Energy Efficiency Schemes and Incentives

Presentation to Green DC Standards Working Group

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National Environment Agency

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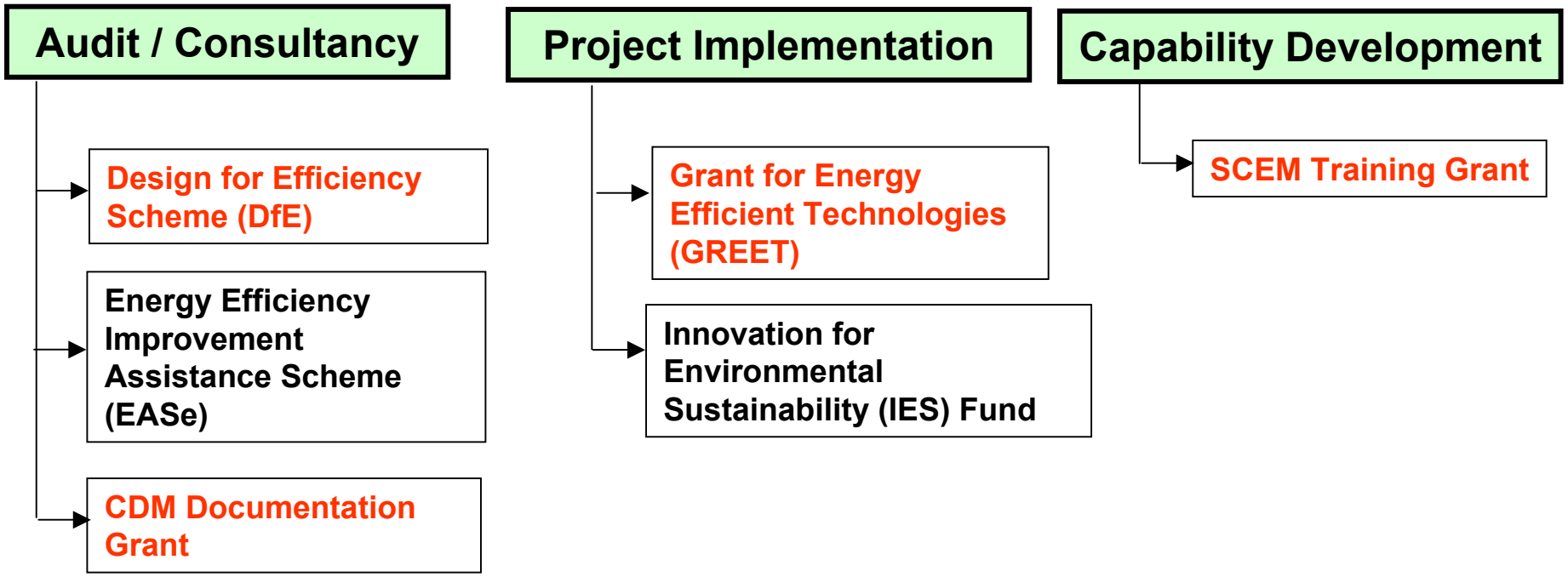
Overview of Incentive Schemes



Design for Efficiency Scheme (DfE) NEW!

- Objective
  - To encourage investors in new facilities in Singapore to integrate energy and resource efficiency improvements into manufacturing development plans early in the design stage
- Form of assistance
  - Funds 80% or S$600,000 (whichever is lower) of the cost of conducting a design workshop
    - 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: Data centre design charrette by RMI in 2008
      - Expected energy savings ≥80%
      - Expected capex savings ~20–50%

