



# Singapore Energy Efficiency Investment Forum

## Energy Efficiency Opportunities for Business

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National Environment Agency

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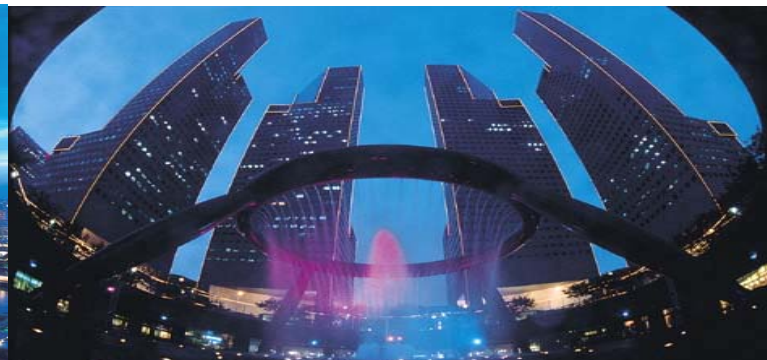


Supporting an  
Energy Efficient Singapore  
programme

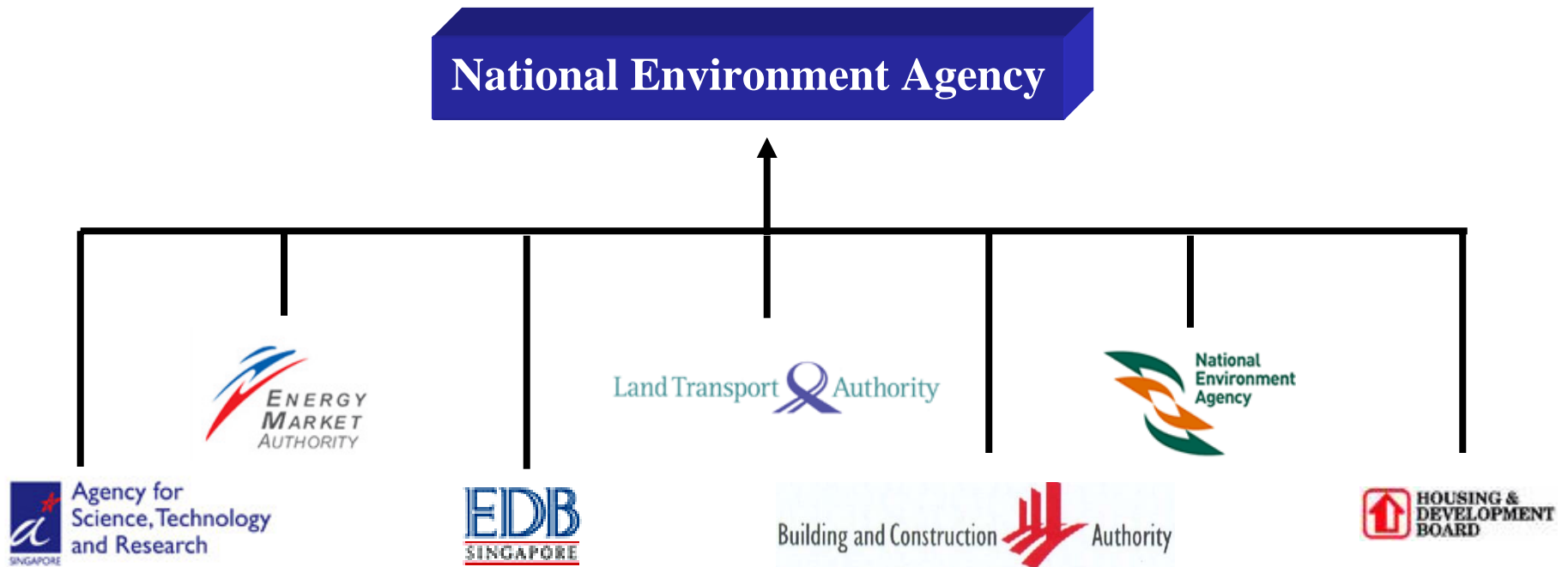


# Energy Efficiency

- Energy Efficiency is Singapore's key strategy to addressing climate change
  - Meets twin objectives of energy competitiveness and environment



