National Institute for Environmental Studies,Japan

The 27th AIM International Workshop
National Institute for Environmental Studies
(Online)
September 30 and October 1, 2021

LOCAL MITIGATION ACTIONS FOR CARBON NEUTRAL KUALA LUMPUR 2050

PROF. DR. TPr HO CHIN SIONG, TPr CHAU LOON WAI, DR GABRIEL LING, and DR TEH BOR TSONG

UTM-LOW CARBON ASIA RESEARCH CENTRE

UTM-LOW CARBON ASIA RESEARCH CENTRE

UTM UNIVERSITI TEKNOLOGI MALAYSIA

Structure of Presentation

1.0 GHG Emission and AIMS in Malaysia
2.0 Malaysia Climate change effort
3.0 Local Mitigation initiatives - KL Carbon Neutrality Pathway
4.0 Conclusion.

Malaysia- GHG Emission and AIMS modelling 2020-21

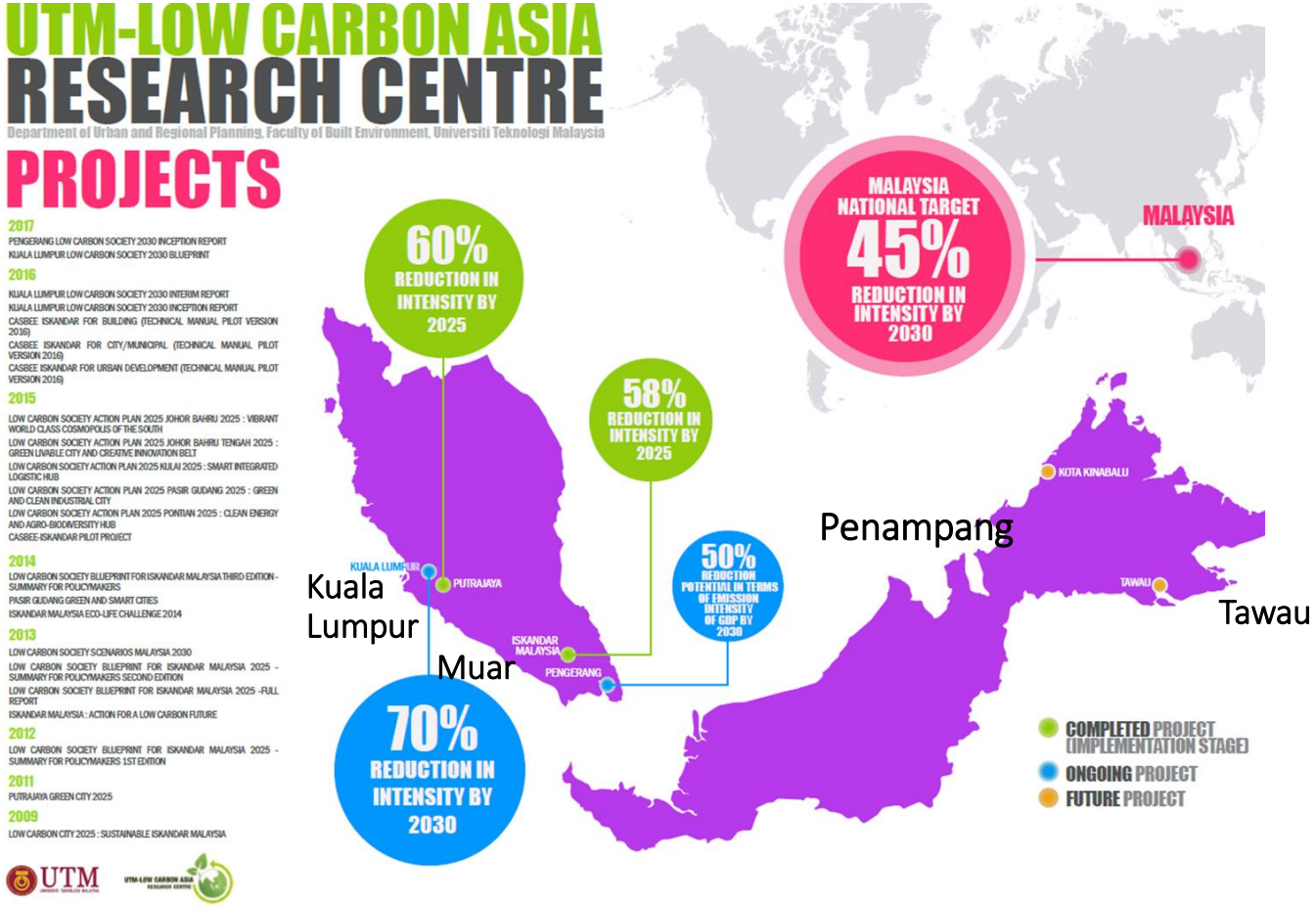
Climate Action Plans for Four (4) Malaysia Pilot cities commissioned by Global Covenant of Mayors International Urban Cooperation (GCoM-I*UC) Brussels Jan – Dec 2020*

Muar Local Plan2030 commissioned by PLANMalaysia and Muar Municipality May 2019- March 2021

Kuala Lumpur City Local Plan 2040 commissioned by Kuala Lumpur City Hall (KLCH) Nov 2020- July 2021

Project developing **framework for building energy efficiency through City to City collaboration between Kuala Lumpur and Tokyo Metropolitan Government** (2nd Year) commissioned by IGES and funded Ministry of Environment (MoEJ)JAPAN 2020-May – March 2021

