



Implementation of Green Technology Policy in Malaysia

by

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(1) Background

MALAYSIA'S PLEDGE TOWARDS GLOBAL GHG EMISSION REDUCTION



“...Malaysia is adopting an indicator of a voluntary reduction of up to 40 per cent in terms of emissions intensity of GDP (gross domestic product) by the year 2020 compared to 2005 levels...”

YAB Dato' Sri Mohd Najib Tun Abdul Razak
Prime Minister of Malaysia

15th Conference of Parties (COP-15)
17 December 2009

Progress on GHG Emission Reduction

United Nations
Climate
Summit
(2014)



Malaysia had already reduced the **emissions intensity of its GDP** by **more than 33%** despite facing difficulties in fulfilling the pledge made in Copenhagen 6 years ago.

IGEM 2015
Opening
Ceremony
(2015)



*“I am pleased to be able to announce that **by the end of 2015**, Malaysia is projected to have achieved **a reduction in the greenhouse gas intensity of GDP of 35 percent.**”*

(2) National Green Technology Policy

NATIONAL GREEN TECHNOLOGY POLICY

(was launched in July 2009)



Policy Statement

Green Technology shall be a driver to accelerate the national economy and promote sustainable development

(2) National Green Technology Policy (cont.)

“Green technology is the development and application of products, equipment and systems used to conserve the natural environment and resources, which minimizes and reduces the **negative impact** of human activities”

CRITERIA OF GREEN TECHNOLOGY:

- It minimizes the degradation of the environment;
- It has a zero or low green house gas (GHG) emission;
- It is safe for use and promotes healthy and improved environment for all forms of life;
- It conserves the use of energy and natural resources; and
- It promotes the use of renewable resources.

