

Overview of Singapore's Electricity Industry



About EMA

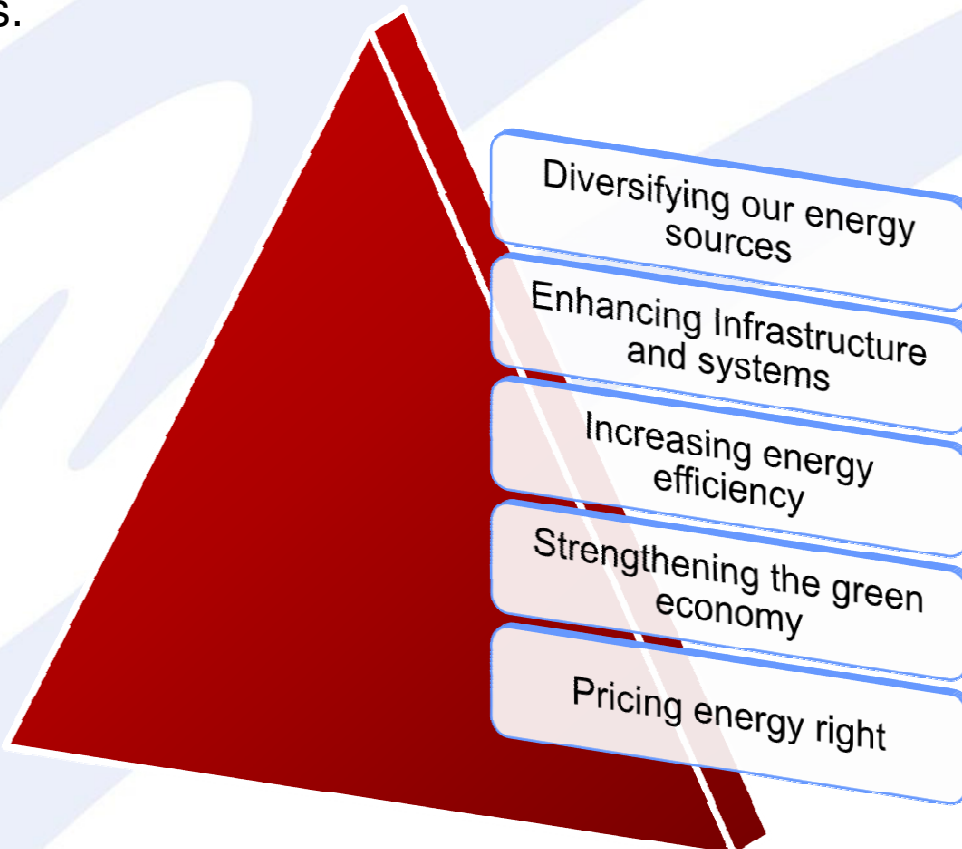
• Established in 2001, EMA is a statutory board under the Ministry of Trade and Industry which regulates the energy market including electricity and gas industries.

•EMA's main goals are to:

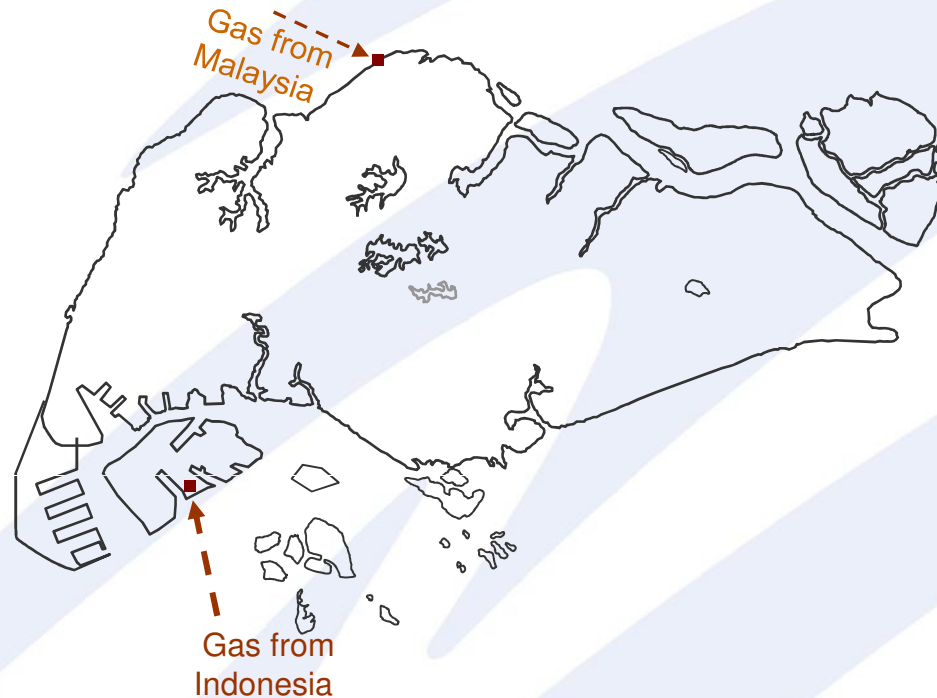
(1) ensure a reliable and secure energy supply;

