

Unofficial Translation

**Ministry of Energy's Notification**  
**On Criteria and Procedure for the**  
**Management of Energy**  
**In Designated Factories and Buildings**  
**B.E. 2552**



Department of Alternative  
Energy Development and Efficiency

**MINISTRY OF ENERGY**

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## Ministry of Energy Statement

On Criteria and Procedure for the Management of Energy

In Designated Factories and Buildings

B.E. 2552

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By virtue of provisions in Article 6, Article 7 paragraph one, Article 8 paragraph two, Article 9, Article 10 paragraph 2 and Article 11 paragraph two of Ministerial Regulation on the Standards, Criteria and Procedure for Energy Management in Designated Factories and Designated Buildings B.E. 2552 issued according to provisions in the Energy Conservation Promotion Act B.E. 2535, amended by the Energy Conservation Promotion Act (No. 2) B.E. 2550, which as law has some provisions concerning the limitation of individual rights and freedoms, which Article 29 in conjunction with Article 33, Article 41 and Article 43 of the constitution of the Kingdom of Thailand legislate are enacted by virtue of the provision of law. The Minister of Energy hereby issues the following announcement:

**Article 1:** In this statement:

**“Designated Factory”** means a factory that has been recognized as such by order of Royal Decree in accordance with ‘Section 8’.

**“Factory Owner”** means the person(s) responsible for the administration of the factory

**“Designated Building”** means a building that has been recognized as such by order of Royal Decree in accordance with ‘Section 18’.

**“Building Owner”** means those person(s) who own the building.

**“Inspector and Certifier”** means the person authorized to inspect and certify management of energy in accordance with the laws concerning the promotion of energy conservation.

**“Organization”** means a designated factory or building depending on the facility in question.

**“Inspection”** means to survey, audit and collect data

**“Energy Management Working Group”** means a group of individuals appointed by the owner of the designated factory or designated building, which has been set up according to the ministerial regulations on standards, criteria and procedure for energy management in designated factories and designated buildings, and who are responsible for various aspects concerning overall energy management in the designated factory or designated building.

**“Equipment”** means machinery and material used in the designated factory or designated building

**“Significant Energy Use”** means energy use that is of a high proportion compared to total energy used by the organization, system or equipment

## Section 1

### Evaluating Potential Energy Conservation

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**Article 2:** The designated factory or designated building owner is responsible for evaluating the potential energy conservation through checking and analyzing significant energy use in their designated factory or designated building in order to identify the cause of energy loss, as well as measures to reduce such loss.

An evaluation of significant energy use allows for a number of important factors to be assessed, including the amount of energy used, hours of usage and possible improvements.

**Article 3:** To evaluate the potential energy conservation outlined in ‘Article 2’, the designated factory or designated building owner must assess the amount of significant energy use at the organization level, product or service level and equipment level, using the criteria and procedure listed below:-

(1) Evaluation at Organization Level: The designated factory or designated building owner must collect information related to electrical system, manufacturing or services and energy used between January and December of last year. This data is analyzed in order to ascertain the amount of energy used within the system or various manufacturing processes compared to the total amount of energy used by the organization.

(2) Evaluation at Product or Service Level: The amount of energy used by the organization for manufacture and services can be divided into many different products or services, which can be

compared with energy costs for manufacture or services by analyzing production or service processes and finding the specific energy consumption cost from the amount of energy used and the factors affecting energy used for each product or service using the criteria and procedures below:-

(a) Designated Factory: Determine the specific energy consumption cost using the rate of total energy usage per unit of output.

(b) Designated Building: Determine the specific energy consumption cost using the rate of the amount of total energy usage for all factors that affect energy use in the designated building. For example, the number of rooms if the building is a hotel, or the number of people receiving a service if the building is a hospital, or the total area of work space used in the case of a general building, etc.

(3) Evaluation at Equipment Level: Assess the amount of significant energy used by each major item of equipment, as well as analyzing energy efficiency and energy loss for each device.

