I take great pride and satisfaction in working with my team to ensure the safe, reliable and efficient operation of our Tuas Power plant. When our plant is highly reliable, it means our families will always have the comforts of a modern home with a flick of the switch.

Mr Zaid Bin Hasmuni
Manager (Operations)
Tuas Power

I chose to specialise in electrical engineering as electricity is the backbone of our economy and is essential to our daily life. My job involves reviewing the regulatory standards for power generation and transmission. Through this, I find ways to improve our power system reliability for the benefit of everyone.

Mr Lee Yong En
Engineer
Electricity System Department
Energy Market Authority

WE ARE
Investing in infrastructure;
Exploring new energy options;
Developing manpower to support the growth of the sector.

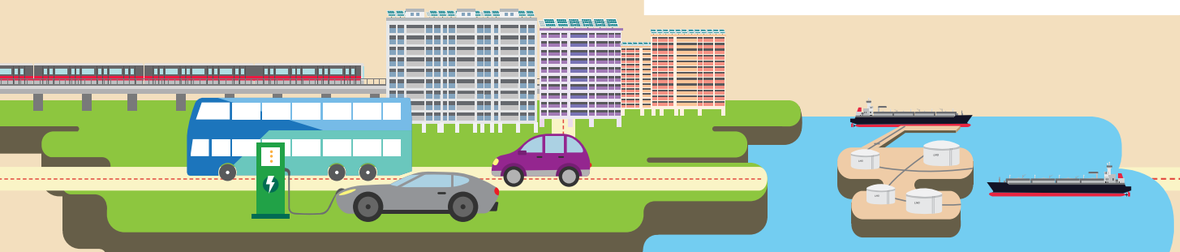
Prime Minister Lee Hsien Loong, on making our energy market and sector more resilient and flexible

Being a trader in the electricity industry is much more than staring at a computer screen and dealing with daily market uncertainties. I come to work every day with a sense of purpose and meaning, knowing that I am playing a part in securing Singapore's energy future by maintaining a stable supply of energy in a robust competitive environment that supports the Singapore economy.

Ms Lim Pei Rong
Energy Trading Executive
PacificLight Power

Mr Muhammad Suhaimi Bin Ismail
Senior Principal Engineer
Gas System Department
Energy Market Authority

The energy landscape is dynamic and evolving. Emerging technologies such as solar PV systems, energy storage and electric vehicles are gaining traction. It is thus important to keep up with developments and think out-of-the-box to meet these opportunities and challenges.



POWERING LIVES

"Powering Lives" is a collective representation of the Power sector in Singapore, which comprises the electricity and gas sectors. It conveys the critical role that the Power sector and its people play in sustaining Singapore's economic growth and in powering our everyday lives. It also reflects the vibrancy of the sector and wide range of opportunities available, in light of the exciting developments in the pipeline.

ENERGY MARKET AUTHORITY
Smart Energy, Sustainable Future

POWERING LIVES

TOWARDS A **GREENER, SMARTER** AND MORE **RESILIENT POWER SYSTEM**

THE NEXT ENERGY CHAPTER

Exciting trends shaping Singapore's energy demand, supply and sustainability

RISE OF SOLAR

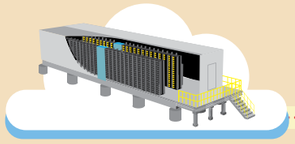
Singapore takes an integrated approach in growing the solar sector, by reviewing areas such as R&D, policy enhancement and government projects, so as to drive demand.

Pulau Ubin Micro-grid Test-bed

This test-bed aims to assess the reliability of electricity supply within a micro-grid infrastructure using intermittent renewable energy sources such as solar.

Building Solar Forecasting Capabilities

To better address the issue of solar intermittency, Singapore is exploring building a sharper solar output forecasting model that considers the vagaries of weather in Singapore.



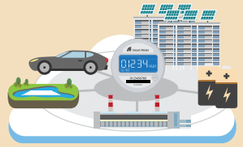
ENERGY STORAGE PROGRAMME

To facilitate the deployment of solar, EMA established an Energy Storage System (ESS) Test-bed to support the development and integration of large-scale, cost-effective ESS technologies.

While ESS is an emerging area, EMA is working with stakeholders to ensure that the policy framework keeps pace with evolving business models

EMA-SP ESS Test-bed

This joint test-bed aims to understand the feasibility of deploying grid-level energy storage technologies locally.



SMART GRIDS

Using advanced digital and two-way communication strategies, smart grids can:

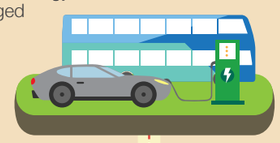
- Increase operating efficiency and reliability;
- Reduce carbon emissions by integrating clean energy sources; and
- Provide consumers with real-time energy usage information.