# Energy Efficiency Programme Office (E<sup>2</sup>PO)



- Each of the member agencies represents a key sector of energy use in Singapore or offers key capabilities
  - EMA – Power Generation
  - EDB – Industry
  - LTA – Transport
  - BCA – Buildings
  - NEA & HDB – Households
  - A\*STAR – R&D

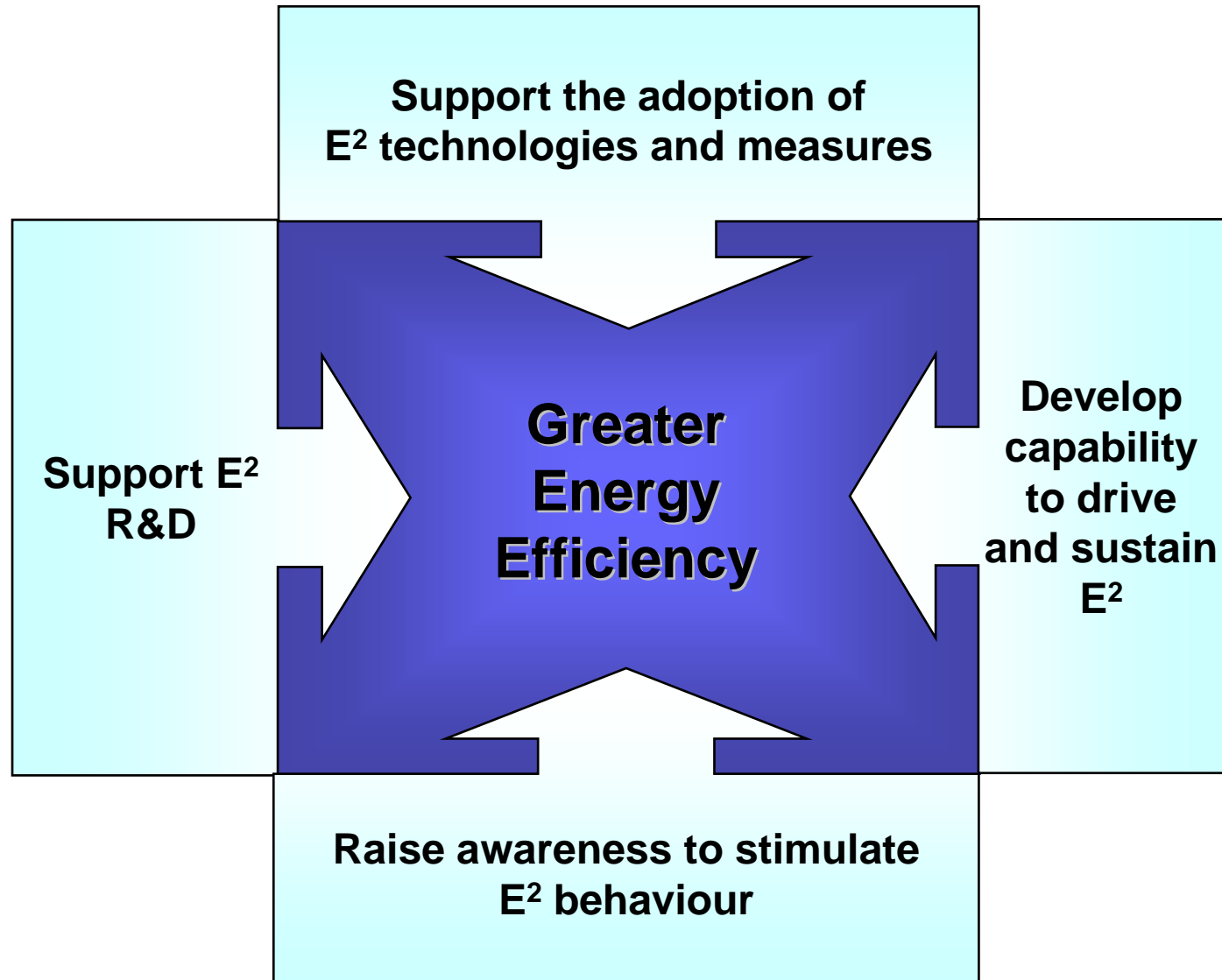
# Energy Efficiency Programme Office (E<sup>2</sup>PO)