(2) promote effective competition in the energy market; and

(3) develop a dynamic energy sector in Singapore.



Overview of Singapore's Energy Landscape



- No significant energy resources – dependent on imports for energy needs.
- About 80% of Singapore's electricity is generated using imported natural gas – vulnerable to price fluctuations and supply disruptions
- Singapore faces additional challenge of being alternative energy disadvantaged – limited scope to deploy solar and wind energy on a large scale.

Restructuring of the Electricity Industry

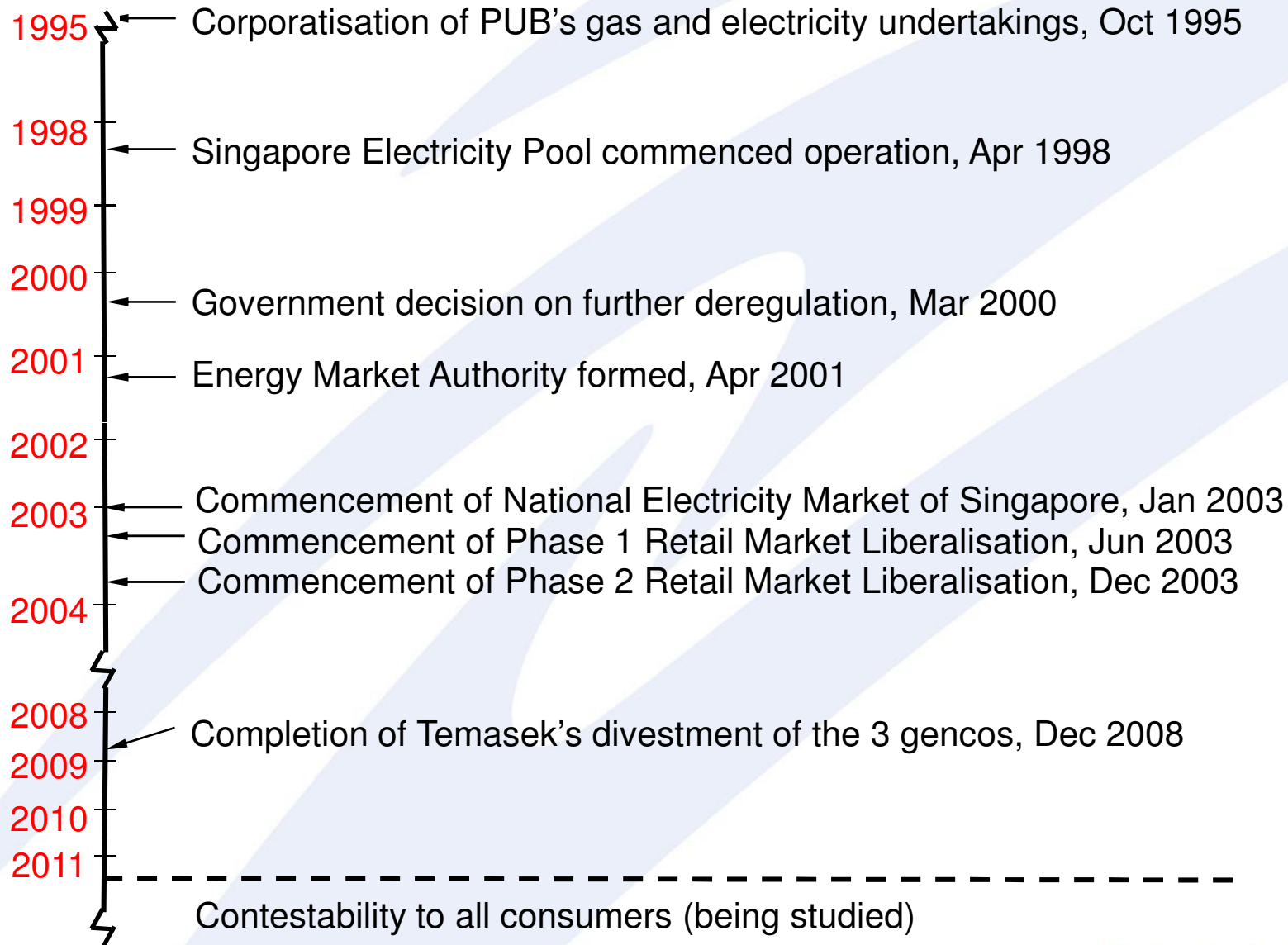
Main impetus for restructuring

- To enhance competitiveness of energy market
- Establish efficient energy business models and infrastructure
- Ensure right pricing for energy resources