NATIONAL GREEN TECHNOLOGY POLICY



ENERGY

Seek to attain energy independence and to promote efficient utilisation



ENVIRONMENT

Conserve and minimise the impact on environment



ECONOMY

Enhance the national economic development through the use of technology



SOCIAL

Improve the quality of life for all

(3) Rationale for Low Carbon Community

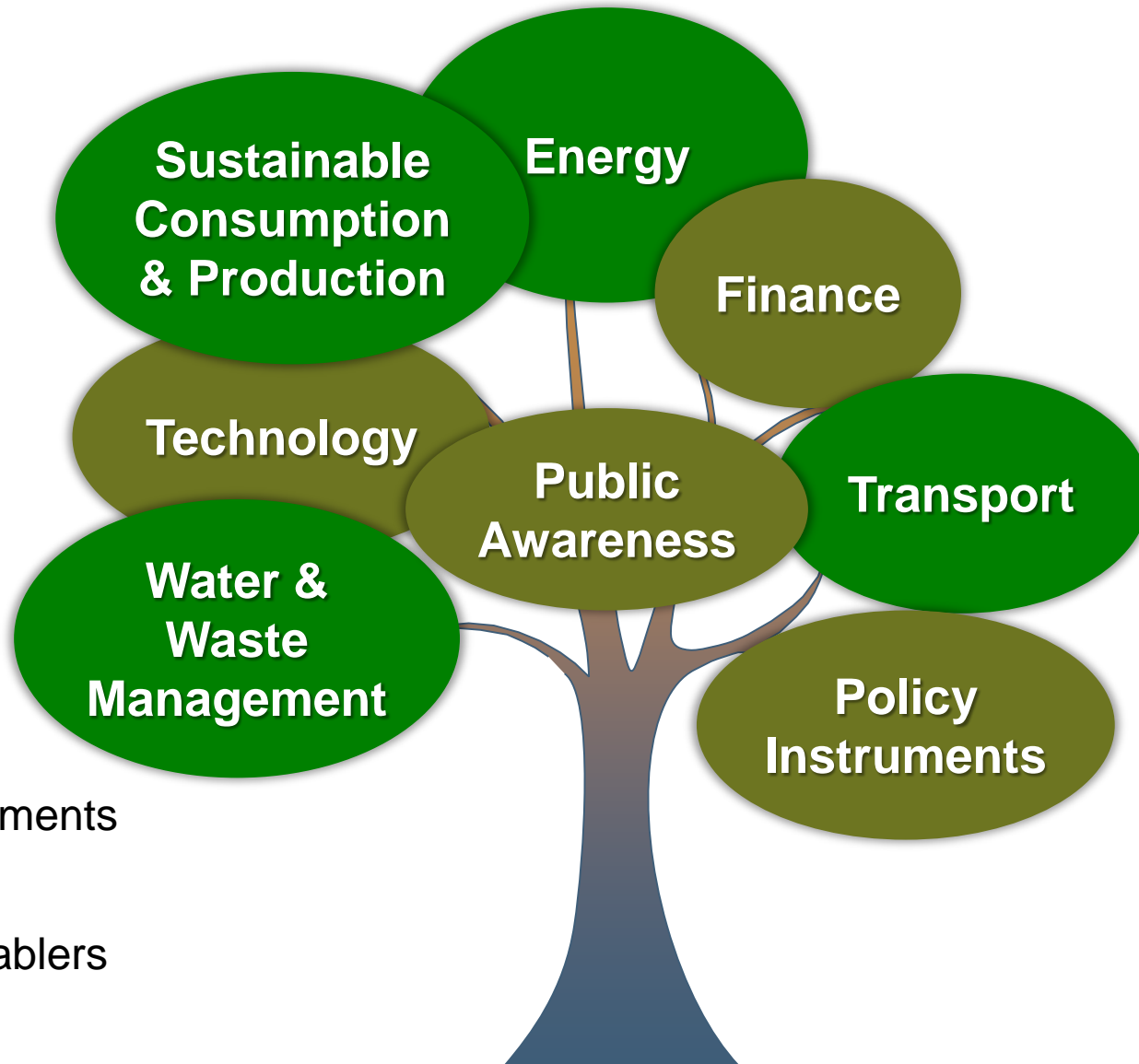
Global Scenario

- ▶ Current global population is 7 billion and more than 50% of the world population live in cities today;
- ▶ UN estimates 5 billion urban residents (mostly in Asia & Africa) by 2030; and
- ▶ Cities generate >40% global GHG.

Malaysia's Scenario

- ▶ Malaysia's urban population will rise to 82 percent of its total population expected 32.4 million in 2020.
(*source: World Bank*).

(4) Elements and Enablers for Low Carbon Community



(5) Malaysia's Initiatives Towards Low Carbon Community





TRANSFORMING THE ENERGY SECTOR

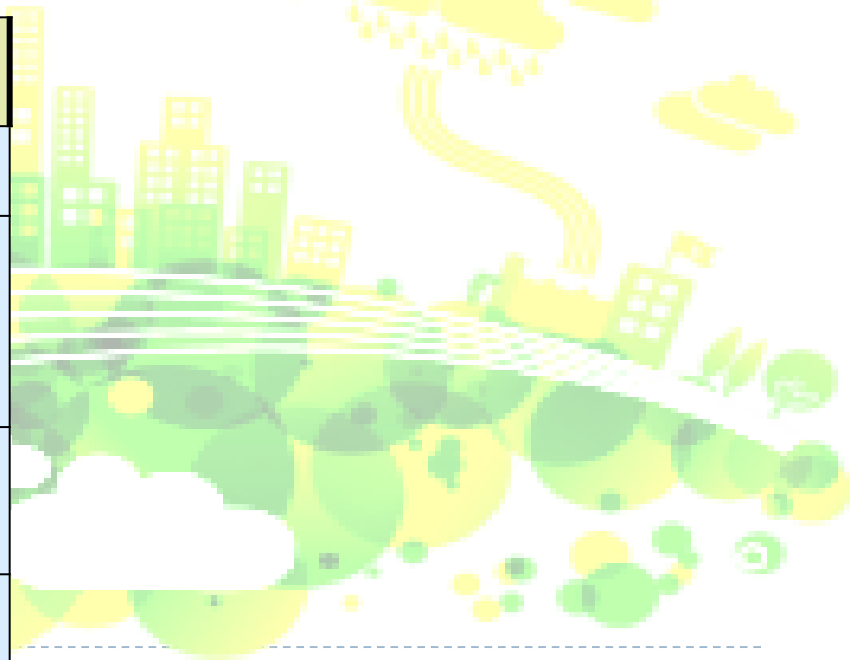


Economic Indicators (2015)

Population	30.03 million
Area	330,290 sq km
GDP	RM1,070 billion
GDP Growth	6.0%
Per capita income	RM33,875

Energy Resources (2013)

Oil	5.9 billion barrel
Gas	98.315 Trillion Standard Cubic Feet(TSCF)
Coal	1.94 billion metric tonne
Hydro	20 GW

