



MINISTRY OF ENERGY TRANSITION AND WATER TRANSFORMATION
(PETRA)

EGEEC63: ENERGY EFFICIENCY AND ENERGY MANAGEMENT

ACCELERATING MALAYSIA'S ENERGY TRANSITION FOR A SUSTAINABLE FUTURE

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MALAYSIA
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KEY ENERGY-RELATED MINISTRIES/AGENCIES



Ministry of Economy



Ministry of Energy Transition and Water Transformation



Ministry of Investment, Trade and Industry



Ministry of Natural Resources and Environment Sustainability

PETRA



Ministry of Finance



Ministry of Transportation



Ministry of Plantation and Commodities



Ministry of Agriculture and Food Security



Ministry of Housing and Local Government



Ministry of Domestic Trade and Cost of Living



Ministry of Science, Technology and Innovation



Ministry of Foreign Affairs



Ministry of Rural and Regional Development

KEY MINISTRIES

STATE AGENCIES



UPEN Sabah



UPEN Sarawak

KEY REGULATORS/ AGENCIES

Energy Commission (ST)

Sustainable Energy Development Authority Malaysia (SEDA)

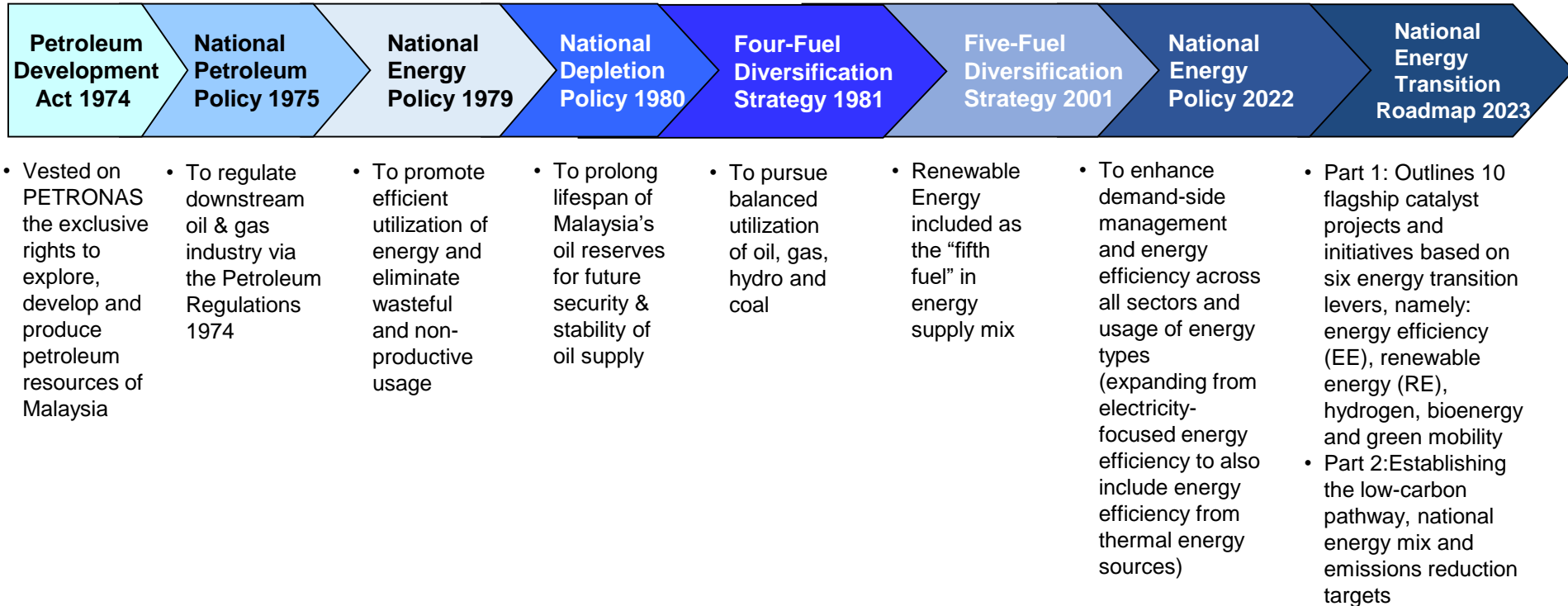
Malaysian Green Technology and Climate Change Corporation (MGTC)

