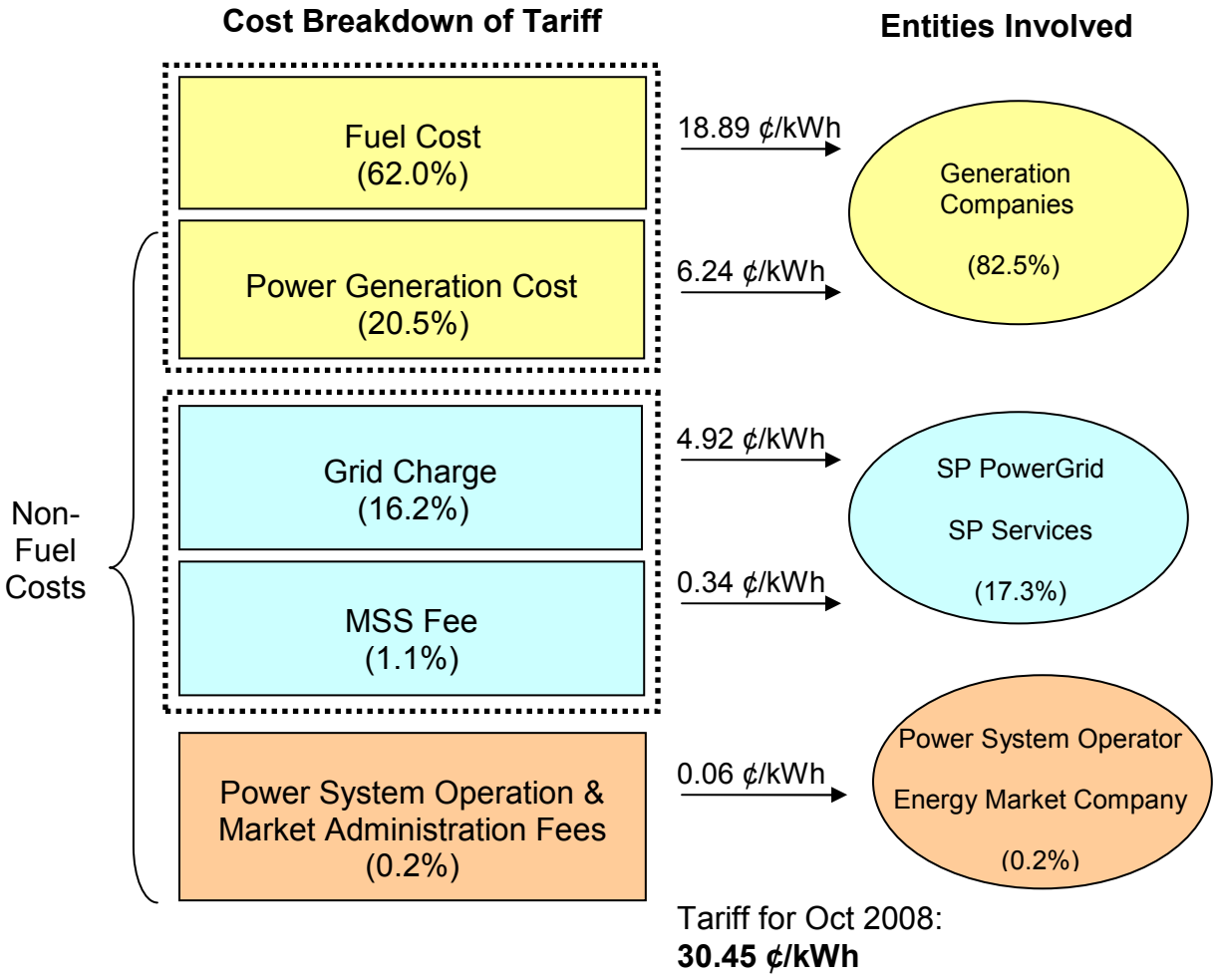
HOW IS YOUR ELECTRICITY TARIFF DETERMINED?

The electricity tariff for households is reviewed and updated every quarter. A significant proportion of the tariff is due to fuel cost (62.0%). The other costs include the power generation cost (20.5%); transmission and distribution costs (16.2%); market support services (MSS) fees (1.1%); and power system operation and market administration fees (0.2%). The diagram below shows the key components of the tariff and how they account for the overall rate of 30.45¢/kWh in October 2008.



