

Chapter 1

Legislative Framework

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Chapter 1

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1. Introduction

From 1998 to 2018, Cambodia had enjoyed a steady economic growth of 8%, and remarkably achieved a lower middle-income status in 2015 (World Bank, 2020). Strong economic growth was also recorded at 7.1% in 2019. Due to COVID-19, growth is predicted to slow down at 2.5% throughout 2020. However, it will recover by early 2021 when the world economy also starts to recover from the economic shock because of preventive measures affecting the industries and tourism. Energy demand has been known to be the input for economic growth, and its association is very strong. As Cambodia's economy grows, so does its energy demand increase. Based on ERIA's energy outlook and saving potential in East Asia (Kimura and Han, 2019), final energy consumption is expected to double in 2015–2040, during which the industry sector is expected to grow at an average rate of 3.5%, reaching 2.41 Mtoe in 2040, an increase from 1.03 Mtoe in 2015. For the residential and commercial sectors, energy demand is predicted to grow at an average rate of 2% in 2015–2040, reaching 5.67 Mtoe in 2040, an increase from 3.45 Mtoe in 2015. Transport will mark the highest growth rate of 3.9% in 2015–2040, reaching 3.59 Mtoe in 2040, an increase from 1.39 Mtoe in 2015.

As energy demand increases, energy efficiency and conservation (EEC) becomes significant in curbing demand growth whilst maintaining economic growth because the same amount of energy use will lead to a large quantity of output in the economy. Energy efficiency is also known as the hidden fuel and can be translated as an energy resource to the nation as it will become energy available for other economic activities and supply the greater population. Savings in electricity consumption are even more significant as every kilowatt-hour unit saved would result in greater savings in fuel consumption, such as coal and gas, to generate power. The Government of Cambodia now acts swiftly to prepare the necessary power development plan to meet the growing electricity demand in all sectors. Thus, the energy efficiency plan will help avoid building more power plants, as well as help save investment money for the economy. Considering the fast-growing energy demand, appropriate energy efficiency regulations will be needed. Below is the content of the Cambodia Energy Efficiency Regulation to help the Ministry of Mines and Energy (MME) formulate related sub-degrees or regulations.

2. Content of Energy Efficiency Regulations

2.1. Objective and legal framework of energy efficiency regulations

The sub-degree or regulations on energy efficiency will define the legal and organisational basis for activities in the field of energy efficiency and aim to create conditions to reduce energy consumption. In this case, the sub-degree or regulations will instruct the MME and involved agencies to develop a comprehensive policy and regulatory framework to achieve energy efficiency in all sectors. Specifically, this regulation aims to promote energy efficiency as part of the country's sustainable development policy by

- applying a system of activities and measures to improve energy efficiency, especially for the end-uses of energy;
- introducing schemes of obligations for energy savings;
- developing the market, and encouraging the provision of, energy efficiency services; and
- introducing financial mechanisms and schemes supporting the fulfilment of the national objective of energy efficiency.

The MME will need to have precise and timely data on energy efficiency to establish energy policy targets and programmes/actions in all sectors. At the first step, it will need to collect energy efficiency data from line ministries/agencies/sectors (administrative or secondary data). In the future, the MME and involved agencies will need to have regular energy consumption surveys of the household, commercial, industry, and transport sectors for the precise targets and policy of energy efficiency.

The availability of accurate, up-to-date information on energy efficiency is essential for assessing the impact of energy savings and contribution to the reduction of greenhouse gas (GHG) emissions. This information will support the government’s commitment to report GHG emissions, implement the Kyoto Protocol, and fulfil the commitment during the 2015 United Nations Climate Change Conference or COP 21. The sub-degree or regulations follow the government’s initiatives and other ongoing activities that aim to promote energy efficiency in all sectors. The sub-degree or regulations should be adopted following the Prime Minister’s order, laying down the procedures for the MME to exercise/implement powers.