- E<sup>2</sup>PO convened in May 07 with EMA, EDB, LTA, BCA and NEA as members. Since then, A\*STAR, HDB, MEWR and MTI have come on board
- E<sup>2</sup>PO launched Singapore's Energy Efficiency Masterplan, the E<sup>2</sup> Singapore, in Oct 2007



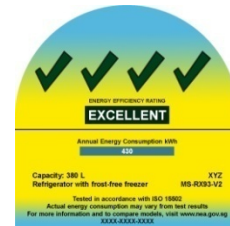
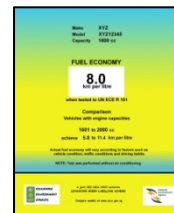
- The \$50m Sustainable Energy Fund was announced in Mar 2008

# E<sup>2</sup> Singapore



# Promoting E<sup>2</sup> Adoption

- Support the design, construction and operation of energy efficient facilities and buildings
  - More cost effective to incorporate energy efficiency considerations early at the design stage
  - Incentives and recognition
  - Legislation



Green Vehicle Rebates

# Developing Capability

- Training



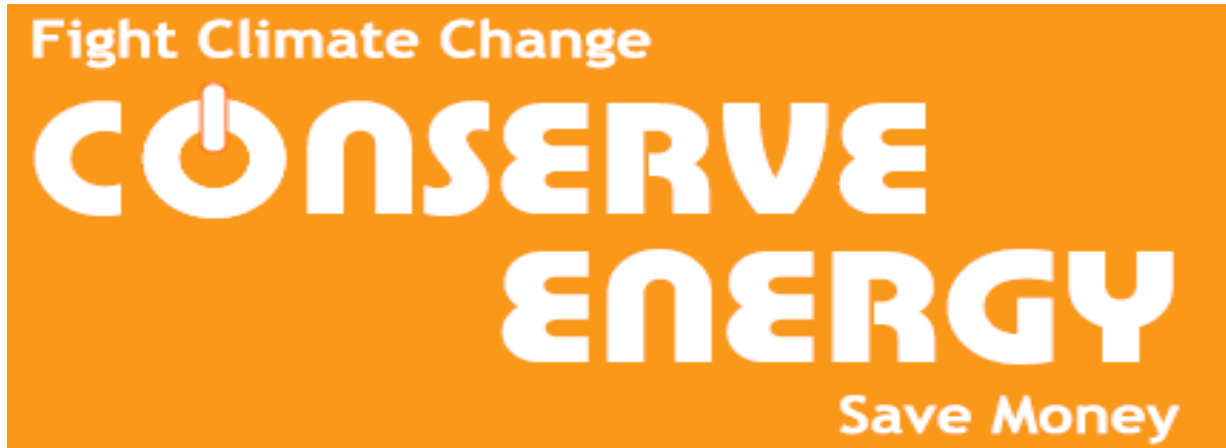
Green Mark  
Manager

Green Mark  
Professional

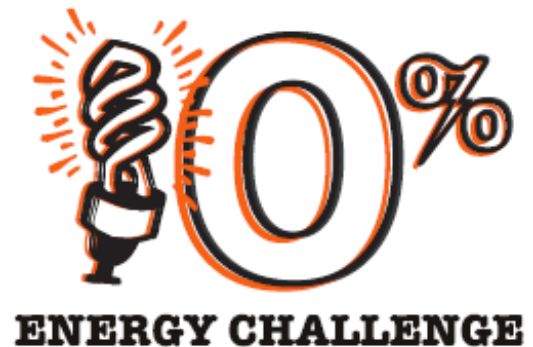
- Conferences, seminars, workshops



# Raising Awareness



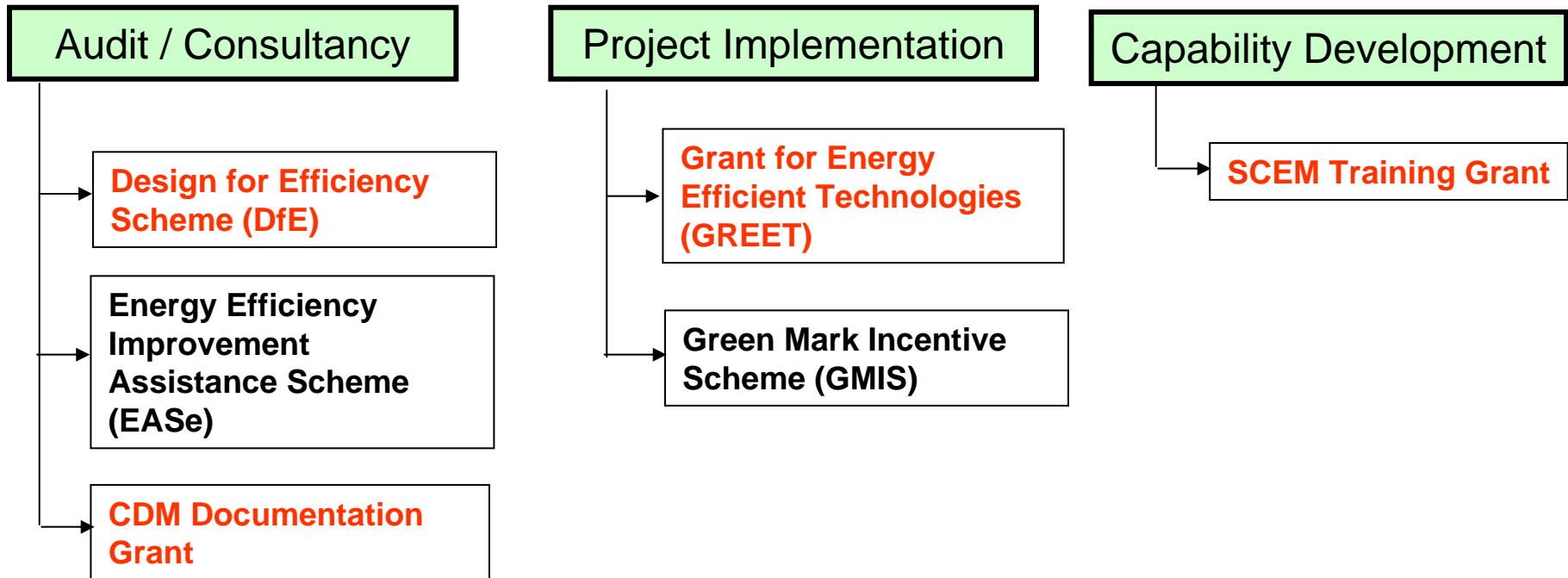
- Challenge households to reduce household electricity consumption by at least **10%**
- Educate households on simple energy saving measures and practices to meet this challenge



# Supporting Research, Development & Demonstration

- A\*STAR SINERGY Centre
- MND - Research Fund for the Built Environment
- NEA - Innovation for Environmental Sustainability Fund

# Overview of Incentive Schemes



# E<sup>2</sup> Opportunities for Businesses

- \$ 22m GRant for Energy Efficient Technologies (GREET) **NEW!**
  - New and existing industrial facilities in Singapore
  - Project must involve installation and use of energy efficient equipment or technologies with proven track record and based on measurable and verifiable energy savings in an industrial facility.
  - Projects involving behavioural or operational changes or projects that save utilities bills, but do not demonstrate measurable and verifiable energy savings are not eligible, e.g. power-conditioning, load-shifting/load-management measures