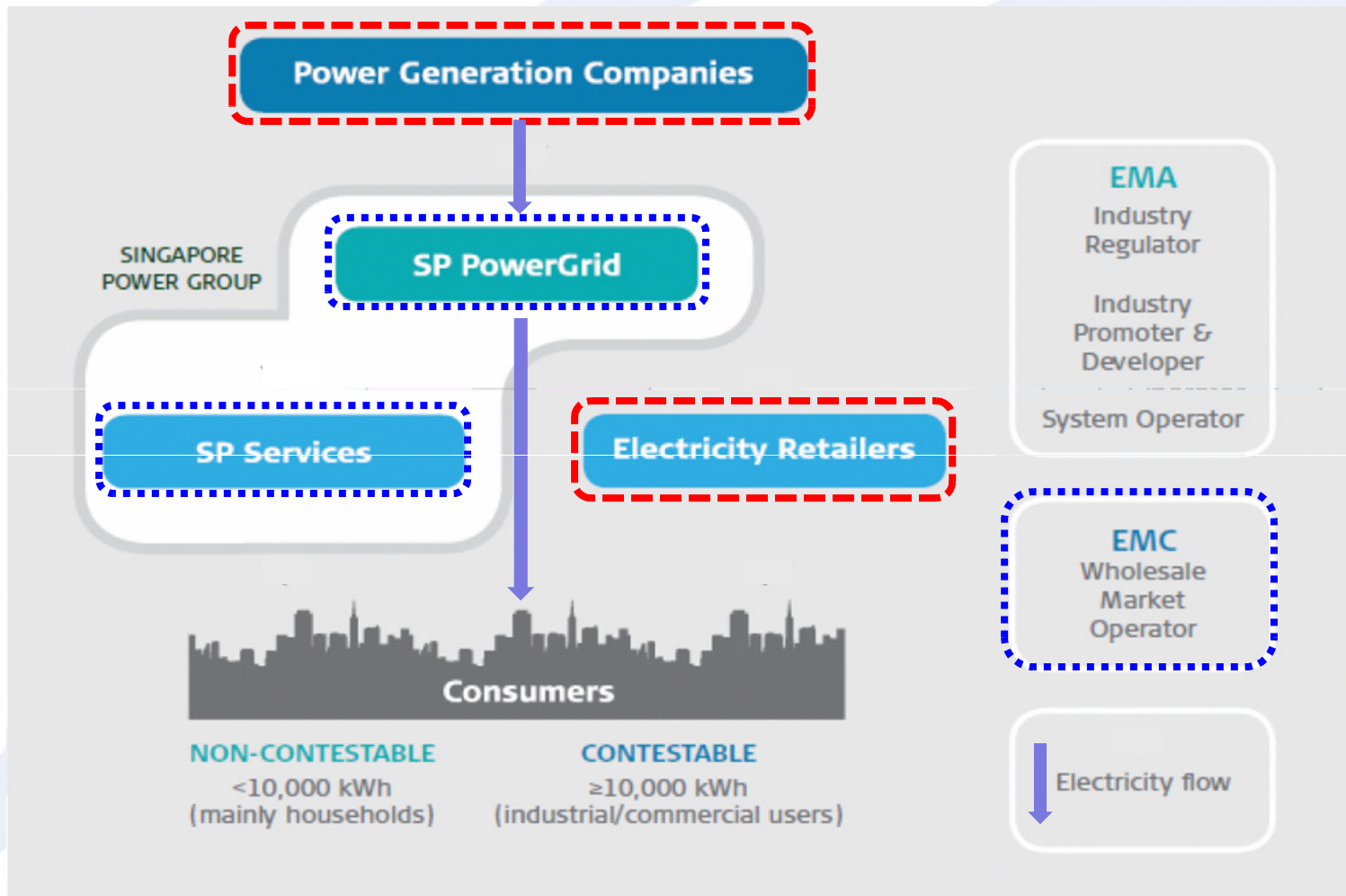
Key Initiatives

- Clear separation of contestable/competitive businesses to ensure level playing field
- Open access to monopoly infrastructure