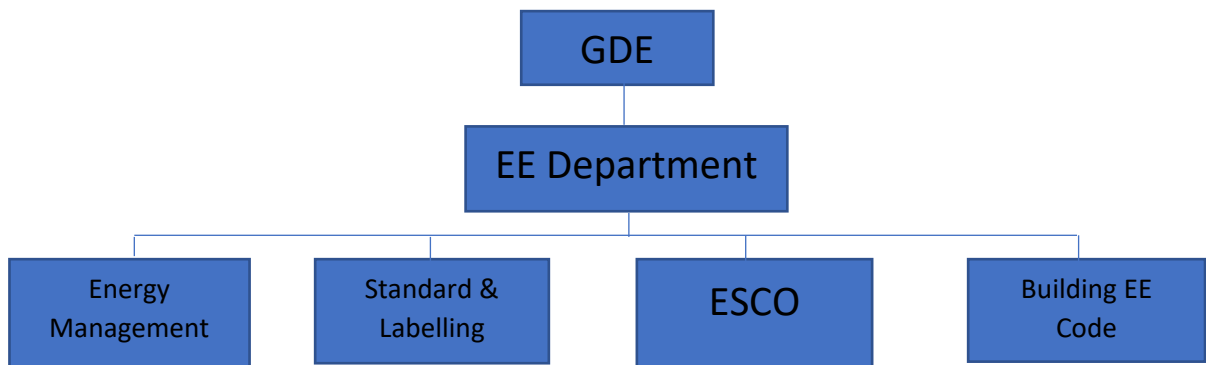
To quickly shift to the required implementing stage of the EEC in Cambodia, this regulation focuses on the following four major EEC topics, plus penalty:

- 1) Energy management system to include energy management and reporting designated premises, education and campaigns, and energy managers;
- 2) Standard and labelling;
- 3) Establishment of ESCOs;
- 4) Building energy efficiency code/guidelines; and
- 5) Penalty, if entities do not follow this regulation.

2.2 Institutional framework

The GDE–MME is in charge of promoting the EEC. This EEC Master Plan for Cambodia recommends that the GDE formulate new sections for the energy efficiency department to implement EEC activities in Cambodia, according to this regulatory framework. Figure 1.1 is a draft institutional chart of the new sections under the energy efficiency department of the GDE.

Figure 1.1 Draft Institutional Chart of the EEC



EE = energy efficiency, EEC = energy efficiency and conservation, ESCO = energy service company, GDE = General Department of Energy.

Source: Authors' suggestion.

The four sections shown in Figure 1.1 correspond to the four EEC topics mentioned above. The roles of the four sections are specified below.

2.3 Energy management system

The energy management system aims to establish a structure and system for the implementation of plans to improve energy performance, including energy efficiency, and effective management and reporting of energy use in the commercial and industry sectors in Cambodia.

2.3.1 Energy management and reporting of designated premises

Factories or buildings that consume energy more than or equal to 3,000,000 kWh/year (or 10,800 MJ/year) shall be classified as designated premises, and shall be required to engage an energy manager to organise energy management, implement energy efficiency measures, and submit an energy management report for the respective designated premises to the Energy Management section under the General Department of Energy.

The Energy Management section shall compile, collate, validate, and analyse the energy consumption data reported in the energy management reports, and establish energy efficiency indicators (EEIs) and energy statistics for the respective sub-sectors of the commercial and industry sectors.

2.3.2. Education and campaigns

Education and promotion campaigns are important in reaching out to the management and practicing professionals of the commercial and industry sectors, government departments, and the public through a cluster of programme activities. These activities include media campaigns, stakeholders' engagement, holding of technical forums, the publication of pamphlets and guidelines, incorporation of energy efficiency syllabus in the education system, publicity campaigns such as national energy awards, etc. The Energy Management section is also in charge of this action plan.

2.3.3 Energy managers

As part of energy management, a designated building and/or factory should engage an energy manager, either through an externally sourced or internally developed programme, to ensure that the use of energy in such a building is being managed efficiently. To achieve this, the energy manager needs to set objectives, targets, and plans to achieve such planned targets, besides reporting to the management of

the building and the relevant government authorities. The energy manager should set up an in-house energy management committee or task force in the designated premises to collectively manage and reduce energy consumption. Thus, he or she should be a competent and trained person with management skills, technical knowledge and skills, and is familiar with EEC practices. The Energy Management section is also in charge of accepting registration forms of energy manager candidates, assessing their application, licensing the candidates, and updating the certification through regular capacity-building trainings.