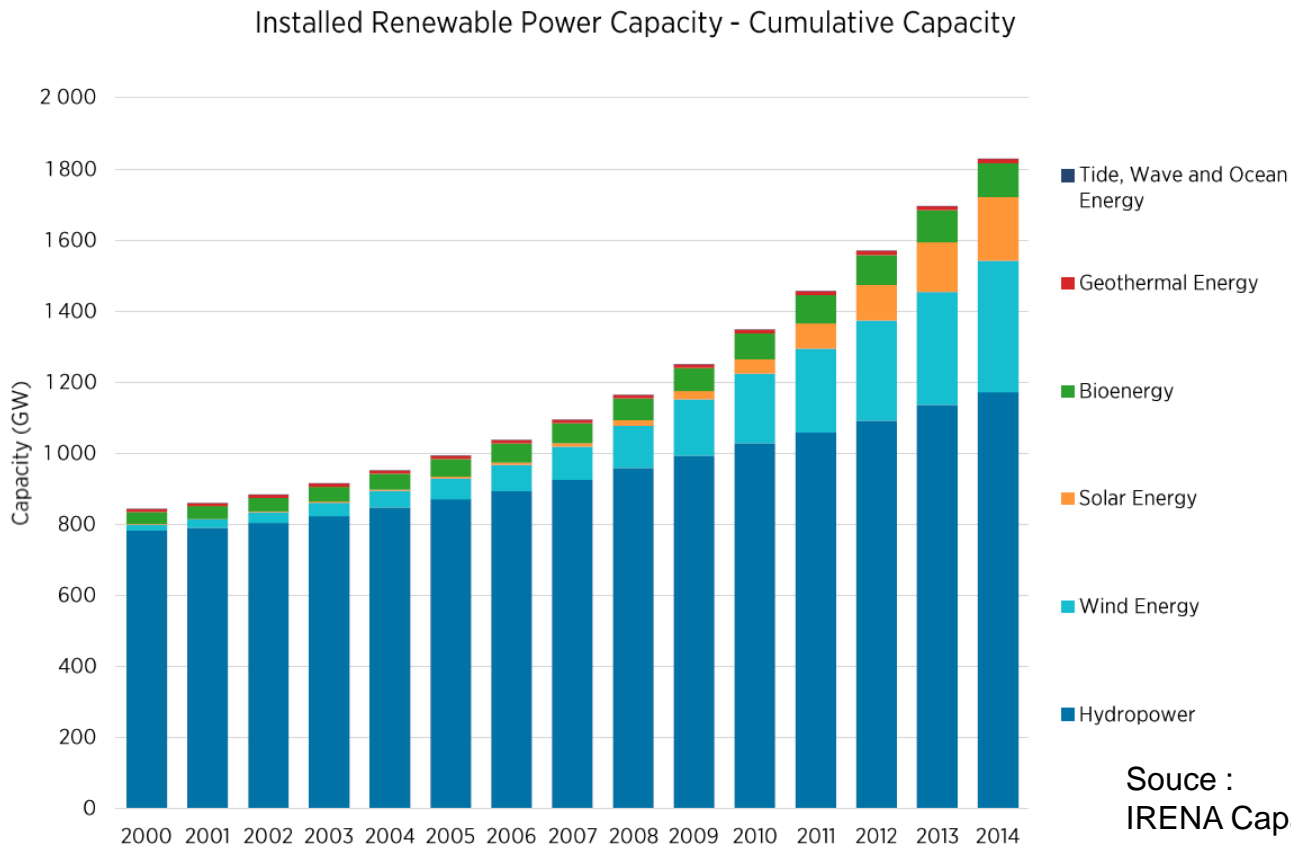


Renewable Energy (RE)



Global Outlook of Renewable Energy

- ▶ In **2014**, the total **RE** capacity worldwide is 1,829 GW.
- ▶ The highest RE source is hydropower. However, it had reduced from 93% in 2000 to 64 % in 2014 due to the rapid growth in solar and wind energy.



Outlook of RE in Malaysia

Background

- ▶ RE was introduced in the Five Fuel Policy (2000) with a target of 5% of RE in the energy mix by 2005.
- ▶ The initiative will be continued through the 11th Malaysia Plan.
- ▶ With the introduction of the National Renewable Energy Policy and Action Plan (2010), the Feed-in Tariff is being implemented for biogas, biomass, mini hydro, solar PV and geothermal.

Way Forward

- ▶ Wind and Geothermal mappings are undertaken to identify the potentials of new RE sources.
- ▶ Net Energy Metering (NEM) and Utility-scale Solar (USS) will be implemented to boost RE development.

RE targets in Malaysia

Year	Cumulative RE Capacity	RE Power Mix (vs Peak Demand)	Cumulative CO ₂ avoided
2020	2,080 MW	11%	42.2 mt
2030	4,000 MW	17%	145.1 mt

Achievement of Feed-in Tariff (till 31 October 2015)

	No of jobs create	RE generation (MWh)	Installed capacity (MW)	FiTCD capacity (MW)	Co2 reduction (tonnes)	Total investment (RM)
Biogas (palm oil waste, ago based & farming)	3,392	949,431.10	135.69	17.23	683,066.39	1,093,957,283.11
Biomass (palm oil waste, ago based & farming)	7,675	1,531,516.74	257.99	74.90	1,026,072.15	1,565,727,407.84
Mini hydro	4,100	1,704,289.30	273.34	18.30	1,220,830.17	2,500,193,863.65
Solar PV	7,488	405,653.20	299.53	215.0	292,526.54	3,172,506,955.78
Geothermal	450	236,520.00	30.00	0.0	129,139.92	0.00
TOTAL	23,105	4,827,410.34	996.55	325.41	3,351,635	8,332,385,510