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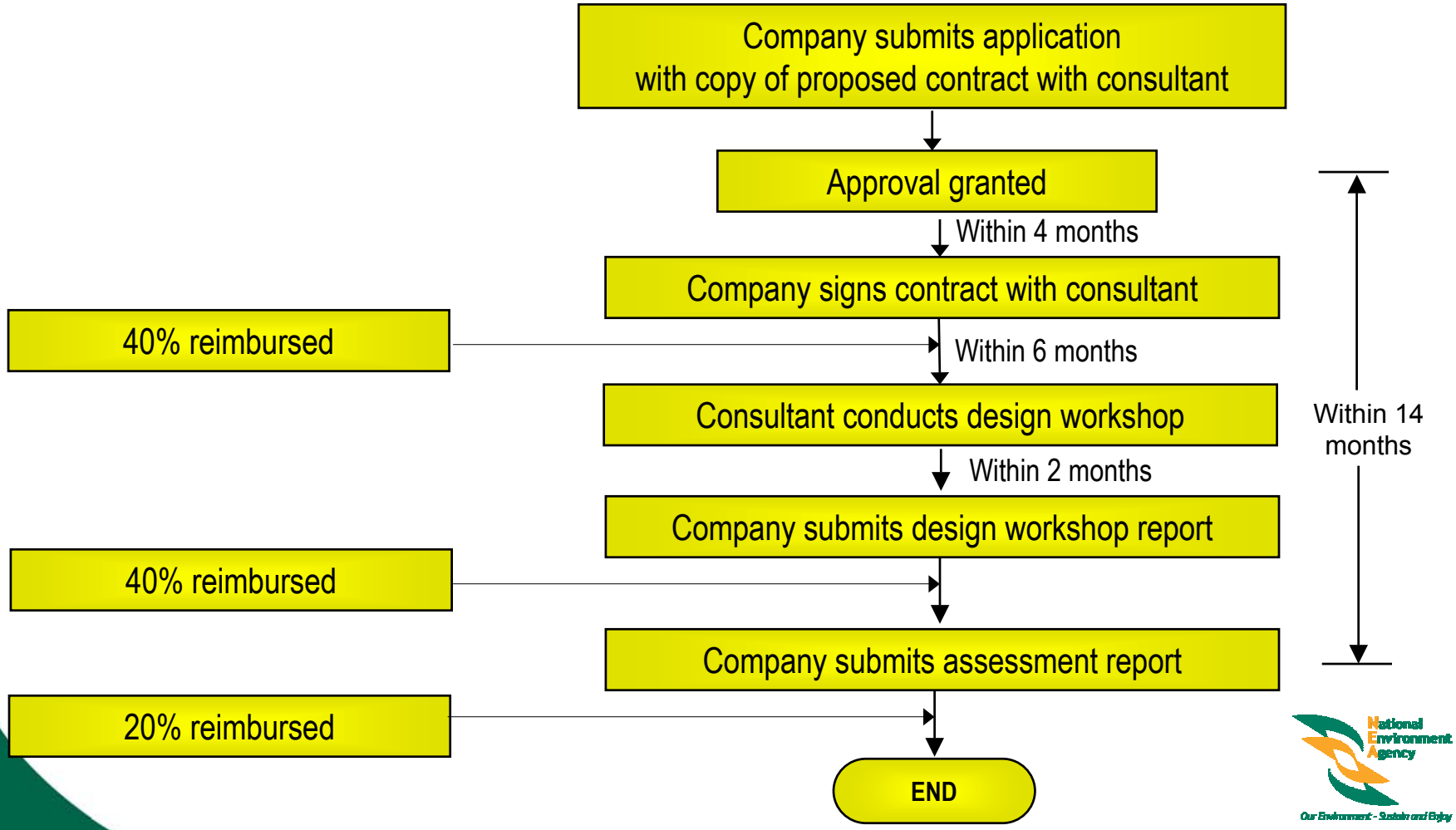
DfE - Eligibility Criteria

- Company
  - Owner or operator of new industrial facility in Singapore

- Consultants
  - Experienced external consultants with good track record in carrying out design workshops of a comparable scale and scope

* Consultants should be external experts providing facilitation and technical expertise to the design workshop. They should not be design consultants directly involved in design development.

DfE - Process


Company submits application
with copy of proposed contract with consultant
Approval granted
Within 4 months
Company signs contract with consultant
40% reimbursed
Within 6 months
Consultant conducts design workshop
Within 2 months
Company submits design workshop report
40% reimbursed
Company submits assessment report
20% reimbursed
END
Within 14
months

Energy Efficiency Improvement Assistance Scheme (EASe)

- Objective
  - To incentivise manufacturers and building owners and operators to engage qualified energy service companies to carry out detailed studies on their energy consumption and identify specific areas for energy efficiency improvement
- Eligibility criteria
  - Owner or operator of manufacturing facility or building must:
    - be a Singapore registered company
    - have facility or building in Singapore

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EASe - Form of Assistance

- Funds up to 50% of the cost of engaging Energy Services Companies or ESCOs to conduct energy assessments

- Maximum amount of funding to any single facility or building is capped at $200,000

- Qualifying costs include the energy assessment fees:
  i) Salaries
  ii) Use of instrumentation and evaluation tools
  iii) Expendables
  iv) Overheads

