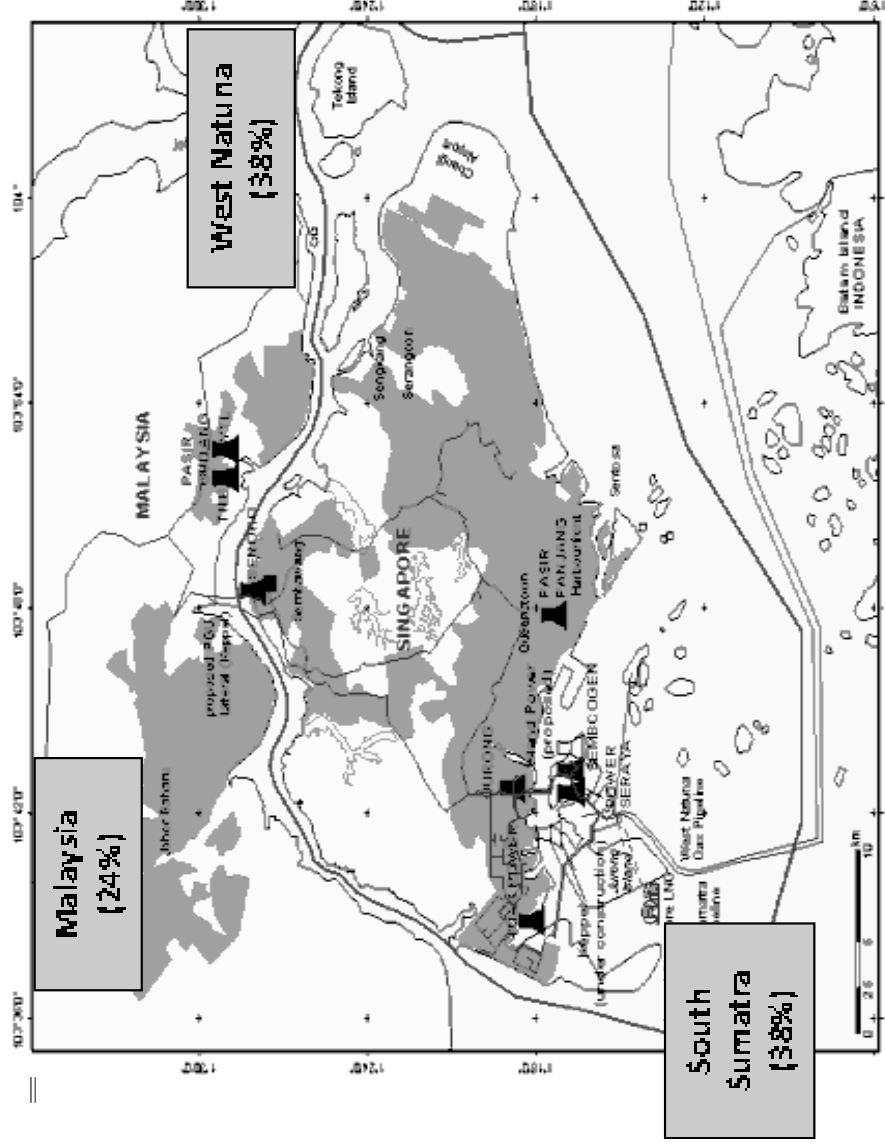

Singapore's Key Energy Developments in 2012

40th APEC Expert Group on Energy Efficiency & Conservation Meeting
8-9 Nov 12, Chinese Taipei

