



Energy Efficiency and Conservation Roadmap (2023-2050)

Strategic Actions, Descriptions and Activities



UK Government



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Acronyms

AFETD	Alternative Fuels and Energy Technology Division
AEMAS	ASEAN Energy Management Scheme
BEEI	Building Energy Efficiency Index
CECO	Certified Energy Conservation Officers
CEM	Certified Energy Managers
CHED	Commission on Higher Education
DAP	Development Academy of the Philippines
DE	Designated Establishment
DENR	Department of Environment and Natural Resources
DILG	Department of the Interior and Local Government
DOE	Department of Energy
DOF	Department of Finance
DOT	Department of Transport
DPWH	Department of Public Works and Highways
DSM	Demand-Side Management
DTI	Department of Trade and Industry
DU	Distribution Utilities
EC	Electric Cooperatives
EECD	Energy Efficiency and Conservation Division
EPMPD	Energy Efficiency and Conservation Program Management and Technology Promotion Division
EPRED	Energy Efficiency and Conservation Performance Regulation and Enforcement Division
EPSMD	Energy Efficiency and Conservation Public Sector Management Division
ERC	Energy Regulatory Commission
ESCO	Energy Service Company
ETL	Energy Technology List
EU-ASEP	EU-Philippines Access to Sustainable Energy Program
EUMB	Energy Utilisation Management Bureau
EVCS	Electric Vehicle Charging Station
FI	Financial Institution
GAD	Gender and Development
GEEP	Government Energy Efficiency Projects
GEMP	Government Energy Management Program
GOCC	Government Owned and Controlled Corporation
HEV	Hybrid Electric Vehicle
IAEECC	Inter-Agency Energy Efficiency and Conservation Committee
ICLEI	Local Governments for Sustainability

IEC	Information and Education Campaign
IRR	Implementing Rules and Regulations
LCEP	UK Government funded Low Carbon Energy Program
LEECP	Local Energy Efficiency and Conservation Plan
LGU	Local Government Unit
MEPP	Minimum Energy Performance for Products
MVE	Monitoring, Verification and Enforcement
NEA	National Electrification Administration
NEDA	National Economic and Development Authority
NEECD	National Energy Efficiency and Conservation Database
NEE&C Office	National Energy Efficiency and Conservation Office
NEECO	National Energy Efficiency and Conservation Officer
NGA	National Government Agency
NHA	National Housing Authority
NPC	National Power Corporation
NPC-SPUG	National Power Corporation – Small Power Utilities Group
OBO	Office of the Building Official
PDU	Power Distribution Units
PEEP	Philippine Energy Efficiency Program
PELP	Philippines Energy Labelling Program
PEZA	Philippine Economic Zone Authority
PIEEP	Philippine Industrial Energy Efficiency Project
PPR	Particular Product Requirement
QTP	Qualified Third Party
SUCs	State Universities and Colleges
TWG	Technical Working Group
ULAP	Union of Local Authorities in the Philippines
UNEP	United Nations Environment Program
UNIDO	United Nations Industrial Development Organisation

Introduction

Background

Energy demand

The Philippines has witnessed a rise in energy consumption, driven by economic growth and a growing population in recent years. These trends are set to continue, with the transport and industrial sectors particularly driving the increase in energy demand. Although the Philippines continues to perform well compared to its ASEAN neighbours in terms of energy intensity (this has been attributed, at least in part to high, un-subsidised energy prices and a shift towards service and commercial industries), the rate of decline in energy intensity is slowing. Continued growth in GDP (it has been averaging 6-7% annually over the past decade), and the energy-intensive industrial, building/construction, and transport sectors will see an acceleration in energy demand in the Philippines. The growth in the industrial sector is expected to grow the fastest at an annual average of 5.4%, driven in part by further governmental programs aimed to boost developments in the manufacturing sector, and the 2018 'Build, Build, Build' initiative which will have a strong influence on further growth in the construction industry.

Drivers of energy efficiency

The Philippines has among the highest energy prices in Asia. Reducing energy costs through the implementation of energy efficient products has the potential to free up capital, which businesses can use to further grow their organisation and stimulate wider economic development. Reducing energy costs in households would enable increased spending on other basic needs, thereby improving conditions for low-income and vulnerable groups.

Energy security and self-sufficiency is also a high priority in the Philippines. As a net energy importer with only moderate conventional energy resources available, a lessened reliance on energy imports is a further driver for energy efficiency.

Alongside the economic benefits, there are important environmental and sustainable development considerations. Energy efficiency plays an important role in decoupling economic growth from energy demand and emissions, making it critical for reducing air pollution, and for emissions reductions - supporting the country to meet its NDC commitments.

The Department of Energy's Commitment to Energy Efficiency and Conservation

The Philippines has a strong history of commitments to energy efficiency, dating back to the early 1990s. The Department of Energy Act of 1992 (Republic Act 7638) made explicit the aim for "judicious and efficiency utilisation of energy" across energy intensive sectors. In 2004, the National Energy Efficiency Conservation Program was adopted, which served as the framework guiding DoE strategy in energy efficiency across all sectors.

In recent years, the Department of Energy (DOE) has been guided by the Energy Efficiency and Conservation Roadmap 2017-40, which sets out a comprehensive list of sectoral strategies to promote energy efficiency.

Until 2019, energy efficiency activities had generally been voluntary, with few incentives to support widespread adoption. In early 2019, the long-awaited Energy Efficiency and Conservation Act was enacted, putting in place the country’s first law specifically relating to energy efficiency. The shift from voluntary to mandated activity, through the introduction of fines as well as incentives, is likely to have significant impact on energy efficiency action. This change also gives investors a clear indication of the government’s commitment to scaling up energy efficiency across all sectors.

While the passing of the Law is a huge step forward for the Philippines Government and DOE, there is still much work to be done to implement its provisions. It is critical that comprehensive, clear and appropriate strategies and plans are developed to accelerate implementation and build investor confidence in the energy efficiency market.

The Energy Efficiency and Conservation Roadmap (2023-2050)

To help accelerate energy efficiency activities and investments in the Philippines across all sectors, the existing Philippines Energy Efficiency and Conservation (EE&C) Roadmap (2017-2040) is being revised.

The revised Philippines Energy Efficiency and Conservation Roadmap (2023-2050) (the Roadmap) will provide an updated outline of the strategic plans and actions for EE&C in the Philippines across all sectors, including implementing key provisions of the recent Energy Efficiency and Conservation Act (EE&C Act), and its accompanying Implementing Rules and Regulations (IRRs).

The UK Government, through the FCDO-funded ASEAN Low Carbon Energy Program (LCEP), is providing technical assistance to the Department of Energy (DOE) Philippines to update the Roadmap and the National Energy Efficiency and Conservation Plan (NEECP), and to incorporate the ambitions and commitments laid out in the EE&C Act.

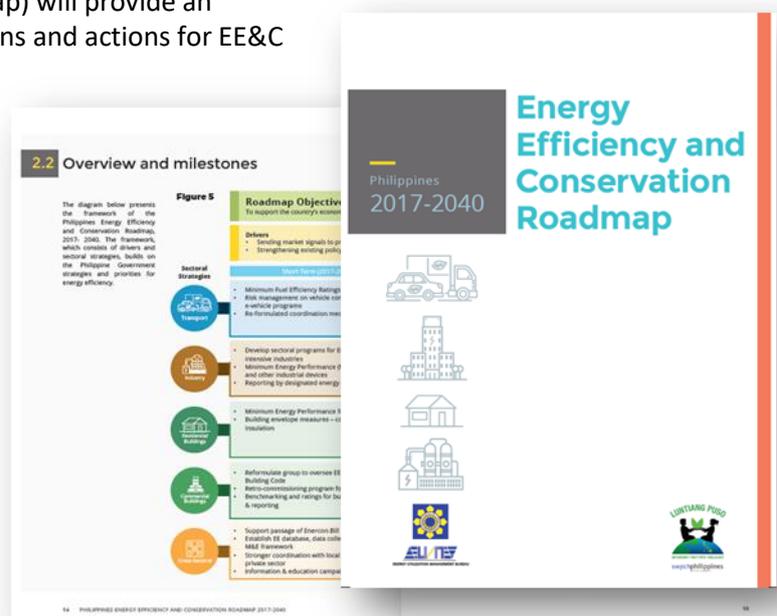


Figure 1 The current EE&C Roadmap (2017-2040)

Purpose of this report

The primary objective of this report is to present the LCEP’s recommended EE&C Roadmap to DOE for internal consideration. It is also intended to support the Energy Utilisation and Management Bureau (EUMB) of the DOE to prepare a public consultation on the Roadmap strategic actions.

The strategic actions and their associated activities and milestones in the Roadmap will also form part of the National Energy Efficiency and Conservation Plan (NEECP), a “national comprehensive framework”, required to be developed by the DOE under the EE&C Act (2019). Along with setting out

a governance structure, the NEECP is to include energy efficiency programs, complete with feasible strategies, national targets, and monitoring and evaluation requirements.

Intended use of the document

This document is intended for internal use by the DOE for their consideration and input. It is not for external publication. It is intended to assist DOE in preparing for the public consultation and resulting queries and comments on the Roadmap by providing background information and supporting material.

This is a draft document. Once updated with feedback from DOE and the results of the public consultation (scheduled for end 2020/early 2021) it will form part of a finalised Roadmap 2023-2050 Document. The activities in the Roadmap below have been selected following a review of the Philippine government's short, medium and long-term priorities, progress to-date in implementing existing policies and programs, and the recent Energy Efficiency and Conservation Act (EE&C Act) and its accompanying Implementing Rules and Regulations (IRRs)

The Roadmap is intended to support the DOE in implementing key provisions of the EE&C Act and to accelerate the uptake of energy efficiency measures in the Philippines. The finalised Roadmap will be a public-facing document and will set out the Government's priorities and commitments on energy efficiency, communicating them to private sector investors, international development organisations, and the Filipino public.

Approach

The recommendations on the strategic actions to be included in the Roadmap have been developed in collaboration with the DOE. The LCEP team conducted desk research and also undertook wider stakeholder engagement with Filipino and international energy efficiency experts to develop the recommendations.