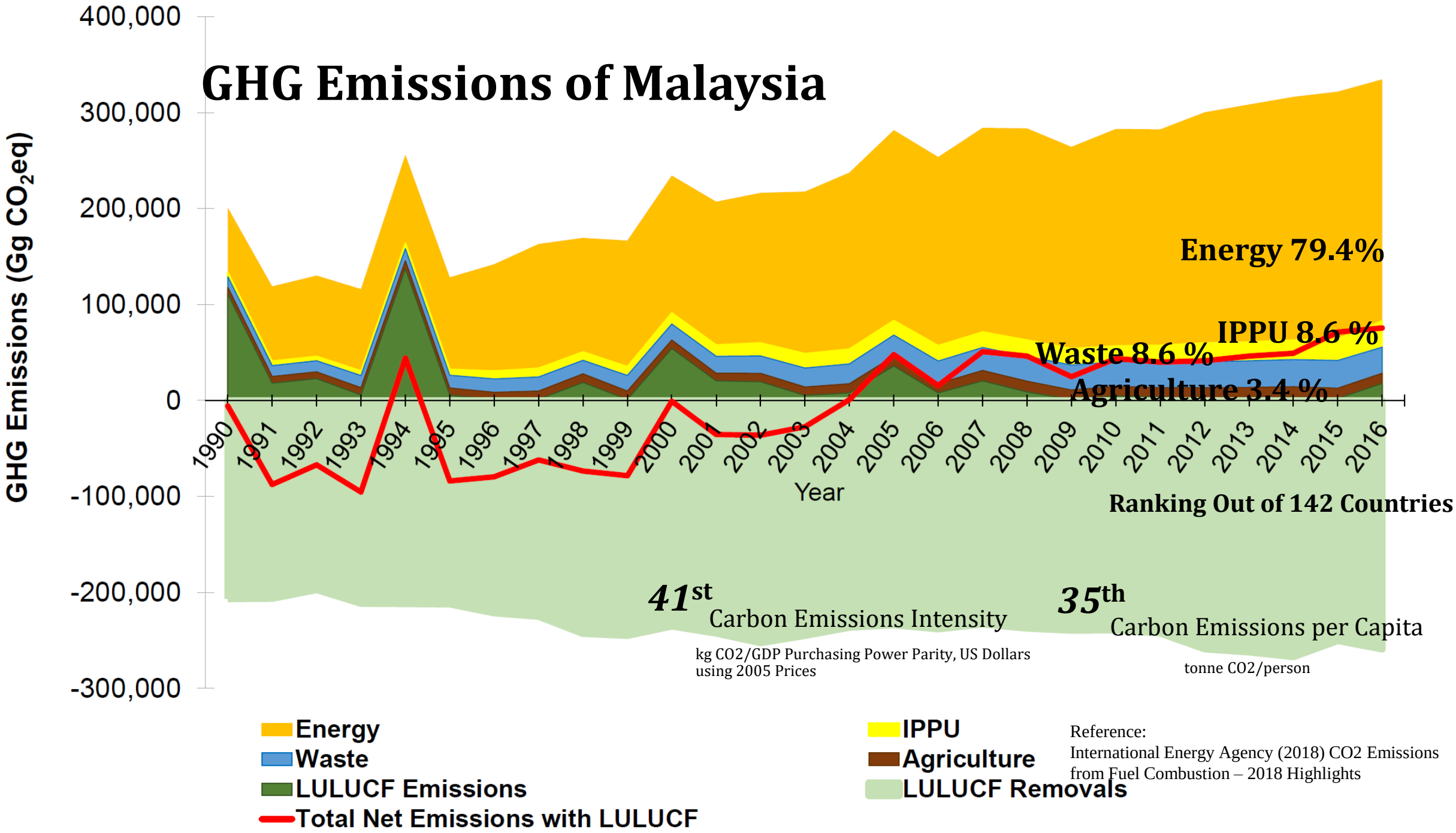
Segamat Low carbon Society Blueprint 2030 commissioned by Segamat Municipality Jan – May 2021



Malaysia- Population 30million (2016) 32 million (2020)

BUR 3 Report (2020) Total emission 2016	CO2 emission ('000metric tons	CO2 per capita metric ton (Population 30.68mil)
without LULUCF	316,833.23	10.32
With LULUCF	75,488.48	2.46

GHG Emissions of Malaysia



Ranking Out of 142 Countries

41st Carbon Emissions Intensity

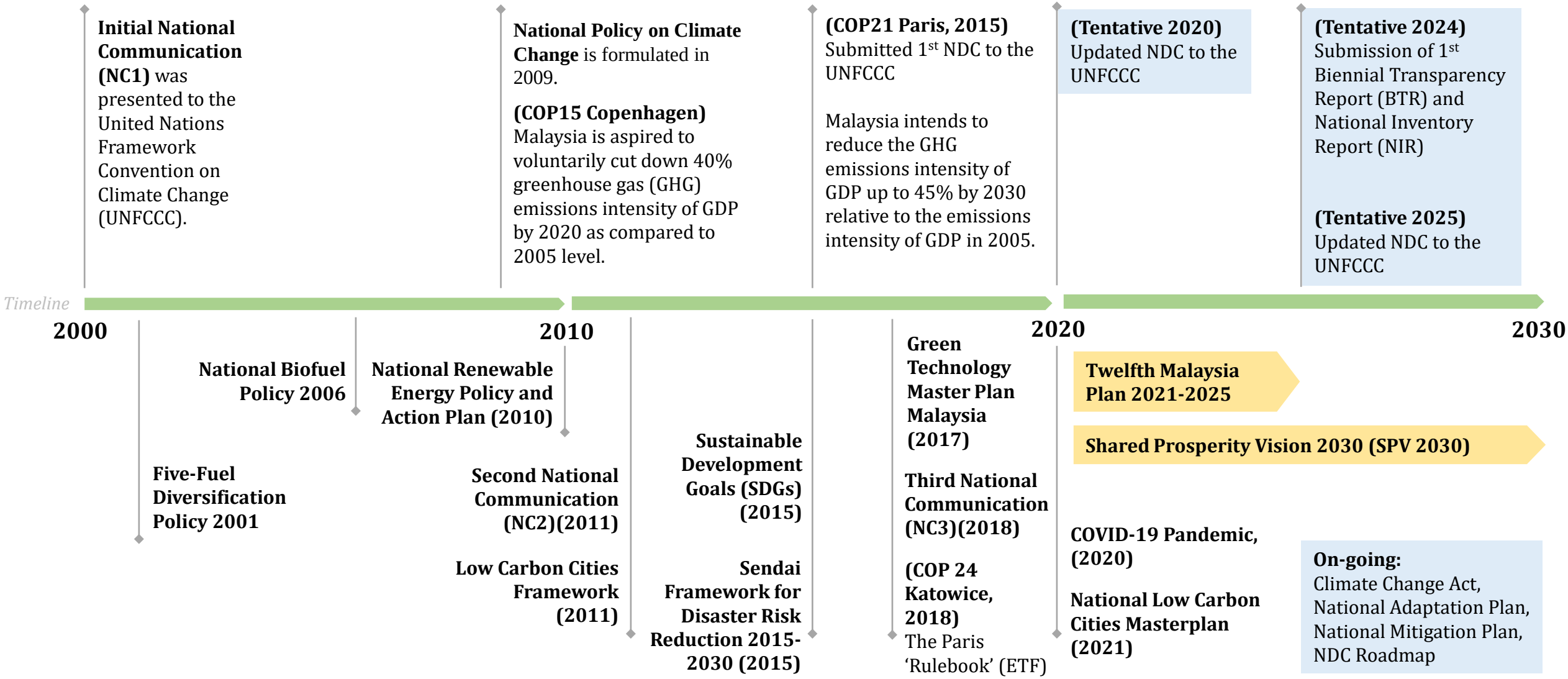
kg CO2/GDP Purchasing Power Parity, US Dollars using 2005 Prices