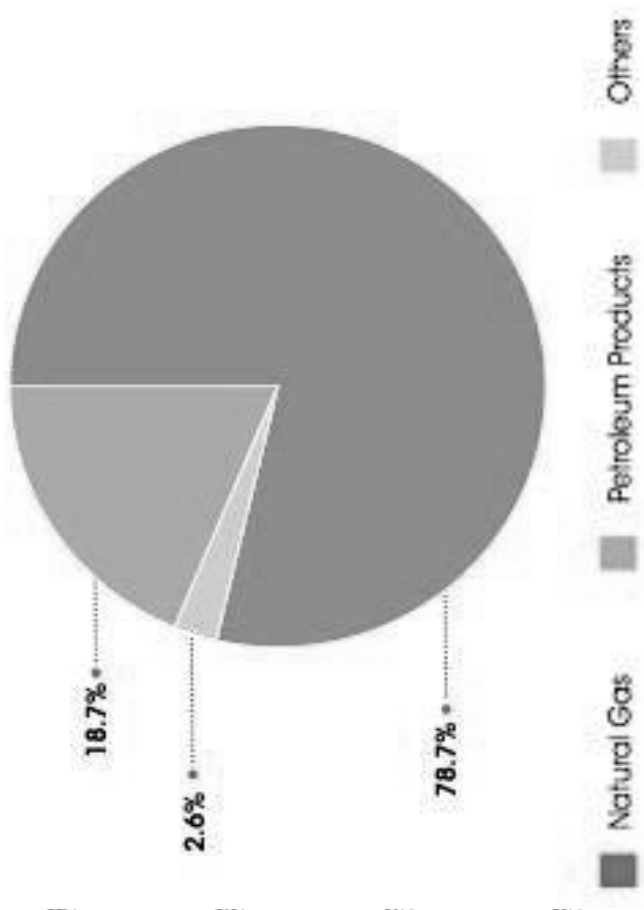
Outline on Singapore's...

- Energy mix and profile;
- Key Energy Developments;
- Energy Efficiency Programme Office;
- Energy Efficiency Initiatives;
- Energy Conservation Act;
- Energy Efficiency Capabilities and Innovation

Singapore's Current Energy Mix



Singapore's fuel mix in 2010 for Power Generation



- 80% of our electricity is generated via piped natural gas from Malaysia and Indonesia;