ENERGY EFFICIENCY

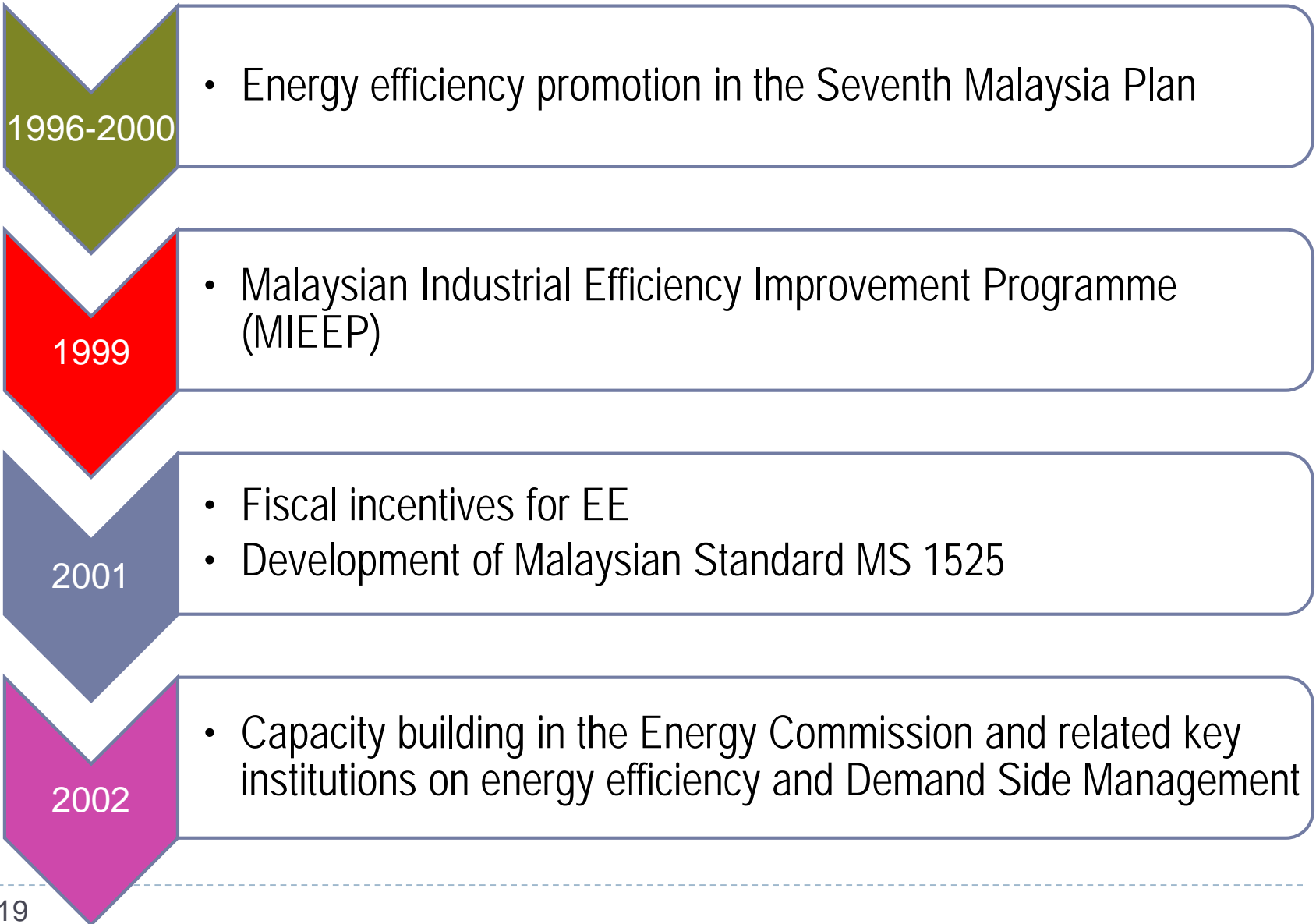


OBJECTIVE OF ENERGY EFFICIENCY



to ensure productive use of energy and minimize waste in order to contribute to sustainable development and increased welfare and national competitiveness

National Initiatives in Encouraging EE



National Initiatives in Encouraging (EE)- *cont.*

2002

- Energy audit on government buildings
- EE and RE in education curriculum and university courses

2006

- Development of EE guidelines for Malaysian Industries

2008

- Efficient Management Of Electrical Energy Regulations

2009

- Green Building Index (GBI)

2013

- Minimum Energy Performance Standards (MEPS)