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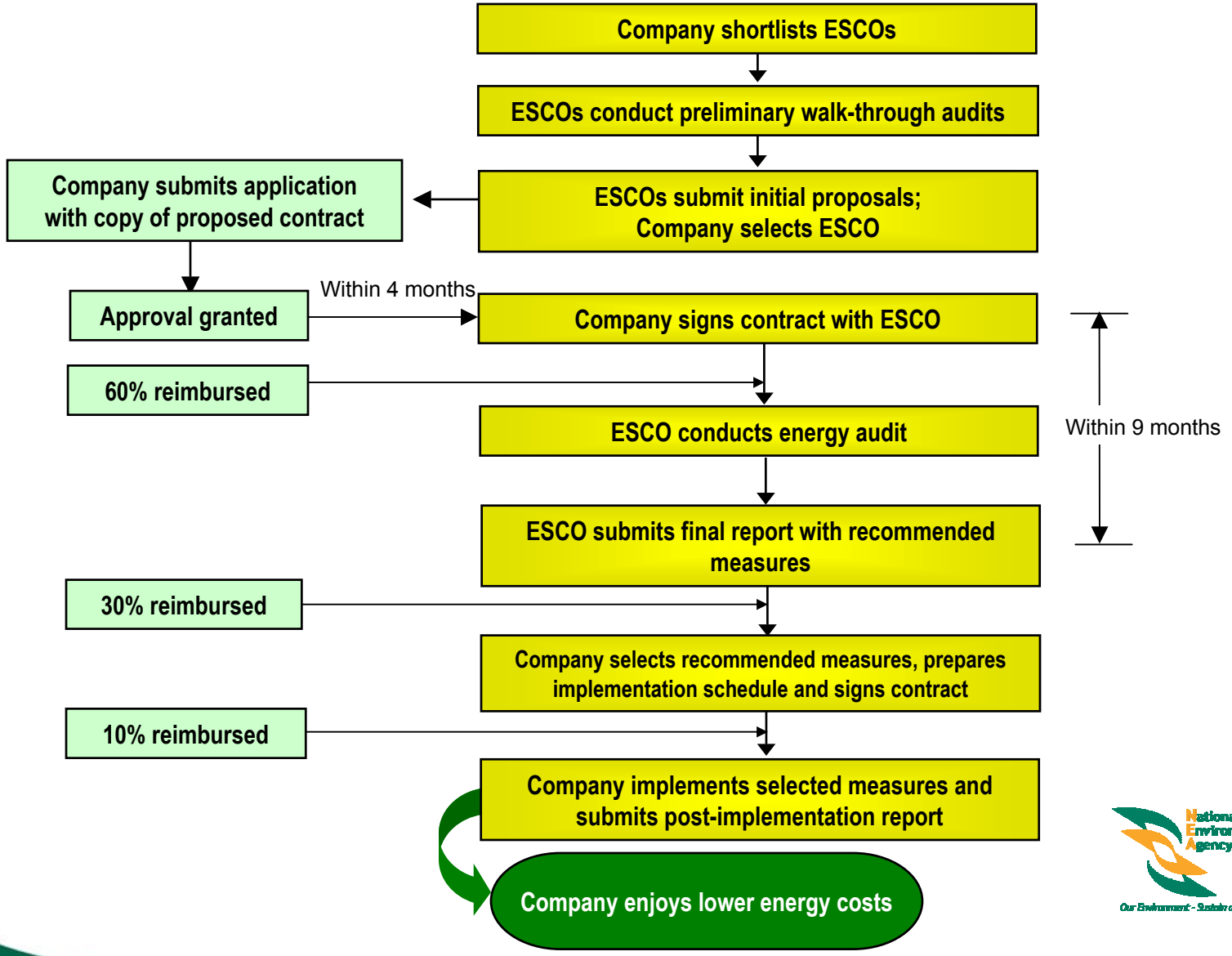
EASe - Process



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EASe - Progress

- As of 31 Dec 08, $3.22m approved for 121 industrial facilities and buildings

- Potential annual savings of more than 340 (~$30m) gigawatt-hrs are estimated

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Grant for Energy Efficient Technologies (GREET) NEW!

