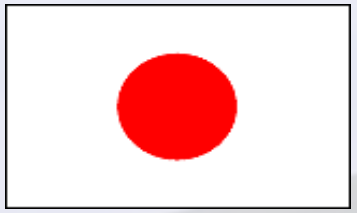


34th Energy Conservation Workshop Under ASEAN-Japan Energy Efficiency Partnership

MALAYSIA COUNTRY REPORT ON MEASURES TOWARD CARBON NEUTRALITY

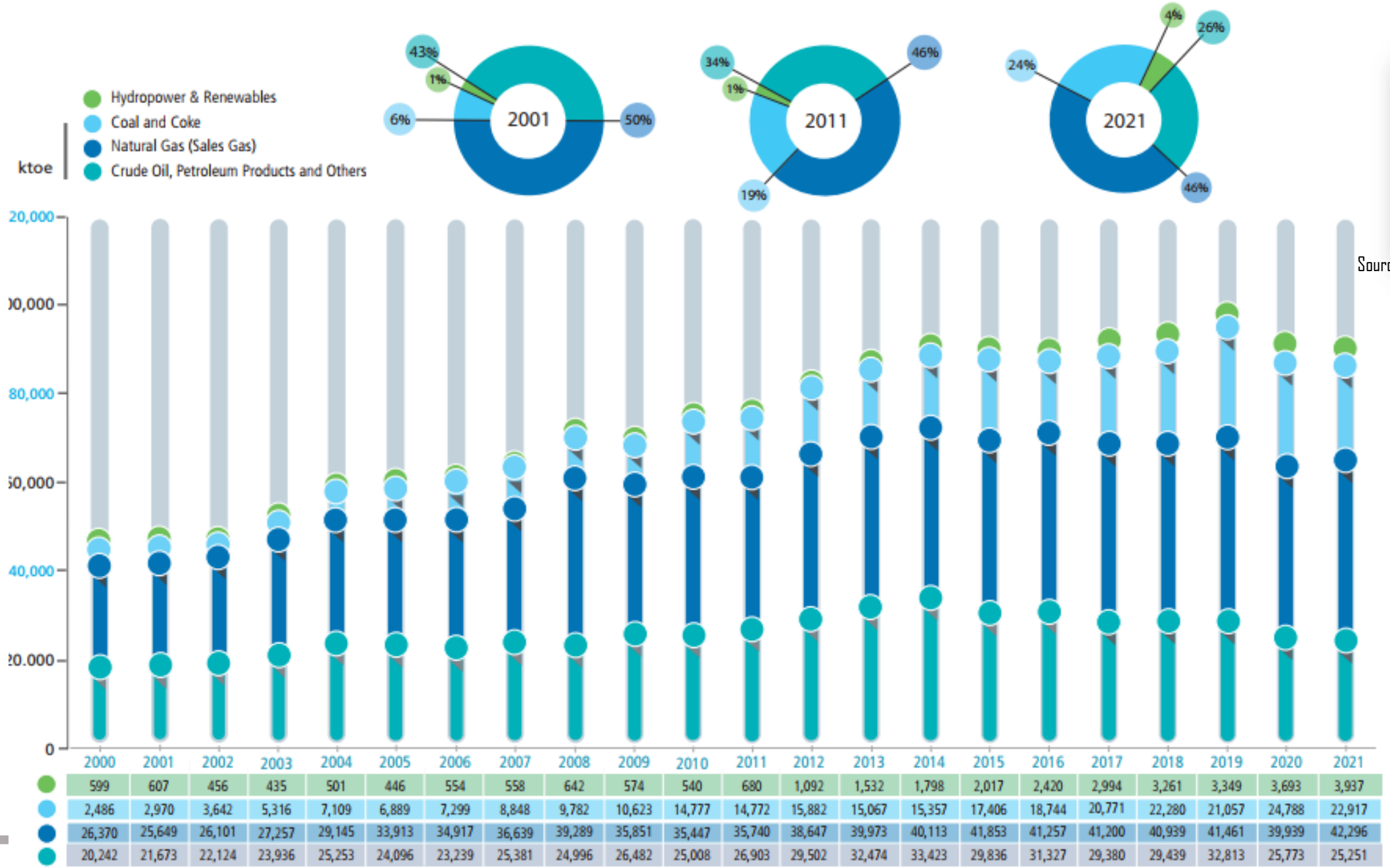
Presented by:
Muhammad Khoiri bin Abdul Aziz
Energy Efficiency & Conservation Department
Energy Commission Malaysia

