



Industry Briefing on Mandatory Energy Management Requirements under Energy Conservation Act Subsidiary Legislation

25 & 26 March 2013

Programme

Time	Programme
9.00am	Presentation on responses to key feedback received
9.30am	Presentation on requirements of Energy Conservation Act subsidiary legislation
10.00am	Q&A session on subsidiary legislation
10.30am	Tea break
11.00am	Demo on online reporting system
12.30pm	Q&A session on online reporting system
1.00pm	End of session

Presentation on responses to key feedback received



Objectives

To update on:

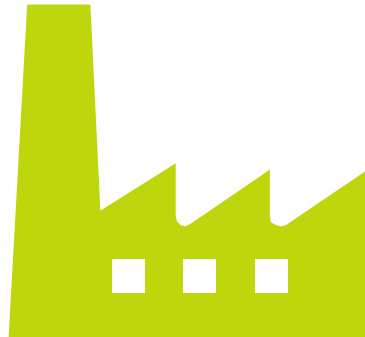
- 1 **Key feedback** from consultation on subsidiary legislation (SL) on mandatory energy management requirements under Energy Conservation Act (ECA) and **our responses**
- 2 **Final requirements** of SL and **key amendments**
- 3 **Initiatives assisting industry** in complying with ECA requirements

Background

Rationale for Mandating Energy Management Practices

Industry Sector

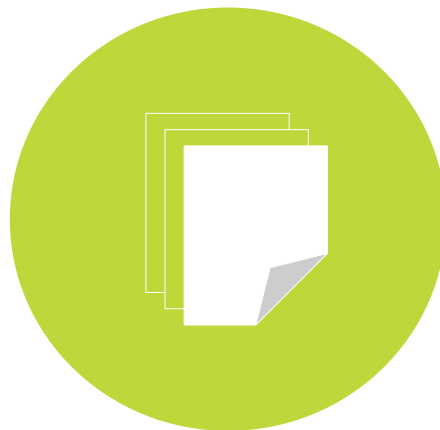
 Largest energy consuming sector



Mandatory Energy Management Requirements



Appoint energy manager



Monitor & report energy use & GHG emissions



Submit energy efficiency improvement plan

Large energy users



Industry sector



Transport sector

Annual energy consumption



≥ 54 TJ/yr

Industry Consultation on Draft ECA Subsidiary Legislation



~170
Corporations

One-to-one consultations were conducted during Mar-Jun 2012



Subsidiary legislation & reporting templates

- Corporations are now better informed & have provided useful feedback
- Feedback taken into consideration to refine subsidiary legislation & reporting templates

Key feedback from consultation on SL and our responses

Issues Raised – Appointment of Energy Manager



- Can a single energy manager be appointed for multiple sites under a single registered corporation?
- Yes, at least one qualified energy manager per registered corporation is required
- Corporations with multiple sites are encouraged to appoint at least one qualified energy manager per site

Issues Raised – Appointment of Energy Manager



- Manpower resources are shared among different corporations under the same parent group. Can a single energy manager can be appointed?
- No, corporations will need to have separate energy managers as registration is required at the corporate entity level and not at the group level

Issues Raised – Appointment of Energy Manager



- Staff with relevant experience and engineering qualifications could perform the energy manager duties even if they had not undertaken the SCEM examinations
- Institution of Engineers Singapore opined that as energy managers had to manage complex industrial systems, they should have
 - a relevant university degree
 - practical experience in energy management
 - demonstrate objective standards of competence e.g. [SCEM-certification](#)
- Such objective standards of competence are needed to ensure that energy managers can fulfil statutory roles
- Appointed energy managers have up to 1 Apr 2014 to achieve SCEM certification

Registrable
Corporations

**Appointment of
Energy Manager**

Periodic Reporting of
Energy Use

EE Improvement
Plans

Issues Raised – Appointment of Energy Manager



- Can energy manager qualifications from Japan be accepted?
- The SL has been revised to include a provision to allow corporations to apply in writing to Director General to seek approval for energy managers with external qualifications to be appointed