Bank Negara Malaysia (BNM)

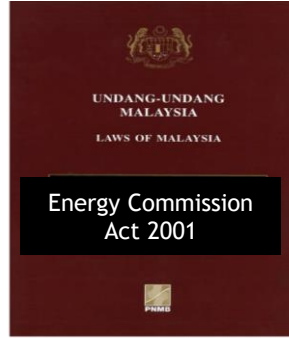
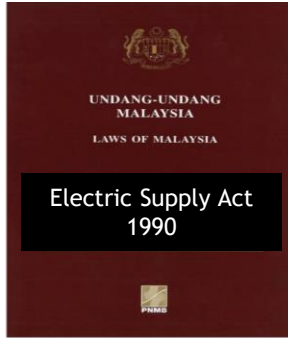
PETRONAS

TENAGA NASIONAL
Better. Brighter.
Tenaga Nasional Berhad (TNB)

THE EVOLUTION OF ENERGY POLICY IN MALAYSIA



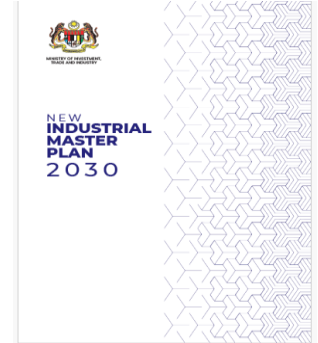
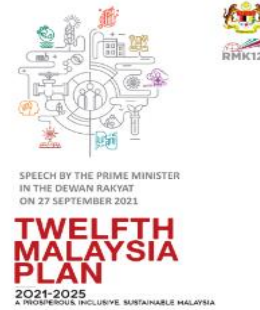
MALAYSIA'S ENERGY REGULATORY FRAMEWORK & POLICIES



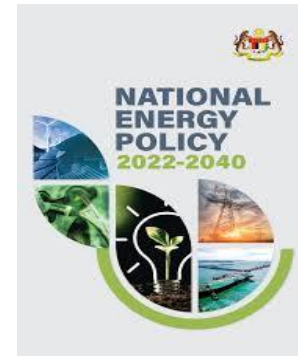
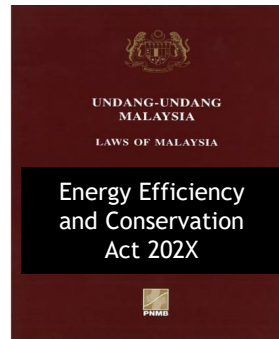
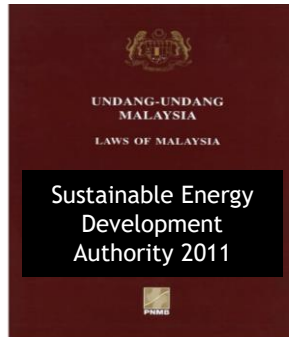
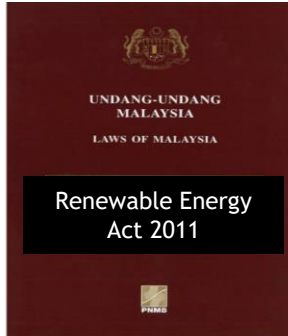
Sarawak & Sabah:

**Sarawak Electricity Ordinance 1999*

**Sabah Electricity Supply Enactment 2024*



UPCOMING:



DEMAND SIDE MANAGEMENT (ENERGY EFFICIENCY)

Long-term solution of energy intensity and carbon reduction



National Energy Efficiency Action Plan 2016-2025

8%

Energy consumption reduction



2025

- Energy Audit Conditional Grants (EACG)
- Building Energy Intensity (BEI) Labelling
- Sustainability Achieved via Energy Efficiency (SAVE)
- Capacity building
- Awareness program

Energy Efficiency and Conservation Act (EECA)