12th – 15th November 2024
Tokyo, Japan

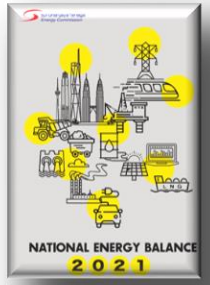
Presentation Outline

- Malaysia energy scenario
- Energy conservation initiatives
  - National Energy Policy 2022 - 2040
  - National Energy Transition Roadmap
  - National Energy Efficiency Action Plan (NEEAP)
  - Energy Efficiency & Conservation Bill 2023 (EECA)
- Upcoming policies
  - National Energy Efficiency Action Plan 2.0 (2026 – 2025)

PRIMARY ENERGY SUPPLY

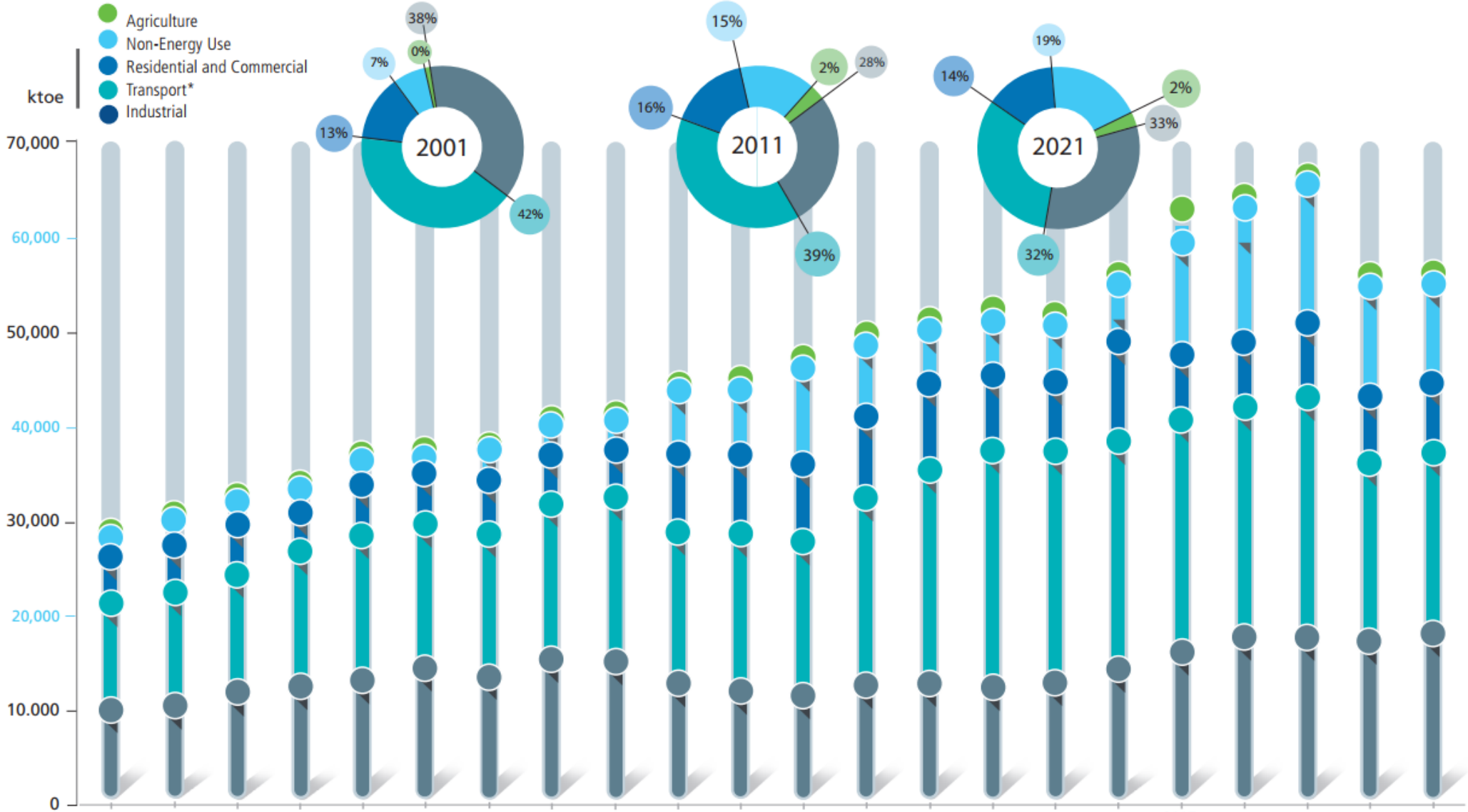


	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Hydropower & Renewables	599	607	456	435	501	446	554	558	642	574	540	680	1,092	1,532	1,798	2,017	2,420	2,994	3,261	3,349	3,693	3,937
Coal and Coke	2,486	2,970	3,642	5,316	7,109	6,889	7,299	8,848	9,782	10,623	14,777	14,772	15,882	15,067	15,357	17,406	18,744	20,771	22,280	21,057	24,788	22,917
Natural Gas (Sales Gas)	26,370	25,649	26,101	27,257	29,145	33,913	34,917	36,639	39,289	35,851	35,447	35,740	38,647	39,973	40,113	41,853	41,257	41,200	40,939	41,461	39,939	42,296
Crude Oil, Petroleum Products and Others	20,242	21,673	22,124	23,936	25,253	24,096	23,239	25,381	24,996	26,482	25,008	26,903	29,502	32,474	33,423	29,836	31,327	29,380	29,439	32,813	25,773	25,251