- Objective
  - To encourage owners and operators of industrial facilities to invest in energy efficient equipment or technologies

- Eligibility criteria
  - Company
    - Owner or operator of existing/ new industrial facility in Singapore
  - Project
    - 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.
    - 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

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GREET - Form of Assistance

- Grant quantum
  - Up to 50% of the qualifying costs, capped at $2 million per project.
  - Projects with a payback of more than 3 years, but less than 7 years, would be considered for funding.
- Qualifying costs
  - Manpower cost
  - Equipment and materials
  - Professional services

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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

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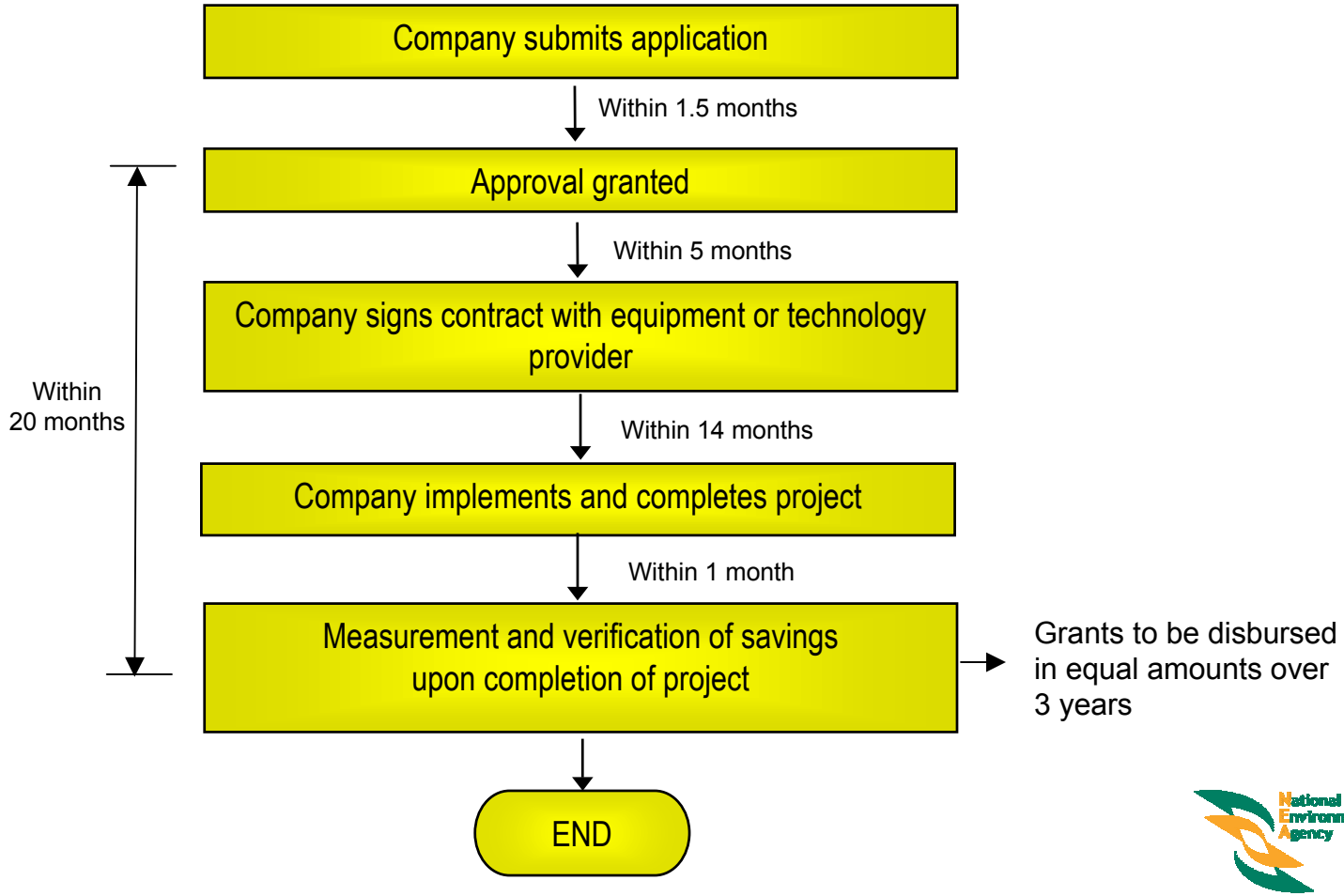
GREET - Process



More Information

- Application forms and more information are available at: http://www.e2singapore.gov.sg/incentives.html

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Thank you

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RMI's latest energy-efficient data center charrette, major client, 2008

- No special IT hardware—all state-of-the-shelf
- Conservative virtualization assumptions
- Expected energy savings ≥80% *without* any significant efforts to improve software, tune compilation, or apply specialized accelerators/coprocessors
- Expected capex savings ~20–50%, depending on whether unneeded cooling systems are bought
- No refrigerative chillers—loads can all be handled passively in a temperate climate—but in a hot climate, could do the same with desiccant cooling
- Integrated design decompounds loads
- Large further potential savings from software etc.