- Energy conservation regulatory framework
- Increase energy security

EECA outcome in 2040

Energy reduction :
1,447 million gigajoule
=
197,887 million tonne
CO₂



Target: 52,233
GWH (8.0%) savings

CO₂ reduction
:34,886 ktCO_{2eq}

NATIONAL ENERGY EFFICIENCY ACTION PLAN (NEEAP) 2016-2025

ST 1:
Implementation
of EE Plan

ST2: Strengthen
Institutional
Framework,
Capacity
Development
and
Training

ST3: Establishment of
Sustainable
Mechanisms
Implement
Initiatives
Funding
to
EE

ST4: Promotion
of Private Sector
Investment in EE
Initiatives

KEY INITIATIVES

EQUIPMENT INITIATIVES:

- Promotion of 5-Star Rated Appliances
- Minimum Energy Performance Standards (MEPS)

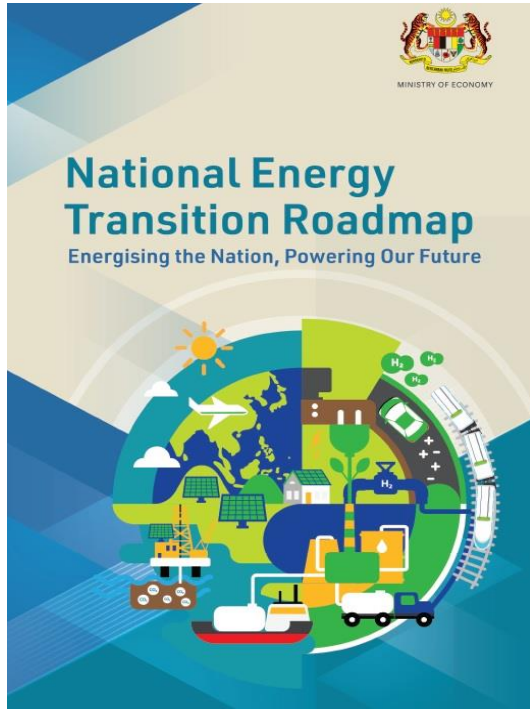
INDUSTRIAL INITIATIVES:

1. Energy Audits and Energy Management in Industries
2. Promotion of Co-generation

BUILDING INITIATIVES:

1. Energy Audits and Energy Management in Buildings
2. Energy Efficient Building Design

NATIONAL ENERGY TRANSITION ROADMAP (NETR)