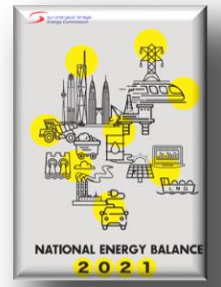


Sources: National Energy Balance 2021

FINAL ENERGY CONSUMPTION BY SECTORS



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Agriculture	104	98	96	98	87	101	258	281	287	211	1,074	916	1,053	1,051	1,045	895	415	674	1,021	927	867	1,045
Non-Energy Use	2,250	2,378	2,511	2,345	2,183	2,173	2,819	2,957	2,876	3,868	3,696	6,377	7,497	7,277	6,217	5,928	8,729	12,517	13,262	13,631	11,805	10,869
Residential and Commercial	3,868	4,048	4,387	4,399	4,754	5,134	5,424	6,197	6,205	6,336	6,951	6,993	7,065	7,403	7,459	7,600	8,051	7,796	7,773	8,000	8,123	8,084
Transport*	12,071	13,137	13,442	14,271	15,385	15,293	14,819	15,717	16,395	16,119	16,828	17,070	19,757	22,357	24,327	23,435	24,004	24,039	23,555	25,004	18,660	18,095
Industrial	11,406	11,852	12,854	13,472	14,914	15,583	15,248	16,454	16,205	14,312	12,928	12,100	13,919	13,496	13,162	13,971	16,019	17,463	19,046	18,921	17,714	19,157



Sources: National Energy Balance 2021

Suruhanjaya Tenaga
Energy Commission

NATIONAL ENERGY POLICY 2022-2040

- Under purview Ministry of Economy
- Low Carbon Nation Aspiration 2040 (LCNA 2040)
  - developed based on the existing plans in the energy sector