- Singapore's first LNG terminal, with 3 tanks supplying around 6Mtpa, is on track to begin operations in 2Q2013;

Key Energy Developments...

- 4th LNG tank to increase total storage capacity to 9mtpa



- Singapore Energy Awards
- Power Engineering Degree
- Increased engagement with Youth



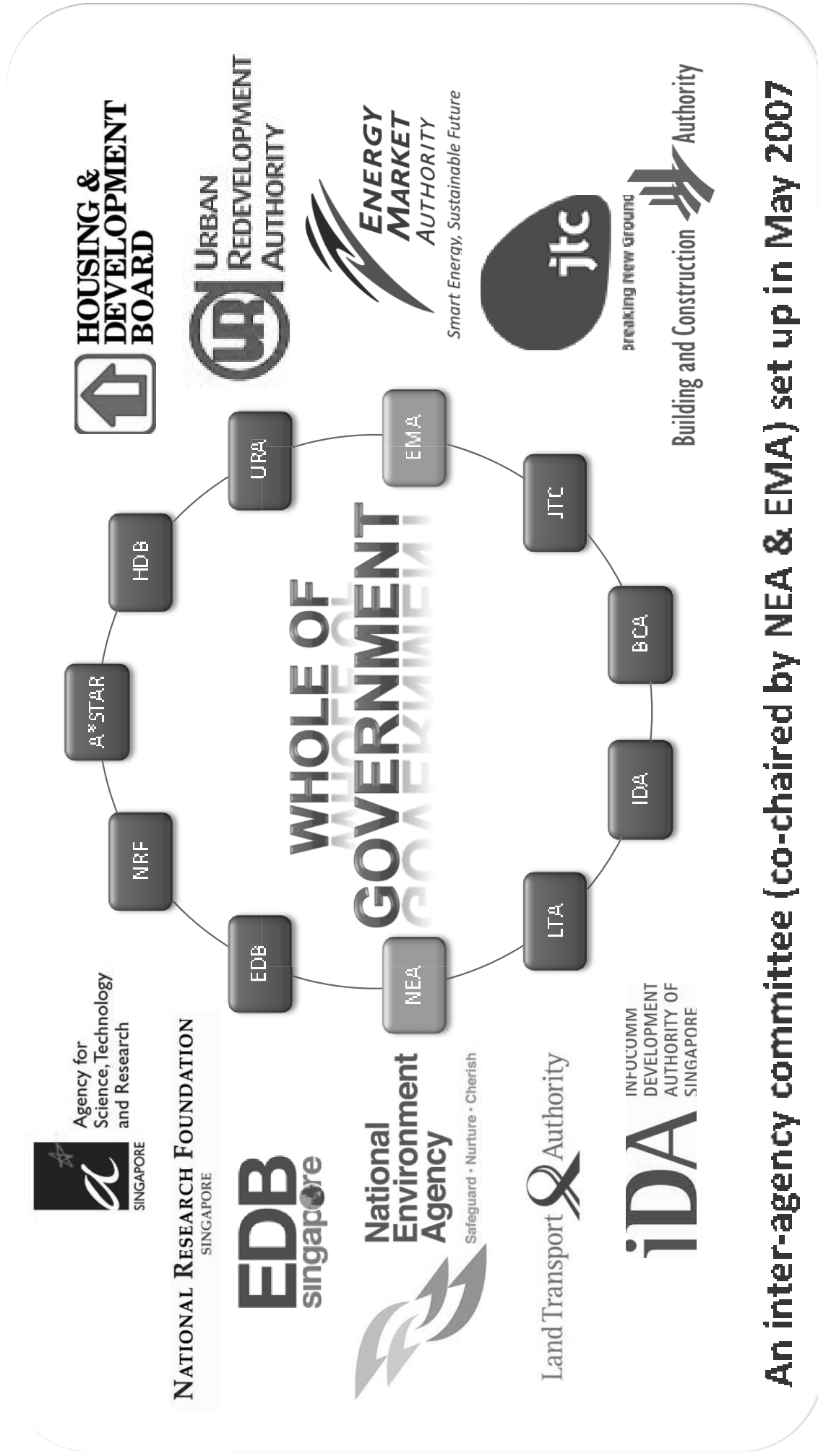
Energy Efficiency is a key driver...