Achievement from the EE initiatives

Estimated annual cost savings from energy efficient appliances sold under SAVE Rebate is

RM34.4mil and reduction of
158.1GWh of electricity

Electricity usage in government buildings reduced **6.1%** in 2014 (compared to 2013) and **13.6%** in 2012 (compared to 2011)

Contribution of EE sub-sector to GDP in 2013 was **RM 1.5 billion**

EE products contributed **RM 6.6 million** revenue to green business in 2012/ 2013

17% energy saving after retrofitting with a return on investment of less than six years at Ministry of Finance, Malaysia

Game Changer

Embarking on green growth

- ▶ One of the main game changers pursued under the 11th Malaysia Plan is embarking on green growth.
- ▶ Under this game changer, one of the focus areas that the government is emphasising on adopting is the sustainable consumption consumption and production concept.



From	Quantity of growth	Waste to landfill	Climate change mitigation and adaptation as a cost	Government's responsibility	Resource and energy intensive
To	Quality of growth that takes into consideration the cost to the climate, environment, and the nation's natural resources	Waste as resource that can be reused through recycling and recovery, for power generation, and other waste to wealth initiatives	Climate change mitigation and adaptation as an investment that is accounted for during the upfront planning and investment stages	Shared responsibility between the government, private sector, and individual citizen	Resource and energy efficient in balancing both supply-side and demand-side considerations and constraints



Adopting the sustainable consumption and production concept

- Creating green markets
- Increasing share of renewables in energy mix
- Enhancing demand side management (DSM)
- Encouraging low carbon mobility
- Managing waste holistically



-
- Identify potential improvements and appropriate approaches to ensure efficient use of energy in buildings, industries and households.
 - These measures include increasing competencies of energy service providers, especially Registered Electrical Energy Managers, and promoting the implementation of Energy Performance Contracting for government buildings.

Energy Audit And Energy Management in :

Large Industrial Buildings

Energy Audit
(2016-2018)

Large Commercial Buildings

Energy Audit
(2016-2018)

Shared cost of Energy Audit
between Government & Private
Sectors as an incentive for
Private Sectors to pursue
retrofit program

Energy Audit, Retrofit And Energy Management in :

Government Buildings

Energy Audit + Retrofit
(2016-2020)



RMK11-Expanding demand side management measures*

Buildings

- Achieve 700 Registered Electrical Energy Manager (REEM)
- Extend Energy Performance Contracting (EPC) to other government buildings
- All new government buildings to adopt energy efficient design
- Retrofit 100 government buildings

Industries

- Introduce Enhanced Time of Use (e-ToU) with three different time zones
- Abolish Special Industrial Tariff (SIT)
- Install 4 million smart meters
- Increase on-grid co-generation capacity of 100 MW or more by reviewing utility standby charges

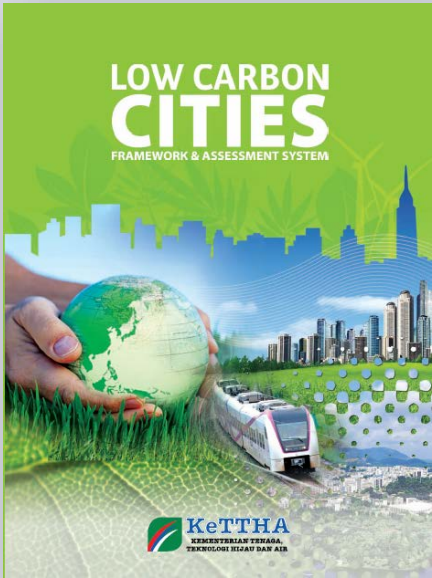


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- ▶ Energy labelling and the availability of standards such as ISO 50001 for buildings and MEPS for appliances will be promoted.
 - ▶ Introduction of Enhanced Time of Use (eTOU) tariff scheme and gradual abolishment of the Special Industrial Tariff for energy intensive industries.

TRANSFORMING THE BUILDING SECTOR


National Initiatives in Greening the Building Sector

•Green Building Tools/ Guides in Malaysia

No.	Green Building Tools/ Guides	Description
1.	<p>Low Carbon Cities Framework & Assessment System (LCCF)</p> 	<ul style="list-style-type: none"> • Launched in 2011 by Ministry of Energy, Green Technology and Water, Malaysia; • Objectives of LCCF are <ol style="list-style-type: none"> (i) to encourage & promote the concept of low carbon cities and townships in Malaysia; (ii) to increase the compatibility of cities/townships with their local natural system; (iii) To guide cities in making choice/decisions towards greener solutions. <p>Achievements (till Nov 2015)</p> <ul style="list-style-type: none"> -CO₂ baseline calculated for 8 sites -Project Briefs completed for 6 sites


National Initiatives in Greening the Building Sector

•Green Building Tools/ Guides in Malaysia (cont.)