Sources: National Energy Policy 2022-2040

Selected targets on Low Carbon Nation Aspiration 2040 compared to 2018

Selected Targets		2018	Low Carbon Nation Aspiration 2040
1.	Percentage of urban public transport modal share	20%	50%
2.	Percentage of electric vehicle (EV) share	<1%	38%
3.	Alternative fuel standard for heavy transport	B5	B30
4.	Percentage of Liquefied Natural Gas (LNG) as alternative fuel for marine transport	0%	25%
5.	Percentage of industrial and commercial energy efficiency savings	<1%	11%
6.	Percentage of residential energy efficiency savings	<1%	10%
7.	Total installed capacity of RE	7,597 MW	18,431 MW
8.	Percentage of coal in installed capacity	31.4%	18.6%
9.	Percentage of RE in TPES	7.2%	17%

Legend: Energy security, Energy affordability, Environmental sustainability

Implementation of LCNA 2040

Twelfth Plan (2021-2025)

- Improve rural electricity supply to achieve 99% coverage
- Implement step change in industry energy efficiency (EE) through enforcement of Energy Efficiency and Conservation Act (EECA), energy audits and Minimum Energy Performance Standards (MEPS)
- Increase usage of smart meter and smart grid as well as upgrade grid
- Improve Sabah power supply reliability
- Improve fuel economy standard for vehicle

Thirteenth Plan (2026 – 2030)

- Grow gas-based petrochemical hubs
- Thrive Third-Party Access (TPA) gas market, investments in regasification terminal (RGT) for energy security
- Increase upstream investments to develop deepwater, marginal and sour gas fields[1]
- Enhance OGSE players capacity through consolidation and international participation
- Phase down broad-based energy subsidies, move to market-based pricing
- Capture growth with LNG uptake in marine bunkering

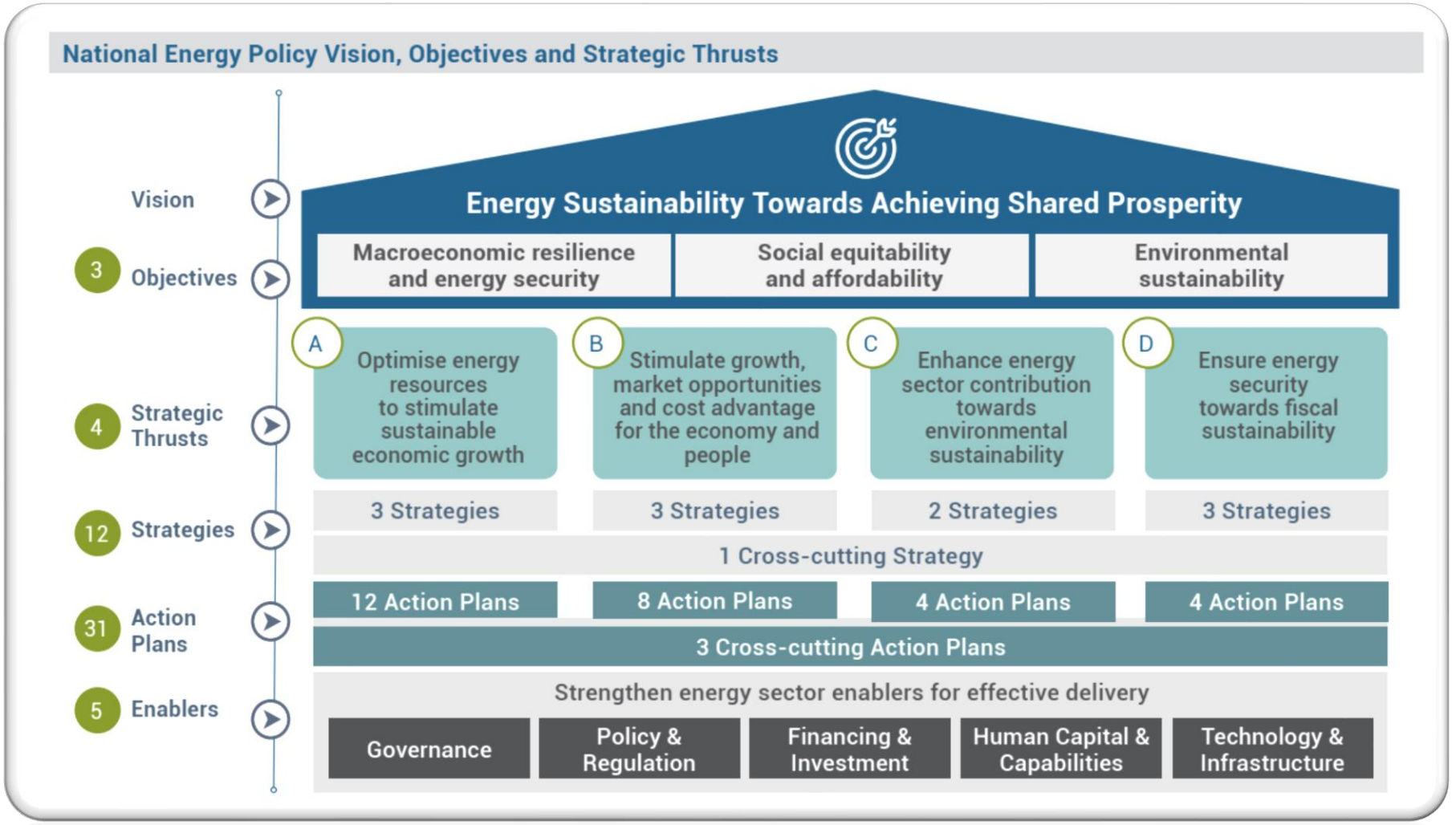
Fourteenth & Fifteenth Plans (2031 – 2040)