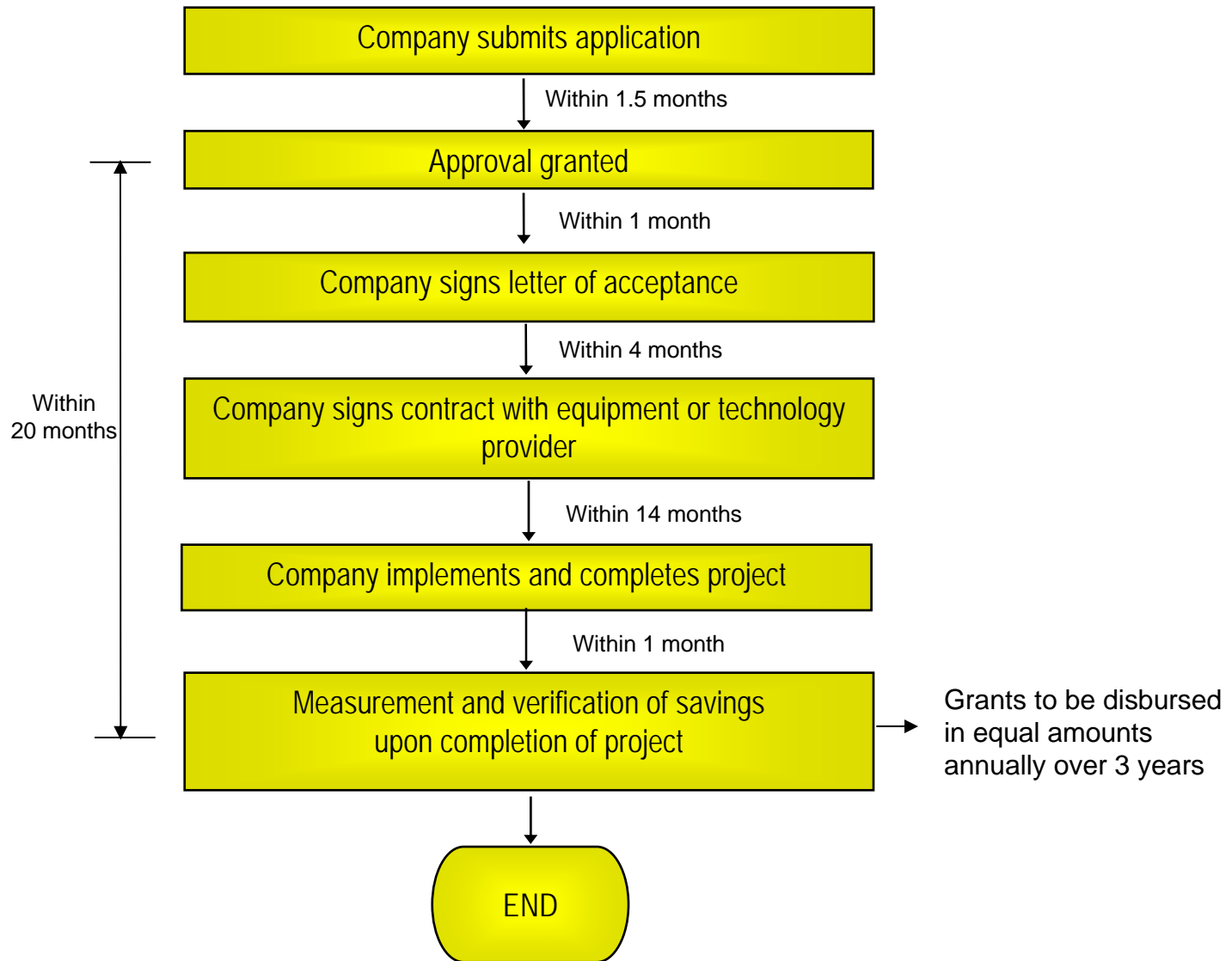
# GREET - Eligibility Criteria

- a) New and existing industrial facilities in Singapore
- b) Owner or operator of the industrial facility must be registered in Singapore
- c) The proposed project must meet the following criteria:
  - The project must involve installation and use of energy efficient equipment or technologies with a proven track record of energy savings in an industrial facility.
  - The project must result in measurable and verifiable energy savings.
  - The project must not have commenced at the time of application.
  - The project should be completed within 20 months from the approval of grant.