The Electricity Industry Milestones



Electricity Industry Structure today



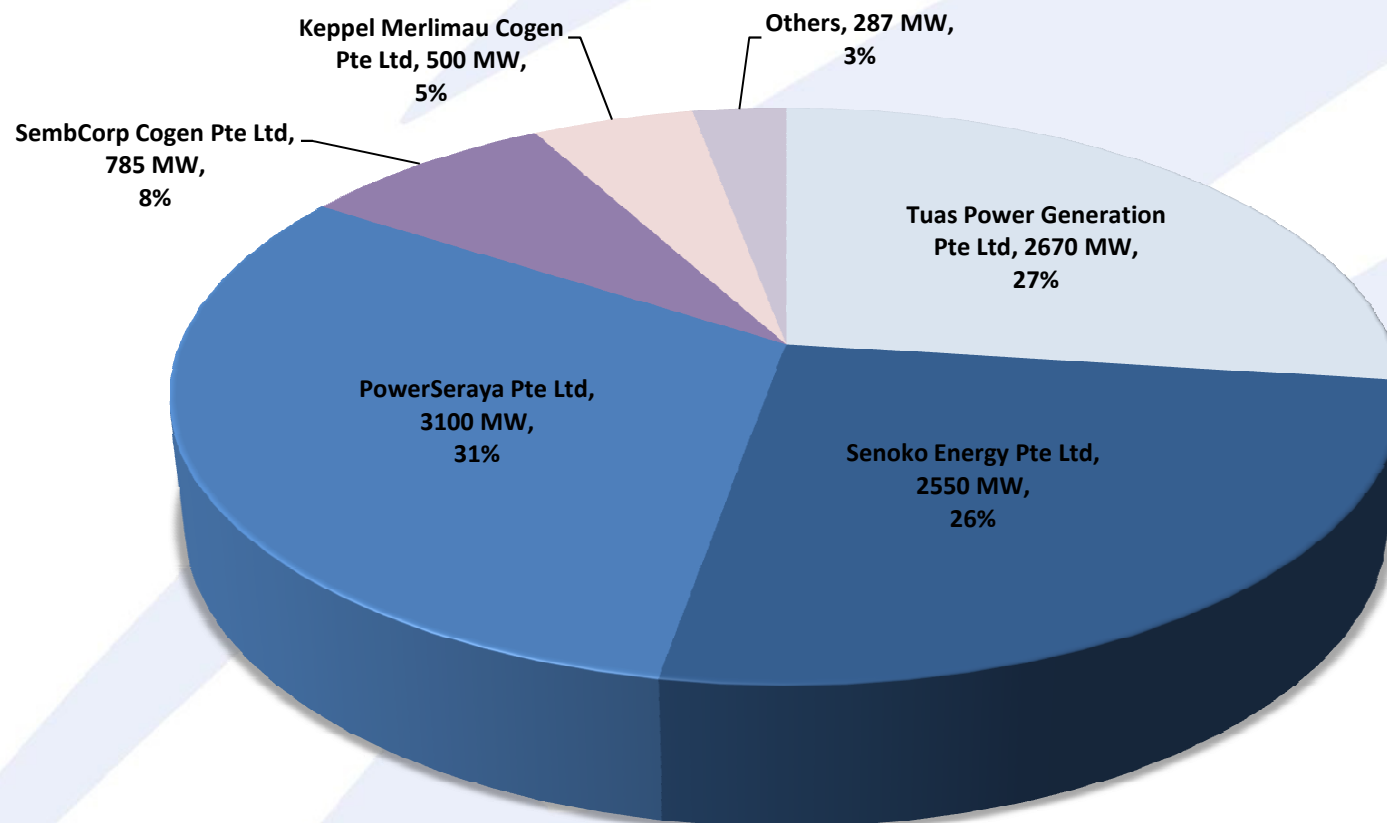
..... Non-Contestable Sector

- - - - Contestable Sector

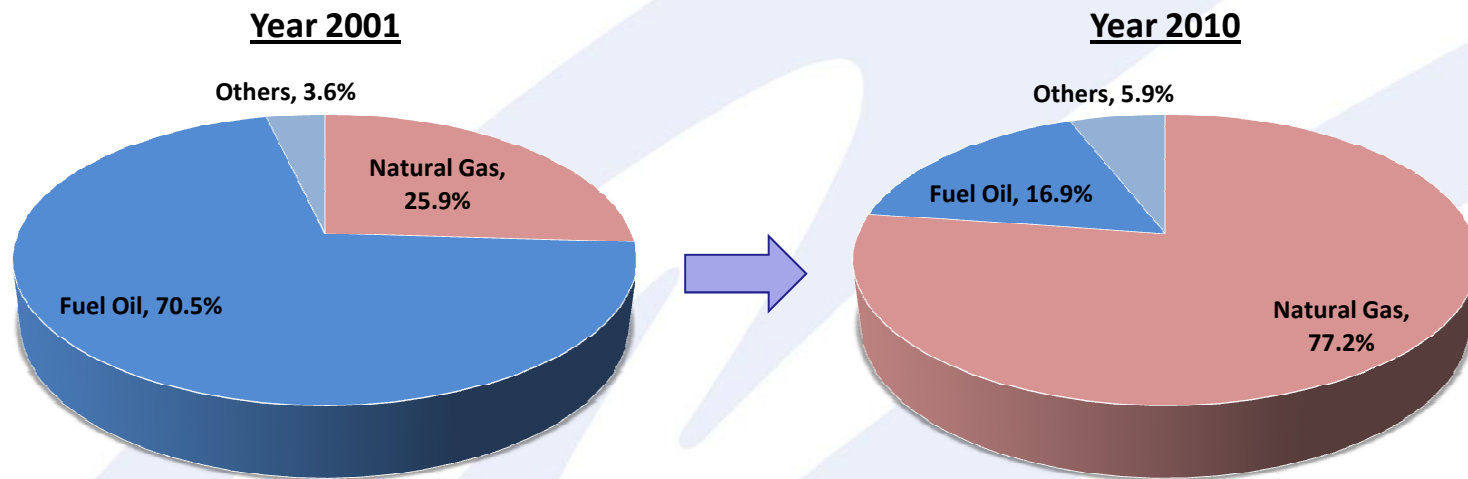
Regulatory Philosophy

Contestable Sector (Gencos, Retailers)	Monopoly Sector (SP PowerGrid, SP Services, EMC)
<ul style="list-style-type: none">✓ regulate with light touch✓ rely on market signals✓ ensure level playing field✓ Low barriers to entry and exit✓ Transparent rules and consistent application of rules	<ul style="list-style-type: none">✓ Open access to monopoly infrastructure✓ regulate revenue/prices✓ Set performance standards✓ incentivise efficient behaviour✓ share cost savings with consumers

Licensed Generation Capacity (as of 1 Jan 2011)



Fuel Mix for Power Generation



Electricity Wholesale Market

Market Mechanism

- Gencos bid half-hourly to sell electricity
- Retailers/contestable consumers buy electricity

Market Operator

- Electricity Market Company (EMC) performs market clearing and settlement functions