- Thrive domestic EV ecosystem, with at scale EV penetration
- Adopt large scale energy storage for RE
- Implement pilot and market entry programmes of hydrogen as well as next generation bioenergy
- Establish globally competitive hydrogen export hub in Sarawak
- Enhance energy efficiency with digital technology adoption
- Capture growth opportunities of biofuels in marine and aviation sectors

1. Fields with high carbon dioxide (CO_2) and hydrogen sulphide (H_2S) contents

NATIONAL ENERGY POLICY 2022-2040

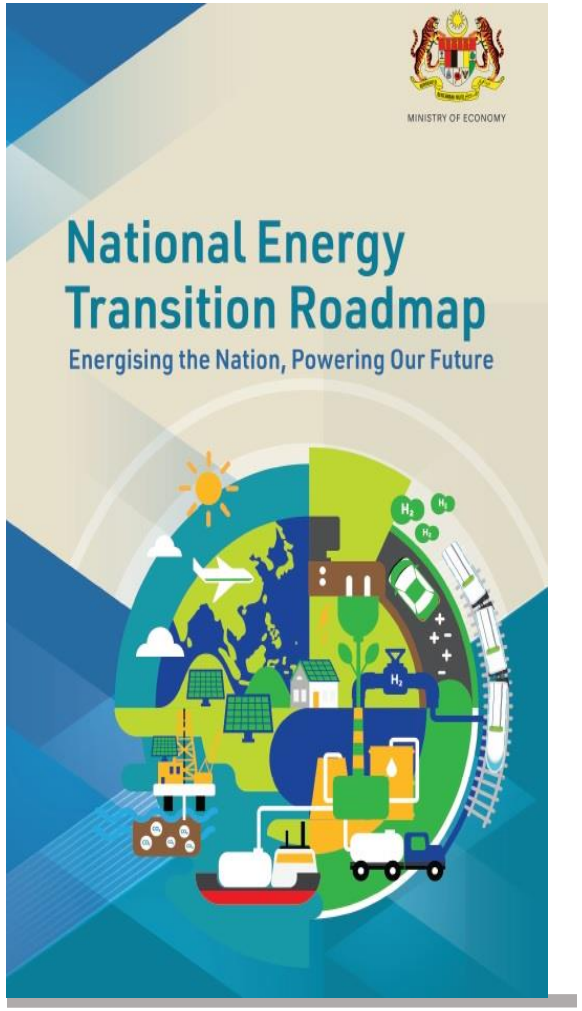
National Energy Policy Strategic Thrusts, Strategies and Enable