The approach is illustrated below:



Methodology

1. Policy review

In order to understand how the policy landscape in the Philippines had changed since the Roadmap was first developed in 2016, including any barriers to energy efficiency uptake, the LCEP team conducted a light touch policy review. It covered the energy efficiency and policy landscape in the Philippines since the 2016 development of the Roadmap by EU-Switch. Close attention was paid to

the EE&C Act (2019) and its accompanying IRRs, in, the Philippine Development Plan, Department Circulars, reports and guidelines provided by the DOE as well as other publicly available energy consuming market assessments, and development-partner low carbon energy reports. A key aim of the review of the EE&C Act (2019) was to ascertain how key provisions of the new EE&C Act (2019) should be incorporated into strategic actions in the Roadmap.

2. Stakeholder engagement

Engaging with energy efficiency experts in the Philippines, including experts within DOE, energy efficiency finance experts, development organisations, and international energy efficiency experts specialising in each of the different sectors included in the Roadmap. These engagements were undertaken to further understand progress made against the (2017-2040) Roadmap, and other key priorities of the DOE and the wider government, so that they might be incorporated into the update Roadmap. Such engagements contributed to an understanding of how the Roadmap could be used by DOE and other key stakeholders to advance energy efficiency in the Philippines

3. International best practice review

A light-touch international best practice review was undertaken to understand where international examples of energy efficiency policy could support the implementation of the Roadmap's strategic actions, and the implementation of the EE&C Act. It focused particularly on examples relevant to the implementation of key provisions of the EE&C Act (2019) and other priorities of the DOE.

4. DOE consultation workshops

Between September and November 2020, the LCEP team held a series of workshops with DOE to discuss the priority actions and progress on implementing the EE&C Act. The workshops included representatives from the Energy Utilisation and Management Bureau (EUMB) of the DOE and used Mural, an interactive web app, to facilitate contributions before, during and after the workshops. It allowed DOE contributors to describe the key steps they considered essential to implementing the strategic actions in the Roadmap. The output of the workshops and MURAL contributions is synthesised below. In addition to forming part of the Roadmap, they will also inform the drafting of the National Energy Efficiency and Conservation Plan (NEECP).

A copy of the MURAL output is included in the Annex to this report.

Limitations

Limited data and the absence of consistent monitoring and data collection hampered efforts to perform a comprehensive review of the policy and programmatic landscape for energy efficiency in the Philippines. As a result, the assessment of the progress toward the goals of the current Roadmap has been largely qualitative and no further quantitative targets have been developed.

As the DOE had already undertaken extensive stakeholder engagement in relation to the EE&C Act (2019), it was requested that the LCEP team limit their stakeholder interviews to inform the review of the policy landscape and development and testing of Roadmap recommendations.

The LCEP team cannot provide an extensive list of recommendations for the improvement of energy efficiency activities in the Philippines based on international best practices, as an in-depth assessment of their suitability in the Philippines context is beyond the scope of this assignment. Any recommendations should be further assessed in comparison with the existing policy suite to ensure compatibility with current policies.

Structure of the Report

The report presents a visual Roadmap (2023-50), including an introduction to and explanations of its components.

This is followed by a series of tables for each sector and its short, medium and long-term strategic actions. These tables set out each strategic action in the Roadmap (2023-50), providing descriptions as well as indicative steps that might be undertaken to implement these strategic actions.

The Annex to this report shows the MURAL exercise used before and during the November 2020 workshop. The contributions have not been edited since the workshop.

Energy Efficiency & Conservation Roadmap (2023-50)

Introduction to the Roadmap

The proposed Roadmap below aims to provide a simplified visual representation of the current and upcoming priorities and commitments of the DOE over the coming short, medium and long-term.

The Roadmap is intended to reflect key provisions of the EE&C Act (2019), current EE&C programs, and other initiatives that will support the acceleration of energy efficiency in the Philippines.

As both an internal and a public-facing document, the final Roadmap and accompanying report are intended to support decisions around energy efficiency, from the development and financing of energy efficiency projects in the public, and private spheres, through to the development of partnership programs, and wider behavioural changes at the household level.

Government bodies, and projects

Public energy efficiency sector projects remain a priority for the DOE, with the Government Energy Management Program (GEMP) continuing to run through the short, medium- and long-term. To effectively build up a pipeline of GEMP projects, at both the national and Local Government Unit (LGU) level, the DOE aims to build the capacity of, and promote better coordination between, government entities. Specifically, capacity building of the Interagency Energy Efficiency and Conservation Committee (IAEECC) who evaluate and approve the development of GEMP will take place in the short-term. LGUs will similar receive support for the identification and evaluation of energy efficiency projects, coordinated by the National Energy Efficiency and Conservation Office (NEEC Office), shortly to be established.

Demonstrating viability of projects

It is important for the DOE that energy efficiency projects in the public sector pave the way for private sector investment in projects. There are opportunities for government-led projects to demonstrate the viability of energy efficiency projects and financing models, and roll out energy efficiency initiatives to the public sector first, before doing so in other sectors. This is certainly the case for buildings. As an example, the DOE intends to develop a Building Energy Efficiency Index (BEEI) for public buildings, and the lessons learned from this initiative will be incorporated into a BEEI for commercial buildings. It is hoped that public sector building projects using the BEEI will be able to demonstrate how different financing models for such projects might work for private investors, limiting the perceived riskiness of such projects.

Applying lessons across different sectors

Similarly, where the Guidelines on the Energy Conserving Design for Buildings (relating to commercial and public buildings) are used to update of the Building Energy Efficiency Code (BEEC), a similar approach will be taken in the development of guidelines and the subsequent update of the BEEC for the residential sector. The lessons learned from the earlier strategic actions can be applied to the new sector.

Common Programs

The Philippine Energy Labelling Program (PELP) is another large program that has been running successfully for several years. The program covers the development of Minimum Energy Performance for Products (MEPP) and labelling for appliances and other energy consuming products, as well as minimum fuel efficiency standards and labelling for vehicles. While MEPP development for appliances and energy consuming products such as lighting have been set out under the Residential sector on the Roadmap, it is very relevant to buildings. MEPP developments for motors and other industrial devices is closely linked with those of appliances, though these are most closely linked to the industrial sector. It is important that strategic actions are brought together under the umbrella of large programs where possible to enable synergies, to support coordinated actions and facilitate learnings across different sectors.

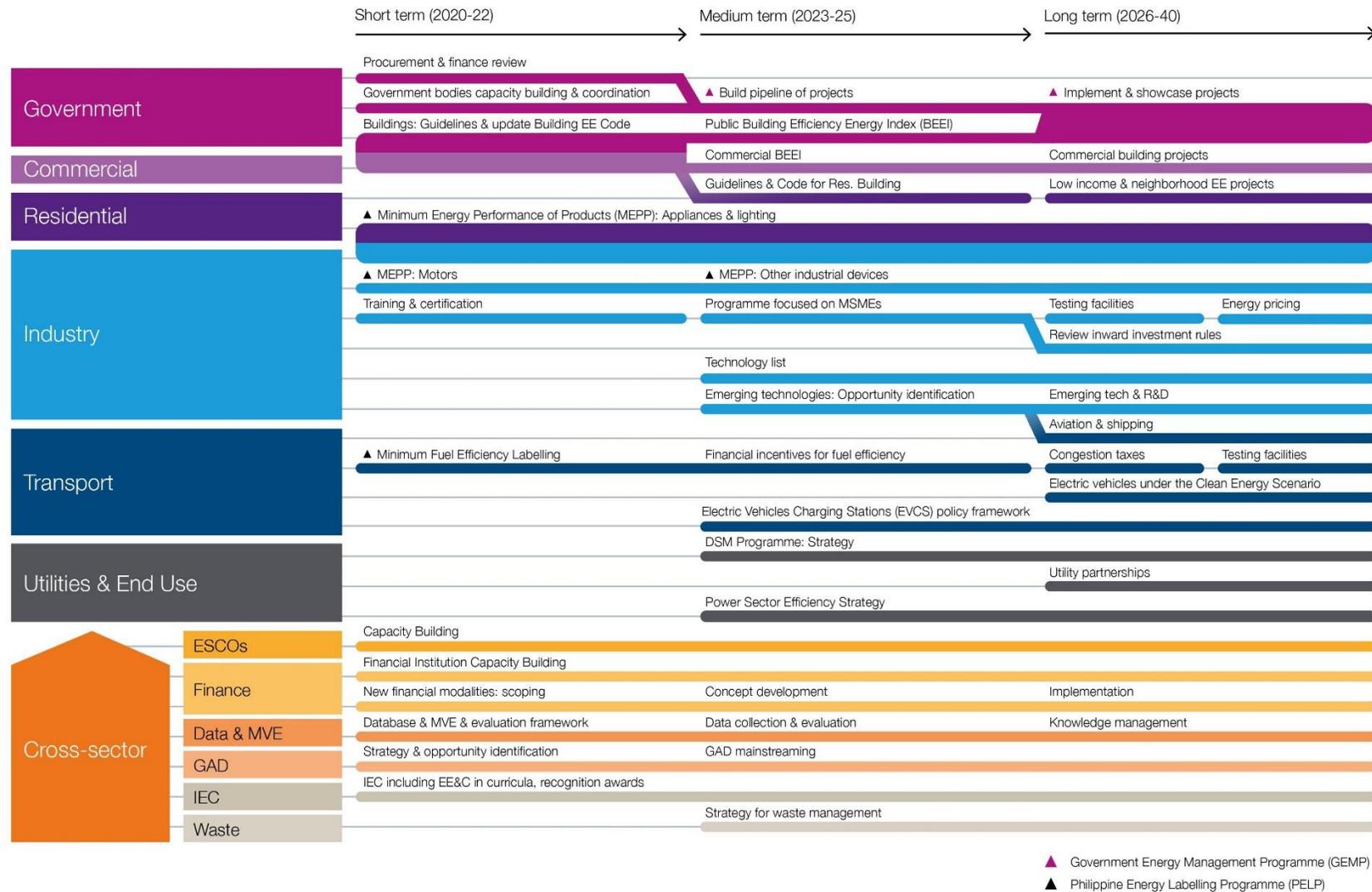
Cross-sector initiatives

There are several key themes that are fundamental to the success of energy efficiency and conservation programs and strategic actions in all sectors. Finance programs support more effective use of public funding, and support a private sector supply of finance for energy efficiency investments in all sectors. Educating and informing public sector bodies, financial institutions, industry groups, and the public at large enhance understanding of the importance of energy efficiency and the actions that consumers can take to improve it. Gathering data, and evaluating progress of energy efficiency programs and actions in the Roadmap will be essential to gauge whether these are successful, and if not, where lessons can be learned and improvements made. Gender and Development (GAD) is mandated to be a fundamental consideration of any government energy efficiency and conservation projects, and this should follow in the private sector. Incorporating GAD into programs across all sectors could have significant positive effects, not only on gender equality but in poverty alleviation and the strength of the MSMEs sub-sector. Finally, with energy efficient products rapidly replacing inefficient models, the DOE has made it a priority to address the management of such waste.