As Singapore imports all our fuel for power generation, there is not much we can do about our fuel costs. However we can make an effort to keep our non-fuel costs down. As shown in the Annex, the non-fuel components of the electricity tariff have remained at about the same level throughout the year.

The following write-up provides an explanation of how each of the tariff components is derived.

(A) Fuel Cost (18.89 ¢/kWh)

Fuel cost is the single largest component in the electricity tariff. It is updated every quarter based on the three-month forward fuel oil price in the first month of the previous quarter. For example, the tariff for the October to December 2008 quarter is based on the 3-month forward fuel oil price in July 2008.

The 3-month forward fuel oil contract is traded in the commodities market. The daily price data can be found at the following website:
https://www.theice.com/marketdata/singFuelOil/singFuelOilIndex.jsp

For example, the average 3-month forward fuel oil price in the month of July 2008 was US$744.65 per metric tonne or US$114.56 per barrel (using a standard conversion factor of 6.5). This works out to S$155.14 per barrel at the exchange rate of US$1 = S$1.3542.

At this fuel oil price, the average gas price is S$27.269/mmBtu[1]. This is based on the gas contracts between the gencos and their gas suppliers. *(EMA cannot reveal further how the gas is priced as the information is commercially sensitive).*

The current most efficient gas-fired power plant has a heat rate[2] of 6929 Btu/kWh. This figure is reviewed every 24 months by EMA.

Based on the above parameters, the fuel cost can be computed as follows:

Fuel cost = S$27.269 / mmBtu * 6929 Btu/kWh

= S$27.269 / 1,000,000 Btu * 6929 Btu/kWh

= $0.1889 /kWh

= 18.89 ¢/kWh

(B) Power Generation Cost (6.24 ¢/kWh)

This is the non-fuel cost of power generation. It covers the costs of operating the power stations, such as the manpower and maintenance costs, as well as the capital costs of the stations.

[1] BTU or British Thermal Units is a standard unit of measurement used to denote the amount of heat energy in fuels. mmBTU refers to a million BTU.
[2] Heat rate is a measure of the efficiency of the turbine. It is determined from the total energy inputs supplied to the turbine divided by the electricity energy output, typically expressed in BTU per kilowatt-hour.

EMA reviews the power generation cost once every 24 months. The details of this review process are available at EMA's website at http://www.ema.gov.sg/doc/procedures.pdf. Within each 24-month review cycle, quarterly adjustments are made to account for inflation.

The power generation cost includes the cost of providing additional services by the generation companies, for example contingency arrangements to enable restart in the event of a system shutdown. It is further adjusted for transmission losses, as a small fraction (about 4%) of the power produced by the companies is dissipated in the transmission network.

(C) Grid Charge (4.92 ¢/kWh)

The grid charge is set by SP PowerGrid (SPPG) to recover the cost of transporting the electricity through the grid. Under the regulatory framework imposed by EMA, SPPG is allowed to set its grid charge at a level to recover its operating and capital expenditure, including a reasonable return to finance the investments needed to expand and maintain the grid infrastructure.

SPPG is incentivised under the regulatory framework to seek operational efficiencies, and pass on the savings to consumers. For example, the grid charge was reduced by 8-11% from 1 Oct 2008.

EMA reviews and updates the grid charge every year. Details of the grid charge are posted on SP's website at http://www.sppowerassets.com.sg/PDF/ts-usc.pdf

(D) Market Support Services Fee (0.34 ¢/kWh)

The Market Support Services or MSS fee is set by SP Services to recover the costs of billing and meter reading. EMA regulates the fee and reviews it every year. The MSS fee has remained flat for the past 5 years. As with the grid charge, there are incentives in the regulatory framework for SP Services to seek greater efficiencies in its operations.

(E) Power System Operation and Market Administration Fees (0.06 ¢/kWh)

The Power System Operation and Market Administration Fees are to recover the costs incurred by the Power System Operator (a division of EMA) to operate the power system to ensure reliability of electricity supply, and the Market Operator (the Energy Market Company) to administer the wholesale electricity market.

Annex

Breakdown of Household Tariff for 2008