**Article 4:** All data and results of the evaluation of potential energy conservation accrued in this section is one part of the energy management report, which must be submitted to Director-General according to guidelines outlined in 'Section 6' of this statement.

## **Section 2**

### **Energy Conservation Plans and Objectives**

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**Article 5:** The designated factory or designated building owner is required to draft an energy conservation plan and set of objectives for their designated factory or designated building, according to guidelines outlined in 'Article 7' and 'Article 8'.

Energy conservation plans and objectives drafted according to this article are one part of the energy management report, which is to be submitted to the Director-General according to guidelines outlined in 'Section 6' of this statement.

**Article 6:** Energy conservation plans and objectives, information on energy usage, and other issues that affect energy use, as well as an evaluation of the potential energy conservation and energy conservation measures collected and prepared according to guidelines in 'Section 1' are to be used when determining energy conservation plans and objectives.

**Article 7:** Energy conservation objectives drafted in accordance with this section should be separated into electrical and thermal measures and must include at least the following information:-

(1) List of energy conservation measures, as well as target indicators for each measure that are to be defined as a percentage of total energy use and which should ideally be less than last year's total.

(2) Investments and period of repayment for each energy conservation measure implemented.

**Article 8:** Energy conservation plans must be made to meet pre-determined energy conservation objectives of the designated factory or designated building, be separated into electrical and thermal measures, and must include at least the following information:-

(1) List of energy conservation measures for the Designated factory or building, along with the primary objective of each energy conservation measure implemented.

(2) Period of time taken for each energy conservation measure implemented - specifying the start and end time.

(3) Amount of investment required for each energy conservation measure implemented.

(4) List the person(s) responsible for carrying out each energy conservation measure.

**Article 9:** The energy conservation plan drafted in 'Article 8' enables the designated factory or designated building owner to draft training programs and activities to promote energy conservation, which must include at least the following information:-

(1) List of training courses or activities to be implemented to promote energy conservation

(2) Participant target group

(3) Amount of time used for training or activities to promote energy conservation.

(4) The person(s) in charge of each training courses or activity designed to promote energy conservation.

**Article 10:** The designated factory and designated building owners are responsible for distributing plans of training programs and activities designed to promote energy conservation to all personnel in the factory or building, so as to ensure staff are thoroughly aware of all aspects of the plan.

### **Section 3**

#### **Implementation, Inspection and Analysis of Energy Conservation Plans and Objectives**

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**Article 11:** The designated factory and designated building owners must oversee the implementation of energy conservation plans, as well as training programs and activities to promote energy conservation outlined in 'Section 2'.

**Article 12:** For the successful implementation of 'Article 11', designated factory and/or designated building owners are required to set up an energy management working group to oversee the person(s) responsible for implementing each respective energy conservation measure, as well as the promotion of energy conservation training and activity programs in the designated factory or designated building. A report on the effect of the plans on overall energy management should be completed regularly.

**Article 13:** Upon receipt of the report outlined in 'Article 12', the energy management working group will monitor and analyze the results to ascertain whether the objectives of the plan were met.

Inspection and analysis is to be carried out over an appropriate period of time (at least three months per time) and will assess measures defined in energy conservation plans and training and activity programs for the promotion of energy conservation.

Should the results indicate that the plans are not meeting preset targets the energy management working group must identify the reasons behind this using criteria and methods and recommend possible solutions in the report outlined in 'Article 14', in order to help revise or update further plans and objectives for energy conservation.

**Article 14:** During the inspection and analysis of energy conservation plans and objectives outlined in 'Article 13', the factory or building owner must assign the energy management working group to compile a report based on results of inspection and analysis of energy conservation plans and objectives, along with training programs and activities to promote energy conservation. The report must contain at least the following information:-

(1) Progress summary of implementation of the energy conservation plan, which must at least include a detailed list of all energy conservation measures, their implementation status and problems and obstacles encountered during implementation (if any).

