

Update on Singapore's Energy Efficiency measures to contribute to APEC's 45% Energy Intensity Reduction Target

43rd APEC Expert Group on Energy Efficiency & Conservation Meeting
10 April 2014, Honolulu, USA

Outline

- Singapore's Energy Policy;
- Energy Efficiency - a Key Mitigating Strategy for EI reduction;
- Whole-of-government approach and Energy Conservation Act;
- Demand Response Programme;
- 'Bill redesign' pilot to raise awareness on energy consumption

Singapore's Energy Policy

Our Challenges

Resource & alternative energy disadvantaged

Energy importer and price taker

Small, urbanised environment poses constraints on fuel sources we can use

Our Approach

Economic competitiveness

Diversifying our energy sources

Enhancing infrastructure and systems

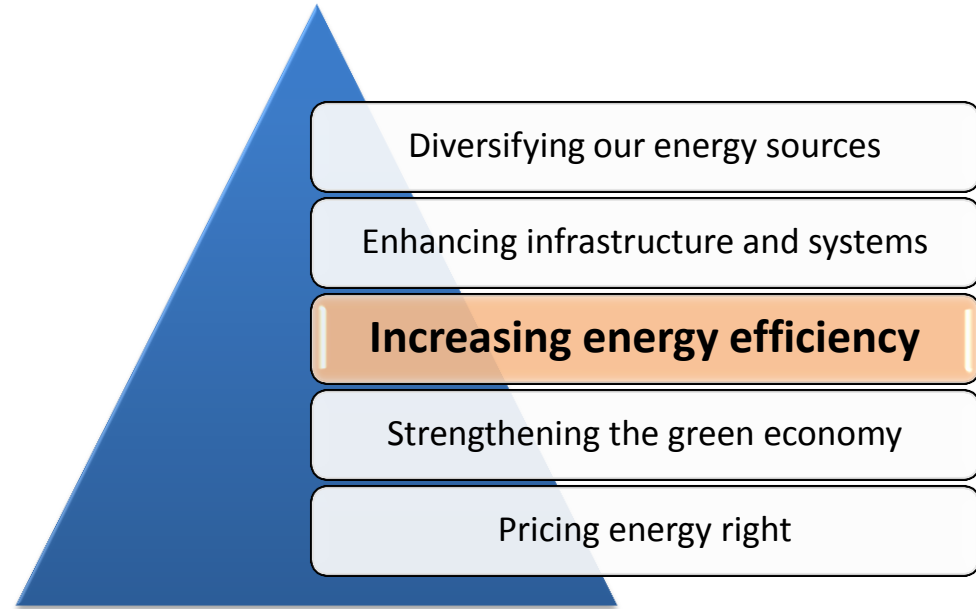
Increasing energy efficiency

Strengthening the green economy

Pricing energy right

Environmental sustainability

Energy security



Energy Efficiency - a Key Strategy....

- To achieve a 35% reduction by 2030 (from 2005 levels) in economy-wide energy intensity;
- EE effort involves addressing sector-specific barriers with incentives:

Barriers to EE	Policies & Measures	
Limited capital	Fiscal tools	Levies, subsidies, rebates
High upfront costs		EE financing Schemes
Lack of information	Capacity building tools	Certification training programmes
		Educational programmes
Split incentives	Regulatory tools	Mandatory EE standards
		Mandatory reporting/audits

- Energy is not subsidised to discourage wasteful consumption

Sectoral measures to improve EE ...

Power generation Households

Switch from fuel oil to natural gas



Tighten Minimum Energy Perf Stds for air-conditioners and refrigerators (2013) and extend to lighting & more appliances (2014)



Buildings

Developed the Green Mark Certification for all new buildings and retrofitted existing buildings



Transport

Achieve 70:30 for public and private transport and Carbon-emissions based Vehicle (CEV) scheme