Sustainable Singapore Blueprint (SSB) target

- ✓ 35% improvement in energy intensity from 2005 levels by 2030;
- ✓ 20% improvement by 2020;

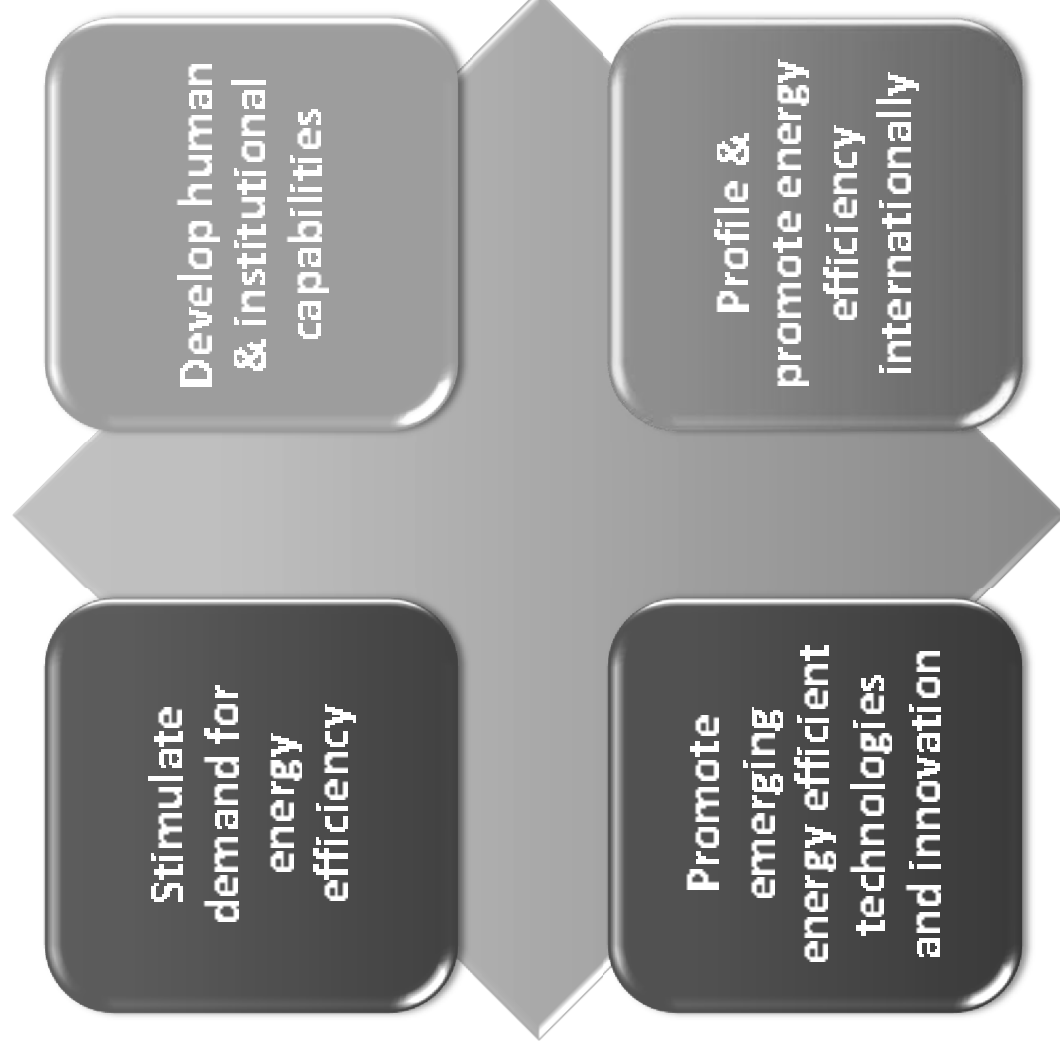


Energy Efficiency Programme Office (E2PO)



An inter-agency committee (co-chaired by NEA & EMA) set up in May 2007 to jointly promote and facilitate the adoption of energy efficiency in Singapore

Strategic Thrusts of E2PO



www.e2singapore.gov.sg

Stimulating demand through labelling and...

i. Mandatory Energy Labelling Scheme

ENERGY EFFICIENCY RATING
EXCELLENT

Annual Energy Consumption kWh
430

Capacity, 380 L Refrigerator with frost-free freezer
MS-RX03-VZ

Tested in accordance with ISO 15602
Actual energy consumption may vary from test results
For more information on energy labels, visit www.mca.gov.sg
XXXX-XXXX-XXXX

ii. Fuel Economy Labelling Scheme

FUEL ECONOMY

Conventional Vehicle
Fuel Consumption (l/100km) 5.8
CO₂ Emissions (g/km) 135

Fuel Consumption Relative Comparison
6.3 (l/100km)
CO₂ Relative Comparison 135 (g/km)

Engine Capacity & Fuel Type: 1300 cc Petrol

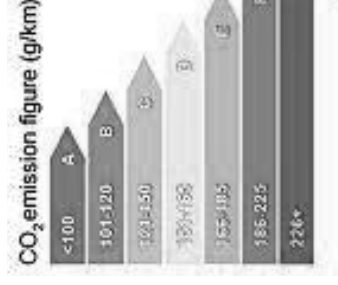
CARBON EMISSIONS-BASED VEHICLE (CEV) SCHEME BANDING
(Applicable from 1 Jan 2017 to 31 Dec 2017)

Band	CO ₂ Emissions (g/km)	Rebate Amount
A1	<100	\$20,000
A2	101-120	\$15,000
A3	121-140	\$10,000
A4	141-160	\$5,000
B	161-180	\$0
C	181-200	\$0
C1	201-220	\$0
C2	221-240	\$0
C3	241-260	\$0
C4	261-280	\$0