Climate Change and Principle-based Taxonomy

Optimise



Energy Efficiency



Renewable Energy



Hydrogen



Bioenergy



Green Mobility



Carbon Capture,
Utilisation and
Storage

Abate

Shift to Renewables

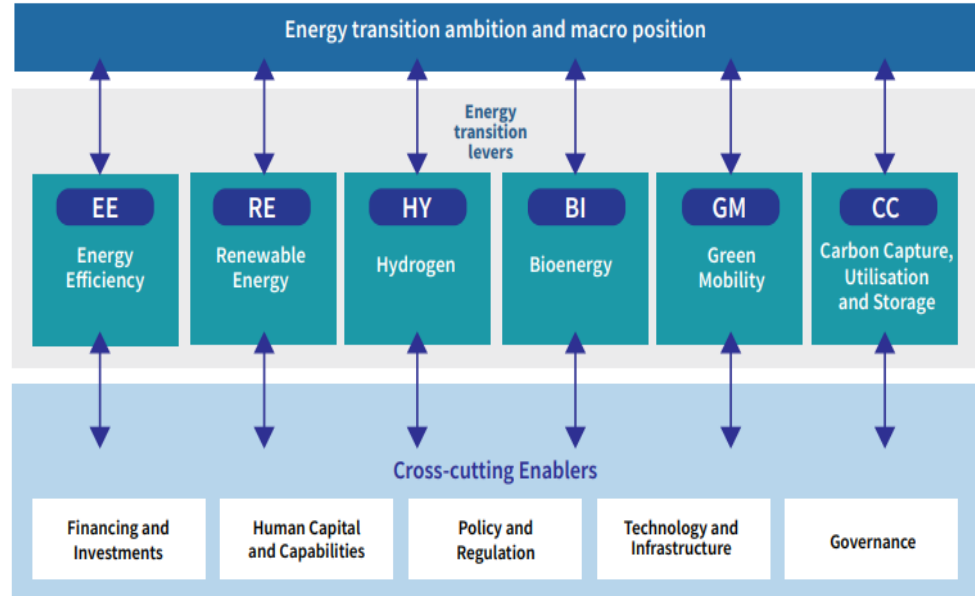
Energy transition levers

Prioritisation criteria

- + **Emission reduction potential**
Advancing green growth and enhancing sustainability to become a low-carbon nation while addressing energy trilemma.
- + **Economic opportunities**
Propelling strategic and high impact industries, especially for SMEs, strengthening investments and create job opportunities.
- + **Cost effectiveness**
Promoting investments, especially in nascent technologies to yield long-term benefits.
- + **Social inclusiveness**
Strengthening the security, wellbeing and inclusivity through clean energy sources that would benefit communities without compromising future generations.

NATIONAL ENERGY TRANSITION ROADMAP (NETR)

6 Energy Transition Levels	10 Flagship Catalyst Projects
Energy Efficiency (EE)	Efficient Switch
Renewable Energy (RE)	Renewable Energy Zone (RE Zone)
	Energy Storage
	Energy Secure
Hydrogen	Green Hydrogen
	Hydrogen for Power
Bioenergy	Biomass Demand Creation
Green Mobility	Future Mobility
	Future Fuel
Carbon Capture, Utilisation and Storage (CCUS)	CCS for Industry



Source: NETR

NATIONAL ENERGY TRANSITION ROADMAP (NETR)

RT Pathway 2050 Targets

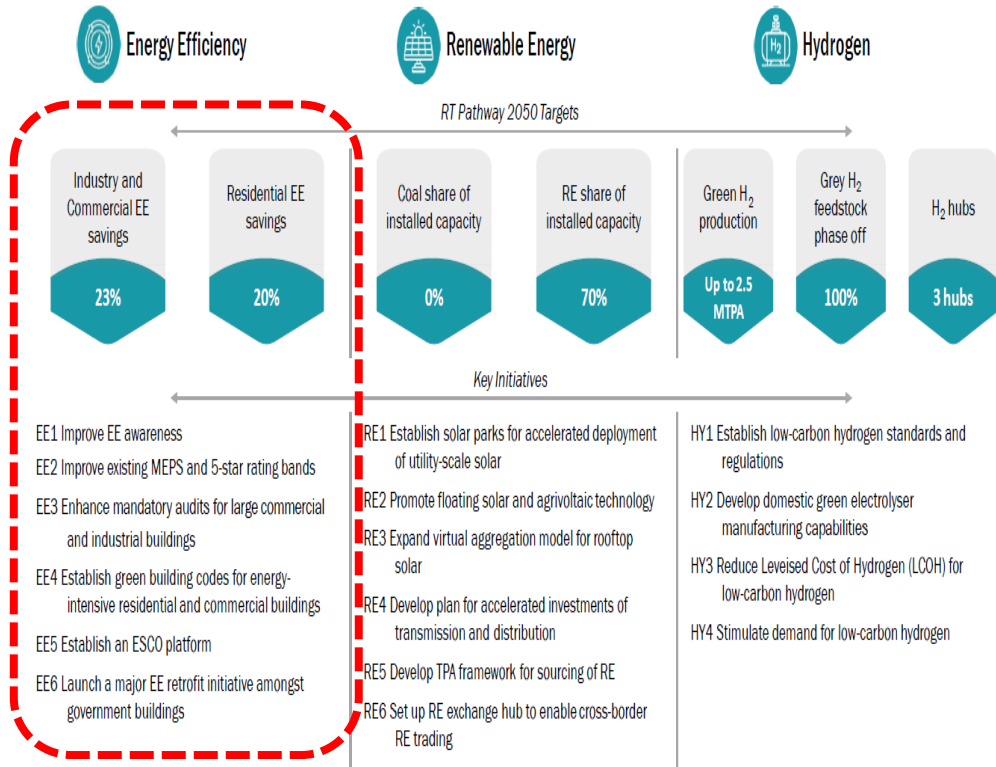
The targets will guide the nation towards the RT pathway ambition, striking the right balance between environmental mitigation and the need to bolster net socioeconomic values