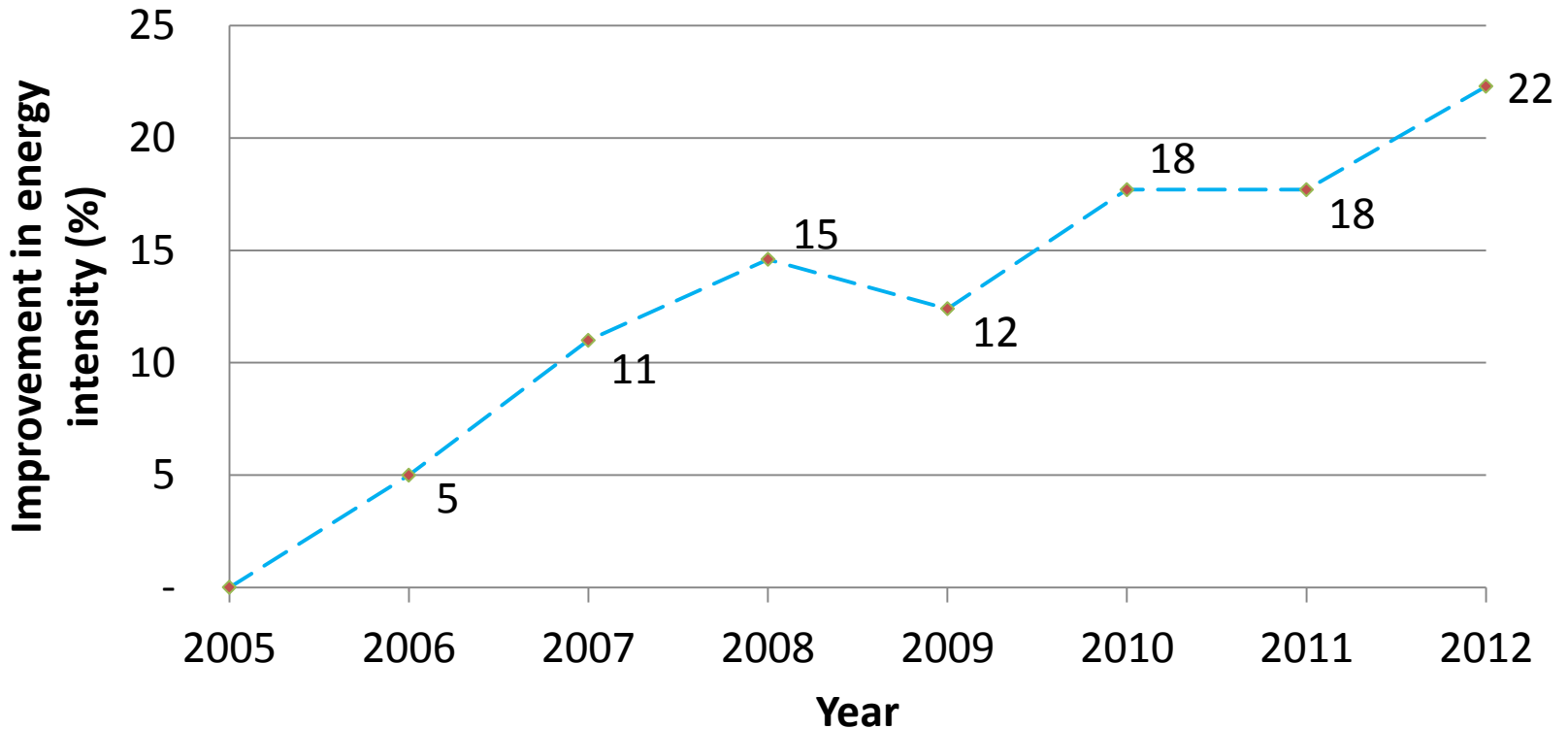


Industry

EE financing schemes, encourage co-generation,



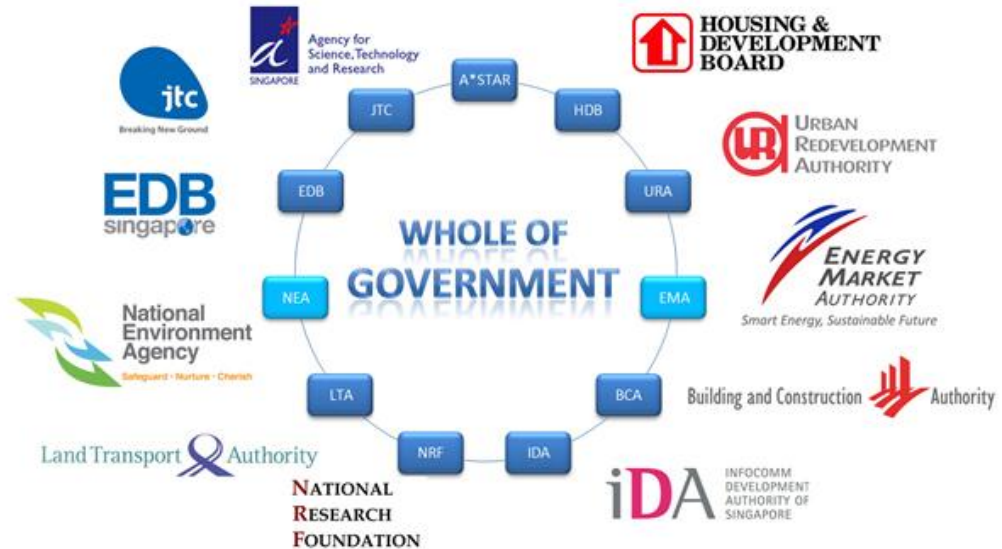
Where Are We Now?



