

# Smart Networks in Hong Kong

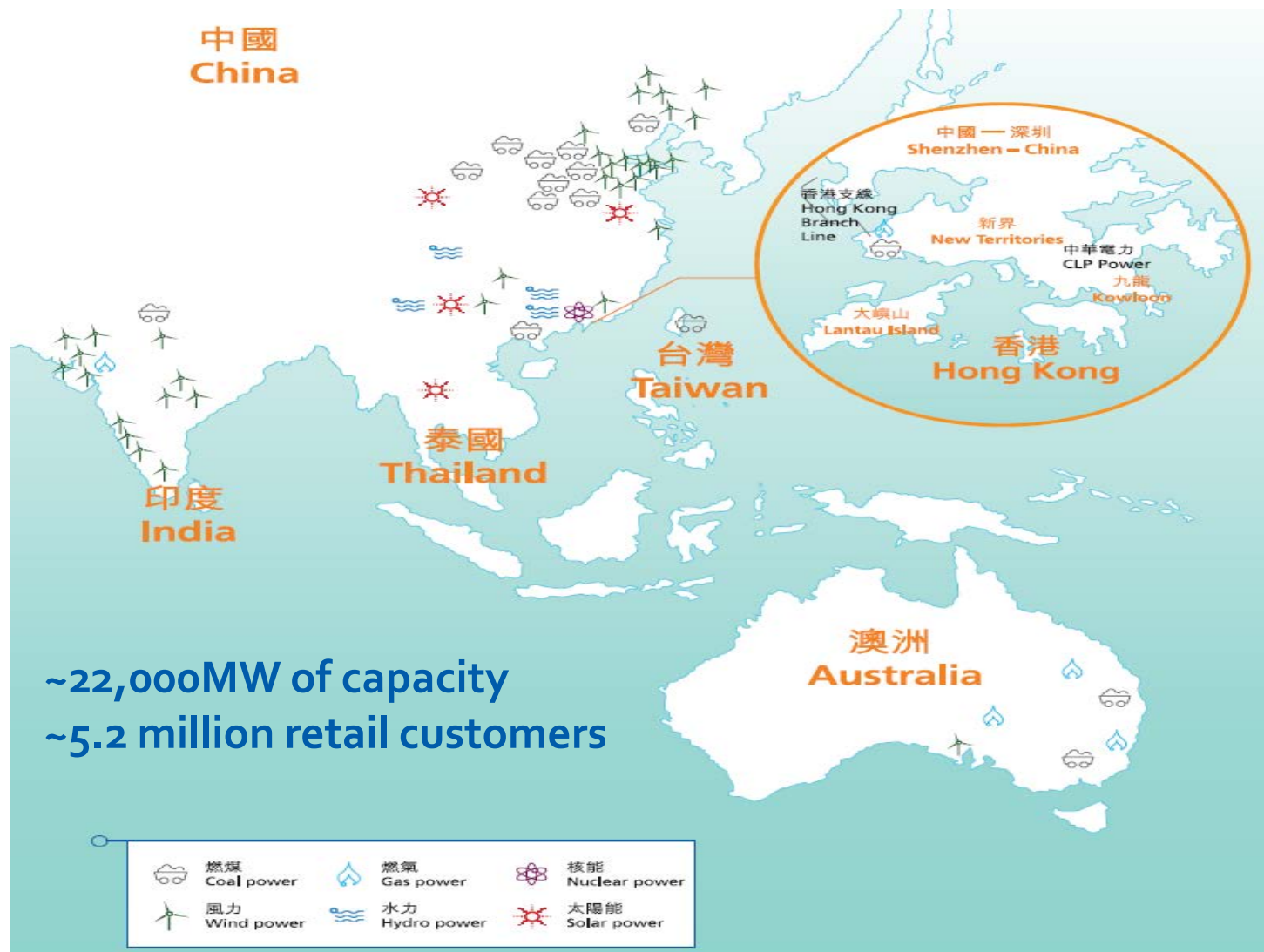
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# CLP Group



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# CLP Hong Kong

*Supplying electricity to 5.9m people (80% of HK)*



- 115 year old privately owned vertically integrated power supply business
- Supplies 5.9m people with electricity (80% of HK)
- 2.4 million customers
- 8,888MW of capacity
- Total Area: 1,104 km<sup>2</sup> (HK)
- Total Population: 7.3m (HK)