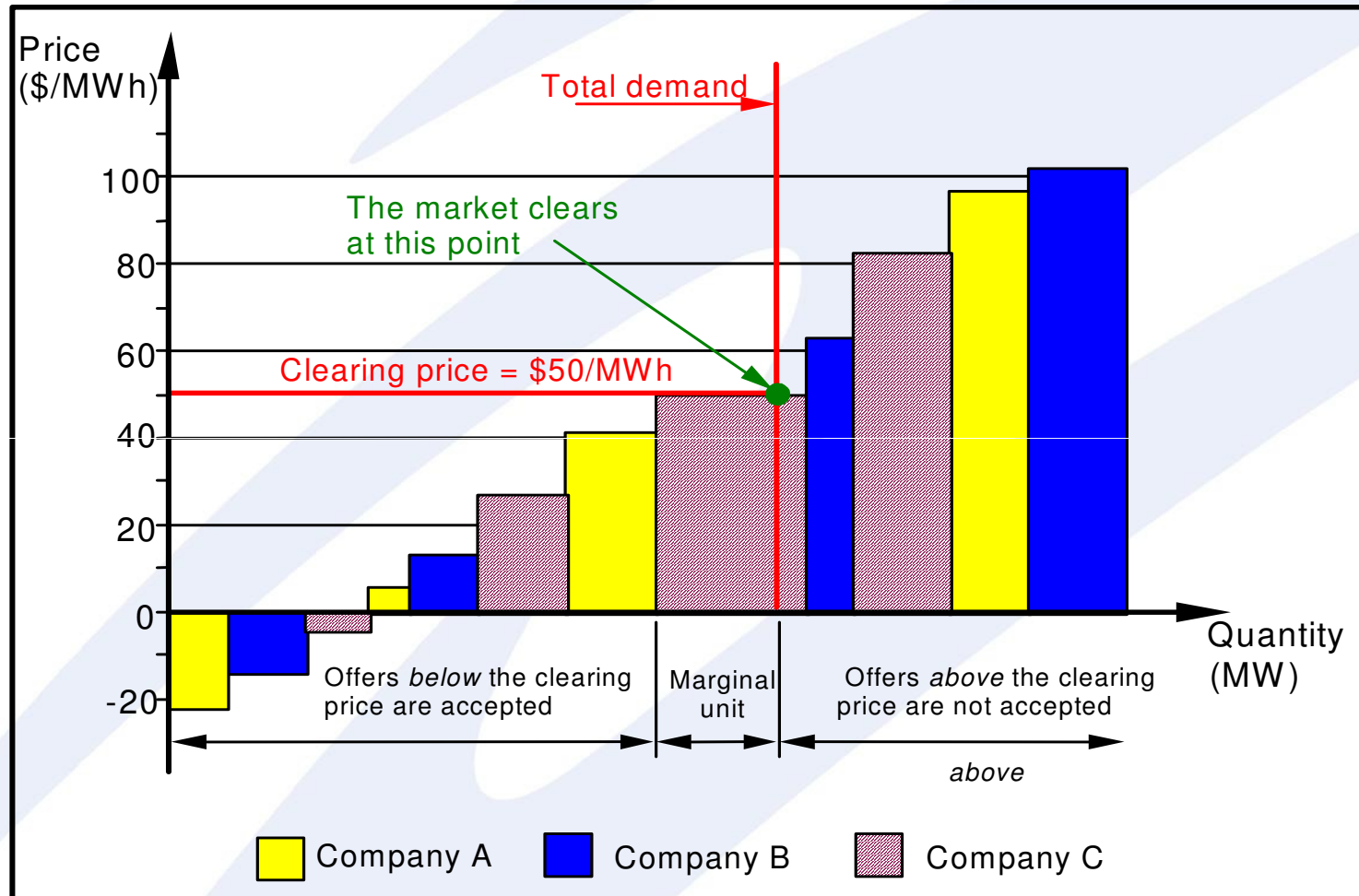


Electricity Market Company

Background

- Market company licensed by EMA and operate and administer wholesale electricity market.
- Joint venture between EMA (51%) and M-co (49%), a New Zealand-based specialist operator of energy markets
- EMC is like the stock exchange for electricity, providing the IT systems, the trading environment and the governance for the market.
- Also involved with governance, dealing with market compliance and dispute settlement.