An explanation of the Roadmap's components is provided in the next section.

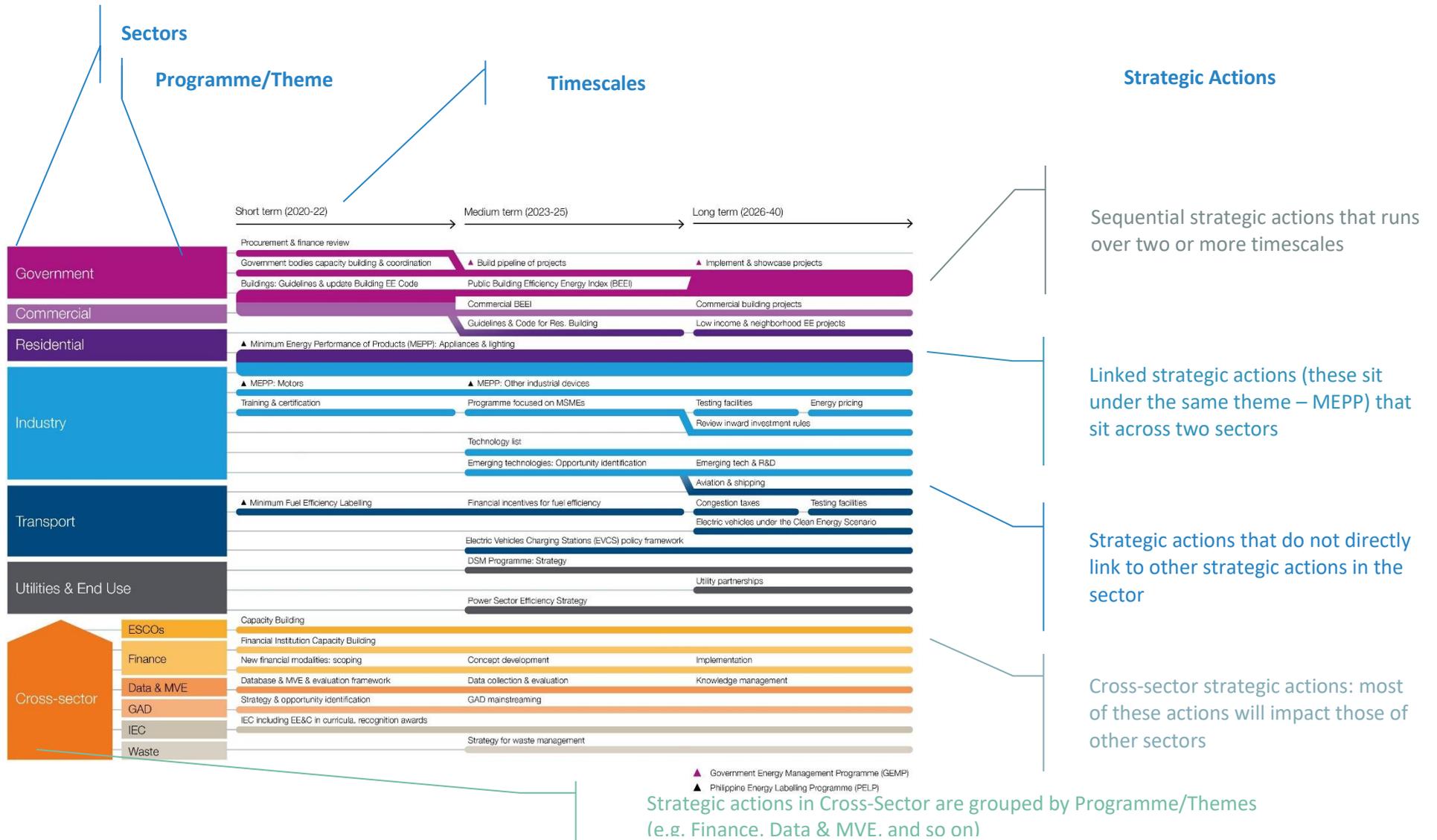
The EE&C Roadmap 2022-2040

Philippines Energy Efficiency & Conservation Roadmap



Breakdown of different elements of the Roadmap

This figure shows some of the key elements of the Roadmap. This are described in more detail below.



Descriptions of the different elements making up the Roadmap

Sectors

The Energy Efficiency and Conservation Roadmap 2023-2050 sets out the strategic actions for the DOE over short, medium and long-term timescales. These strategic actions are organised first into their relevant sectors (government, commercial, residential etc.), reflecting the primary stakeholders involved in the actions – these may be beneficiaries or groups of stakeholders in the economy with whom the DOE will work closely with.

Sitting below (or across) these sectors is the Cross-Sector, where strategic actions will impact or be highly relevant to nearly all the other sectors. **Error! Reference source not found.** shows the primary themes or programs within this Cross-Sector Group. These are:



- Energy Service Companies (ESCOs)
- Finance
- Data & Monitoring, Verification and Enforcement (MVE)
- Gender and Development (GAD)
- Information and Education Campaigns (IEC) and
- Waste Management (Waste)

Figure 3 Cross-Sector

Figure 2 Sectors in the Roadmap



Strategic Actions

Strategic actions are represented in the Roadmap in white text mapped onto coloured, horizontal bars. These are shortened versions of the full strategic actions, with the full strategic actions are set out in the tables below in the 'EE&C Roadmap (2023-2050) by Sector' section.

An excerpt from the Roadmap showing strategic actions is shown in Figure 4. The colours of the horizontal bars correspond to the Sectors (see the 'EE&C Roadmap (2023-2050) by Sector' section), and the presentation of strategic actions on continuous workstreams in this way aims to demonstrate their continuation over time and how they may influence or be influenced by other strategic actions.



Figure 4 Excerpt from the Roadmap showing Strategic Actions in horizontal, coloured workstreams

Descriptions for these, and examples of proposed activities under them are set out in tables in the below ‘EE&C Roadmap (2023-2050) by Sector’ section

Program or Theme

Strategic actions are also, where appropriate, grouped by programs or themes, which may sit across two or more sectors.

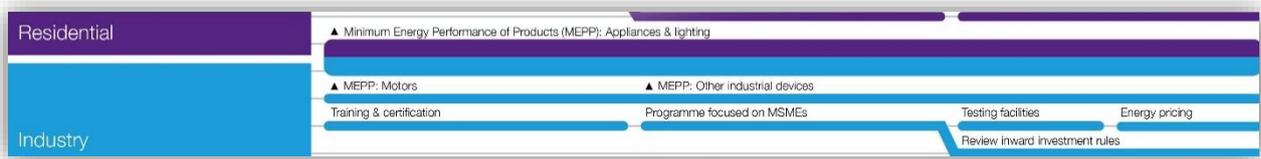


Figure 5 Excerpt from the Roadmap showing the Philippine Energy Labelling Program (PELP)

The above Figure 5 is an excerpt from the Roadmap which shows the Philippine Energy Labelling Program (PELP). This program involves the development of standards and labels for energy-consuming products, as well as vehicles, and therefore links the strategic actions of developing MEPP for various appliances (relating predominantly to Residential Sector), with MEPP development for motors (Industry Sector), and minimum fuel efficiency standards and label development for vehicles (Transport Sector).

Another program which links several actions is the Government Energy Management Program (GEMP).

The Roadmap aims to show that strategic actions will impact more than one sector, and that learnings from an approach in one sector may be applicable to another.

As an example, there are several key strategic actions in the Roadmap that relate to **buildings**. The strategic action to update the Philippines Building Code (and the referral Building Energy Efficiency Code within this) is relevant to both commercial and government buildings in the near-term. It is also relevant to the Residential sector in the longer-term, as the Roadmap includes a further strategic action to update the Building Code for energy efficiency measures in residential buildings.

Please note that the descriptions and activities of the strategic actions in the sections below are not repeated in each sector for which they are relevant.

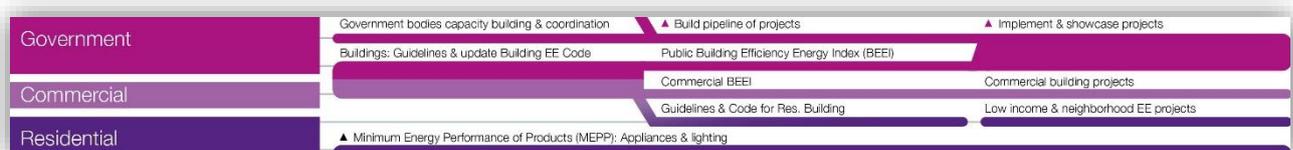


Figure 6 Products or Assets (such as buildings) relate to two or more sectors

In the tables in the ‘EE&C Roadmap (2023-2050) by Sector’ section, the programs and themes under which the strategic action sits, is highlighted in **bold**.

Short, Medium and Long-Term Timescales

It is important to note when reading the Roadmap that the strategic actions and overarching programs or themes have **not necessarily commenced and may not be completed within one timeframe** (short/medium/long-term).

The Roadmap intends to show that strategic actions may be initiated within earlier timeframes and continued through implementation and conclusion, which may be in subsequent timeframes. These actions may also integrate with, contribute to, or borrow lessons from other strategic actions or programs over time.

Shown below in Figure 7 is the IEC strategic actions over time. As the development and rollout of IECs is an action that the DOE has and will continue to undertake, it is represented here as spanning across all three timescales. Where the activity has commenced or will commence in the short-term, it has been grouped with the short-term actions in the Cross-Sector table below.