Issues Raised – Appointment of Energy Manager



- It might take around 6 months to a year to find a replacement energy manager
 - One year is required to complete training
 - Difficult to recruit one from market who is a good fit to the corporation
- Corporations are advised to appoint more than one energy manager as part of business continuity planning
- There are around 430 SCEMs, 600 are undergoing training → sufficient to serve around 200 corporations under ECA

Issues Raised – Appointment of Energy Manager



- There should be greater flexibility by allowing energy managers to be outsourced
- Corporations are required to appoint energy managers from among their employees
- In order for energy management practices to be internalised within the corporation, it is important that the energy manager is an employee who is familiar with and knowledgeable of corporation's operations
- Corporations are given flexibility to decide whether the energy manager role should be full-time or with additional responsibilities

Issues Raised – Appointment of Energy Manager



- Core module on Air-Conditioning and Mechanical Ventilation (ACMV) is not relevant to chemical industries
 - There should be more modules relevant to chemical industries under SCEM training programme
- New module on Energy Recovery and Reuse has been developed
 - Modules on ACMV and Energy Recovery and Reuse have become core electives. Candidate can select either of these 2 modules
 - Other elective modules will be developed
 - More sector-specific training under Energy Efficiency National Partnership (EENP) programme will be provided for SCEMs

Issues Raised – Appointment of Energy Manager



- Inconsistencies between contents of training and exam questions

- Core syllabi of various modules under SCEM training programme have been reviewed
- Revised syllabi have been used since August 2012
 - Inconsistencies have been removed

Issues Raised – Appointment of Energy Manager



- No vacancies available for SCEM training programme

- NEA has worked with training providers to ensure that supply of courses can meet demand from the industry

Issues Raised – Periodic Reporting of Energy Use



- Lack of sub-metering to report system-level energy consumption details

- Either measured or estimated system-level energy consumption data is accepted
- However, corporations are encouraged to install energy monitoring systems
 - Energy efficiency is a data-driven activity & one cannot manage what one does not measure

Issues Raised – Periodic Reporting of Energy Use



- Similar data is already submitted to agencies such as EMA and NEA-PCD
- Ongoing efforts is undertaken to streamline data collection platform among agencies so as to reduce duplicative data submission

Issues Raised – Periodic Reporting of Energy Use



- Engineering considerations would have to be incorporated in designing templates to ensure
 - Value-add to corporations
 - Useful data collection for the government
- Reporting templates have been refined after
 - Considering feedback from corporations
 - Studying templates under similar Acts in other countries
- Proposed requirements are not overly prescriptive, and will be reviewed and enhanced over time

Registrable
Corporations

Appointment of
Energy Manager

**Periodic Reporting
of Energy Use**

EE Improvement
Plans

Issues Raised – Periodic Reporting of Energy Use



- Info required in energy use report is market sensitive

- To ensure data security, IT system will be hosted in Govt Data Centre
- Info submitted will be treated confidentially on a need-to-know basis and only specific officers can access the records
- Officers are bound by duty of confidentiality

Issues Raised – Energy Efficiency Improvement Plans



- Limited scope for energy efficiency improvements
 - Energy efficiency considerations already incorporated in design of new plants
 - Energy efficiency measures already implemented in existing plants
- NEA will work closely with corporations through
 - Energy Efficiency Improvement Assistance Scheme (EASe)
 - Design for Efficiency Scheme (DfE)
 - Energy Efficiency National Partnership programme

Registrable
Corporations

Appointment of
Energy Manager

Periodic Reporting of
Energy Use

**EE Improvement
Plans**

Issues Raised – Energy Efficiency Improvement Plans



- Guideline requiring corporations to submit measures accounting for at least 5% reduction in absolute energy consumption over 5 years is challenging if there is an increase in production
 - Guideline should be based on unit energy consumption
-
- Reduction in absolute energy consumption or unit energy consumption is acceptable as a measure of improvement