No.	Green Building Tools/ Guides	Description
2.	<p data-bbox="262 354 846 402">Green Building Index (GBI)</p>  The logo for the Green Building Index (GBI) features a stylized green tree icon to the left of the text "green building index". The word "green" is in a lighter green font, while "building index" is in a darker green font. The text is in a lowercase, sans-serif typeface.	<ul style="list-style-type: none"><li data-bbox="923 357 1348 396">• Launched in 2009<li data-bbox="923 468 1831 508">• The index is based on criteria which are:<ul style="list-style-type: none"><li data-bbox="923 582 1561 622">(i) energy & water efficiency;<li data-bbox="923 639 1626 679">(ii) Indoor environmental quality;<li data-bbox="923 696 1858 793">(iii) Usage of recyclable & environment friendly material; and<li data-bbox="923 811 1607 851">(iv) adoption of new technology.<li data-bbox="923 925 1619 965">• Achievement (till 15/10/2014):<ul style="list-style-type: none"><li data-bbox="923 988 1831 1028">- 334 buildings certified (152 million sqft)<li data-bbox="923 1068 1839 1170">- 0.73 MtCO₂eq of emission reduction by GBI certified buildings

National Initiatives in Greening the Building Sector

•Green Building Tools/ Guides in Malaysia (cont.)

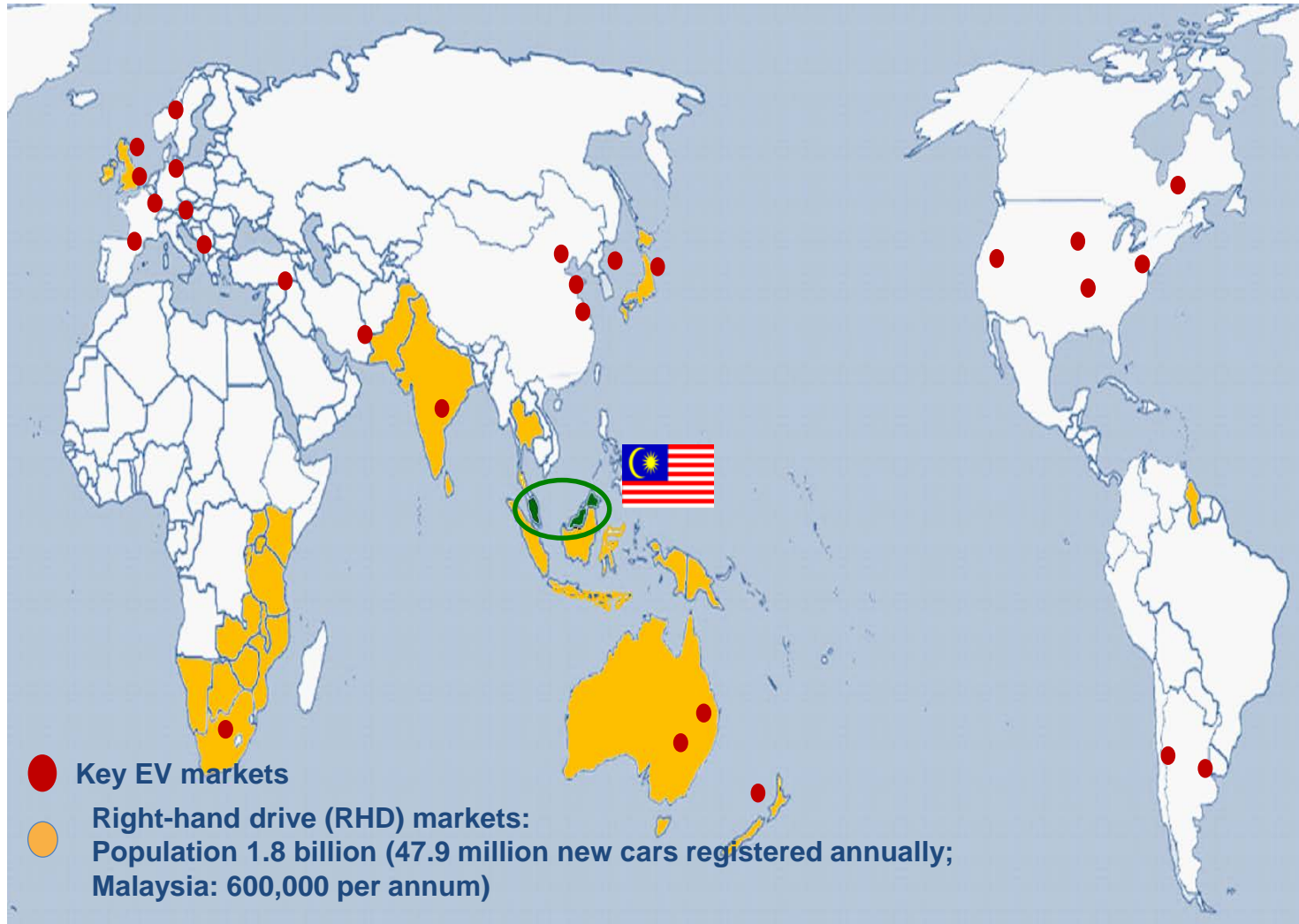
No.	Green Building Tools/ Guides	Description
4.	Malaysian Carbon Reduction and Sustainability Tool (MyCREST)	<ul style="list-style-type: none">• currently being developed to be proposed as the National Green Rating Tool;• tool for sustainable building rating system which aims at quantifying, reducing built environment's impact in terms of carbon emissions and environmental implication;• Integrating socio-economic considerations relating to the built environment and urban development.• Takes into account a more holistic lifestyle view of the built environment; and  <pre>graph LR; Design[Design] --> Construction[Construction]; Construction --> OAM[Operation & Maintenance];</pre>