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# Performance



## RELIABLE AND SAFE SUPPLY

Unplanned Customer Minutes Lost Per Year



Remarks: 2012 – 2014 average for CLP Power, 2011 – 2013 average for all other cities

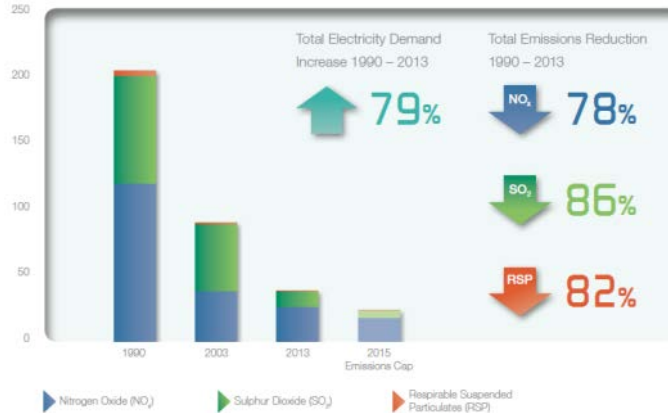


## CARE FOR THE ENVIRONMENT

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### Lower Emissions Even As Electricity Demand Rises

Total Emissions (Kilotonnes)



## REASONABLE TARIFFS

Electricity Tariffs

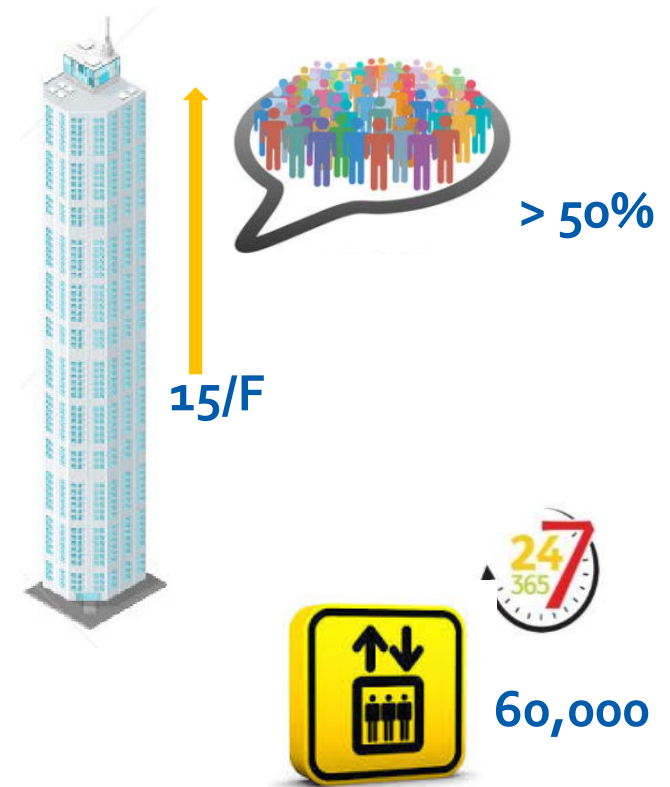


Remarks: Based on average monthly domestic tariff consumption of 275 kWh. Tariff and exchange rate at January 2015

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# Hong Kong's Unique Environment

- Densely-populated vertical city, > 50% live or work above 15th floor
- >60,000 lifts, and ~5 million people rely on public transport
- Public expects better environment while maintaining same tariff
- All fuels are imported
- Regulated electricity industry through contractual arrangement





# Roles and Responsibilities

- Innovation through structured relationship with government (regulator)
  - 5- year development plans
  - CLP initiates and prepares strategic plan
  - Traditional cost-benefit evaluation process
- CLP operates and maintains assets as well as produces strategic plans
  - Generation
  - Power Networks
  - Customer Services
- Recent trends in Hong Kong
  - Government-led public consultation proposed extension of existing regulatory structure with increased use of incentives
  - Government formed Innovation and Technology Bureau
  - Government leading smart city development area

# Smart Grid Examples

- Hong Kong has implemented selected projects
  - Distribution Automation
  - Self healing functionality
  - ~40% of load has smart meters utilizing satellite communications
- Notable absence is a comprehensive smart metering program which would enable extensive customer engagement
  - Traditional cost-benefit analysis does not support
  - Metering costs are low due to high population density
  - Pilot studies showed limited interest from customers
    - Electricity prices are low portion of customers monthly expenses
- Renewable microgrid on isolated islands
- Renewable capacity is limited by land supply

# Job not done safely is not done



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