# GREET - Grant Quantum

- Grant quantum to be awarded
  - Capped at 50% of the qualifying costs or \$2 million, whichever is lower
  - Projects with a payback of more than 3 years, but less than 7 years, would be funded.
- Qualifying Costs
  - Manpower cost
  - Equipment and materials
  - Professional services

# GREET - Process



# GREET - Evaluation Process

- Technical Evaluation Panel (TEP)
  - Representatives from public agencies (NEA, EDB, EMA & A\*STAR) and institutions of higher learning (NUS & NTU)
  - Evaluate and rank applications based on the efficacy and merit.
- Recommendation will be submitted to NEA approving authority

# E<sup>2</sup> Opportunities for Businesses

- \$10m EASe (Energy Efficiency Improvement Assistance Scheme)
  - NEA funds up to 50% of the cost of engaging Energy Services Companies or ESCOs to conduct energy assessments
  - As of 31 Oct 08, \$3m approved for 119 industrial facilities and buildings
  - Potential annual savings of more than 340 (~\$29m) gigawatt-hrs are estimated
  - Almost 80 gigawatt-hrs (~\$4.8m) of actual annual savings enjoyed by companies (more to come) who have implemented recommendations
  - Example:
    - Asahi Kasei Plastics Singapore Pte Ltd optimised cooling water system and installed a reboiler to recover heat and generate high pressure steam
    - The company achieved annual energy savings of 9,000 megawatt-hrs at a payback period of only slightly over a year!

# E<sup>2</sup> Opportunities for Businesses

- \$2.5m Design for Efficiency Scheme (DfE) **NEW!**
  - Usually more cost efficient to incorporate energy efficiency considerations at the design stage before a facility is built
  - NEA to provide funding support of 80% or S\$600,000 (whichever is lower) of the cost of conducting design workshops
  - A design workshop is an intensive, highly integrative and multi-disciplinary 2-3 day session that brings together multiple internal experts and competent external energy consultants at the design stage
  - Overseas example: Texas Instruments (TI) cut utility costs by 20% and water usage by 35% over previous fabs – yet it cost US\$220m less than TI's last Dallas factory

# E<sup>2</sup> Opportunities for Businesses

- \$6m Singapore Certified Energy Manager (SCEM) Training Grant

**NEW!**

- **The SCEM Programme**, developed by the Energy Sustainability Unit (ESU) of NUS offers a **formal training and certification system in the area of energy management**

- Recognised by the US-Association of Energy Engineers (AEE)
- Endorsed by:



- NEA, thru the SCEM Training Grant, aims to develop local expertise and capability in professional energy management
- Qualifying candidates need only pay a small one-time fee upfront for the full professional level SCEM Programme
- The first course commenced on 29 Oct 08
- The grant targets to train 1000 SCEM by 2012

# E<sup>2</sup> Opportunities for Businesses

- Clean Development Mechanism (CDM)
  - 4 local projects (potential 533,000 carbon credits) are in the pipeline. The projects include
    - Power Seraya – switch from fuel oil to natural gas
    - Bee Joo Industries – waste heat recovery
  - \$500k CDM Documentation Grant **NEW!**
    - To encourage the uptake of CDM projects in Singapore, NEA has set up the CDM Documentation Grant
    - Funding support for consultancy services to develop project design documents and new methodologies

**Thank you**

**<http://www.e2singapore.gov.sg/incentives.html>**

For more information and application forms.