Sources: National Energy Policy 2022-2040

National Energy Transition Roadmap (*NETR*)

Driving energy transition and socio-economic advancement



Energy transition levers

Climate Change and Principle-based Taxonomy

- Optimise
  - Energy Efficiency
- Shift to Renewables
  - Renewable Energy
  - Hydrogen
  - Bioenergy
  - Green Mobility
- Abate
  - Carbon Capture, Utilisation and Storage

Prioritisation criteria

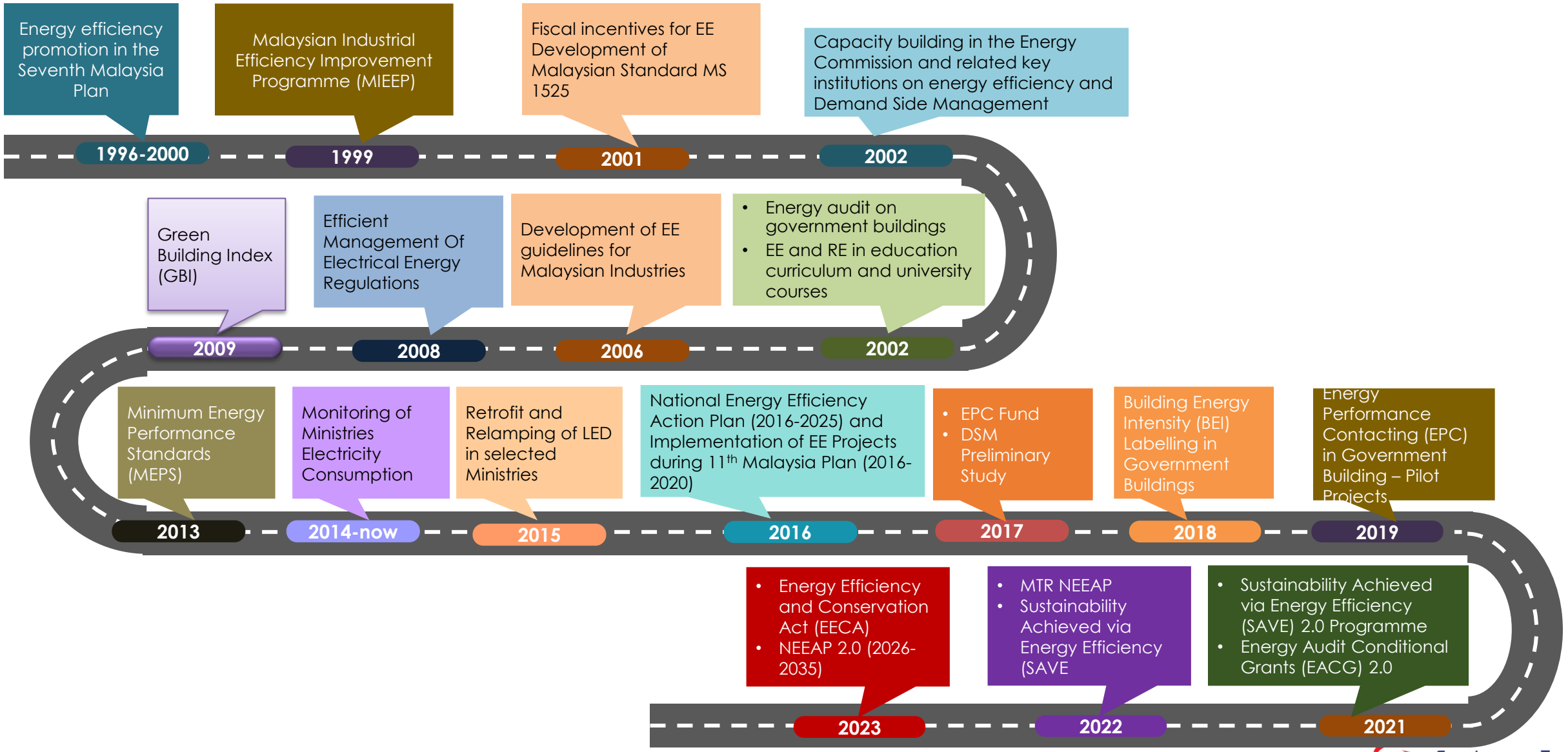
Emission reduction potential
Advancing green growth and enhancing sustainability to become a low-carbon nation while addressing energy trilemma.