35th Carbon Emissions per Capita

tonne CO2/person

Reference:
International Energy Agency (2018) CO2 Emissions from Fuel Combustion – 2018 Highlights

Current Climate Change Efforts of in Malaysia



Current Climate Change Efforts in Malaysia (6 Priority Areas)

	(1) Energy	(2) Transport	(3) IPPU	(4) Waste	(5) Agriculture	(6) LULUCF
Targets	• 20 % RE installed capacity • 52,233 GWh electricity savings • Oil refinery & gas transformation	• 40 % share of public transport • Alternative fuels • Use of B10 by 2020 and B20 by 2021	• Reduce emission from cement industry	• Diverging 40 % waste from disposal sites, 22 % recycling • Installation of 500 mills for biogas capture	• Increase productivity and yield • Optimum use of fertilisers	• At least 50 % of land as forest • Capping of 65,000 km^2 of oil palm plantation
Initiatives	• National Renewable Energy Policy and Action Plan (2011) • National Energy Efficiency Action Plan (2011) • Five Fuel Diversification Policy 2001	• Land Public Transport Master Plan 2010 • National Automotive Policy 2014 • National Biofuel Policy 2006 • Malaysian Biofuel Industry Act 2007	• Green Technology Master Plan (2017-2030)	• National Solid Waste Management Policy 2016 • 11th Malaysia Plan • Economic Transformation Program (ETP) • MPOB Mandatory Regulation 2014	• National Agrofood Policy 2010 • National Commodity Policy (2011-2020) • National Biomass Policy 2020	• National Forestry Policy 1978 • National Biological Diversity Policy (2016-2025) • National REDD Plus Strategy • National Commodity Policy (2011-2020)
Actions	• RE installation • Energy efficiency • Advanced coal and gas power plants • Improved plant efficiency in fuel consumption flare reduction and recovery	• Efficient public transport • Energy efficient vehicles • Electric vehicles • Biofuel blend for transport	• Reduce cement clinker ratio (75 % in 2030AMB)	• Waste recycling and landfill gas capturing • CH_4 recovery from POME • Managing domestic & industrial wastewater	• Good agriculture practices • Sustainability certification scheme	• Sustainable Forest Management • Certification scheme • Cropland management

Malaysia Commitment to the Paris Agreement (COP21 Paris)

Malaysia signed and ratified the Paris Agreement in 2016 and submitted the first NDC. The NDC consisted of both mitigation and adaptation components. Under the mitigation component of its NDC, ***Malaysia pledged its intention to reduce the GHG emissions intensity of GDP up to 45% by 2030 compared to the emissions intensity of GDP in 2005.*** This comprises 35% on a voluntary basis and a further 10% is conditional upon receipt of climate finance, technology transfer and capacity building from developed countries.

Reference:
Nationally Determined Contribution of the Government of Malaysia (2015)

Malaysia: Local Actions Support National Commitment

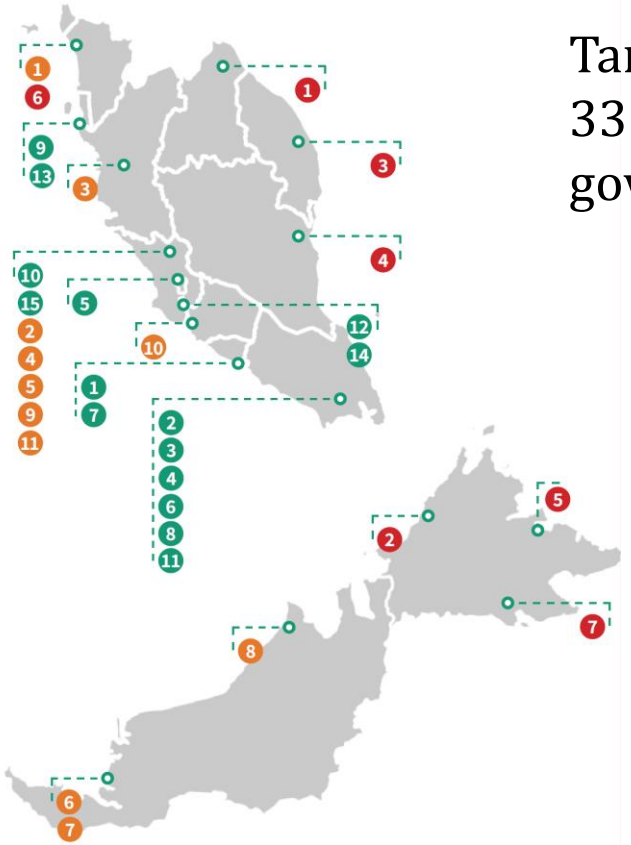
To date, a total 19 cities and regions of Malaysia have initiated GHG emissions mitigation plan

Low Carbon Society Blueprint/
Low Carbon City Plan
(Adopted AIM modelling)

1. Kuala Lumpur
2. Putrajaya
3. Iskandar Malaysia (region)
4. Johor Bahru
5. Iskandar Puteri
6. Pasir Gudang
7. Kulai
8. Pontian
9. Pengerang

Reference:
UTM-Low Carbon Asia Research Centre

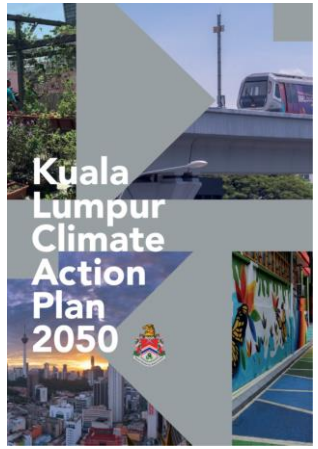
In addition, Malaysian government aims to further promote low carbon development at local level