Sector and Key Driver		2050 NETR Responsible Transition	
Energy Efficiency	Industry and Commercial energy efficiency savings (%)	23%	
	Residential energy efficiency savings (%)	20%	
Renewable Energy	Coal share of installed capacity (%)	0%	
	RE share of installed capacity (%)	70%	
Hydrogen	Green hydrogen production (MTPA)	Up to 2.5MTPA	
	Grey hydrogen feedstock phase off (%)	100%	
	Hydrogen hubs (#)	3	
Bioenergy	Biofuel capacity (billion litres)	3.5	
	Bioenergy power generation (GW)	1.4	
Sector and Key Driver		2050 NETR Responsible Transition	
Green Mobility	Land	Urban public transport modal share (%)	60%
		xEV (4W) share of fleet (%)	80%
		E2W share of fleet (%)	80%
	Av. Marine	Light vehicle fuel economy	~30%
		Heavy transport fuel economy	~24%
		Biofuel blending for heavy transport (%)	B30
Av. Marine	Hydrogen penetration for heavy transport (%)	5%	
	Green fuel penetration in marine transport (%)	40%	
CCUS	SAF blending mandate by 2050 (%)	47%	
	Number of CCUS clusters (#)	3-6	
CO ₂ storage capacity (Mtpa)		40-80	