(2) Results of Inspection and analysis of energy conservation plans and objectives for electrical and thermal measures, which must include at least the following information:-

- (a) List of each energy conservation measure implemented
- (b) Amount of time required to implement energy conservation measures outlined in plan and amount of time actually required in practice
- (c) Current implementation status
- (d) Capital investment outlined in the plan and the actual investment
- (e) Results of energy conservation conceived in plan and actual outcome
- (f) Problems and obstacles encountered during the operation
- (g) Comments and suggestions

(3) A summary of the implementation process for training courses and activities to promote energy conservation, including the names of training courses or activities, their implementation status, problems and obstacles encountered (if any) and number of participants.

A report on the inspection and analysis of energy conservation plans and objectives drafted in accordance with guidelines outlined in this article shall comprise one part of the overall energy management report, which is to be submitted to the Director-General according to guidelines outlined in 'Section 6' of this statement.

## Section 4

### Monitoring and Evaluating Energy Management: Review, analysis and resolving shortcomings

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#### Part 1

#### Monitoring and Evaluating Energy Management

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**Article 15:** Designated factory and designated building owners must carry out monitoring and evaluation of energy management via an internal inspection, which must be conducted at least once a year in accordance with the following criteria and procedures:-

(1) The energy management working group is required to meet with the factory or building owner to appoint a board of inspectors to assess the management of energy within the organization. This group should consist of at least two individuals who possess knowledge and understanding of energy management, and who are impartial and independent of the work conducted at the facility.

(2) The designated factory or designated building owner is required to sign an appointment order for inspectors assigned to assess energy management within the organization and inform all personnel so they are thoroughly aware of such action.

(3) The board of inspectors assigned to assess energy management within the organization must accurately verify that the designated factory or designated building is operating in accordance with the law, especially with regards to the following:-

- (a) Setting up an energy management working group
- (b) Evaluation of initial energy management status when energy management is being implemented for the first time
- (c) A written policy on energy conservation, which must be signed by the factory or building owner and distributed within the organization
- (d) Evaluating potential energy conservation

(e) Energy conservation plans and objectives, and training programs and activities to promote energy conservation

(f) Implementation of energy conservation plans and inspection and analysis of energy conservation plans and objectives

(g) Monitoring and evaluation of energy management

(h) Review, analysis and resolving shortcomings of energy management

**Article 16:** For the purpose of monitoring and evaluation of energy management outlined in this section, the energy management working group must collect all relevant documents and evidence related to energy management in the designated factory or designated building and submit them to the inspectors for use in their assessment of energy management within the organization.

**Article 17:** Inspectors assigned to assess energy management within the organization shall examine all relevant documents and evidence outlined in 'Article 16' and determine whether documentation is complete or not. This may include inquiries or interviews with personnel in the designated factory or designated building and a summary of the monitoring of energy management, which is to be signed by chairman of the inspection board and submitted to the energy management working group and designated factory or designated building owner.

The energy management monitoring and evaluation summary compiled by the inspection board outlined in paragraph one shall comprise one part of the energy management report and is to be submitted by the designated factory and designated building owners to the Director-General according to guidelines outlined in 'Section 6' of this statement.

## **Part 2**

### **Energy Management: Review, Analysis and Resolving Shortcomings**

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**Article 18:** After the inspectors have conducted monitoring and evaluation of energy management outlined in 'Part 1', designated factory and designated building owners can review, analyze and resolve shortcomings over an appropriate period of time (at least once a year). The results of the monitoring

process outlined in 'Article 17' can be analyzed to determine suitability and possible improvements to energy management in the facility.

As outlined in paragraph one, the energy management working group of the designated factory or designated building shall arrange a meeting in the organization to review and analyze energy management and identify solutions to shortcomings at the facility. The findings of the meeting should be given to the designated factory or designated building owner, which must at least include a results of the energy management review conducted at each step as outlined by the Ministerial Regulation which are appropriate or should be improved.

Possible improvements to resolve shortcomings detected at each step, if it is agreed that improvements should be made, shortcomings should be identified.