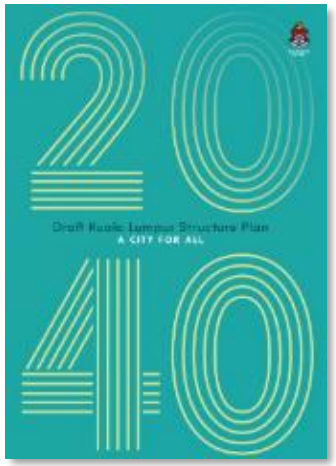


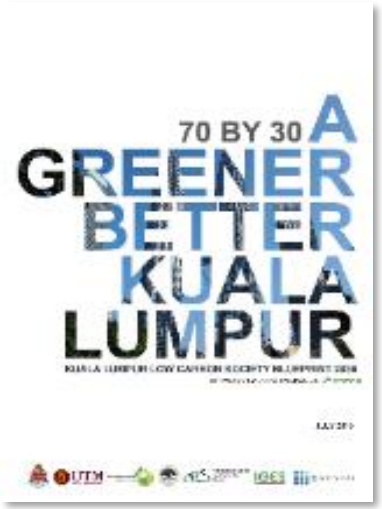
Target:
33 local and regional governments

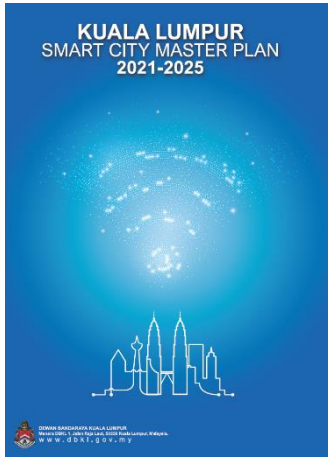
Reference:
Ministry of Environment and Water (2021) National Low Carbon Cities Masterplan

LOCAL MITIGATION and INITIATIVES – CASE OF KUALA LUMPUR CITY









Kuala Lumpur's Transition To Neutral Carbon City 2050

The Master Plans are :

a) **Kuala Lumpur Low Carbon Society Blueprint 2030**

b) **Structure Plan for Kuala Lumpur 2040**

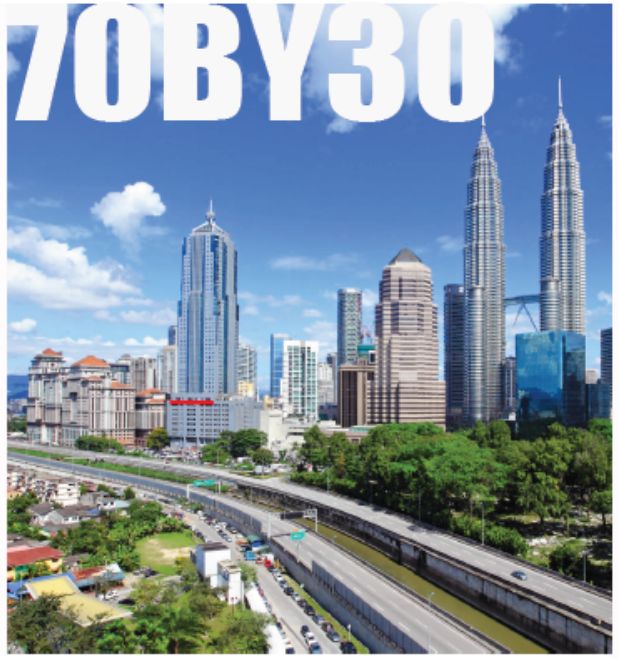
c) **Local Plan for Kuala Lumpur 2040**

d) **Kuala Lumpur Climate Action Plan 2050**

Other related plans with implementation of specific projects are on smart cities initiatives and promotion of active mobility focusing on pedestrian and cycling in KL.

GREENER BETTER KUALA LUMPUR

70BY30



BASIC PROFILE

Area
242km² (24,221 hectares)

Population
(2010) 1,674,621
(2020 Projected) 2,198,400
(2030 Projected) 2,488,399

Gross Domestic Product
RM 84,852 million (2010)
RM 227,621 millon (2020)
RM 399,013 million (2030)

Location
On the central west coast of Peninsular Malaysia, enclave within the State of Selangor and Klang Valley

Function
National capital of Malaysia. One of the major cultural, commercial, education, entertainment, financial, healthcare and tourism centres of Asia.

UTM KYOTO UNIVERSITY IGES E KONZAL

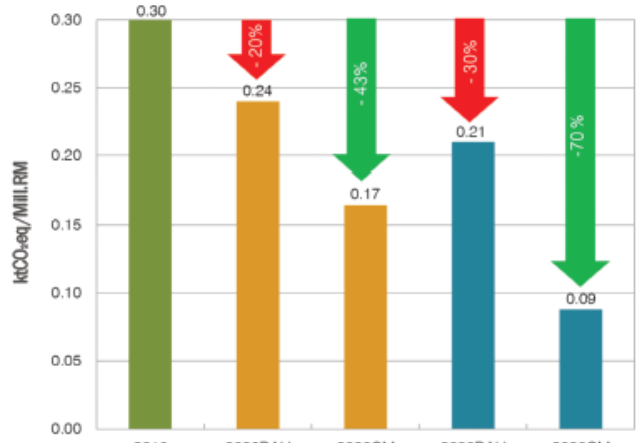
KUALA LUMPUR LOW CARBON SOCIETY BLUEPRINT 2030

