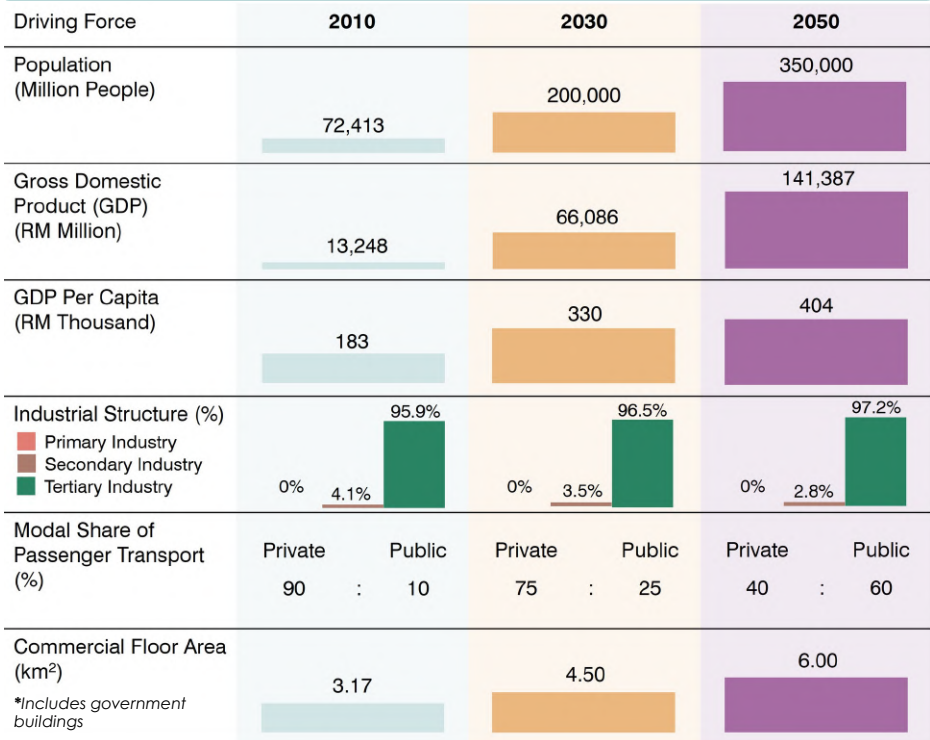


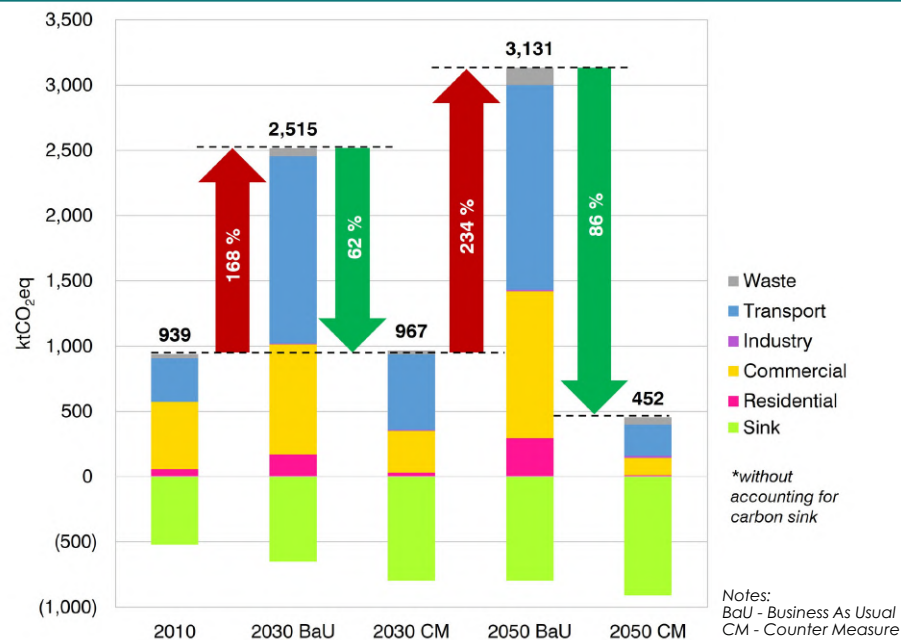
# GHG EMISSIONS INVENTORY, PROJECTIONS AND TARGETS