TOWARDS ACHIEVING SUSTAINABLE ENERGY TRANSITION

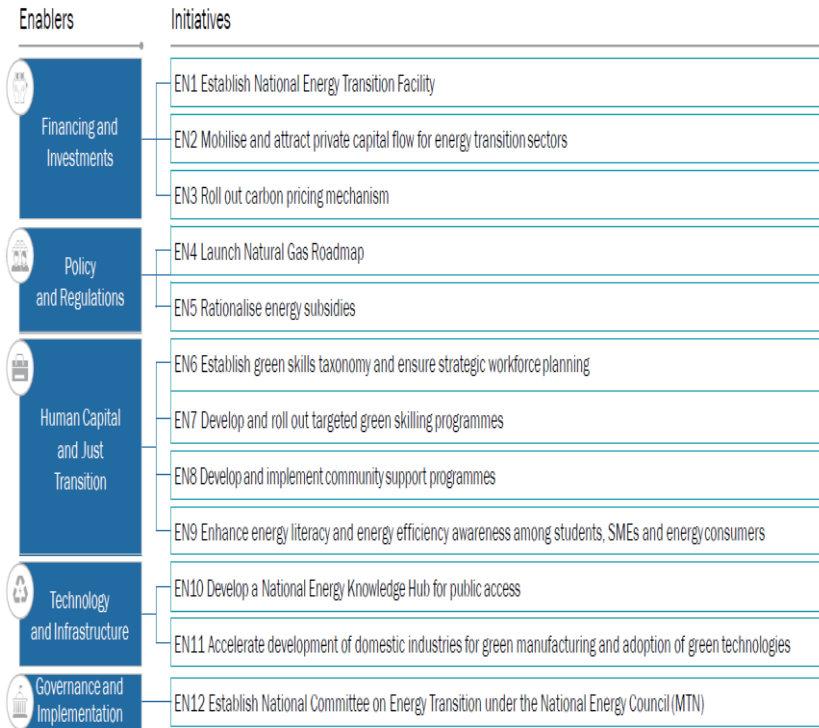
Key Initiatives and Enablers

NO

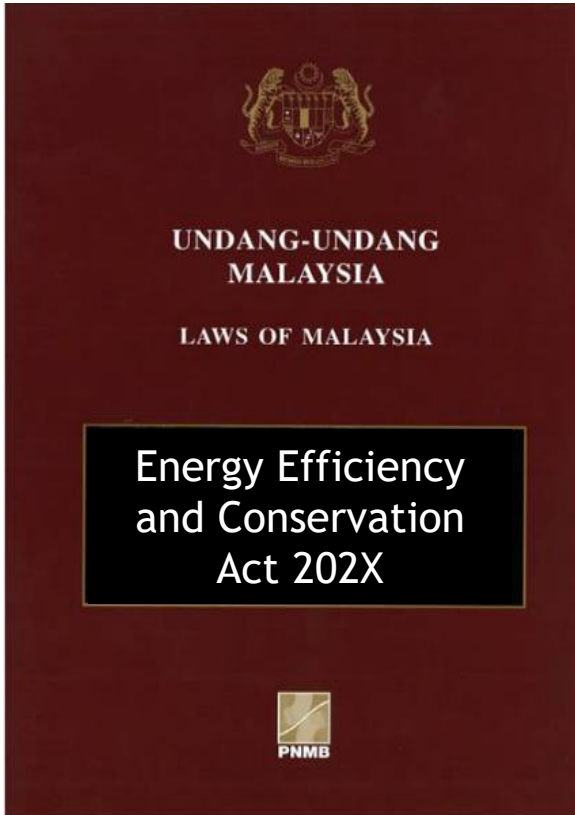


Key Enablers

MINISTRY OF CLIMATE



ENERGY EFFICIENCY AND CONSERVATION BILL



A need to have comprehensive legislation (electricity and thermal) to drive energy efficiency

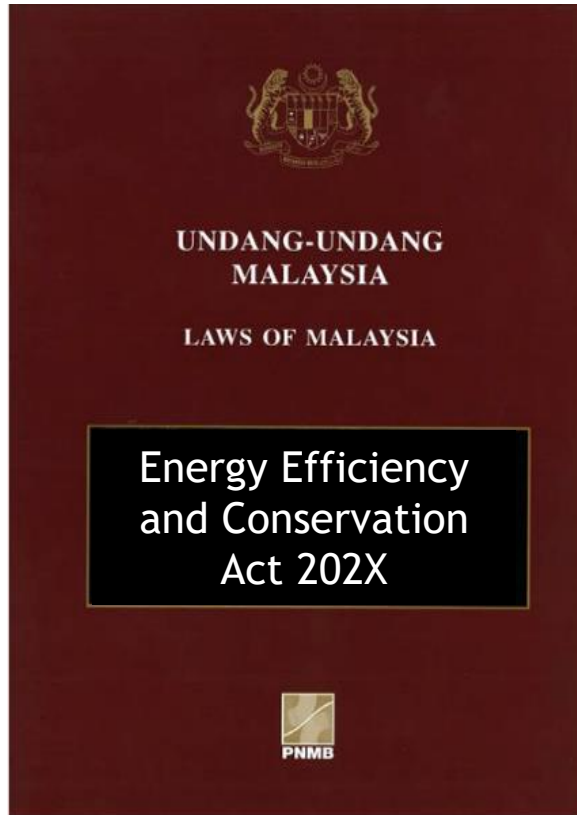
OBJECTIVES

- To improve energy efficiency initiative in industry, commercial and residential sector
- To reduce 45% of carbon emission pledged in COP21 (Paris Agreement) by 2030 based on 2005 level.
- To support the government aspiration to achieve carbon neutrality by 2050.
- To effectively manage energy demand, promoting efficient and sustainable energy consumption practices.

STAKEHOLDERS

- Large energy consumers (industries and consumers)
- Buildings
- Energy using products
- Registered Energy Managers, Energy Auditors and training institutions

ENERGY EFFICIENCY AND CONSERVATION BILL



EECA FRAMEWORK

- Part I : Preliminary
- Part II : Functions and Power of the Commission
- Part III : Duties of Energy Consumer
- Part IV : Duties of Person in Charge of Building
- Part V : Provisions Relating to Energy Using Product
- Part VI : Registration of Energy Manager and Energy Auditor
- Part VII : Registration of Training Institution
- Part VIII: Information Gathering Powers
- Part X : Enforcement
- Part XI : General

IMPACTS OF EECA:

By 2040 it is estimated total savings under EECA is about 1,447 GJ (401,944GWh) which is equivalent to RM71.24 billion (USD16.18 billion) (for 15 years)



THANK YOU

WELCOME TO MALAYSIA
ASEAN CHAIRMANSHIP 2025