TRANSFORMATION IN THE TRANSPORT SECTOR

National Initiatives in Greening the Transport Sector

- Electric Mobility

Positioning Malaysia as the 'Electric Mobility Marketplace' in the region



National Initiatives in Greening the Transport Sector

•Electric Mobility (*cont.*)

Malaysia's Targets for Electric Mobility by 2020

100,000 electric cars
100,000 electric motorcycles
2,000 electric buses
125,000 charging stations

EXPECTED OUTCOMES

- Reduction of emission by **0.6 mil tonnes CO₂**
- Reduction fuel subsidy cost by **25%**, estimated at **RM0.1 bill by 2020**
- Enhancement of economic growth: expected **RM328 mil** investment by 2020
- Reduction of healthcare cost from better environmental condition

National Initiatives in Greening the Transport Sector

- Energy Efficient Vehicles

CURRENT SCENARIO (till October 2015)



No. of Hybrid Cars:
43,256



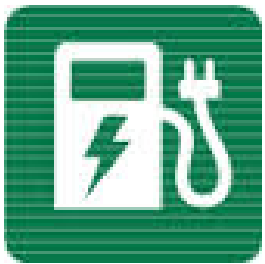
No. of Electric Bikes:
1,144

Revenue from Green Transportation in 2012/2013
RM 2.4 billion

No. of Electric Cars:
120



No. of EV Charging Stations:
41



National Initiatives in Greening the Transport Sector

•Electric Mobility Blueprint

Ministry of Energy, Green Technology & Water is developing the Electric Mobility Blueprint which focuses on three key areas namely:

