

- The Transmission Licensee (TL) is required under the Transmission Code to submit the rolling 10-Year Transmission Network Development Plan for EMA's approval annually
- The 10-Year Plan consists of detailed plans for the augmentation and expansion of the 400 kV and 230kV networks for the next 10 years, and the 66kV network for the next 5 years
- Objective is to ensure cost-efficient development of the transmission network to meet electricity demand growth taking into consideration system security and reliability
- In the 10-Year Plan, the TL will propose transmission projects to meet demand growth as well as to replace ageing assets
- The TL recovers the cost of the grid enhancements that EMA approves through the grid charges i.e. the cost is smeared across all electricity consumers

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## TRANSMISSION NETWORK PLANNING CRITERIA

- a) Under normal system operating conditions, all equipment shall operate within their normal thermal ratings;
- b) Under single contingency conditions, all equipment shall, as far as possible, operate within their maximum continuous ratings and voltage limits immediately after the contingency. There should not be any power interruption, prolonged excessive overloading on the remaining network, inability in system voltage regulation, cascading of more than one network element or system instability;
- c) Under less probable contingencies with normal fault clearing if applicable, the power system shall not suffer from voltage collapse, cascading of more than one network element, or system instability. Network switching or adjustment of generator output may be necessary to relieve any network overloading. Load shedding may be activated to ensure system security and stability; and
- d) Under extreme contingencies, the power system shall maintain steady state and dynamic stability. Means such as progressive automatic load shedding shall be provided to limit the impact of such severe disturbances.

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## PLANNING CRITERIA FOR GENERATION CONNECTION

- Under the Transmission Code, the Transmission Licensee (TL) is required only to plan for generation connection, such that a Genco has 100% export capacity from its switchhouse to TL's connecting substation under normal operating condition
- Beyond the connecting substation, the Genco will have to compete with the other Gencos for network resources, should there be a constraint

# FINANCIAL PENALTY FRAMEWORK FOR POWER FAILURES AND VOLTAGE DIPS



- EMA imposes a performance standard and penalty framework on the Transmission Licensee, SP PowerAssets (SPPA), to control power failures and voltage dips caused by them
- Under the framework, financial penalty will be imposed on SPPA for power failure or voltage dips caused by SPPA's actions or that could have been averted if SPPA had taken appropriate measures.

# PERFORMANCE STANDARDS FOR THE TRANSMISSION LICENSEE



<b>Service Dimension</b>	<b>Service Indicator</b>	<b>Service Standard</b>	<b>Performance Target (%)</b>
Availability of Supply	Minimum advance notice for planned interruption of electricity supply.	7 calendar days	95
Reliability of Supply	Number of power failure incidents* caused by failure of, damage to, or operation of Licensee's equipment or cables.	0	100
Restoration of Supply	Time taken to restore electricity supply for each power failure due to failure of, damage to, or operation of Licensee's equipment or cables rated at 22kV and below.	3 hours	100
		2 hours	90
Quality of Supply	Time taken to rectify voltage complaint or limit violation.	2 calendar days	95
	Time taken to correct a voltage complaint that requires network reinforcement.	6 months	99
	Number of voltage dip incidents* due to failure of, damage to, or operation of Licensee's equipment or cables.	0	100



# PERFORMANCE STANDARDS FOR THE TRANSMISSION LICENSEE

Service Dimension	Service Indicator	Service Standard	Performance Target (%)
Providing Supply	Time taken to implement electrification scheme requiring new substations after take-over of substation (up to 22kV).	10 weeks	90
	Time taken to implement service connection requiring cable installation work, after premises to be supplied with electricity is ready to receive cable.	6 weeks	90
Customer Contact	Time taken to reply to a written enquiry or complaint.	7 working days	95
Metering Services	Time taken to attend to meter problem at site upon notification.	8 calendar days	95

# **Inter-Dependent Electricity and Gas Systems**

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- Highly reliant on natural gas for power generation.
- Security and reliability of gas system has significant impact on electricity system.
- Effective and efficient co-ordination required, especially during system emergency.

# Regulatory Framework to Enhance Fuel Changeover Reliability of Gas-Fired Generating Plants



- When a combined-cycle gas turbine (CCGT) fails a fuel changeover (FCO), the Genco is required to perform 3 successful consecutive FCOs within three months.
- The Genco is also required to engage its OEM at its own cost to determine the underlying causes of the FCO failure and submit a report to EMA.
- EMA may require the Genco to engage an independent technical auditor to conduct a separate audit, depending on the quality of the OEM's report.
- In addition, the Genco is subject to a financial penalty framework.



# MORE BUSINESSES CAN BUY ELECTRICITY FROM RETAILERS OF THEIR CHOICE

## Current Threshold

Consumption  $\geq$  **4,000 kWh**

Monthly electricity bill of at least \$1,100\*

## Threshold From 1 July 2015

Consumption  $\geq$  **2,000 kWh**

Monthly electricity bill of at least \$550\*

Consumers can add up their electricity usage across different locations in Singapore to meet the prevailing threshold.



\* The monthly electricity bill is estimated based on the regulated tariff of 25.28 cents/kWh (before GST) for Q4 2014.

# What are your CHOICES?



**1** Switch to become a Contestable Consumer

OR

**2** Remain as a Non-Contestable Consumer

Electricity supply to your business will not be affected by the choice you make.

CHOICE A



Buy from an Electricity Retailer under customised price plans

CHOICE B



**SP SERVICES**  
*A member of Singapore Power Group*

Buy from the Wholesale Electricity Market through SPS



**SP SERVICES**  
*A member of Singapore Power Group*

Buy from SPS at the regulated tariff

# OPTION TO SWITCH BACK TO BUY AT THE REGULATED TARIFF

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- From **1 July 2015**, a small contestable consumer is allowed to switch back to buy electricity from SP Services at the regulated tariff
- To qualify, his average monthly electricity consumption for **ALL** his commercial or industrial accounts must be **less than 4,000 kWh** at the point of application to SP Services.



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# Q&A