Market Clearing Price



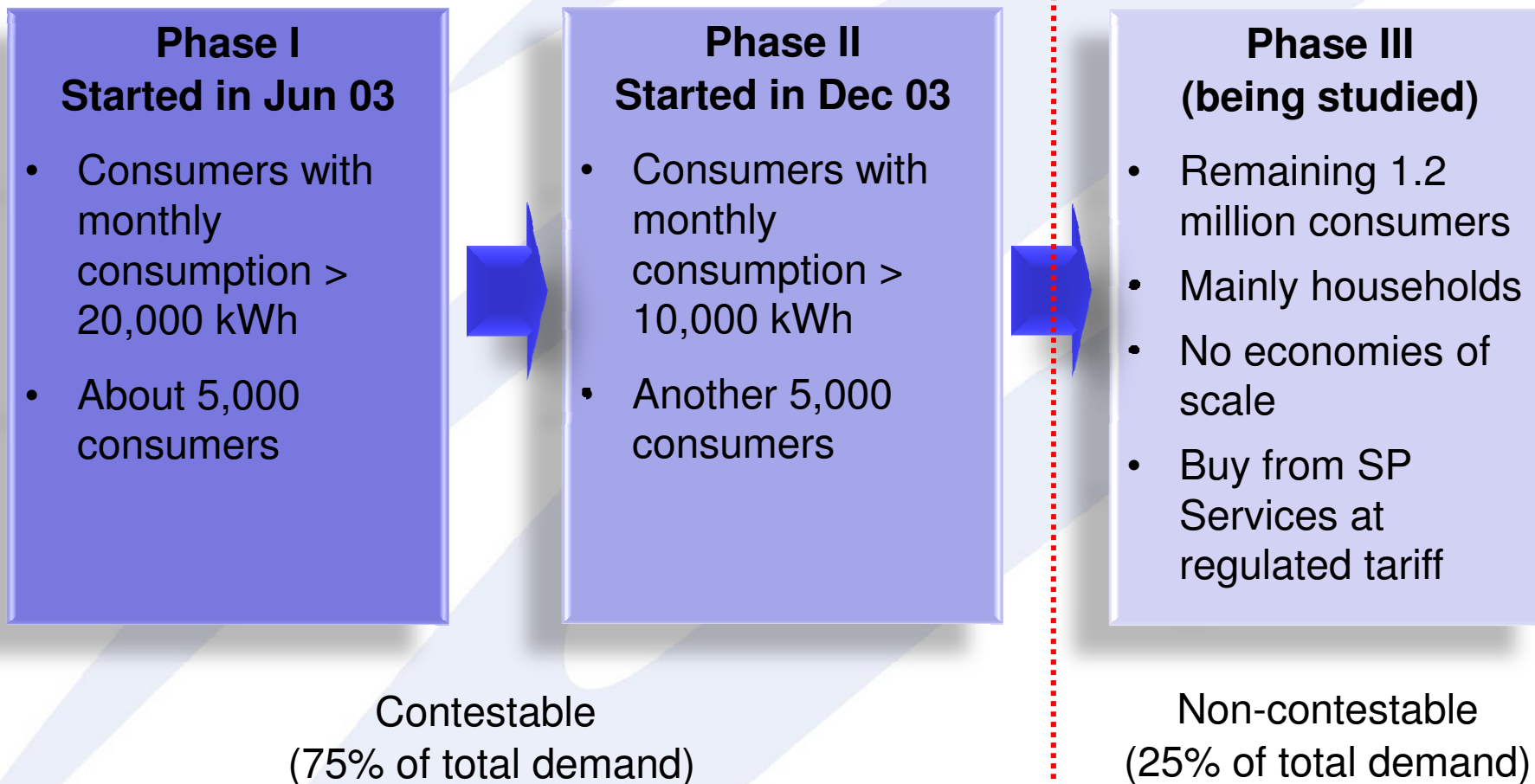
Vesting Contracts

- To curb exercise of market powers by the gencos, EMA introduced Vesting Contracts in 2004 - Gencos to sell a specified amount of electricity at specified price.

	2004	Mid-2007	2011	2012	Ultimate Goal
Vesting Cover	65%	55%	60%	55%	0%
Vesting price	LRMC of most economic power plant in Singapore				

- Vesting Price set by EMA based on Long Run Marginal Cost of the most economic generation technology in operation in Singapore and that contributes to more than 25% of total demand.

Contestable & Non-Contestable Consumers



Choices of Electricity Purchase

- There are 3 ways a Contestable Consumer can buy electricity in the liberalised electricity market:
 - 1) From a licensed electricity retailer
 - 2) Directly from the wholesale market as a direct market participant
 - 3) Indirectly from the wholesale market through SP Services
- Non-Contestable Consumers will buy electricity from SP Services at Regulated Tariffs

Pricing Plans for Electricity Purchase

- The Contestable Consumer at present has the following pricing plan options available in the market:
 - 1) Fixed price contracts
 - 2) Fuel-indexed contracts
 - 3) Peak and off-peak contracts
 - 4) Pegged-to-tariff contracts
- EMA does not regulate the form of contracts to be offered by the retailers.