Actual energy consumption may vary from test results. For more information on energy labels, visit www.mca.gov.sg

iii. New Carbon Emissions-based Vehicle Scheme –

- ✓ incentivises buyers to shift to low emission models
- ✓ will be implemented in 2013
- ✓ existing Green Vehicle Rebate scheme



iv. Energy saving initiatives like 10% Energy Challenge, Energy Save Programme

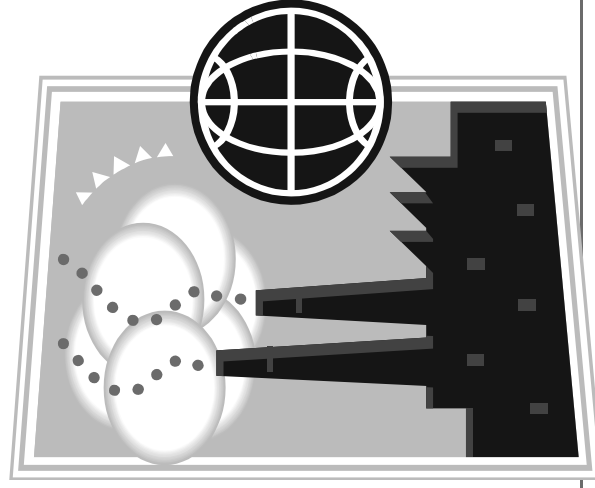
Stimulating demand through incentives.... (cont'd)

- i. Design for Efficiency Scheme (DfE)
 - Co-funds design workshops for new facilities
- ii. Energy Efficiency Improvement Assistance Scheme (EASe)
 - Co-funds energy audits
- iii. Grant for Energy Efficient Technologies (GREET)
 - Co-funds cost for energy efficient technologies or equipment
- iv. Green Mark Incentive Schemes (GMIS)
 - Provides additional GFA for new buildings and co-funds retrofits for existing buildings
- v. Investment Allowance (IA)
 - Allows companies to claim further IA of fixed capital expenditure against taxable income

Energy Conservation Act

Energy Conservation Act

- New requirements on energy management practices to be introduced in 2013 ;
- Requires large energy consumers in industry and transport sectors, consuming more than 15 GWh of energy each year to
 - Appoint an energy manager;
 - Monitor and report energy use and GHG emissions; and
 - Develop and submit energy efficiency improvement plans



Developing Capabilities....

Energy Efficiency National Partnership

Energy Management Systems

- Promote the adoption of Energy Management Systems among partner companies



EENP Learning Network

National Energy Efficiency Conference

- Provide partners with opportunities to learn and share energy efficiency ideas, strategies, technologies, best practices, standards and case studies

EENP Recognition Scheme

- Accord recognition to companies through national annual awards



Developing Capabilities....



“Green Collar” Workforce

Green Mark Professional Training & Certification Courses

- Green Mark for Facilities Manager
- Green Mark Manager and Green Mark Professional Certificate courses have to-date trained about 1600 professionals

Masters & Bachelor Programmes

- MSc in Facility and Environment Management (BCA Academy & UCL)
- BSc (Honours) Degree in Facilities and Events Management (BCA Academy, UniSIM & Singapore Polytechnic)

Executive Development Programmes

- Conducted by Carnegie Mellon University and Stuttgart University of Applied Science
- Green Building Training for Managers/Professionals from the Sino-Singapore Tianjin Eco-City

EE Certification and Accreditation Schemes...

Singapore Certified Energy Manager (SCEM) Programme & Training Grant

- Training and certification system in energy management
- Training grant to encourage companies to train their employees under SCEM