The meeting outlined in the second paragraph must be attended by representatives from agencies within the designated factory or designated building, who should use the occasion to express their thoughts on energy management in the designated factory or designated building.

**Article 19:** The designated factory and designated building owner can use the results of the review, analysis and solutions outlined in 'Article 18' to improve and develop energy management to render it more efficient and swiftly resolve any shortcomings.

**Article 20:** The designated factory or designated building owner is required to disseminate the results of the meeting, together with the review, analysis and resolving shortcomings of energy management to all personnel at the facility.

The findings of the review, analysis and resolving shortcomings of energy management outlined in 'Article 18' shall comprise one part of energy management report and is to be submitted to the Director-General by the designated factory and/or designated building owner according to guidelines outlined in 'Section 6' of this statement.

## Section 5

### Inspection and Certification Procedure for Energy Management

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**Article 21:** The designated factory or designated building owner must draft an energy management report for the facility on an annual basis.

In the event that the Director-General has authorized a person or entity to investigate and certify energy management instead of an official, the aforementioned report can be reviewed and approved by an inspector and received certification before being submitted to the Director-General.

**Article 22:** The energy management report outlined in 'Article 21' shall comprise one part of the audit and certification report that must be submitted to the Director-General according to guidelines outlined in 'Section 6' of this statement.

**Article 23:** The inspector shall review the energy management report for the designated factory or designated building and consider the accuracy and completeness of all documents and evidence submitted. This may also include inquiries or interviews with relevant personnel according to following procedure:-

- (1) Energy management working group
- (2) Evaluating initial energy management status
- (3) Energy conservation policy
- (4) Evaluating potential energy conservation
- (5) Defining energy conservation plans and objectives, together with training programs and activities to promote energy conservation
- (6) Implementation of energy conservation plans and monitoring and analysis of energy conservation plans and objectives
- (7) Monitoring and evaluation of energy management

- (8) Review, analysis and resolving shortcomings in energy management

**Article 24:** To check the accuracy and completeness of energy management report outlined in 'Article 23' the following criteria be taken into consideration:-

(1) Determine if energy management practices at the designated factory or designated building are consistent with defined energy management procedure by reviewing evidence and documents, interviews with relevant personnel and practices at the facility.

(2) Regarding criteria considered consistent with requirements of energy management procedure; if the designated factory or designated building owner fully adheres to all stipulated requirements it shall be deemed that practices comply with requirements and the inspector shall validate the assessment.

(3) Regarding criteria considered inconsistent with the requirements of energy management procedure; if the designated factory or designated building owner fails to adhere to all requirements, or does adhere to requirements but some shortcomings are detected, practices shall be deemed not to comply with the requirements. Inconsistencies can be divided into the following two categories:-

(a) Major inconsistencies include no documents on energy management or no evidence of practices deemed in accordance with the provisions of energy management procedure outlined in the Ministerial Regulation.

**Practices deemed major inconsistencies include:-**

(a.1) No document issuing orders to set up of an energy management working group; authority and responsibilities of working group not defined according to provisions outlined in the Ministerial Regulation.

(a.2) No initial evaluation of status of energy management in sub-units according to structure and overall perspective of factory or building when energy management is implemented for the first time.

(a.3) No energy conservation policy document; no important matters outlined in energy conservation policy according to provisions stipulated in the Ministerial Regulations; no evaluation of potential energy conservation according to the criteria and procedure set forth in this statement.

(a.4) No specified energy conservation plans and objectives according to the criteria and procedure set forth in this statement; no specified training and activity programs to promote energy conservation.

(a.5) No inspection and analysis of energy conservation plans and objectives according to criteria and procedure set forth in this statement; no monitoring results of training courses and activities to promote energy conservation.

(a.6) No documents issuing orders to appoint an inspectors to evaluate energy management within the organization; no assessment of energy management according to the criteria and procedure set forth in this statement; no review, analysis or resolving of shortcomings of energy management according to the criteria and procedure set forth in this statement; no monitoring and evaluation of energy management proposed by energy management working group for review, analysis and resolving of shortcomings of energy management in the entire year; no review, analysis or resolution of shortcomings of energy management.