22% improvement in energy intensity in 2012 compared to 2005

Whole-of-Government approach...

..to promote and facilitate adoption of energy efficiency in Singapore across the various sectors by the respective agencies.



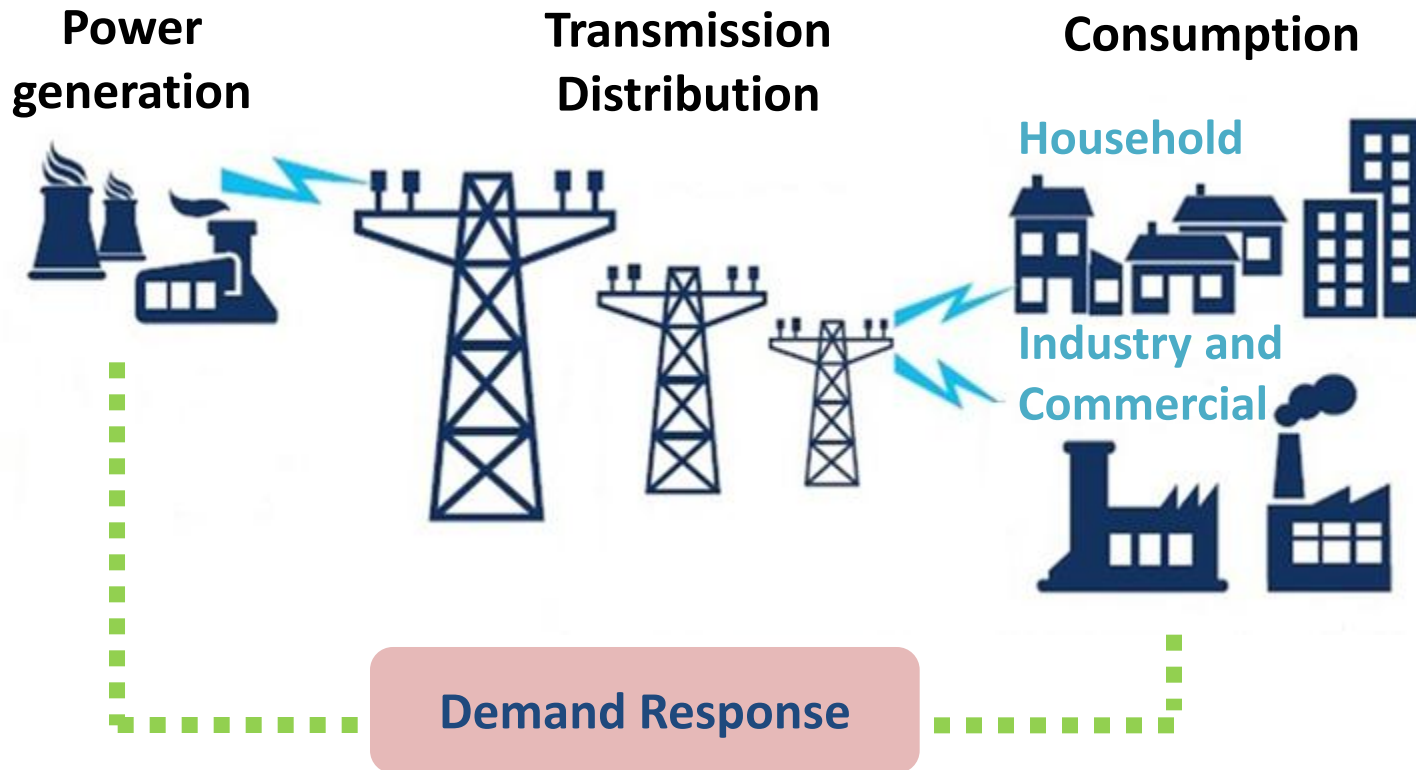
Financial incentives and training programmes administered to help companies enhance energy efficiency e.g.