- 3 Thrusts
- 10 Actions
- 37 Sub-actions
- 82 Measures
- 245 Programs

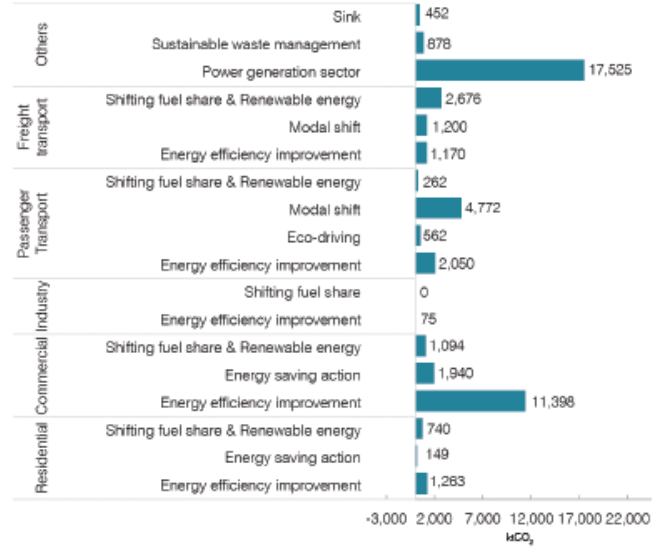
ROAD TO ACHIEVING 70 BY 30 GOAL

Current Vision KLSP 2020 Draft KLCP 2020	WORLD CLASS CITY 2020		
LCS Vision for Kuala Lumpur	WORLD CLASS SUSTAINABLE CITY 2030 70 by 30: A Greener Better Kuala Lumpur		
Triple Bottom line of sustainability	Economy	Social	Environment
Thrusts	Thrust 1 Prosperous, Robust and Globally Competitive Economy	Thrust 2 Healthy, Creative Knowledgeable and Inclusive Community	Thrust 3 Ecologically Friendly Liveable and Resilient Built Environment
Sustainable Development Goals 2030	Goals: 1,2,7,8,9,11,12,13,17	Goals: 3,4,5,10,11,12,13,16,17	Goals: 6,11,13,14,15,17
New Urban Agenda Transformative Commitments	Sustainable and inclusive urban prosperity and opportunities for all	Sustainable urban development for social inclusion and ending poverty	Environmentally sustainable and resilient urban development
Key Principles Draft KL City Plan 2020	World-class Business Environment	World-class Working Environment	World-class Living Environment
	World-class Governance		
KL Low Carbon Society Actions	Green Growth Energy Efficient Spatial Planning Green Mobility Sustainable Energy System	Community Engagement and Green Lifestyle	Low Carbon Green Buildings Green and Blue Network Sustainable Waste Management Sustainable Water and Wastewater Management
	Green Urban Governance		

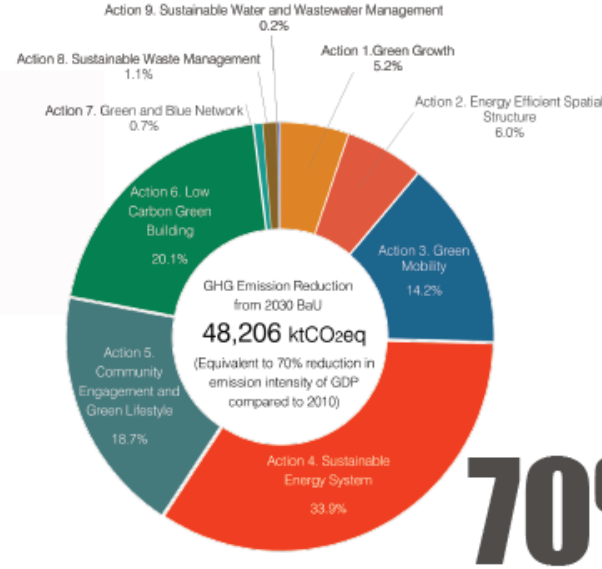
GHG EMISSION INTENSITY BY GDP



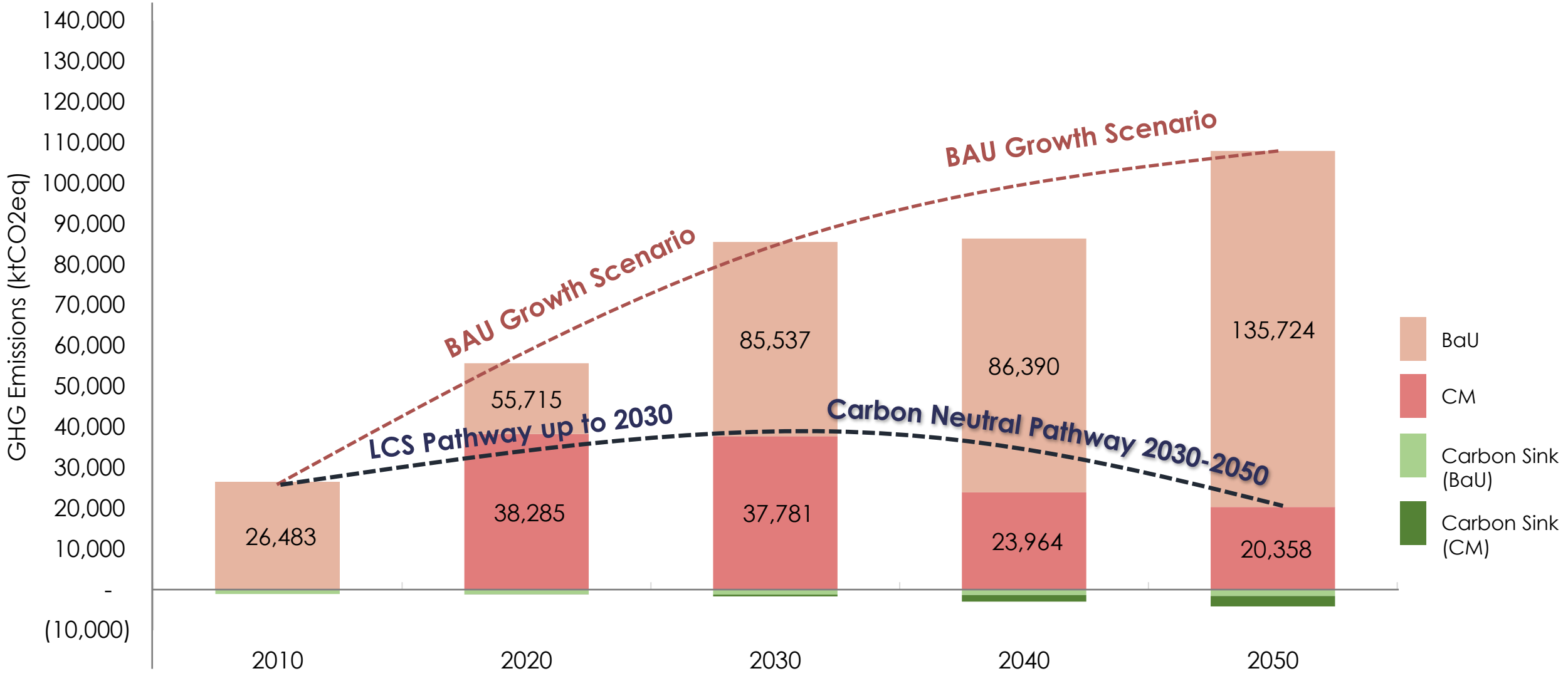
MITIGATION POTENTIAL OF KUALA LUMPUR 2030



