IMPROVING GRID RESILIENCE

"We need robust, advanced and extensive electricity grids and gas grids in Singapore. Then we can operate the energy markets more efficiently, spur new areas for economic development and enhance our energy security."

- Dr Loo Han Lim

WHAT IS A POWER GRID?

A power grid allows electricity to be transmitted from power plants to our homes. It is a complex network for electricity transmission and distribution.

PROTECTING OUR POWER

As Singaporean energy grows in the 1970s and 1980s, we call for a robust electricity supply. This meant designing the right grids and facilities to make our energy secure. The grid was built with flexibility in mind to ensure reliability and stability as our energy supply grows.

DID YOU KNOW?

In the 1990s, Singaporean power grid was entirely independent. To improve the reliability of the grid, Singapore introduced a competitive system under GEMS (Generation and Supply Incentives) to encourage private sector and innovation.

Stepping up on voltage

110kV network across town:

The 110kV network network across town:

- Reaches up to 110kV in voltage.
- Supplies power to individual buildings.
- Helps in ensuring secure and efficient power supply.
WORLD-CLASS RELIABILITY

Singapore is constantly introducing better system monitoring technologies and reviewing our fuel mix to make our electricity supply more reliable and efficient.

"Today, Singapore enjoys one of the most stable and reliable electricity systems in the world, with an average interruption time of less than 1 minute per customer per year."

— Mr. Hig Wei Chong
Chief Executive of EMA

DID YOU KNOW?

Grid reliability can be measured by the number of minutes of disruptions per customer per year. This indicator is called System Average Interruption Duration Index (SAIDI).

Minutes Per Customer

System Average Interruption Duration Index (SAIDI) 2013

Source: EMA, SG, 2014

OUR FUEL MIX

On, coal and natural gas are fossil fuels that were formed millions of years ago. They are made of dead plants and animals burned by rocks, wind and sunlight. Countries rely primarily on these fossil fuels for their energy. However, burning fossil fuels results in the release of carbon dioxide and greenhouse gases that contribute to global warming. Some fossil fuels also release gas that damages the ozone layer or causes other pollution emissions than others.

Our energy mix over the years has evolved to incorporate more renewable energy.
OUR GAS NETWORK

Singapore has two separate networks supplying natural gas:

Town Gas Network:
- Supplied 95% of Singapore’s households
- Supplies energy for cooking and water heating
- Supplied by City Gas

Natural Gas Network:
- Serves mostly industrial and commercial users

THE DASH FOR GAS

Over the past decades, Singapore has partnered with neighbouring countries to source natural gas for our electricity generation.

1991
- Sembola Power Station was the first power plant in the region using natural gas from Penang, Malaysia.

2001
- First Indonesian pipeline supplies natural gas to Singapore’s generators.

2003
- Second Indonesian pipeline supplies from South Sumatra to Singapore was completed.

2007
- Second Malaysian pipeline supplies from Johor and Singapore began operations.

WHY NATURAL GAS?

Over the years, Singapore has used more natural gas and less oil for electricity generation. But why natural gas?

1. Natural gas provides electricity at a lower cost and is environmentally cleaner than using oil.
2. Natural gas contains less carbon than coal or oil.
3. The world’s consumption of natural gas reserves has increased significantly over the past decade.

DID YOU KNOW?

Singapore imports both piped natural gas and Liquid Natural Gas (LNG). LNG is primarily methane that has been cooled and condensed into liquid form. Singapore imports LNG from all over the world, further diversifying our energy sources. Find out more in our exhibits ahead.