- Grant for Energy Efficient Technologies (GREET)
- Design for Efficiency (DfE) Scheme
- Energy Efficiency Improvement Assistance Scheme (EASe)
- Singapore Certified Energy Manager (SCEM) programme

Energy Conservation Act ...

- Legislates minimum energy management standards for large energy users, consuming >15 GWh of energy annually or 1.29 ktoe of energy, in the industry sector since 2013, through the:
 - Appointment of energy managers;
 - Reporting of energy use;
 - Submission of energy efficiency improvement plans for large energy users.
- Consolidates existing EE schemes and capability building programmes for companies investing in energy efficiency;
- Sends a strong signal that Singapore is serious in undertaking mitigation actions to meet its International responsibilities.

Demand Response Programme



Consumers voluntarily shift their electricity usage in response to prices or supply conditions in the electricity market for a short period of time. (i.e. provision of nega-watts back to the grid.)

Cleantech initiatives include...

➤ RE Adoption



- ✓ Plan to raise the adoption of solar power to 350MWp by 2020, up from 15MWp today;
- ✓ 'Solar Nova' programme to aggregate solar deployment across Government buildings
- ✓ Review regulations & upgrade of infrastructure to maximise deployment of intermittent generation sources

- Launched in Sep 2013, the micro-grid test-bed will assess the reliability of using intermittent RE sources on a small island, traditionally powered by diesel generators;
- RE sources include biodiesel and solar
- Enable cleaner and cost-competitive energy to residents



Pulau Ubin Micro-Grid Test-Bed



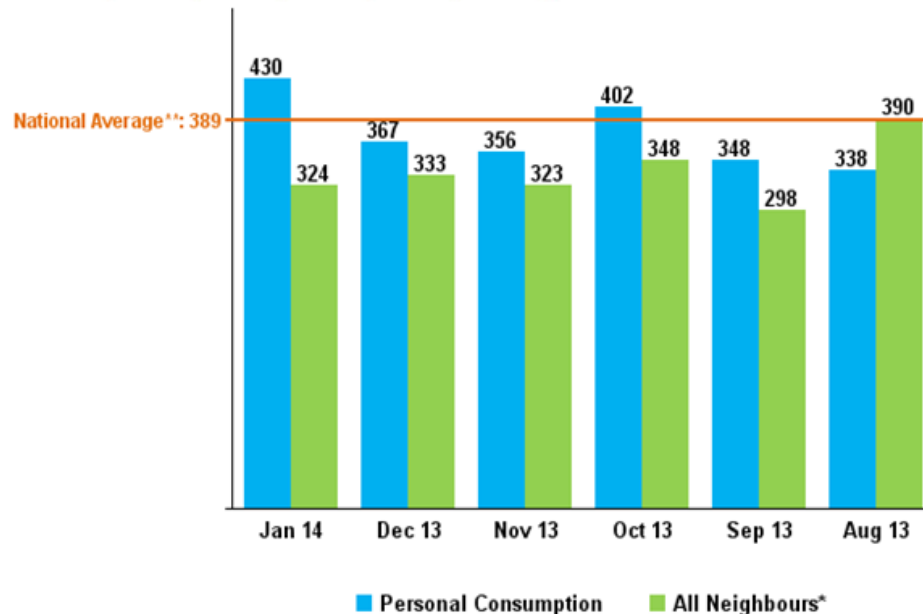
Pilot to raise awareness on consumption pattern

Consumers, who are on e-billing, will be provided with information on their past electricity consumption against national average & the average of neighbours to encourage better energy saving habits

6-month comparison

Monthly Electricity Usage Comparison (in kWh)

Jan 14 | Dec 13 | Nov 13 | Oct 13 | Sep 13 | Aug 13 | ALL



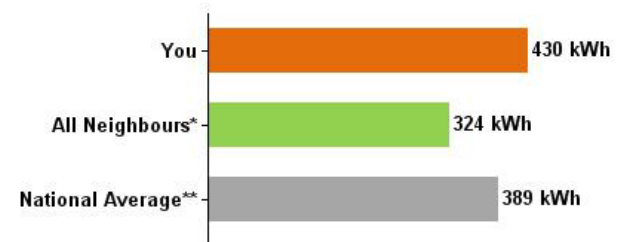
Notes:

*All Neighbours refer to the average electricity usage of HDB 4-ROOM within your block.
**National Average refers to the latest average electricity usage of HDB 4-ROOM in Singapore.

Month-on-month comparison

Monthly Electricity Usage Comparison (in kWh)

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Thank You