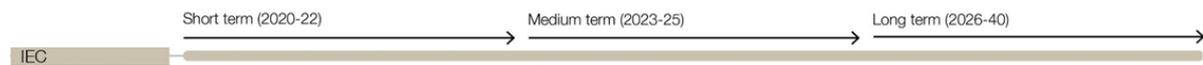


Figure 7 IEC over Short, Medium- and Long-term

Associated or Linked Roadmaps

It should be noted that strategic actions related to alternative fuels and electric vehicles and charging stations have not been included in the Transport sector in this Roadmap. These have been omitted from the EE&C Roadmap (2023-2050) as they are to be included in separate, though linked, roadmaps which are under development.

EE&C Roadmap (2023-2050) by Sector

Descriptions and associated activities of the Strategic Actions

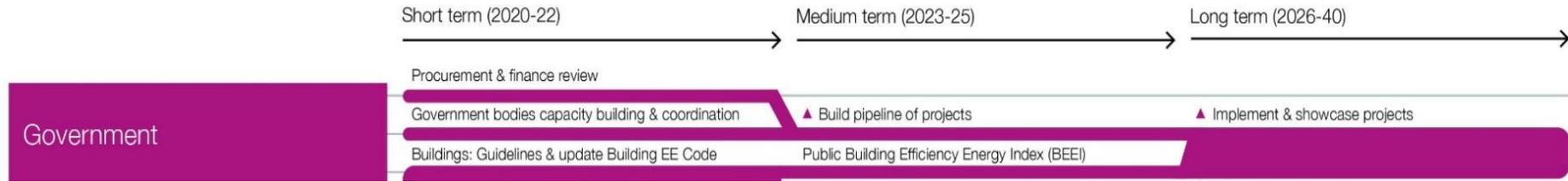
The following section presents and describes the full strategic actions from the Roadmap. These are set out in tables below, with the descriptions and indicative activities for implementation of the Roadmap's strategic actions. These tables group the strategic actions by:

- (1) Sector (where these sit across multiple sectors, the most relevant sector)
- (2) Short, medium- and long-term
- (3) Program or theme

In addition to a brief description of the strategic action or plan, these include rationales for their inclusion, highlighting where the strategic action is linked to the EE&C Act or the existing Roadmap.

The Activities column of the table, includes examples of activities and steps that may be required to implement the strategic action. These activities were derived from the workshop with DOE held in November 2020, whereby participants were asked to contribute via the web app MURAL.

Government



Short-Term

Short-Term (2023-2025)			
Program/Theme, Strategic Action per Roadmap	Roadmap Strategic Actions		
	Full Strategic Action	Description	Activities
Government Energy Management Program (GEMP): Procurement & finance review	Review procurement and finance modalities	<ul style="list-style-type: none"> Government procurement of energy services can be challenging, and the DOE recognises the need to address procurement to catalyse the uptake of energy efficiency projects in the public sector. Enhancing the procurement and finance modalities of the public sector will, in turn, open opportunities for the ESCO sector. Difficulties with the procurement process for energy efficiency projects slows their uptake. DOE requires support to develop the appropriate procurement processes and financing modalities for energy efficiency projects. LCEP is addressing this by providing technical assistance for EE&C Act IRR Section 47 on Financial Arrangements. 	<ul style="list-style-type: none"> Develop, in coordination with IAEECC, Department Circulars (DC) for financing modalities and criteria for evaluation and approval of government EE projects. Development of standard templates and contracts in collaboration with contract specialists.
GEMP: Government	Inter-Agency Energy Efficiency	<ul style="list-style-type: none"> It is a requirement of the EE&C Act that IAEECC representatives evaluate and approve GEMP projects and 	<ul style="list-style-type: none"> Identify individuals/organisations to support the development of Guidelines for the evaluation of projects under GEMP.

bodies building & coordination	capacity building & coordination	and Conservation Committee (IAEECC) Guidelines development and capacity building	<p>programs. A plan for capacity building would enhance the skills and capacity of representatives to evaluate projects and improve their decision-making.</p> <ul style="list-style-type: none"> Similarly, the development of a set of Guidelines for the evaluation of energy efficiency projects under GEMP for IAEECC representatives will support effective and fair evaluations. 	<ul style="list-style-type: none"> Internal review and approval of formal Guidelines. Identify individuals/organisations for engagement for the development and delivery of the training in project evaluation. Develop training modules and prepare materials for DOE approval. Delivery of training to IAEECC, alternative and technical representatives related to GEMP implementation, including evaluations of trainees. Certification of trainees.
		Set up National Energy Efficiency and Conservation Office (NEE&C Office)	<ul style="list-style-type: none"> The National Energy Efficiency and Conservation Office (NEE&C Office) is to be set up as per Section 30 of the EE&C Act's Implementing Rules and Regulations (IRRs). Section 4 of Department Order (DO) DO 2020-01-0002 presents the mandates of the NEE&C Office, which includes providing support to the designated National Energy Efficiency and Conservation Coordinating Officer (NEECO) and coordinating with LGUs. 	<ul style="list-style-type: none"> Coordinate with the Department of the Interior and Local Government (DILG) and League of LGUs to recommend the National Energy Efficiency and Conservation Officer (NEECO). Develop and agree on NEE&C Office's Terms of Reference. Ensure the provision of support to the NEECO and enable coordination and other activities required from the NEE&C Office, as per its mandates.
		Establish a framework to enhance coordination and develop LGU capacity through NEE&C Office	<ul style="list-style-type: none"> As per DO 2020-01-0002, the NEE&C Office is mandated to coordinate with LGUs to ensure the consistency of all Local Energy Efficiency and Conservation Plans (LEECP) with the National Energy Efficiency and Conservation Plan (NEECP), and in matters relating to the GEMP. The NEE&C Office would similarly support capacity building of LGUs in energy efficiency. Better coordination between LGUs could enable the aggregation of local energy efficiency into larger-scale programs, improving opportunities for financing. 	<ul style="list-style-type: none"> Collaborate with the DILG and ULAP to develop a framework in coordination with the NEE&C Office and NEECO. Work with the NEE&C Office to support the development and establishment of LEECPs for LGUs. Support the NEECO with the provision of tools and guidance for LGU capacity building and in conducting IECs and other training.
		Develop tools and guidance for LGU EE&C activities	<ul style="list-style-type: none"> A key barrier faced by LGUs is a lack of institutional capacity. With new regulatory changes in the Philippines, LGUs need to create both a climate action and development plan and a Local Energy Efficiency and Conservation Plan (LEECP). 	<ul style="list-style-type: none"> Conduct a needs assessment by engaging with LGU representatives. Conduct a study into LGUs' current and planned programs or projects to understand which of these relate to EE&C.

		<ul style="list-style-type: none"> • There is an opportunity here to enhance LGU capacity and align LEECPs with existing reporting requirements. Having simple and standardised tools and guidance for LGUs to follow will help smoothen the process of creating and adopting LEECPs and reduce the administrative burden. • The tools and guidance would be developed in coordination with the NEE&C Office (see above), and leverage existing tools such as the LEECP Template and Monthly Electricity and Fuel Consumption Report Forms. Tools and guidance materials would be disseminated through Information and Education Campaign (IEC) activities, including local workshops. 	<ul style="list-style-type: none"> • Deliver workshops and training through IEC on the preparation of LEECP with LGUs. • Develop and rollout a Building Code training program for selected LGUs in coordination with the NEE&C Office. • Verify data collected through energy audit spot-checks. • Use data to further develop and refine tools and guidance in the development of LEECPs.
Buildings: Guidelines & update Building Energy Efficiency Code (BEEC)	Development of <i>Guidelines on the Energy Conserving Design for Buildings</i> and update of the BEEC	<ul style="list-style-type: none"> • It has been the DOE's intention that the energy efficiency measures included in the soon-to-be-finalised <i>Guidelines for Energy Conserving Design for Buildings</i> will form part of the Building Energy Efficiency Code, which forms part of the Philippine Building Code. This would mean that while the guidelines are voluntary, their inclusion in the Building Code would make them mandatory. • Following the update of the BEEC, a Building Energy Efficiency Index (BEEI) would be developed (Medium Term). 	<ul style="list-style-type: none"> • Create a review body to oversee the inclusion of EE measures in the <i>Guidelines on Energy Conserving Design for Buildings</i> in the Green Building Code. • Develop policy circular on BEEC covering existing buildings for renovations and retrofits. • Develop database containing registry list of existing buildings for renovations and retrofits and details of EE projects implemented. • Develop implementation strategy in partnership with appropriate stakeholders including DPWH, DILG and LGU-OBO.

Medium Term

Medium-Term (2026-2030)			
Program/Theme, Strategic Action per Roadmap	Roadmap Strategic Actions		
	Full Strategic Action	Description	Activities