Issues Raised – Energy Efficiency Improvement Plans



- Info required in improvement plans is market sensitive

- To ensure data security, IT system will be hosted in Govt Data Centre
- Info submitted will be treated confidentially on a need-to-know basis and only specific officers can access company's records
- Officers are bound by duty of confidentiality

Presentation on requirements of Energy Conservation Act subsidiary legislation

Presented by: Mr Liow Chean Siang
Manager
Energy Efficiency & Conservation Department

Registrable Corporations

Registrable?

Energy use

- Operational control over **business activity** which has attained energy use threshold (54TJ of energy used per calendar year) in at least 2 of 3 preceding calendar years
 - First year for ascertaining whether a corporation is registrable is year 2013, based on energy consumption in calendar year 2012, **2011 & 2010**

Sectors

- Business activity is carried out at a single site and is attributable to one of the following sectors
 - Manufacturing & **manufacturing-related services**
 - Supply of electricity, gas, **steam, compressed air** & chilled water for air-conditioning
 - Water supply, sewage & waste management

Registrable Corporations

Appointment of Energy Manager

Periodic Reporting of Energy Use

EE Improvement Plans

Registrable Corporations

Operational Control over Business Activity

- Has authority to introduce and implement all or any of the following:
 - operating policies
 - health and safety policies
 - environmental policies

Business Activity

- An activity or a series of activities (incl. ancillary) that
 - Involves consumption or production of energy, GHG emissions
 - Forms a single undertaking or enterprise
 - Activities in the primary production process and other production process (produced for the primary production process) at a single site will form part of a single undertaking or enterprise

**Registrable
Corporations**

Appointment of
Energy Manager

Periodic Reporting of
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EE Improvement
Plans

Registrable Corporations

- Energy used is the total consumption of energy derived from all fuel & other energy commodities (specified in First Schedule) used to provide or produce energy
- Shall not include energy so produced from fuel or other energy commodity already accounted for in the total
- If a fuel or an energy commodity used is to be converted to an amount of energy in joules, conversion is to be done using:
 - default net calorific values (NCV) or energy content values listed in Second Schedule; or
 - net calorific values or energy content values specified by a corporation and approved by the Director-General

Registrable Corporations – Registration Application

- A registrable corporation shall, within 6 months of qualifying as a registrable corporation, apply to be registered, using the relevant form at www.nea.gov.sg
- Application to be registered shall be accompanied by:
 - registered name;
 - unique entity number;
 - principal place of business;
 - name of person who directs & controls corporation at highest level, his designation, contact details & identification no;
 - name of company rep, his designation, contact details & identification no;

Registrable Corporations – Registration Application

- name of energy manager(s) (if any), his designation, contact details & identification no;
- address of site of each business activity, the site's electricity and gas account nos (if any);
- energy bills & other records (if any) of energy consumption, showing that the energy use of the business activity has attained the energy use threshold in at least two out of the three preceding calendar years;
- business profile of corporation (if any); and
- signed statement from person who directs and controls the corporation at the highest level, that the information submitted is accurate and complete.

Registrable Corporations – Deregistration

- A registered corporation may apply to cancel its registration, if
 - the business activity of the registered corporation ceased to attain the energy use threshold for a continuous period of at least 3 years; or
 - it has changed its business activity to one other than those sectors specified; or
 - it has ceased its business activity and has no intention of resuming its business activity within the next three years.