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.

ENERGY EFFICIENCY & CONSERVATION INITIATIVES



NATIONAL ENERGY EFFICIENCY ACTION PLAN (NEEAP)

52,233 GWH (8.0%) savings

NATIONAL ENERGY EFFICIENCY ACTION PLAN (NEEAP) 2016-2025

CO_2 reduction :34,886 $ktCO_{2eq}$

Strategic Thrust 1 :
Implementation of Energy Efficiency Plan

Strategic Thrust 2 :
Strengthen Institutional Framework, Capacity Development and Training for Implementation of EE Initiatives

Strategic Thrust 3 :
Establishment of Sustainable Funding Mechanisms To Implement Energy Efficiency Initiatives

Strategic Thrust 4 :
Promotion of Private Sector Investment in Energy Efficiency Initiatives

NEEAP KEY INITIATIVES

Equipment Programme Initiative	Industrial Programme Initiative	Buildings Programme Initiative
1. Promotion of 5-Star Rated Appliances	1. Energy Audits and Energy Management in Industries	1. Energy Audits and Energy Management in Buildings
2. Minimum Energy Performance Standards (MEPS)	2. Promotion of Co-generation	2. Energy Efficient Building Design

Energy Efficiency & Conservation Act

Energy Consumer
(Industry & Commercial with energy consumption threshold of 21,600 GJ)

Building
(Phase 1 : Purpose Built Office)