EMISSION REDUCTION CONTRIBUTION BY ACTION



70%
Reduction in GHG Emission Intensity of GDP by 2030

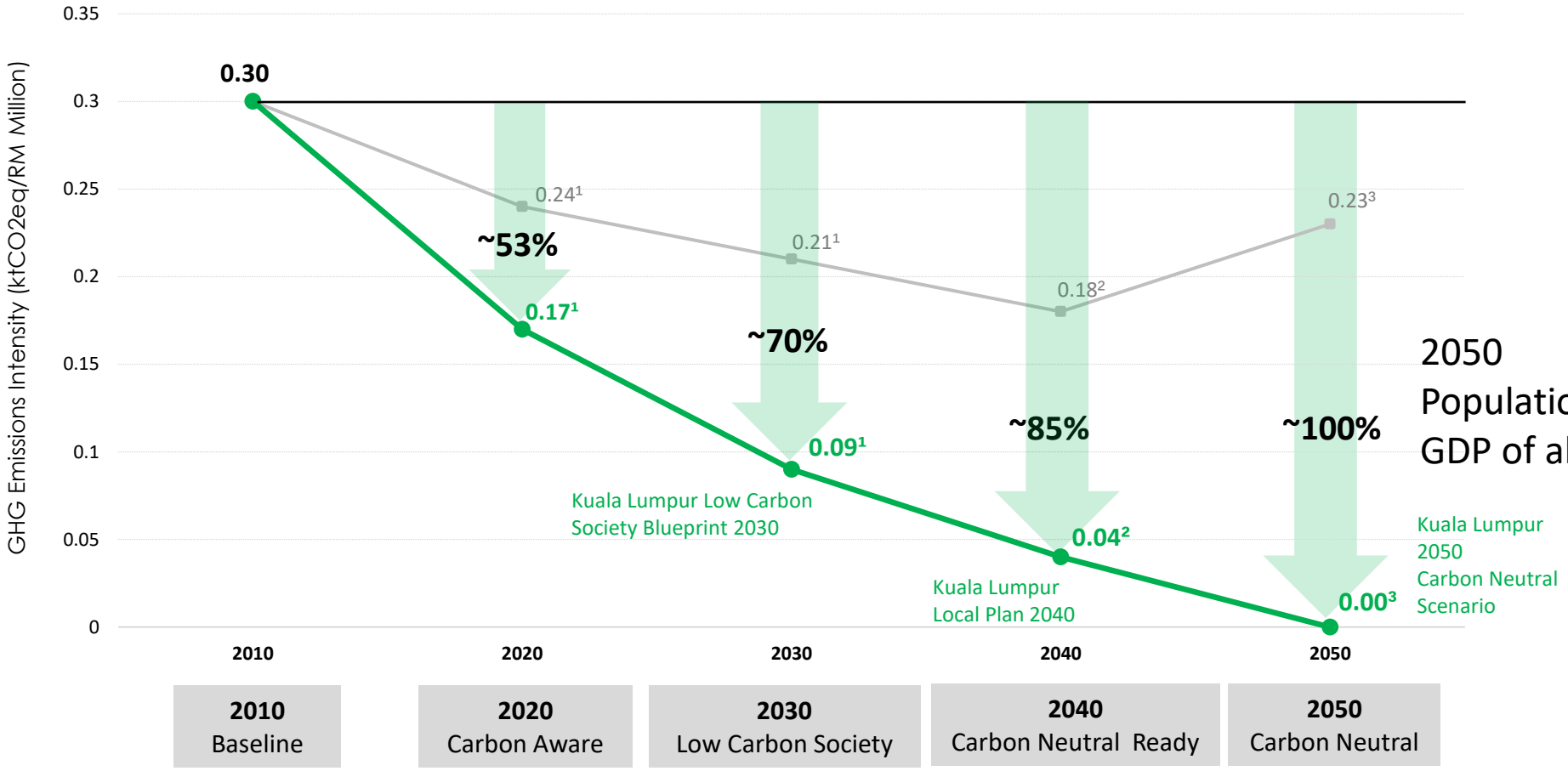


Kuala Lumpur Carbon Neutral Pathways (Preliminary Result)

Source: KLLCSBP2030, Wangsa Maju Carbon Neutral Growth Centre 2050 Action Plan

A Complete Picture: The 50 Years Development Pathway of Kuala Lumpur

GHG Emissions Intensity by GDP of Kuala Lumpur (ktCO2eq/RM Million)



2050
Population :2.45 mil and
GDP of about 600bil Ringgit

Source:
[1]Kuala Lumpur Low Carbon Society Blueprint 2030 (2016) – inclusive of non-energy related GHG emissions (waste and carbon sink)
[2]Draft Kuala Lumpur Local Plan 2040 (2020) – inclusive of non-energy related GHG emissions (waste and carbon sink)
[3]Kuala Lumpur 2050 Zero Carbon Scenario (2021) – mainly energy related GHG emissions

FOCUS ACCELERATION BY PILOT CARBON GROWTH CENTRE

- Decarbonising Energy and mobility sector

- Pilot Carbon Neutral Precinct promote buy in

malay mail

COVID-19 ABOUT US ADVERTISE WITH US

HOME MALAYSIA SINGAPORE WORLD MONEY LIFE EAT/DRINK SHOWBIZ OPINION SPORTS TECH/GADGETS DRIVE VIDEOS 精彩大马 PROJEKMM

HOME / MALAYSIA

DBKL to allocate reduced Budget of RM2.653b for 2021, says mayor

Thursday, 17 Dec 2020 06:19 PM MYT

KL mayor Datuk Mahadi Che Ngah says DBKL is allocating RM2.653 billion for Budget 2021 to implement various initiatives for the well-being and prosperity of city dwellers. — Picture by Ahmad Zamzahuri

KUALA LUMPUR, Dec 17 — Kuala Lumpur City Hall (DBKL) is allocating RM2.653 billion for Budget 2021 to implement various initiatives for the well-being and prosperity of city dwellers, says its mayor Datuk Mahadi Che Ngah.

However, the Budget is less than this year's allocation of RM2.972 billion as DBKL is also affected by the Covid-19 pandemic.

Mahadi said the Budget themed, '*Sayangi Kuala Lumpur, Kota Sejahtera*', comprised RM1.762 billion (66.4 per cent) for operating expenditure and RM891 million (33.6 per cent) for development expenditure.