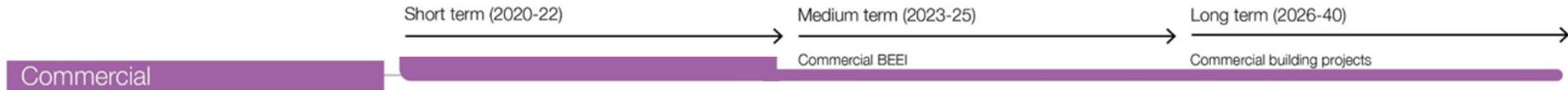
<p>GEMP: Build pipeline of projects</p>	<p>Build a pipeline of GEMP projects focused on:</p> <ol style="list-style-type: none"> Public buildings and LGU projects 	<p>Buildings:</p> <ul style="list-style-type: none"> Demonstration projects are needed to kickstart the market and act as models for others to follow. Government-led action on energy efficiency is an important means of building confidence in the market, and continues to be a high priority for the DOE when it comes to energy efficiency in buildings. <p>LGUS:</p> <ul style="list-style-type: none"> The coordination body should actively work with LGUs and other departments to support the pipeline development of energy efficiency projects at the LGU level. We recommend the body actively seek out potential projects and develop concepts, including through the aggregation of smaller projects. The body should work with LGUs and financial institutions to help source financing for these projects, with lessons to be shared across units. A potential pilot is the implementation of efficient road lighting. This can act as a pilot project for LGUs and has been identified by the DOE as a priority area to demonstrate the potential of energy savings to LGUs. 	<p>Buildings:</p> <ul style="list-style-type: none"> Develop a strategy for building a pipeline. Based on the results of the spot-checks conducted on government buildings for the BEEI, begin to identify possible and appropriate energy efficiency projects. Evaluate the potential of the projects and create a short-list detailing the feasibility of delivery for the relevant government agencies. Propose short-listed projects on energy efficiency and conservation to the IAEECC to establish Government Energy Efficiency Projects (GEEPs). <p>LGUs:</p> <ul style="list-style-type: none"> Further capacitate LGUs on the development of a Local Energy Efficiency and Conservation Plan (LEECP). Conduct IEC to present EE&C project concepts for LGUs. Conduct energy audits and spot-checks of LGUs to determine possible/appropriate projects on EE. Propose applicable projects on energy efficiency and conservation to IAEECC to establish GEEPs in relation to LEECPs.
<p>GEMP: Public Building Energy Efficiency Index (BEEI)</p>	<p>Develop a BEEI for public sector buildings</p>	<ul style="list-style-type: none"> A Building Energy Efficiency Index (BEEI) is a performance index which acts as a reference standard for energy efficiency in buildings. It enables energy use in buildings to be compared against a benchmark. Commonly it is expressed in kWh/m²/year. A BEEI would facilitate accurate forecasting of energy consumption in public buildings, and therefore support projects and initiatives to reduce energy demand. The initiative complements requirements for mandatory disclosure of energy consumption, and would specify thresholds for building energy performance in line with the Building Energy Efficiency Code (BEEC) (see <i>Commercial Sector</i>) 	<ul style="list-style-type: none"> Conduct a Building Energy Consumption Survey for public sector (government) buildings. Conduct energy audits and spot-checks of government entities to establish an energy efficiency index for government buildings. Evaluate and verify data submitted to the EE&C Database System by government entities and LGUs. Establish BEEI for government entities and LGUs. Develop BEEI Manual Guidelines containing BEEI for specific types of buildings. Conduct on-site monitoring, verification and assessment of Des' compliance to BEEI.

		<ul style="list-style-type: none"> This initiative would first be rolled out in the government sector and later, in the commercial sector. 	<ul style="list-style-type: none"> Develop database of buildings that are both compliant and non-compliant with the DOE-issued MEPP-BEEI for all types of buildings.
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Long Term

Long-Term (2031-2050)		
Program/Theme, Strategic Action per Roadmap	Roadmap Strategic Actions	
	Full Strategic Action	Description
GEMP: Implement & showcase projects	Establishment of an EE&C institute to showcase technologies and best practices in the government sector	<ul style="list-style-type: none"> A strategic action proposed by the Alternative Fuels and Energy Technology Division (AFETD), an EE&C institute would facilitate the demonstration of energy efficiency technologies and showcase successful projects. This is an important action for gaining buy-in and building the confidence of the private sector, as well as other public sector bodies. The establishment of an institute would highlight examples of best practices for other project developers and public authorities to follow. There are currently a few projects where donor organisations are working with government agencies to showcase technologies, and this experience should be leveraged and applied at a larger scale. ICLEI is working on a Clean Energy Living Laboratories to showcase and demonstrate energy efficient technologies. Having a permanent establishment driven and owned by the DOE would make it a central point for demonstrating, showcasing and mainstreaming energy efficiency technology in the Philippines.

Commercial



Short-Term

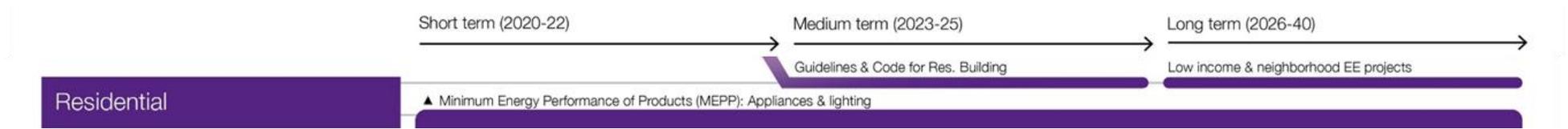
Short-Term (2023-2025)			
Program/Theme, Strategic Action per Roadmap	Roadmap Strategic Actions		
	Full Strategic Action	Description	Activities
Buildings: Guidelines & update Building EE Code	Development of <i>Guidelines on the Energy Conserving Design for Buildings</i> and update of the Building Energy Efficiency Code (BEEC)	<i>(See Government Sector)</i>	<i>(See Government Sector)</i>

Medium-Term

Medium-Term (2026-2030)	
	Roadmap Strategic Actions

Program/Theme, Strategic Action per Roadmap	Full Strategic Action	Description	Activities
Buildings , Building Energy Efficiency Index (BEEI)	BEEI development for buildings	<ul style="list-style-type: none"> The BEEI developed for public buildings (see <i>Government Sector</i>) would be adapted for the commercial sector. 	<ul style="list-style-type: none"> Conduct market study for selected types of buildings and establish baseline data information. Develop Building Energy Efficiency Index (BEEI) for selected types of buildings. Develop strategy for the implementation of the BEEI across commercial building sector.

Residential



Short-Term

Short-Term (2023-2025)			
Program/Theme, Strategic Action per Roadmap	Roadmap Strategic Actions		
	Full Strategic Action	Description	Activities
Philippine Energy Labelling Program (PELP), MEPP for appliances & lighting	MEPP, EE standards and labelling for appliances and lighting	<ul style="list-style-type: none"> The development of MEPP is a priority for the DOE under the EE&C Act IRR Section 56 MEP for Energy Consuming Products. In accordance with the EE&C Act, MEPP have been developed by the DOE for room air conditioning (RAC), refrigeration and lighting. Particular Product Requirements (PPR) for these products are in various stages of development and are considered a high priority. 	<ul style="list-style-type: none"> Establish the PELP online registration system. Strengthen the MVE framework. Increase awareness through IEC activities. Increase post-market surveillance and monitoring. Establish recognition system/program for stakeholders.

Medium-Term

Medium-Term (2026-2030)	
Roadmap Strategic Actions	

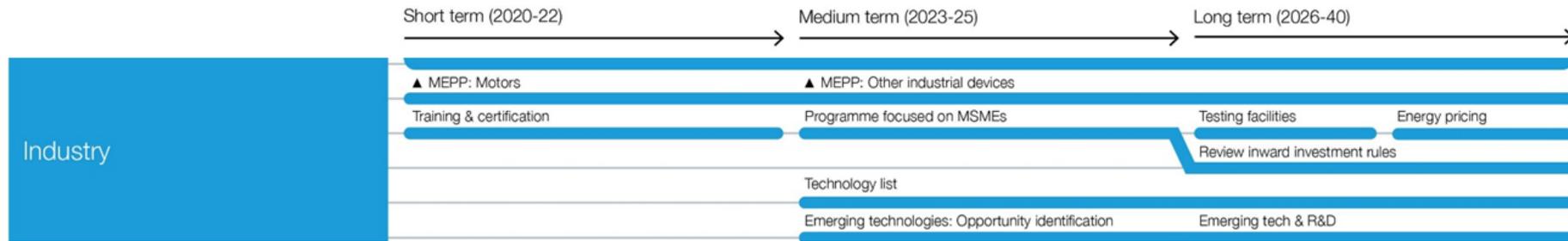
Program/Theme, Strategic Action per Roadmap	Full Strategic Action	Description	Activities
PELP, MEPP for appliances & lighting	MEPP for electric fans, TVs and washing machines	<ul style="list-style-type: none"> Washing machines and electric fans have been identified as other priority domestic appliances that the DOE will develop MEPP for. 	<ul style="list-style-type: none"> Conduct market studies Establish MEPP standards through collaboration with experts and key stakeholders Harmonise standards with other ASEAN countries Increase post-market surveillance programs
Buildings, Guidelines & code for residential buildings	<i>Guidelines for Energy Conserving Designs in Low-rise Residential Buildings</i> and subsequent inclusion in Residential Building Code	<ul style="list-style-type: none"> This is a target milestone for the Energy Efficiency and Conservation Program Management and Technology Promotion Division (EPMPD). 	<ul style="list-style-type: none"> Develop and implement policies on the Building Energy Code (BEC) for low-rise residential buildings (e.g. residential condominiums) in collaboration with the DPWH, DILG and Office of the Building Official (OBO). Collaborate with professional society associations (electrical and mechanical engineers and architects) and building construction associations for the adoption of building designs in the Guidelines and subsequently, the Building Energy Code for Low-rise Buildings.

Long-Term

Long-Term (2031-2050)		
Program/Theme, Strategic Action per Roadmap	Roadmap Strategic Actions	
	Full Strategic Action	Description

Low-income households & energy-efficient neighbourhood projects	Scope and develop energy efficiency projects and programs targeting low-income households	<ul style="list-style-type: none"> • The plan to develop energy efficiency programs for low-income households was included in the 2017-2040 Roadmap. Although not addressed specifically in the EE&C Act, it remains a high priority for the DOE that these programs are developed and implemented. The programs can be tied to the Gender and Development (GAD) objectives of the DOE. • Energy efficiency is particularly important for low-income households as they provide dual benefits of decreasing energy costs, thereby increasing income to be spent on other necessities, and reducing energy poverty.
	Develop and implement an energy-efficient housing neighbourhood project program	<ul style="list-style-type: none"> • The program 'Towards Energy-Efficient Housing Precincts' was previously included in the initial Roadmap (2017-2040) as recommended by the EU-Switch program. The term 'precinct' has been replaced here with 'neighbourhood' to make the program's objective clearer. Some of the initiatives that could be prioritised and demonstrated through energy-efficient neighbourhoods include: prioritising active transport (cycling, walking) and LEV transport, energy-efficient building designs, energy-efficient lighting and on-site energy generation. • The DOE has indicated that this program is a longer-term priority. • There is potential for this to form part of a wider energy-efficient low-income households program or a project to be developed with LGUs.