Energy Services Companies (ESCO) Accreditation Scheme

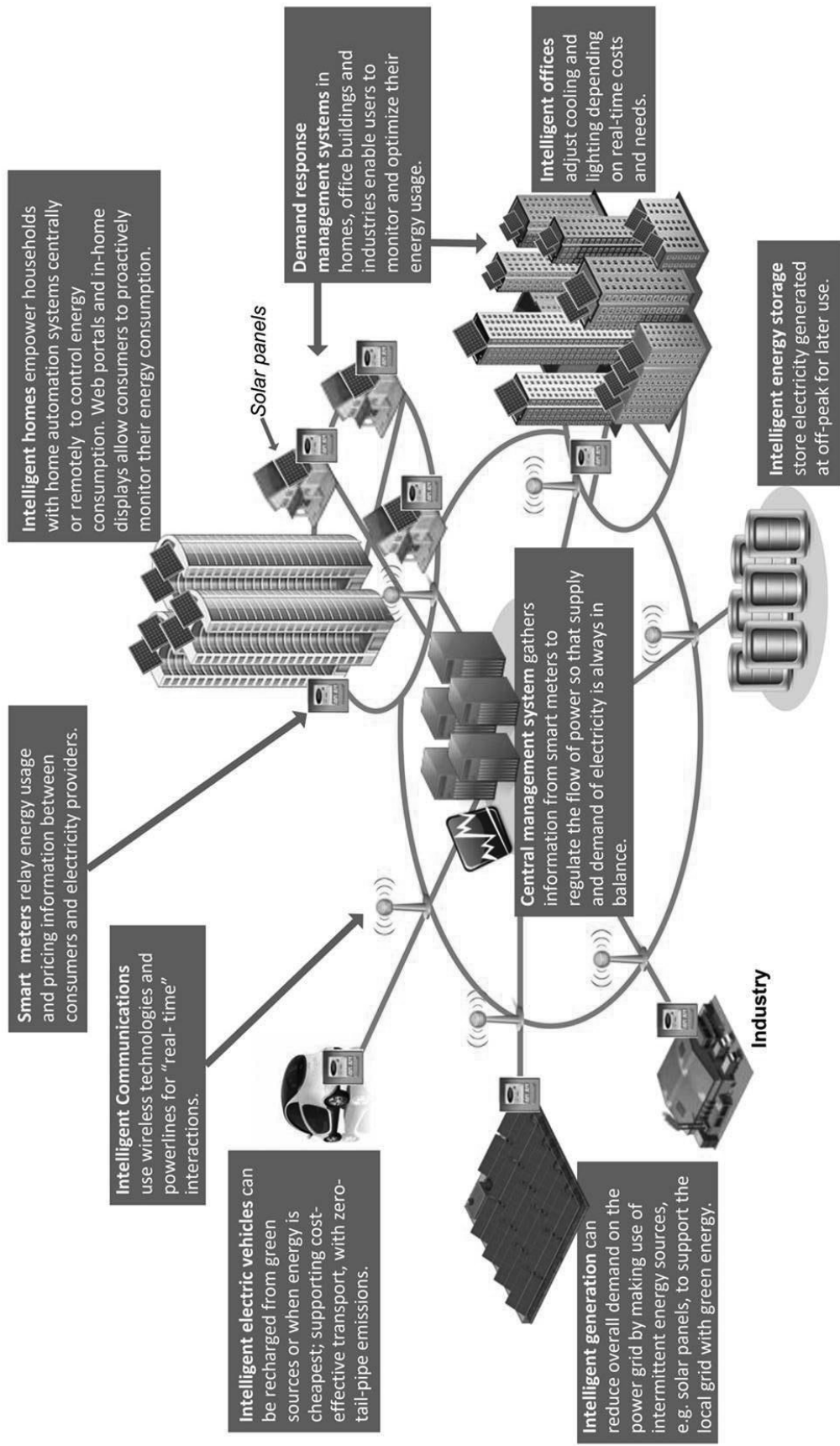
- Currently 17 accredited ESCOs and 26 Key Qualified Persons



Promote EE technologies and innovation...

The Intelligent Energy System (IES) Pilot Project Conceptual Overview

An energy ecosystem connecting intelligent homes, vehicles, communities, electricity network sensors and sources of green generation to promote reliability, sustainability and energy efficiency.



Other EE projects.....

Green Data Centers Innovation Challenge

Provide an opportunity for DC operators to participate in rapid deployment of innovative Green DC technology



Electric Vehicle Test- bedding

Provide an open platform for industry players to test out different EV prototypes as well as vehicle charging technologies



Smart Grid Research Facility

Attract new companies to invest in new energy and smart grid technologies at the smart grid research facility being built on Jurong Island



Green Building Research Programme

Support R&D on building energy management systems, wireless sensing technology, advanced lighting technology, alternative cooling technology



Diesel Hybrid Bus Trial

Encourage and support bus fleet operators to trial diesel hybrid bus technology for passenger transport service in Singapore



Thank You