(a.7) No dissemination of orders to set up energy management working group; no dissemination of orders to appoint an inspectors to assess energy management within the organization; including no dissemination by any means of energy conservation policy, training courses and activities to promote energy conservation to personnel in the Designated factory or building.

If the factory or building owner carries out energy management practices deemed major inconsistencies the inspector shall see that the assessment is not validated.

(b) Minor inconsistencies refer to inconsistencies with documents, as well as inconsistencies or discrepancies in practices.

**Practices deemed minor inconsistencies include:-**

(b.1) Orders have been issued to an energy management working group; orders have been issued to appoint inspectors to evaluate energy management within the organization; an energy conservation policy has been drafted but has not yet been signed by the factory or building owner.

(b.2) The authority and responsibilities of the energy management working group have been defined and are consistent with important provisions outlined in the ministerial regulations; evaluation of initial energy management status does not include all sub-units structures of the factory or building; or evaluation of initial energy management status does not include all elements required; energy conservation policy is consistent with some important provisions outlined in the ministerial regulations; an evaluation of potential energy conservation has been carried out; assessment of energy management and review, analysis and resolution of shortcomings has been carried out but only for some articles or in incomplete according to the criteria and procedure set forth in this statement.

(b.3) Measure and analyze data obtained from the evaluation of potential energy conservation, including audit and analysis of data used to define electrical and thermal energy conservation measures and the audit and analysis of data for each measure in energy conservation plans and objectives not correct according principles of engineering; results of monitoring training and activities to promote energy conservation not in line with defined plan.

(b.4) Orders disseminated to set up energy management working group; appoint inspectors to assess energy management within the organization; energy conservation policy; training programs and activities to promote energy conservation using any one defined procedure, but factory or building personnel have not been informed, etc.

If the designated factory or designated building owner carries out energy management practices deemed to be minor inconsistencies, the auditor shall validate the assessment, but shortcomings must be resolved in the following year.

**Article 25:** The inspection and certification report on the management of energy in the factory or building outlined in 'Article 23' allows for inspectors to provide feedback on how energy management practices can be improved. If the factory or building owner is inconsistent with provisions of energy

management procedure or no shortcomings were detected, there still may be opportunity to improve operations at each step which will still render it better than before.

**Article 26:** Inspectors must prepare an energy management inspection report according to specified requirements, which must at least include the name of the evaluation report, an assessment of whether there is or evidence - in the event that there is evidence, the name of evidence must be specified and whether it is consistent or inconsistent with the specified requirements, including identifying the type of inconsistencies (major or minor) and suggestions on how to improve each step of energy management to ensure it complies with requirements.

This energy management checklist outlined in paragraph one will comprise one part of the energy management inspection and certification report and is to be submitted to the Director-General by the designated factory or designated building owner according to guidelines outlined in 'Section 6' of this statement.

**Article 27:** The inspector must compile an energy management inspection and certification report for the designated factory or designated building according to the specifications outlined in 'Article 26'. The report should at least include the name of the evaluation, results of the assessment and comments and suggestions.

Moreover, the report outlined in paragraph one must be signed and certified by the inspector, as well as the specialist and assistant who assisted in carrying out the inspection and certification of energy management at the designated factory or designated building.

## **Section 6**

### **Submitting Energy Management Inspection & Certification Report**

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**Article 28:** The designated factory or designated building owner must submit the energy management inspection and certification report outlined in 'Article 27' to the Director-General by March each year. The submitted report must contain the energy management report outlined in 'Article 21' and the energy management checklist outlined in 'Article 26'.

**Article 29:** Delivery of the energy management audit and certification report is to be made by sending the original documents, together with CD's of electronic files, using any one of following methods:-

- (1) Submit in person
- (2) Send as registered mail

If the report is to be sent by registered mail; the date of registration shall be given as the date the report was dispatched.

Given on 25<sup>th</sup> September, 2009

(Wannarat Channukul)

Minister of Energy