Industry



Short-Term

Short-Term (2023-2025)			
Program/Theme, Strategic Action per Roadmap	Roadmap Strategic Actions		
	Full Strategic Action	Description	Activities
PELP, MEPP: Motors	MEPP developed for motors	<ul style="list-style-type: none"> The development and rollout of energy standards beyond the appliances sector remains a high priority for the DOE, and MEPP for motors were included in the previous 2017-2040 Roadmap. Use of electric motors in the industry are widespread, and since it is an energy-intensive product, there are significant opportunities for efficiency. The development of MEPP for motors is currently being implemented by the DOE in cooperation with LCEP. Sound MVE and evaluation systems are required to ensure that any measures put in place are followed as designed and their effectiveness properly assessed. Engineers should be trained to conduct monitoring and evaluation. Reporting templates and procedures, allocation of responsible officers for reporting and 	<ul style="list-style-type: none"> Conduct market study. Collaboration with experts for the development of MEPP standards and PPRs. Capacity building and delivery of technical training on high-efficiency motors. Harmonisation of MEPP with ASEAN standards. Conduct stakeholder consultation on the developed MEPP and PPR for motors. Establish the approval process of the developed MEPP and PPR for motors.

		awareness-raising, and a framework for reporting results would also be key inclusions here.	
Training & certification	Certification and qualifications for CEMs and CECOs	<ul style="list-style-type: none"> • Under the EE&C Act, Certified Energy Managers (CEMs), Certified Energy Conservation Officers (CECOs) must obtain certain qualifications to attain certification. • Training materials and curricula for these are currently under development, and while existing qualifications may suffice in the meantime, the rollout of these trainings and certifications is a high priority for the DOE. • These qualifications will be built upon existing training modules and will be aligned with ASEAN certification standards. The focus here is to increase the capacity of energy management individuals and energy service delivery firms, which will be essential to scaling up energy efficiency activities. 	<ul style="list-style-type: none"> • Develop training regulations and training modules for CECOs and CEMs. • Develop accreditation system for training institutions for CECOs, and CEMs. • Develop database for CECOs and CEMs.

Medium-Term

Medium-Term (2026-2030)			
Program/Theme, Strategic Action per Roadmap	Roadmap Strategic Actions		
	Full Strategic Action	Description	Activities
PELP, MEPP: Other industrial devices	Minimum Energy Performances for Products (MEPP) for other industrial devices	<ul style="list-style-type: none"> • In line with the EE&C Act, the DOE is prioritising the development of MEPP for other industrial devices beyond motors. Such devices might include transformers. 	<ul style="list-style-type: none"> • Conduct market study and profiling. • Capacity building and delivery of technical training on industrial services. • Collaboration with various experts and key stakeholders for the development of standards and PPRs. • Harmonisation with ASEAN standards.

<p>MSMEs, Program focused on MSMEs</p>	<p>Scope and develop sectoral programs for energy-intensive industries (with focus on MSMEs)</p>	<ul style="list-style-type: none"> • Programs focused on energy-intensive sectors could result in significant energy-saving opportunities. Sectoral-focused programs were an inclusion on the 2017-2040 Roadmap, and it was recommended that cement and sugar (high-energy consumption sectors) be target industries. However, studies since then have suggested that such industries may not be as significant as initially perceived, and further work needs to be completed to identify the target sectors. • A further focus of such programs should be MSMEs to support the uptake of energy efficiency in this sub-sector. This would link to the DOE’s ambition for more inclusive energy efficiency efforts within sectors such as industry, and would align with development objectives. • Possible avenues for exploration include: developing and piloting energy efficiency projects in areas of cold-chain, programs targeting the uptake of a specific technology through favourable financing, and so on. 	<ul style="list-style-type: none"> • Conduct market survey to establish MSMEs baseline information. • Develop database for MSMEs containing registry list, annual energy consumption and projects implemented etc. • Develop programs that promote energy efficiency including energy management, energy audit, energy efficiency and conservation measures, and financing energy efficiency projects.
<p>Emerging technologies, Opportunity identification</p>	<p>Scoping study and roadmap for EE opportunities</p>	<ul style="list-style-type: none"> • Energy efficiency technologies are rapidly advancing and there may be opportunities on the horizon to advance energy efficiency in industry and other sectors. Studies should be done to identify advanced next generation and emerging energy technologies applicable to various sectors of industry. 	<ul style="list-style-type: none"> • Conduct study to identify EE opportunities in the industry sector. • Develop a roadmap on the potential energy technologies and alternative energy sources/fuels for the sector.
<p>Technology list</p>	<p>Development of a technology list for energy efficiency products and services</p>	<ul style="list-style-type: none"> • An Energy Technology List (ETL) is a list of high-performing efficient products (and potentially services), which can be used as a reference for consumers to understand the energy efficiency of household products. An ETL can be used by project developers and financiers to understand the efficiency of technologies being used, and reduce perceived risks of financing a new unfamiliar technology. Examples of ETLs include the Energy Technology Product List in the United Kingdom. 	<ul style="list-style-type: none"> • Engage experts and perform scoping study for the development of a technology list • Develop concept, which should be linked to Finance programs • Understand the potential technologies and services to be covered • Understand which stakeholders would be using the list • Test with stakeholders • Develop a roadmap for development, including parties who would host and maintain list

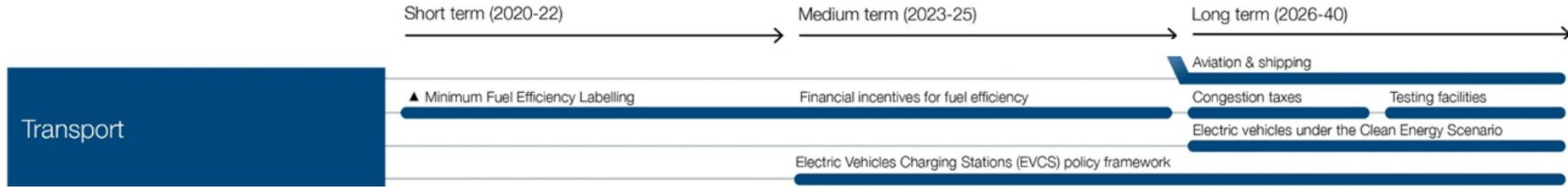
		<ul style="list-style-type: none"> The DOE is looking to develop the EE finance market in the Philippines. An ETL can be government-approved and tied to the eligibility criteria for a financing program. In this way, an ETL can also help spur access to energy efficiency finance. This could be linked to appliances, building materials and even services. 	
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Long-Term

Long-Term (2031-2050)			
Program/Theme, Strategic Action per Roadmap	Roadmap Strategic Actions		
	Full Strategic Action	Description	
Testing Facilities	Testing facilities for motors	<ul style="list-style-type: none"> The development of testing facilities would support MVE for MEPP, ensuring consistency and standardisation of testing. This is particularly important as the scope of the PELP expands. The DOE is keen to understand whether such facilities can be financed by the private sector. Any DOE-engaged laboratory should also be equipped to test the product types. 	
Energy pricing	Review of energy pricing	<ul style="list-style-type: none"> The National Energy Efficiency and Conservation Program sets out a vision to ensure optimal energy pricing, among other goals. An inclusion of the 2017-2020 Roadmap and a continuing priority for the DOE, this long-term strategic action would mean examining pricing structures for electricity tariffs. The Philippines has one of the highest electricity tariffs in Asia, and the government does not subsidise electricity. A review of energy pricing has the potential to address a key development objective, reducing costs faced by the poorest Filipinos. 	
Review inward investment rules	Review inward investment rules for EE to remove distortions	<ul style="list-style-type: none"> This is an existing strategic action in the 2017-2020 Roadmap aimed at ensuring new players can enter the market, and new investments in industrial equipment and projects in the Philippines adhere to energy efficiency best practices. It remains an ambition of the DOE to examine how industrial energy efficiency can be encouraged through negotiated agreements, restrictions and other incentives with inward investors. 	

Emerging Technologies, emerging tech and R&D	Identify emerging technologies, and develop R&D capacity	<ul style="list-style-type: none">• R&D capacity development in the Philippines for EE&C is an existing strategic action of the 2017-2040 Roadmap, and remains an ambition of the DOE albeit a long-term one.
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Transport



Short-Term

Short-Term (2023-2025)			
Program/Theme, Strategic Action per Roadmap	Roadmap Strategic Actions		
	Full Strategic Action	Description	Activities
PELP: Minimum fuel efficiency labelling	Minimum fuel efficiency ratings and labelling	<ul style="list-style-type: none"> Requirements for fuel economy performance and labelling are set out in Section 17 of the EE&C Act. As with labelling and ratings for energy efficient products, such initiatives relating to fuel efficiency also fall under the PELP. Under this program, vehicles will have to pass requirements for emissions and apply for a certificate of compliance in meeting emissions. This short-term strategic action includes the development of an MVE framework, which will also encompass a framework for evaluating its progress against objectives. Additionally, fuel efficiency ratings and labelling rollout will require an enhanced coordination mechanism as the responsibility for energy labelling and MVE lies across 	<ul style="list-style-type: none"> Conduct market assessment and profiling. Complete baseline assessment for efficiency of new light-duty vehicles. Collaborate and coordinate with industry players and other government agencies to develop standards and PPRs, and harmonise policies and programs to promote energy-efficient vehicles. Conduct studies on best practices in the implementation of efficient, next generation transport vehicle technologies. Capacity building and delivery of technical training to enhance knowledge and expertise. Implement policy to encourage government institutions (including the DOE) to re-fleet their vehicles to more energy-efficient and environmentally-friendly non-petroleum-based vehicles.