Energy Using Product

Registration of Energy Manager Type 1 & Type 2

Registration of Energy Auditor

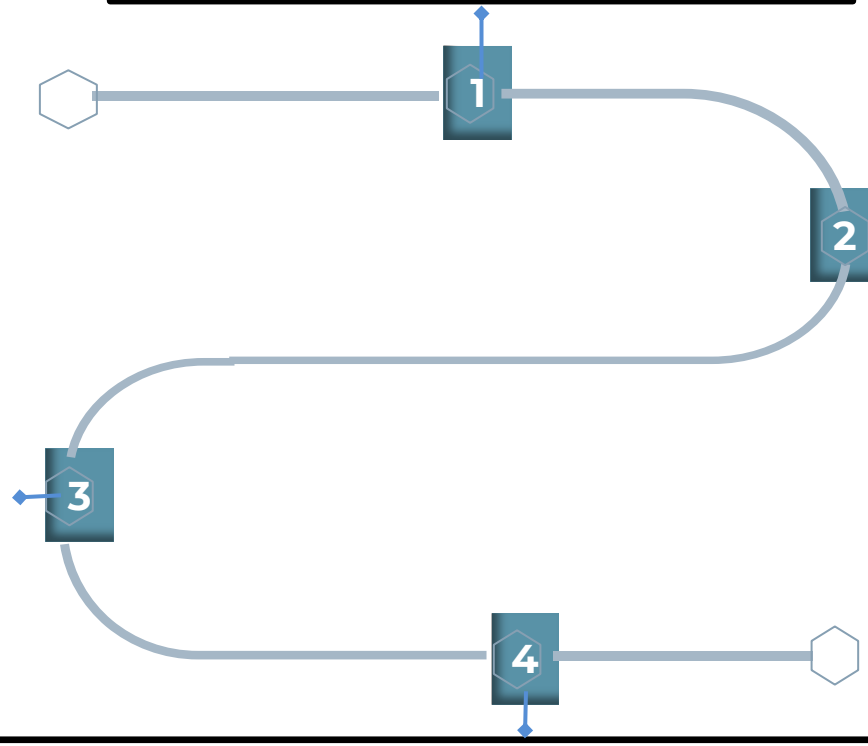
Registration of Training Institution

Registration of Manufacturer and Importers

Current Status of EECA

Parliment

Approved by House of Representative on **11 October 2023**



Proposal on the Amendment of the Act

Proposed by the senator from Sarawak to the Speaker of the House of Senate on the **29 November 2023.**

Amendment proposal to the Section 1(3) of the Act to exclude the application of the Act to Sarawak.

Approval of the Act with Amendment

The parliment through the House of Representative has approved the Act during the 2nd Meeting, 3rd Session of the 15th Parliment **25 Jun 2024**.

Process of Gazetting the EECA

Currently the EECA is in the final process of getting the royal assent from the Yang di-Pertuan Agong (YDPA).

KEMENTERIAN PERALIHAN TENAGA DAN TRANSFORMASI AIR

National Energy Efficiency Action Plan (NEEAP) 2.0 (2026 – 2035)

UPCOMING POLICY

NATIONAL ENERGY EFFICIENCY ACTION PLAN (NEEAP) 2.0

The enforcement of Energy Efficiency & Conservation Act (EECA) will determine the new mandatory requirement to industrial, commercial buildings and residential sectors.

Given that NEEAP 1.0 will end in 2025 and enforcement of EECA from year 2024, it is crucial to conduct a study to ensure the continuity of energy efficiency implementation plan and program in Malaysia.

Objectives

National EE&C Policy Framework

To produce a National Energy Efficiency & Conservation Policy Framework document.

EE Initiatives 2026-2035

To identify energy efficiency initiatives to be implemented in Malaysia for next 10 years from 2026 to 2035.

Impact of EECA

To review and quantify the impact from the enforcement of EECA in Malaysia.

KEMENTERIAN PERALIHAN TENAGA DAN TRANSFORMASI AIR

National Energy Efficiency Action Plan (NEEAP) 2.0 (2026 – 2035)

1. Energy Modelling, Impact Assessment and Policy Development

- Review on current EE Policy framework and existing support mechanisms.
- Development of BAU forecast and EE scenarios impact from modelling software.
- Development of National Policy Framework on Energy Efficiency & Conservation and implementation plan.

2. Expert and key Stakeholders Engagements

- Stakeholder engagement with Industry association
- Stakeholder engagement with Commercial building association
- Stakeholder engagement with equipment and appliances manufacturers, importers and end user association such as FOMCA and housing developer association (REHDA)

KEMENTERIAN PERALIHAN TENAGA DAN TRANSFORMASI AIR

National Energy Efficiency Action Plan (NEEAP) 2.0 (2026 – 2035)

3. Implementation Mechanisms Development

- Development of 10 years implementation plan
- Recommendation on Sustainable Funding mechanisms
- Detail funding and resource allocation for each energy efficiency initiatives

4. Socio-Economic Analysis

- Financial flow analysis for 10 years implementation & Potential investment value from Energy Efficiency
- Cost benefit analysis including Cost Benefit Ratio and Internal Rate of Return if applicable for both government and private sector
- Analysis on the % energy avoidance & energy intensity reduction
- Analysis on the GHG emission avoidance and the impact towards Malaysian GHG emission target reduction
- Analysis on Potential Job Creation

Thank You

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