Smart Metering Trial

EMA, PUB and SP Group embarked on a trial to enable electricity, gas and water meters to be read remotely. This provides timely usage data to consumers, thereby allowing better consumption management.

ELECTRIC VEHICLES

Taxi and bus fleets have the biggest potential in the electrification drive. As the technology matures, motorists will be encouraged to buy such green vechicles.



DISTRICT COOLING

District cooling is an innovative urban utility service involving the centralised production of chilled water that is piped to commercial buildings for air-conditioning. Compared to in-building independent chillers, a district cooling system is superior in terms of asset efficiency, energy efficiency and service levels.

Singapore District Cooling (SDC) Plant

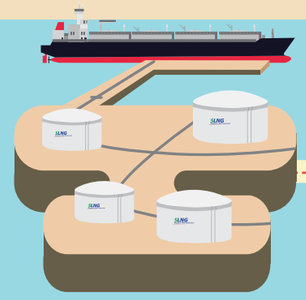
This is the world's biggest underground district cooling network. It is located five storeys below Marina Bay Sands, providing chilled water to many buildings in the Marina Bay Financial District.

SDC's customers can enjoy energy savings of more than **40%,** which could power **24,000** three-room HDB flats.

DEMAND-SIDE MANAGEMENT (DSM)

DSM encourages consumers to optimise their energy usage, so as to benefit the energy system by shifting peak demand.

This is bolstered by a study showing that every megawatt (MW) reduction of peak demand in Singapore translates to system-wide savings of about **S$1.6 million**.



GAS IT UP

The Singapore LNG Terminal allows Singapore to import natural gas globally. Building is underway on a fourth LNG storage tank, which will allow the terminal to better cater to different demands.

LNG trading is gaining traction. There are more than 30 LNG companies with an LNG trading or business development presence.

STATE-OF-THE-ART POWER PLANTS

Singapore's power generation companies have embraced more efficient combined-cycle gas turbine plants. This trend, combined with the rise of LNG, has increased the share of natural gas in Singapore's electricity generation fuel mix.

Keppel Infrastructure · PacificLight · sembcorp · Senoko energy · SLNG Singapore LNG Corporation · SPgroup · Tuas Power Generation · YTL PowerSeraya

POWER SYSTEM CONTROL CENTRE (PSCC)

At the heart of it all, EMA's PSCC is responsible for the reliable supply of electricity to consumers, and also ensures the security of Singapore's power system.

RELIABLE POWER GRID

Singapore continues to strengthen its infrastructure to power the lives of Singaporeans and the economy.

SINGAPORE POWER'S ELECTRICITY CABLE TUNNEL PROJECT

2	18	60m	35km	6m
Tunnels	Shafts	Deep	Long	Inner Diameter of Tunnel

When completed in 2018, it will enhance efficiency in the maintenance and replacement of cables, thereby reducing the need for road-digging works.

- 3 Metres — Sewage, Current Power Grid & Natural Gas Pipes
- 12 Metres — Underground Expressways
- 30 Metres — Underground MRT
- 40 Metres — Drainage System
- 60 Metres — Electricity Transmission Main Artery

Process Steam · Power · Industrial Wastewater Treatment · Industrial Water · On-site Logistics

MULTI-UTILITIES BUSINESS

Companies in the sector, such as Sembcorp, Tuas Power and YTL PowerSeraya, have gone beyond generating electrons to offer integrated energy, water and on-site logistics services.

NATIONAL ELECTRICITY MARKET OF SINGAPORE (NEMS)

Singapore's electricity is bought and sold through the Energy Market Company in the NEMS. Generation companies put in an offer every half-hour to sell electricity into the market.

Project Optiwatt

This pilot programme explores DSM initiatives to demonstrate the benefits of optimising energy consumption.

Interruptible Load Programme

This is the reduction in energy consumption by a load facility, so as to restore demand and supply imbalances in the system.

Consumers will be paid to be on standby in response to system contingency events. This can also enhance system resilience.

Open Electricity Market

Since May 2019, all consumers (including households) have been able to choose their electricity retailer. Consumers can benefit from retailers offering diverse electricity plans, including fixed price plans and discount off the regulated tariff plans.

ELECTRICITY FUTURES MARKET

EMA, in partnership with the Singapore Exchange and the electricity industry, launched the Electricity Futures Market in 2015. As more independent electricity retailers enter the market, it acts as a platform for the electricity industry and consumers to hedge their risks. This can lead to a more efficient and competitive market, with long-term benefits for consumers.