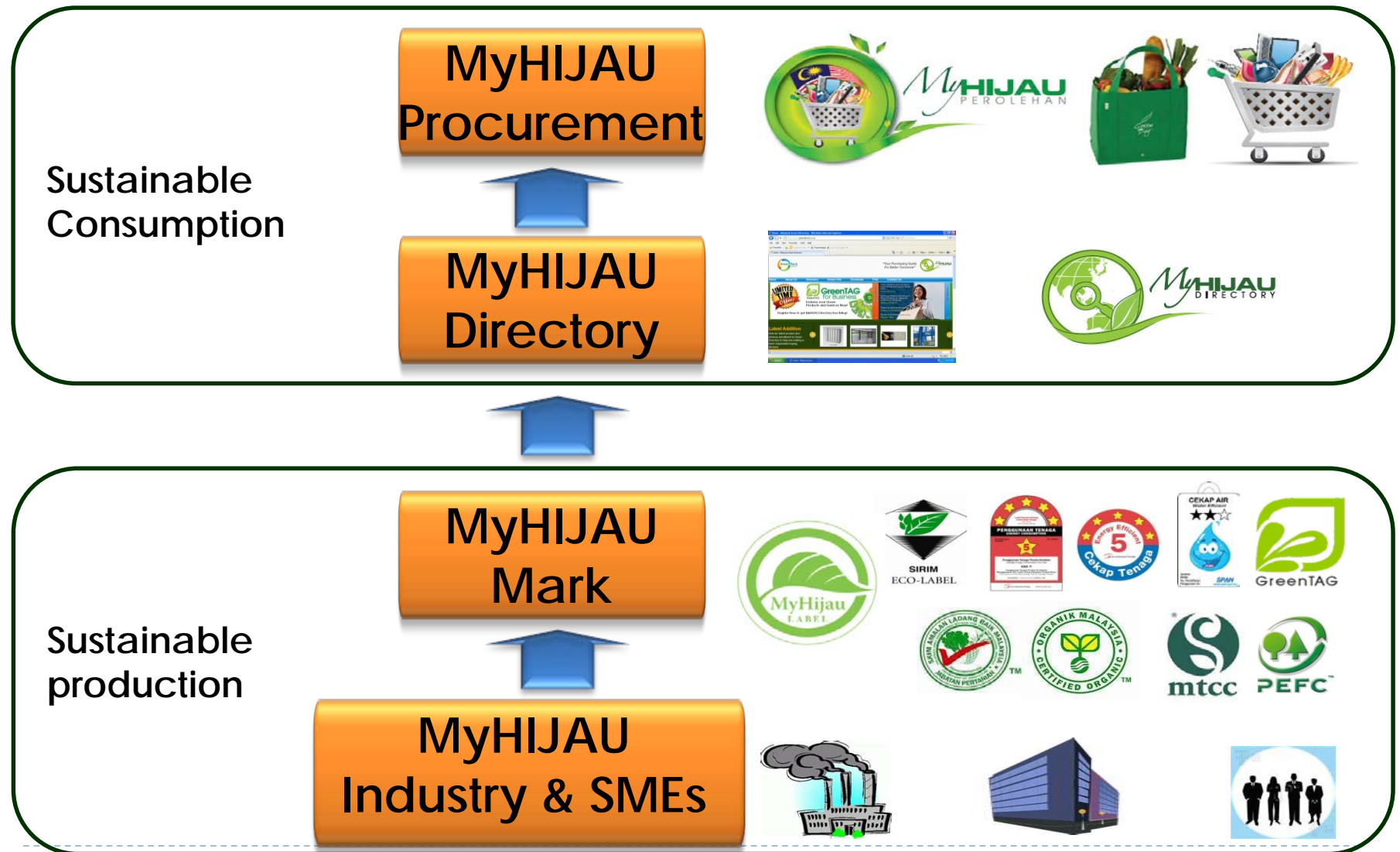
- i. **Electric Mobility in Public Transport** - encourages deployment of electric buses to complement existing LRT and MRT networks, as well as new BRT routes. The first **BRT line** in Malaysia has began operating in **2015** using all electric buses;
- ii. **Electric Mobility Eco System** - addresses the charging infrastructure, backend software, and the issues related to private ownership of electric cars and electric motorcycles;
- iii. **Electric Mobility Economy**

SUSTAINABLE CONSUMPTION AND PRODUCTION



National Initiatives towards Sustainable Consumption and Production

•MyHIJAU Programme



National Initiatives towards Sustainable Consumption and Production (cont.)

•Progress of MyHijau Mark Programme



No. of products
received SIRIM
Ecolabel
490

No. of products
received SPAN
Water Efficient
Label Product
Scheme
197



No. of products received
Energy Rating Label
Scheme
1,418



National Initiatives towards Sustainable Consumption and Production (cont.)

- International Greentech and Eco Products Exhibition & Conference



A platform to showcase innovative & creative green technology services, eco-products and initiatives

Description	Year					
	2010	2011	2012	2013	2014	2015
Total Business Leads Reported	RM1.2 billion	RM1.6 billion	RM1.3 billion	RM 0.5 billion	RM 1.9 billion	RM 1.9 billion

IGEM 2016

Date: 5-8 October 2016

Venue: Kuala Lumpur Convention Centre

FISCAL INCENTIVES AS AN ENABLER FOR LOW CARBON COMMUNITY

(6) Fiscal Incentives towards Low Carbon Community

•Green Technology Financing Scheme

Total loan amount of **RM 3.5 billion** for producers (max RM 50 million) and users of green technology (max RM 10 million) with 2% interest subsidy by the government & 60% government guarantee

RM2.37 billion has been disbursed till October 2015

Projection of CO₂ emission reduction by GTFS projects:

2.67 MtCO₂e/yr

No. of green jobs created from GTFS projects:

3,018 jobs

(7) Challenges in Developing Low Carbon Communities

- a) Lack of funding to implement low carbon actions at cities;
- b) Slow buy-in of the concept of Low Carbon Community from the State and Local Authorities due to lack of understanding and awareness;
- c) Most cities lack credible GHG Inventory or a comprehensive Blueprint to systematically implement & monitor low-carbon actions; and
- d) Short of expertise/ skills/ human capacity in areas such as the low carbon cities concept.

(8) Way Forward

- a) Public-Private Partnership to encourage private organizations/ city developers to assist local councils in building low carbon cities;
- b) Formulation and implementation of attractive, innovative incentive schemes and tax-reliefs at municipality level;
- c) Increasing awareness among the stakeholders;
- d) Encouraging universities/ research Institutes to assist cities in conducting GHG inventory based on existing green tools;

(8) Way Forward (cont.)

- e) Mainstreaming green initiatives into the current development processes (eg. government green procurement, LCCF etc.); and
- f) Encouraging research and commercialization of green technology.



Thank You



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