		DOE, Department of Environment and Natural Resources (DENR) and Department of Transportation (DOT), with other agencies such as the Bureau of Customs (BOC), Department of Public Works and Highways (DPWH), Department of Trade and Industry (DTI) and LGUs also involved.	<ul style="list-style-type: none"> • Carry out IEC campaigns for the transport sector including creating social media awareness and roadshows to showcase advantages of energy-efficient vehicles. • Promote fuel efficiency and conservation in public transport, government and private vehicle fleets through driver training seminars. • Establish collaboration with transport companies both for public, government and private entities for sustainable EE&C. programs across land, railway, sea and air transport sectors • Strengthen MVE framework.
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Medium-Term

Medium-Term (2026-2030)			
Program/Theme, Strategic Action per Roadmap	Roadmap Strategic Actions		
	Full Strategic Action	Description	Activities
PELP, financial incentives for fuel efficiency	Financial incentives for fuel efficiency	<ul style="list-style-type: none"> • An inclusion of the 2017-2040 Roadmap, the DOE will prioritise the investigation of incentives that may be attached to fuel efficiency. • Financial incentives that may be investigated include differentiated vehicle taxes for efficient vehicles and concessional payments (penalties) to be given to vehicle owners that meet (did not meet) standards, such as discounts for registering efficient vehicles. 	<ul style="list-style-type: none"> • Conduct market study and cost-benefit analysis of existing fiscal policies. • Coordinate with the Board of Investments (BOI), Department of Finance (DOF) and the Financial Institution (FI) sector on possible fiscal incentives based on fuel efficiency and lower emissions including: <ul style="list-style-type: none"> ○ Encouraging use of fuel-efficient technologies by providing consumers with vehicle package including fuel, supply of auto parts and after sales service ○ Government subsidy to local manufacturers and infrastructure developers/development ○ Registration discount for higher fuel efficiency vehicles

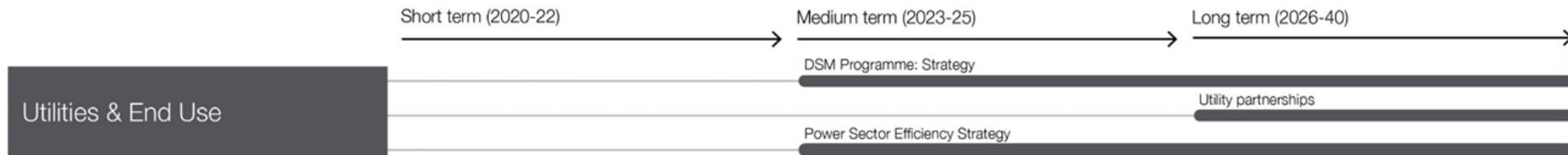
			<ul style="list-style-type: none"> ○ Less tariffs for the purchase of imported spare parts for fuel-efficient vehicles ○ Attractive loan packages with government FIs • Gather data/information from ASEAN member countries, EU or US on different fiscal and non-fiscal incentives and convene a TWG to develop appropriate incentive packages that will assist the Philippine market. • Support public transport development. • Harmonise policies with concerned NGAs.
Electric Vehicles Charging Stations policy framework	Promote adoption of EVs	<ul style="list-style-type: none"> • The emerging EV technology presents opportunities for improving energy efficiency in the transportation sector in support of the government’s energy independence agenda. • There is a need to consolidate and harmonize all existing issuances to ensure the safe, efficient operations and system reliability, and to accelerate investments in EVCs in the country. 	<ul style="list-style-type: none"> • Develop and update the Comprehensive Roadmap on Electric Vehicles. • Harmonise existing policies and issuing regulations on use of charging stations. • Implement plan, programs, and IEC campaigns to promote adoption of ECs.
	Charging infrastructure	<ul style="list-style-type: none"> • Department Circular No. DC2021-07-0023 also known as “Providing for a Policy Framework on the Guidelines for the Development, Establishment, and Operation of Electric Vehicle Charging Stations (EVCS) in the Philippines” 	<ul style="list-style-type: none"> • Conduct market assessment study. • Implement accreditation system of charging station service providers. • Establish a database of accredited charging station service providers.

Long-Term

Long-Term (2031-2050)		
Program/Theme, Strategic Action per Roadmap	Roadmap Strategic Actions	
	Full Strategic Action	Description

Emerging technologies, Aviation and shipping	Energy efficiency programs beyond road transport (passenger and cargo ships, aviation fuels)	<ul style="list-style-type: none"> • An inclusion from the 2017-2040 Roadmap which will remain in the updated Roadmap. The DOE recognises the need to increase energy efficiency in these historically difficult sectors. Policy and programmatic recommendations by organisations such as the IEA should be investigated.
Congestion taxes	Congestion taxes	<ul style="list-style-type: none"> • Congestion pricing would require users to pay more for the use of certain public goods, such as roads, that are subject to congestion through excess demand. Cities such as London, Stockholm, and Singapore apply such charges as an efficiency policy. The exploration of how this policy could apply in the Philippines remains a priority of the DOE, having been included in the 2017-2040 Roadmap.
Testing facilities	Testing facilities for vehicles	<ul style="list-style-type: none"> • Vehicle fuel efficiency and testing involves putting vehicles through a series of assessments according to MEPP standards and labelling. • Dedicated testing facilities that are aligned with ASEAN standards will support the government with MVE and general compliance. • As with testing facilities in the <i>Industry Sector</i>, the DOE is eager for these facilities to be supported by private sector investment.

Utilities & End Use



Medium-Term

Medium-Term (2026-2030)			
Program/Theme, Strategic Action per Roadmap	Roadmap Strategic Actions		
	Full Strategic Action	Description	Activities
Demand-side management (DSM) program, Strategy	DSM policy and strategy for program development	<ul style="list-style-type: none"> The development of a DSM program is a requirement under Section 70 of the new EE&C Act. A DSM program for the electric power industry would be pursued through load management and other measures implemented by distribution utilities to encourage end-users to manage their loads in an efficient manner. A DSM policy would first need to be developed and a strategy adopted by scoping out best practices in DSM and conducting extensive stakeholder engagements. The strategy would also identify industries and sectors which the program should target to be most effective (e.g. industry, commercial, residential). Areas to explore in the strategy include: <ul style="list-style-type: none"> effective load management, peak to off-peak migration, and use of EE technologies and systems. 	<ul style="list-style-type: none"> Coordinate/collaborate with Energy Regulatory Commission (ERC) and Philippine Economic Zone Authority (PEZA) to establish a TWG with other invited members from Distribution Utilities (DUs), Electric Cooperatives (ECs), National Power Corporation (NPC) and relevant private sector organizations. Proposed DSM Circular to undergo public consultation prior to approval by the DOE Secretary. Establish monitoring system with ERC, PEZA, National Electrification Administration (NEA) and electric DUs (PDUs and ECs) on the implementation of DSM. Establish a TWG with NPC and NEA to develop targets and policies. Re-establish coordination/collaboration with NPC, electric distribution companies and utilities on policies and ongoing programs/projects on DSM.

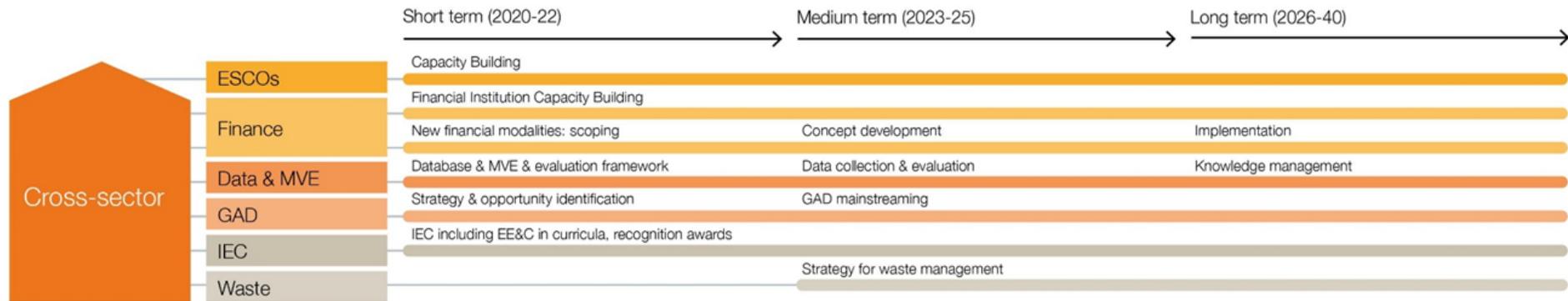
		<ul style="list-style-type: none"> The strategy would help link the program to other initiatives and explore means for financing, with the development and implementation of the program to happen in the medium and long-term. 	<ul style="list-style-type: none"> Prepare an analytical paper setting out the framework and regulatory steps that would need to be taken to implement a comprehensive demand response strategy. Engage with utilities and industry players.
Power sector efficiency program, Strategy	National policy, and strategy for efficiency in the power supply sector	<ul style="list-style-type: none"> This strategic action was included in a draft Roadmap presented for public consultation on 24th August 2020 by the DOE. This should be strongly linked to the DSM policy and follow the DSM program (see above). The strategy would set out and prioritise cost-effective opportunities to reduce system losses and improve efficiencies, and detail potential for cost-savings. Included in the previous Roadmap (2017-2040) as a medium-term priority, it remains a high priority for the DOE to be pursued within the next five years. 	<ul style="list-style-type: none"> Establish a TWG to review the status of energy efficiency implementation in the sector and conduct a baseline study of the sector. Establish a power sector energy efficiency strategy. Conduct energy audits of PDUs, QTPs, and ECs electric power distribution lines to establish baseline systems loss and infrastructure integrity. Conduct energy audit of NPCs-SPUGs diesel-generating facilities to establish baseline thermal efficiency and plant integrity.

Long-Term

Long-Term (2031-2050)		
Program/Theme, Strategic Action per Roadmap	Roadmap Strategic Actions	
	Full Strategic Action	Description

Utility partnerships	Utility partnerships expanded to support end-user decision-making on EE&C	<ul style="list-style-type: none"> • A strategic action aimed at developing the role of distribution utilities as key implementation partners and information providers for end-users and was also included in the 2017-2040 Roadmap. Although this has not been driven by the DOE to date, Meralco have undertaken this initiative independently, providing key energy consumption data in customers' billing statements in Metro Manila, encouraging more efficient use of energy through behaviour change. The DOE is keen to support Meralco in expanding this initiative, and encourage other utilities in the Philippines to take up similar actions through establishing partnerships. The DOE could partner with utilities to develop IEC projects and/or develop tools to support behaviour change across the country.
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Cross-Sector



Short-Term

Short-Term (2023-2025)			
Program/Theme, Strategic Action per Roadmap	Roadmap Strategic Actions		
	Full Strategic Action	Description	Activities
ESCOs, Capacity building	ESCO capacity building, including: <ul style="list-style-type: none"> Standardised documents Upskilling roadmap/strategy 	<ul style="list-style-type: none"> An ESCO-standard toolkit supporting standard processes and procedures would enable the ESCO market to deliver projects by streamlining and standardising processes. Currently being supported by EU-ASEP, the ESCO toolkit is a high priority for the DOE. The Department Circular for ESCO Certification has also been finalised and was signed by the secretary on September 2020. 	<ul style="list-style-type: none"> Coordinate efforts with donors on support being provided. Create standard legal document for procuring ESCOs. Issue guidelines for M&V for ESCOs to increase transparency and comparability of projects. Develop ESCO accreditation and certification training module development.

