gas emissions and submitting reports (national communications) on actions being taken to implement the Convention.

The Ministry of the Environment and Water

Resources has set a national target of reducing Singapore's carbon intensity level (tonnes carbon dioxide emissions per dollar gross domestic product) by 25% between 1990 and 2012. In 2005, Singapore's carbon intensity was at 22 percent below 1990 levels.

Electricity generation is now dominated by gas-fired thermal plants. Going forward, the main emission control options available for electricity generators are to utilise more efficient technology and substitute carbon intensive fuels with low carbon fuels.

### Electricity Tariff (2006)

Tariff Category	Usage Charge	Q1 06	Q2 06	Q3 06	Q4 06	
Low Tension	Residential (S¢/kWh)	21.02	20.49	21.15	21.64	
	Non-residential (S¢/kWh)	21.02	20.49	21.15	21.64	
High Tension (Small) <1700 kWh	Contracted Capacity Charge (\$/kW/month)	7.04	7.04	7.04	7.04	
	Uncontracted Capacity Charge (\$/kW/month)	10.56	10.56	10.56	10.56	
	Peak period (S¢/kWh) 7am to 11pm	18.26	17.76	18.82	19.35	
	Off-peak period (S¢/kWh) 11pm to 7am	10.86	10.45	11.13	11.51	
	Reactive Power Charge (¢/kVArh)	0.59	0.59	0.59	0.59	
	High Tension (Large) ≥1700 kWh	Contracted Capacity Charge (\$/kW/month)	7.04	7.04	7.04	7.04
High Tension (Large) ≥1700 kWh	Uncontracted Capacity Charge (\$/kW/month)	10.56	10.56	10.56	10.56	
	Peak period (S¢/kWh) 7am to 11pm	18.20	17.64	18.70	19.23	
	Off-peak period (S¢/kWh) 11pm to 7am	10.85	10.44	11.12	11.50	
	Reactive Power Charge (¢/kVArh)	0.59	0.59	0.59	0.59	
	Extra High Tension	Contracted Capacity Charge (\$/kW/month)	6.74	6.74	6.74	6.74
		Uncontracted Capacity Charge (\$/kW/month)	10.11	10.11	10.11	10.11
Peak period (S¢/kWh) 7am to 11pm		17.26	16.70	17.60	18.13	
Off-peak period (S¢/kWh) 11pm to 7am		10.76	10.35	10.94	11.32	
Reactive Power Charge (¢/kVArh)		0.48	0.48	0.48	0.48	