Appointment of Energy Manager – Requirements

- Not less than 1 energy manager (energy manager shall not serve more than 1 corporation)
- No person may be employed as an energy manager unless he
 - holds a Singapore Certified Energy Manager (Professional Level) certificate issued by The Institution of Engineers, Singapore; or
 - holds such other qualification which, in the opinion of the Director-General, is substantially equivalent
 - documents & info to be submitted include a copy of certificate showing energy manager qualification, copy of university degree, written evidence of practical experience in energy management
- Qualification requirements of energy manager will come into effect on 1 Apr 2014

Appointment of Energy Manager – Requirements

- A registered corporation shall notify every appointment of energy manager within 30 days of appointment using online system
 - Notification of the corporation's first energy manager shall be within 30 days of being registered

Appointment of Energy Manager – Vacation of Appointment

- If an energy manager vacates his appointment
 - A registered corporation shall notify Director-General within 30 days of vacation of appointment
 - If the energy manager who vacates his office is the only energy manager, the registered corporation shall notify Director-General of the appointment of the substitute energy manager within 90 days after the vacation of the appointment

Periodic Reporting of Energy Use – Submission Requirements

- A registered corporation shall submit an energy use report by 30 June each year, for each **business activity** under operational control of registered corporation
 - **First submission in 2014**
- Report shall be made using the relevant form at www.nea.gov.sg
- Report shall be signed by energy manager and counter-signed by person who directs and controls the corporation at the highest level

Periodic Reporting of Energy Use – Info Required

- The report shall contain the following info relating to the operation of each business activity that qualifies (new business activity) or qualified (existing business activity that led to registration) the corporation as a registered corporation
 1. Type of fuel or energy commodity purchased, used to provide or produce energy, sold, **at opening and closing of year**; and their
 - quantity & unit of measure
 - **NCV**
 2. Type of fuel or energy commodity produced to provide or produce energy and their
 - quantity & unit of measure
 - **NCV**

Periodic Reporting of Energy Use – Info Required

3. For each energy-consuming system (**systems shall together comprise at least 80% of business activity's total energy use**)
 - type & description
 - type of fuel or energy commodity used
 - quantity & unit of measure of annual energy consumption
 - quantity & unit of measure of each output
 - energy consumption expressed as an indicator/ indicators; or energy performance index/indices
4. Energy consumption of business activity, expressed as an indicator/ indicators; or energy performance index/indices

Periodic Reporting of Energy Use – Info Required

5. Reasons for increase or decrease in energy consumption expressed as an indicator/ energy performance index compared to previous year **to the extent necessary for a reasonable understanding of significant factors that affected the energy efficiency of business activity**
6. Info on processes and activities (as set out in Second Schedule) resulting in GHG emissions
7. **Type of fuel or energy commodity used as feedstock to produce products containing carbon, and their quantity and unit of measure**
8. **Basic process diagrams showing the energy-consuming systems and the general process and energy flow**

Periodic Reporting of Energy Use – Info Required

- The report shall contain the following information relating to the operation of all business activities that do not qualify the corporation as a registrable corporation:
 - total energy consumption of the said business activities as an estimate of the percentage of the corporation's total energy consumption;
 - total energy production of the said business activities as an estimate of the percentage of the corporation's total energy production; and
 - total greenhouse gas emissions of the said business activities as an estimate of the percentage of the corporation's total greenhouse gas emissions.

Energy Efficiency Improvement Plans – Submission Requirements

- A registered corporation shall submit an energy efficiency improvement plan by 30 June each year, for each **business activity** under operational control of registered corporation
 - **First submission in 2014**
- Plan shall be made using the relevant form at www.nea.gov.sg
- Plan shall be signed by energy manager and counter-signed by person who directs and controls the corporation at the highest level

Energy Efficiency Improvement Plans – Info Required

- The plan shall contain the following info relating to the operation of each business activity that qualifies (new business activity) or qualified (existing business activity that led to registration) the corporation as a registered corporation:
 1. Description of measures to be implemented or completed, their estimated start and end year, projected reduction in energy consumption, **estimated cost, and designation of person responsible**;
 2. Update on progress of measures in previous plan submitted; and
 3. For measures completed before the end of the preceding year, the estimated or measured reduction in consumption, together with a description of how the reduction was measured and verified
- The plan shall cover a period of **not less than 1 year** and not more than 5 years