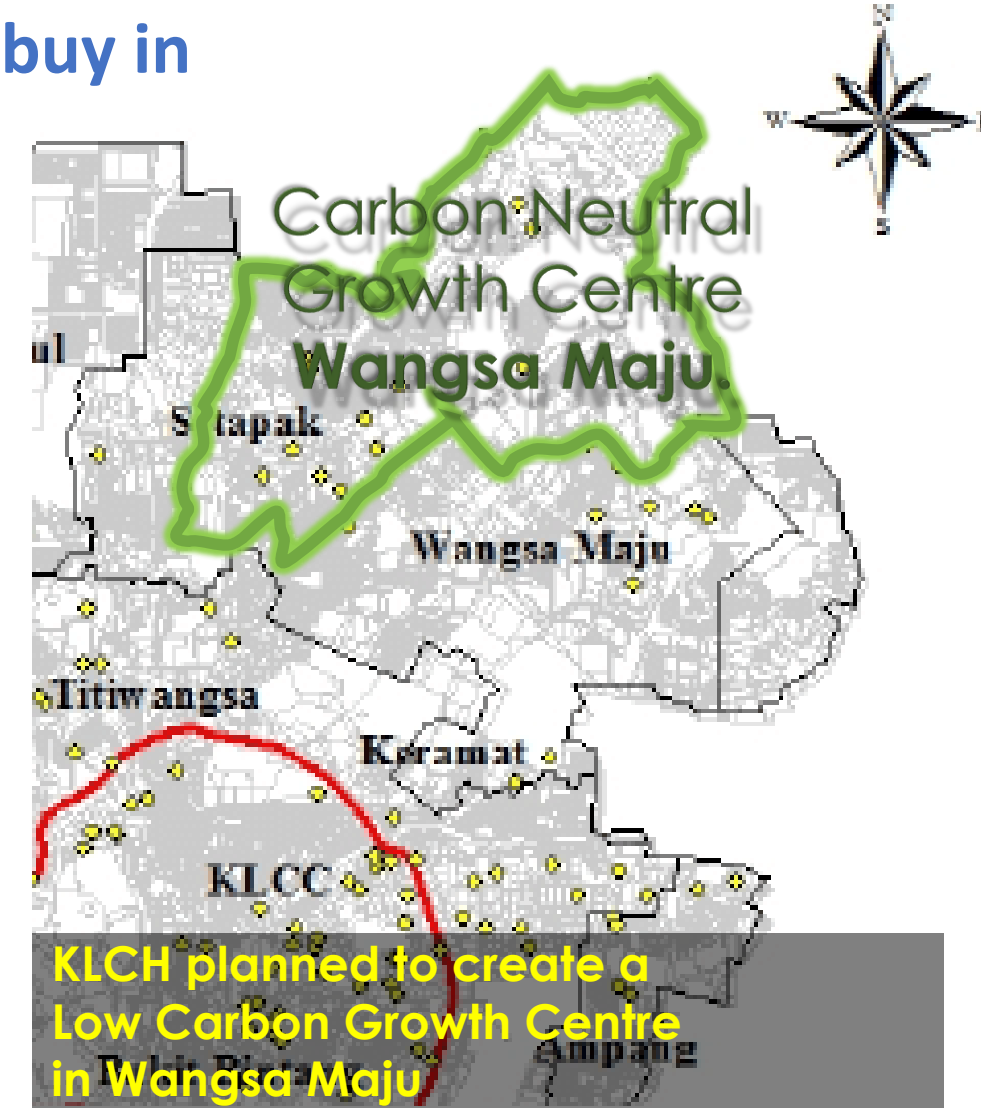
"In ensuring the road and drainage infrastructure is in the best condition, DBKL provides over RM392 million for projects related to road, river, slope and drainage throughout the city.

"This Budget also focuses on several projects to overcome flash floods in the federal capital with

KUALA LUMPUR Dec 17, 2020 :

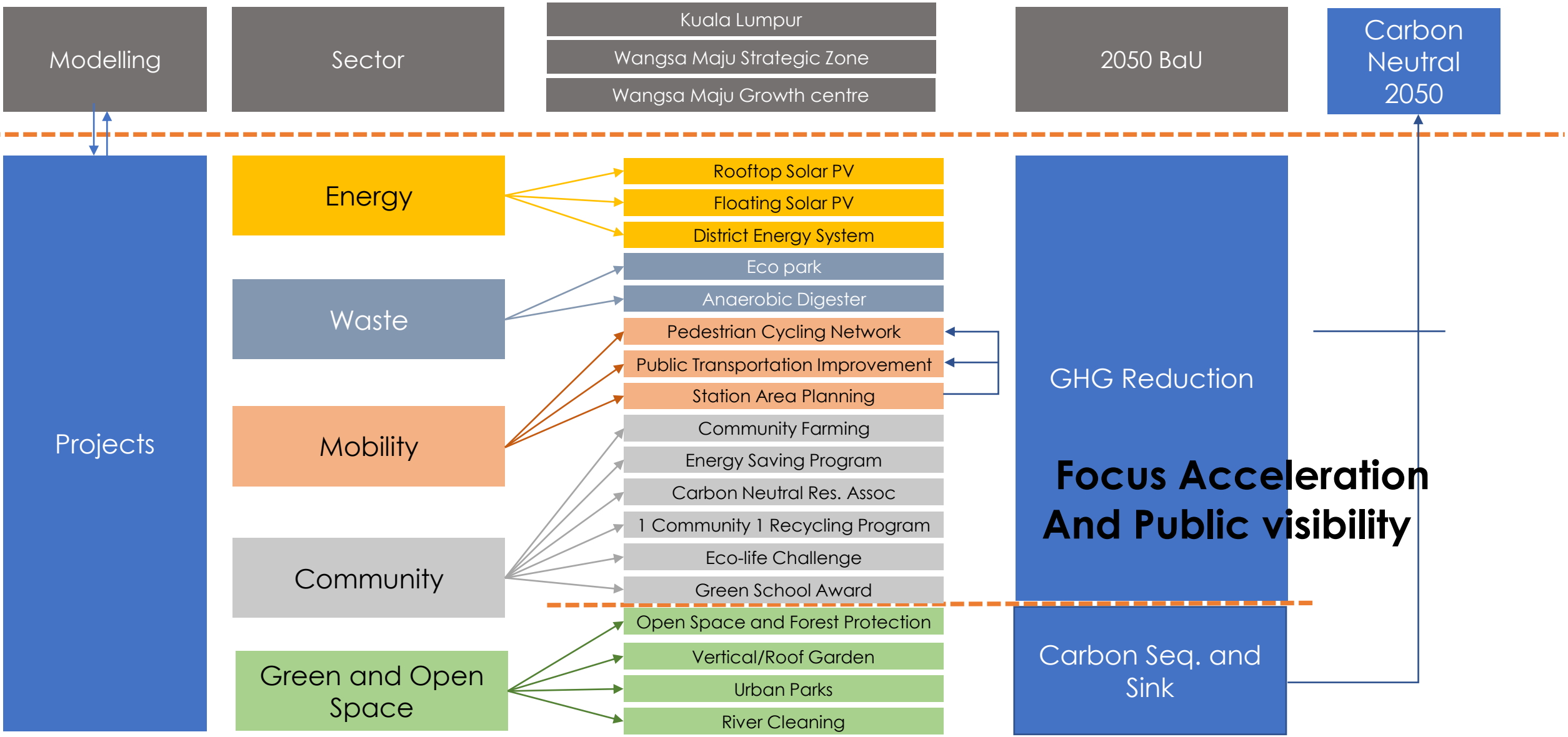
"Meanwhile, he said, KLCH aimed to reduce the intensity of greenhouse gas emission up to 70 per cent by 2030 by using solar energy for its buildings starting from the end of next year and **electrical power for the GO KL bus** service."