	ESCO certification	<ul style="list-style-type: none"> Section 13 of the Act and Section 52 of the IRR provide for the requirements for certification as an ESCO. The Act established two types of ESCO, and more stringent requirements for Certified ESCOs: <ul style="list-style-type: none"> 1. Registered ESCO refers to an ESCO seeking accreditation for professional services to DOE for the first time that meets the minimum of requirements on legal and technical capacity. The validity of the Certificate for Registered ESCO shall be for three (3) years. 2. Certified ESCO refers to an ESCO which in addition to meeting the requirements of a Registered ESCO also has proven performance or results-based projects savings experience and with proven customer experiences. The validity of the Certificate of Certified ESCO shall be valid for five (5) years. 	<ul style="list-style-type: none"> Development of training materials with experts Align certification with ASEAN standards Update database continuously with ESCOs, including those certified and not yet certified Promotion of certification through IEC
Finance , Financial institution capacity building	Financial sector capacity building	<ul style="list-style-type: none"> Many financial institutions are unfamiliar with EE projects and the business models behind them. Creating guidelines for endorsing EE projects would tackle this barrier by enabling them to appropriately assess EE projects. 	<ul style="list-style-type: none"> Create an Energy Efficiency Finance Program for the commercial banking sector. Conduct information campaigns with FIs. Provide technical assistance to FIs. Issue the guidelines in collaboration with FIs.
Finance , New financial modalities: Scoping	Guarantee Fund and/or Revolving Fund concept development	<p>Guarantee Fund</p> <ul style="list-style-type: none"> While there currently has been some degree of capacity building for financial institutions, there has been a lack of actual investment into EE in the private sector. Financing EE projects is a high priority and there is potential for LCEP to ‘deep-dive’ and help develop a strategy to accelerate private financing, building on 	<p>Guarantee Fund</p> <ul style="list-style-type: none"> Develop concept note and roadmap for establishment of Guarantee Fund. Engage with PhilGuarantee to explore concept. Understand capacity building requirement of PhilGuarantee. Engage with capacity building providers. Consider pilot ESCO projects. Consultation with ESCOs on guarantee needs.

		<p>the work done in the IFC Sustainable Finance Program. A strategy/action plan would pave the way for looking at innovative financing modalities including a guarantee fund, a structure and guide for stakeholder engagements, and set-up for EE finance training programs/modules.</p> <ul style="list-style-type: none"> • There is interest in setting up a guarantee fund and the application of the PhilGuarantee fund for EE projects both for credit and energy savings performance may prove more effective than the development of an entirely new fund. A guarantee fund could help close this gap by reducing the risk perception for financial institutions to provide loans for EE. <p>Revolving Fund</p> <ul style="list-style-type: none"> • The focus of a revolving fund would be for the government sector, with government FIs in a better position to use this modality. • The DOE have indicated that they are unfamiliar with what is required for this type of fund but are keen to explore the concept. • We have identified EE finance needs that could be addressed by a revolving fund, including <ul style="list-style-type: none"> • Project pipeline development • Softer collateral requirements around lending <p>Lower/concessional interest rates on loans</p>	<p>Revolving Fund</p> <ul style="list-style-type: none"> • Conduct a market study on successful revolving funds in other countries to establish best practice and engage with relevant stakeholders in the Philippines. • Develop concept note and roadmap for establishment of Revolving Fund. • Consider pilot projects.
<p>Data & MVE, Database, MVE and evaluation framework</p>	<p>Development of EE&C database and MVE & evaluation frameworks</p>	<ul style="list-style-type: none"> • Under the EE&C Act, designated establishments are required to submit energy efficiency and conservation reports. The data collected from these reports will contribute to the National EE&C Database (NEECD). 	<ul style="list-style-type: none"> • Establish an energy efficiency database using data collection regime and monitoring and evaluation framework developed in the short-term. • Conduct studies of emerging, advanced and next generation energy technologies and fuel alternative/option to promote EE&C using science-based data and information through

		<ul style="list-style-type: none"> • The comprehensive NEECD is currently under development and will serve as the repository for all EE&C data, including data gathered from the implementation of programs under the EE&C Act, such as PELP, GEMP, designated establishments and others. • The GEMP database in particular would be dedicated to public sector energy efficiency with data collected from government entities and LGUs. • Where possible, sex-disaggregated data should be collected, such as those related to the composition of upper management and boards of reporting organisations. 	<p>international donors or procurement of experts/consultancy services.</p> <ul style="list-style-type: none"> • Establish responsibility for energy efficiency data collection, and sectoral frameworks containing agreed monitoring regime and stronger energy-use data protocols. • Establish enforcement regimes to ensure compliance with the standards so that projected gains from efficiency can be realised. The regimes should ensure that there is adequate resource and training for enforcement officers. • Commence regular reporting and monitoring. • Develop progress reports to ensure that any issues that arise in early implementation are addressed. They will help signpost where further work is needed, and help identify key lessons that can be learned. • Integrate PELP database to the ASEAN product database.
Gender & Development (GAD), strategy & opportunity identification	GAD strategy development and identification of opportunities for mainstreaming GAD in EE&C	<ul style="list-style-type: none"> • To review gender and development across all programs and identify opportunities for intervention. A toolkit for gender and development has been developed and a gender and development focal point is present within each division of the DOE, however this needs to be reviewed and updated. 	<ul style="list-style-type: none"> • Integrate as a matter of internal policy the participation of women in all aspect of IEC campaigns on EE&C, procurement of EE&C related services, and on the requirements for the issuance of Registration or Certification for ESCOs, certification for ECOs, EMs and CEAs.
Information and education campaigns (IECs), IEC including EE&C in curricula, recognition awards	IECs on EE&C	<ul style="list-style-type: none"> • An ongoing priority of the DOE, IECs for EE&C will contribute to further uptake of energy-efficient practices and support awareness-raising around the requirements of the EE&C Act. 	<ul style="list-style-type: none"> • Develop and implement state-of-the-art IECs. • Develop Terms of Reference in the procurement of IEC program developer/development. • Develop IEC program and information materials as applicable for each sector.
	Adoption of EE&C into school and university curricula	<ul style="list-style-type: none"> • Progress has been made towards including EE&C in the curricula as it is also now mandated in the EE&C Act. As there had been issues with financing the revision of curricula in schools, the budget constraints that may affect this should be examined 	<ul style="list-style-type: none"> • Collaborate with the Commission on Higher Education (CHED) on the development and adoption of Energy Management as an elective subject based on ISO 50001 and 50015 frameworks in the electrical and mechanical engineering courses.

		in the short-term to understand feasibility of rollout by the Department for Education.	<ul style="list-style-type: none"> • Collaboration with CHED on the inclusion of the <i>Guidelines on the Energy Conserving Design for Buildings</i> in the architectural, electrical and mechanical engineering course as an elective subject. • Collaborate with CHED on the development of training regulations and modules in higher education for a Certificate Training Program for Energy Managers.
	EE&C recognition awards	<ul style="list-style-type: none"> • This is included as an EPMPD target milestone and is meant to incentivise individuals and companies. The DOE aims to harmonise their criteria with the regional ASEAN Energy Awards. 	<ul style="list-style-type: none"> • Develop guidelines and criteria for various award categories including: (a) Energy Efficient Building Award; (b) Energy Management Award for Buildings and Industries; (c) Green Building Award; (d) Energy Manager/Enercon Officer Award; and (e) Special Award Categories (including gender and development). • SGLG (Seal of Good Local Governance for LGUs) – include Gender and Development in the criteria, as well as energy efficiency and conservation. This could set a precedent for special awards and recognition of the role of women.

Medium-Term

Medium-Term (2026-2030)			
Program/Theme, Strategic Action per Roadmap	Roadmap Strategic Actions		
	Full Strategic Action	Description	Activities
Finance , new financial modalities: concept development	Development of concept and implementation of new financial modalities	<ul style="list-style-type: none"> • (See <i>Short-Term</i> above) 	

GAD, mainstreaming	GAD mainstreaming in projects and programs	<ul style="list-style-type: none"> Mainstreaming of gender and development in projects/programs is currently limited. Progress needs to be made towards this and should be explored. 	<ul style="list-style-type: none"> The GAD Strategic Framework, which affirms the DOE's role in providing directives and confirms the commitment of the DOE in providing equal opportunities and participation to both men and women in the energy sector, as well as protecting and fulfilling their rights. Integrating the twin goals of gender equality and women empowerment in the energy sector polices, plans, programs, and projects. The GAD Checklist serves as a filter and rating worksheet for assessing the gender sensitivity or responsiveness of the program/project design. Mainstreaming gender equality and women empowerment perspectives in the operation and main mandates of the DOE, its attached agencies, and other energy offices.
Waste, Strategy for waste management	Waste management strategy development for the safe disposal and recycling of obsolete equipment	<ul style="list-style-type: none"> To review waste management strategy related to the disposal of non-energy efficiency equipment, including coordination with DENR. Explore programs to support circular economy and equipment trade-in schemes for safe disposal and recycling. 	<ul style="list-style-type: none"> Develop/establish policies on waste management in anticipation of waste from replacement for more efficient products. Collaborate with DENR and recycling facilities in the development, implementation and information campaign of waste management programs/projects. Collaborate with manufacturers/assemblers/suppliers of energy-consuming products in the implementation of buy-back schemes. Conduct waste management and technology studies on replacement for more efficient ECPs.

Long-Term

Long-Term (2031-2050)		
Program/Theme, Strategic Action per Roadmap	Roadmap Strategic Actions	
	Full Strategic Action	Description

Data & MVE, Knowledge management	Development of an EE&C knowledge management framework	<ul style="list-style-type: none"> • EPRED is responsible for the institutionalisation of a comprehensive EE&C knowledge management system. As stated in the EE&C Act, EPRED shall spearhead the creation and management of the comprehensive database with entries from the other divisions (i.e. GEMP data by EPSMD, PELP data by EPRED, etc.). • This strategy will target all EE&C stakeholders and will harmonise EE&C knowledge management, which will be significant in the conduct of IEC campaigns/materials, program implementation, policy/regulatory improvements, ease of data accessibility, and more.