Achievements thus far

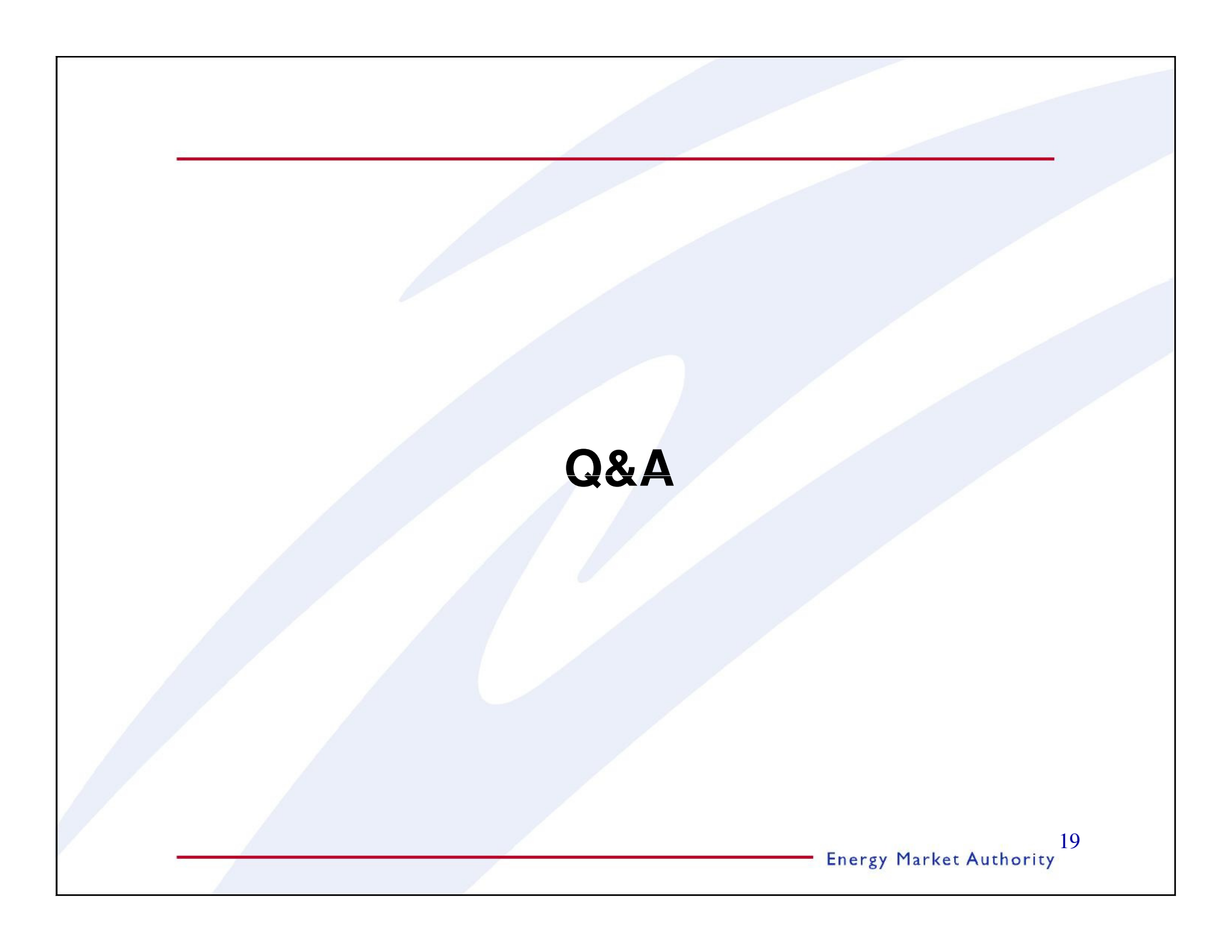
1) Competition has motivated gencos to switch from oil-fired steam plants to more cost efficient gas-fired plants. If not, electricity prices today would be about 15 per cent higher.

2) Liberalisation of the electricity market has also seen consumers benefit from greater choice of retailers, and pricing plans.

3) In the non-contestable sector, effective regulation has also brought about reduction in rates in recent years, while at the same time maintaining the high performance of the grid



Thank you



Q&A