Kuala Lumpur EV Bus



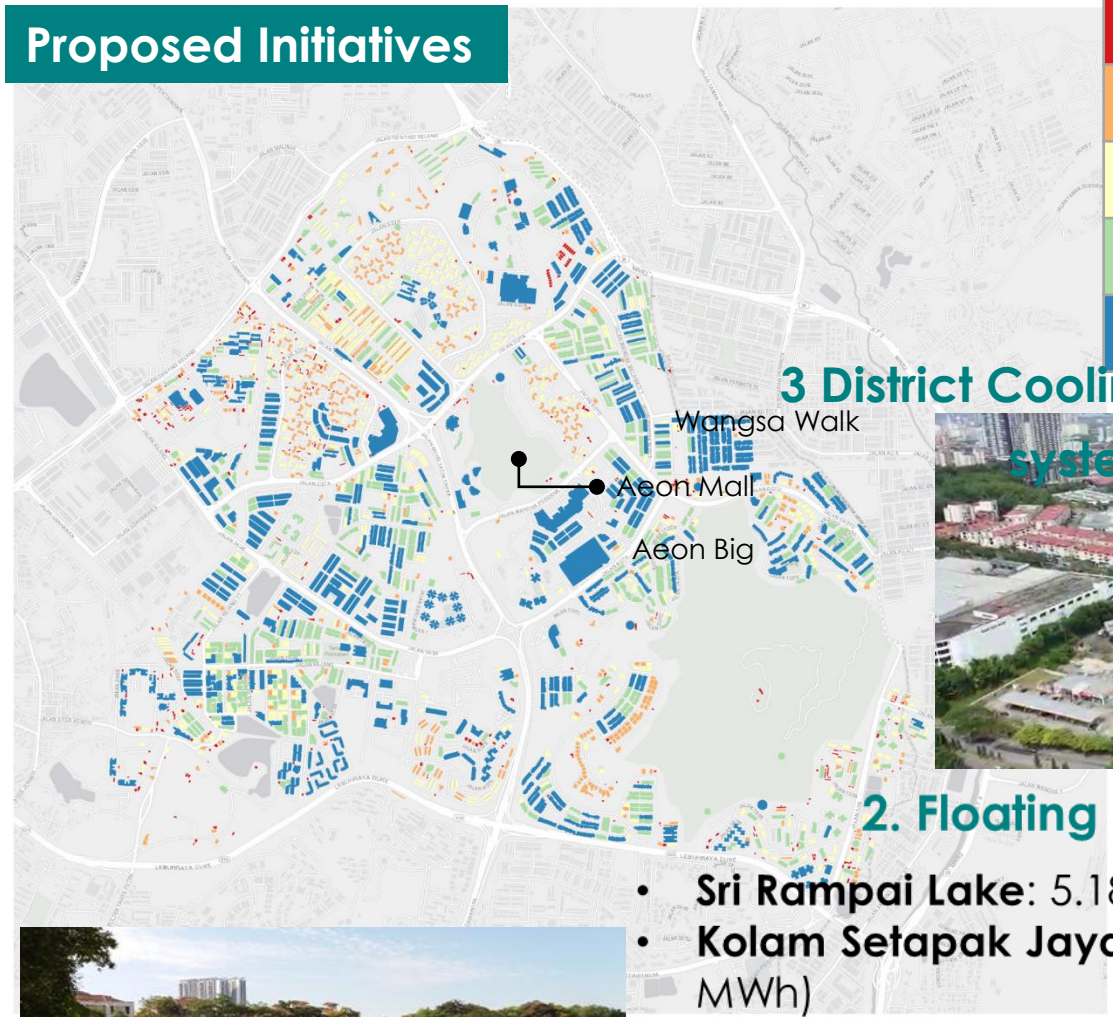
KLCH planned to create a Low Carbon Growth Centre in Wangsa Maju

KUALA LUMPUR CARBON NEUTRAL CITY 2050 - PROJECTS



Energy- Roof and Floating PV & District Cooling system

Proposed Initiatives



Rooftop Area for Solar PV installation (m^2)	
	<250
	251-500
	501-750
	751-1000
	>1001

1. Rooftop PV installation

- Smallest rooftop area: **25 m^2**
- Largest rooftop area: **33,381 m^2**
- **~11,300 sqft of rooftop area can produce 1 GWh of** electricity per year
- Possibilities for building such as **Aeon Big** to produce ~**1,767MWh** of electricity per year
- Project implementation through **Zero Capital Expenditure (CapEx);** Supply Agreement Renewable Energy (SARE); Nett Energy Dispatch Aggregator (NEDA)
- Stakeholders: **Building owners, SEDA, TNB, private service providers.**

3 District Cooling system

2. Floating Solar PV

- **Sri Rampai Lake**: 5.18 acre (~1,100 MWh)
- **Kolam Setapak Jaya**: 10.65 acre (~2,600 MWh)
- Project implementation through **Zero Capital Expenditure (CapEx)**; Supply Agreement Renewable Energy (**SARE);** Nett Energy Dispatch Aggregator (**NEDA)**
- Stakeholders: **UTM, SEDA, TNB, private**

SOME MAJOR INITIATIVES KUALA LUMPUR SOLAR PV – PRIVATE SECTOR

Regulation for real estate developers to utilise at least **30%** of Renewable Energy (RE) in their projects

IKEA Cheras

DUKE-Plaza Toll

KEN Tower-TTDI

UTM-Semarak

Renewable energy sector and Energy efficiency is one key focused acceleration initiatives.

CONCLUDING REMARKS

Challenges in local mitigation initiatives

1 National policy has not yet support neutrality

2 New frontier green initiatives and Limited Resources

3 Societal life style change

4 City for All: Leave No One Behind

THANK YOU

Q&A session

UTM-Low Carbon Asia Research Centre
Level 2, Block B12,
Faculty of Built Environment and Surveying,
Universiti Teknologi Malaysia,
81310 Johor Bahru, Johor
Tel: 07-555 7359