Energy Efficiency Improvement Plans – Info Required

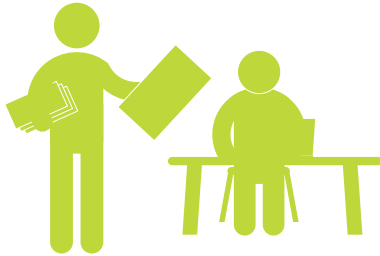
- The plan shall contain the following information relating to the operation of all business activities that do not qualify the corporation as a registrable corporation:
 - a description of the energy efficiency measures to be taken

Records to be Kept

- A registered corporation shall keep and maintain complete and accurate records of information for not less than 5 years, **from date of creation or receipt of record**
- Records include:
 - records of purchase and consumption of every type of fuel or energy commodity
 - detailed process diagrams showing systems & general process & energy flow
 - measurement data on energy consumption of systems or equipment; specifications and calibration records of measurement equipment or systems
 - measurement data on energy consumption of various systems or equipment before and after retrofit; specifications and calibration records of measurement equipment or system
 - documents or records which the corporation relied upon to provide the information on greenhouse gas emissions

Initiatives Assisting Industry in Complying with ECA Requirements

Training on Online Reporting System



Registration /
Deregistration



Submission of
energy use report &
energy efficiency
improvement plan



Report
Management

Demo to be conducted after Tea-break

Energy Efficiency Promotion Centre



Assist companies on
ECA matters,
provide general
advice & guidance



Help companies
apply for grants
and incentives



Link up companies
with knowledge
partners and energy
efficiency experts



Provide companies
with info on energy
efficiency training,
workshops &
success stories



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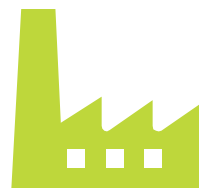
**8.30am – 5.30pm
Monday – Friday**

Capability Building & Incentives



Grant for Energy Efficient Technologies

Co-funds investment in energy efficient technologies or equipment



Energy Efficiency Improvement Assistance Scheme

Co-funds energy audits



Energy Efficiency National Partnership

- Energy management system
- Learning network
- National recognition scheme



Investment Allowance

Allows companies to claim further IA of fixed capital expenditure against taxable income



Singapore Certified Energy Manager (SCEM) Training Programme & Grant

- Builds capability in energy mgt
- Co-funds training cost of SCEM Professional Level course

Key Milestones



Register with NEA

By 15 Oct 2013



Appoint energy manager

**Within 30 days of
being registered**

Attain SCEM certification
(for energy manager)

By 1 Apr 2014



Submit energy use reports &
energy efficiency improvement
plans (voluntary)

In Q3 2013

Submit energy use reports &
energy efficiency improvement
plans (mandatory)

By 30 Jun 2014

Q&A Session

Our Environment

Safeguard • Nurture • Cherish

Back Up Slides

Schedules



Schedules

Registrable Corporation - Registration

Energy use threshold of 54 TJ/y

- A corporation seeking to specify the net calorific value (NCV) of a fuel or energy commodity shall submit a report by a lab containing the results of tests to ascertain the NCV of the fuel/energy commodity concerned, & the DG may approve or reject the NCV specified.
- The report shall be in accordance to the test method meeting the requirements of the relevant ASTM International, International Organization for Standardization (ISO) or other testing standards approved by DG.
- A corporation seeking to specify the energy content value of steam, compressed air and chilled water shall submit to the DG a method by which the corporation derived the value, and the DG may approve or reject the energy content value specified.



How to join EENP?

- Download and complete the application form at:
http://www.e2singapore.gov.sg/industry/eenp_application.html
- Email form to NEA_EENP_Secretariat@nea.gov.sg
- There are no fees associated with joining the EENP