2.4. Labelling and standards

As part of the energy efficiency measures, the use of electrical equipment and appliances is recommended to satisfy the requirements specified in the minimum energy performance standards (MEPS). With MEPS in place, an energy labelling system shall be applied, and registration of equipment and appliances shall be done based on the labelling categories and criteria. This would set an energy benchmark for the equipment and appliances to be purchased and utilised by users. Therefore, any equipment or appliance that meets all the requirements of efficient electricity use shall be affixed with an efficiency rating label in such a form and manner as may be determined by the MME. The standard and labelling (S&L) section is in charge of formulating MEPS criteria of listed appliances and providing energy efficiency labels in collaboration with the Cambodia National Laboratory that verifies MEPS.

2.5 Establishment of energy service companies

Energy service companies (ESCOs) are established to facilitate the uptake of efficient management of energy use in Cambodia through the provision of comprehensive and competent services in energy solutions to buildings and factories. The main goal is to benefit from the implementation of energy efficiency measures.

2.5.1 Licensing/registration requirements

Licensing/registration requirements aim to enhance the professionalism and quality of services offered by ESCOs. This will instil confidence in the energy services sector and promote the growth of the industry.

2.5.2 Energy auditing and energy performance contract

An energy audit is a systematic checking and reviewing procedure to obtain adequate information on the energy consumption profile of a building or an industrial premise to establish its baseline energy consumption before any EEC measure is installed. In addition, the energy audit will identify and quantify cost-effective energy-saving opportunities and report the findings.

An energy performance contract (EPC) is a turnkey service offered by ESCOs to the building or factory owner. The ESCO would finance the installation of energy-saving measures, monitor, and verify energy savings, which shall be shared with the premise owner to recover the costs of financing the project under an EPC agreement.

2.5.3 Financing mechanism

A creative financing mechanism and business model designed to encourage investments in energy efficiency, and the energy performance contract (EPC) needs to be established. Financing institutions play

a key role in establishing and facilitating a business environment for the EPC linking ESCOs, as EEC turnkey service providers, with business entities. The government would play an important role in ensuring that only creditable and competent ESCOs with some financing capabilities would be allowed to register to offer their services.

2.6. Building energy efficiency code and guidelines

Establishing building energy efficiency code and guidelines is important for the implementation of energy efficiency in buildings in view of the rapid development experienced in the country. The criteria that require compliance with the code and guidelines shall be based on the following:

Any building that has a gross floor area exceeding 2,000 square metres shall be required to submit details of code compliance to the Building Energy Efficiency Code section for approval.

The qualified professional appointed by the building owner shall declare that he/she has taken diligent steps to incorporate energy efficiency design measures to comply with the energy intensity requirements of the proposed building.

2.7 Penalty

For effective implementation, the penalty clause, which is important in the energy efficiency sub-degree or regulations, should state that an obliged person who fails to fulfil the determined energy efficiency target for annual new energy savings of a specified amount shall be imposed a fine or a proprietary sanction of a certain amount. For example, the owner of a designated building for hotels or industries, who fails to realise energy savings shall be imposed a fine or a proprietary sanction. The four sections under the energy efficiency department also execute the penalty to the designated premises and ESCOs if they fail to comply with this regulation.

3. Conclusion

The legal framework, such as the sub-degree or regulations on energy efficiency, is an important push factor in establishing mandatory requirements for efficient energy management. It also aims to empower the department or agency tasked with responsibilities to implement EEC plans and, consequently, achieve EEC for Cambodia. For the private sector, a top-down approach requires top management or company owners to undertake efficient energy management practices. The legal framework would require business operations that exceed a certain threshold value of annual energy consumption to adopt an energy management system or practices. The results of energy efficiency practices and energy productivity will eventually benefit business operations by cutting energy costs. The energy efficiency regulation may not be applicable to the residential sector except for the S&L system, which would require households to recognise energy-efficient appliances. Similarly, building codes will also cover the commercial sector in terms of energy-efficient buildings. It is also important to create the EEC culture by (i) incorporating energy efficiency subjects in the school curriculum, (ii) conducting energy efficiency promotional campaigns for the public in the residential sector, and (iii) organising awareness and capacity-building training programmes for the commercial and industry sectors. Finally, promoting and adopting EEC measures and practices will accelerate the achievement of sustainable development in Cambodia.

References

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