# IMPLEMENTATION

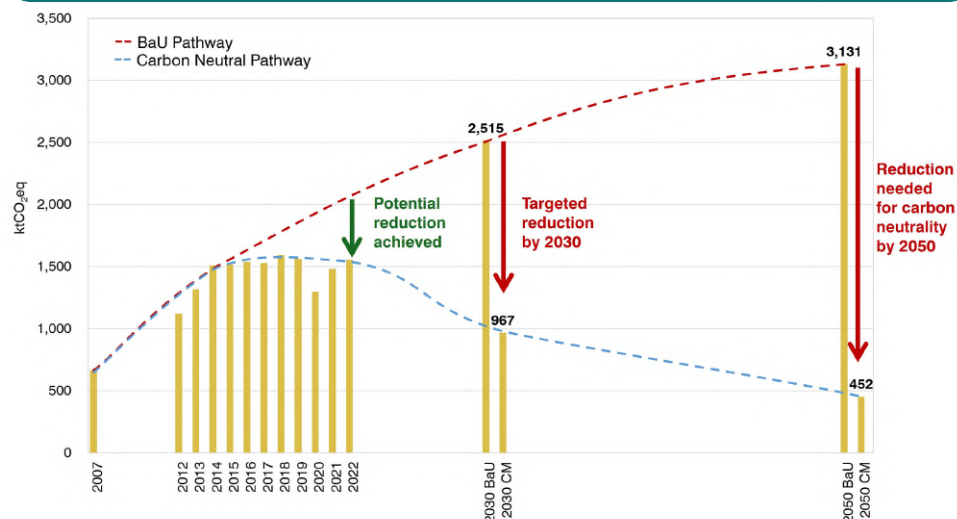
## GHG EMISSIONS KEY DRIVING FORCE



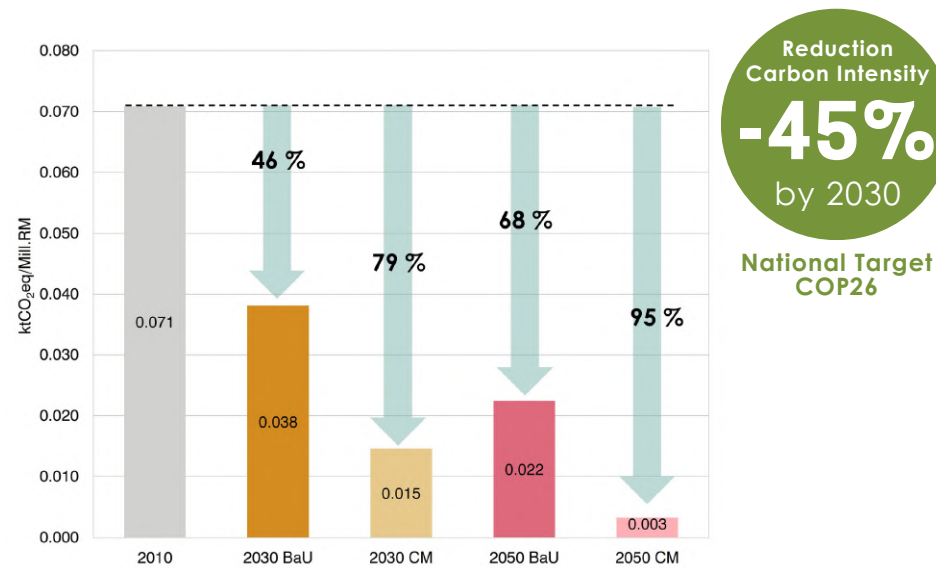
## GHG EMISSIONS PROJECTIONS



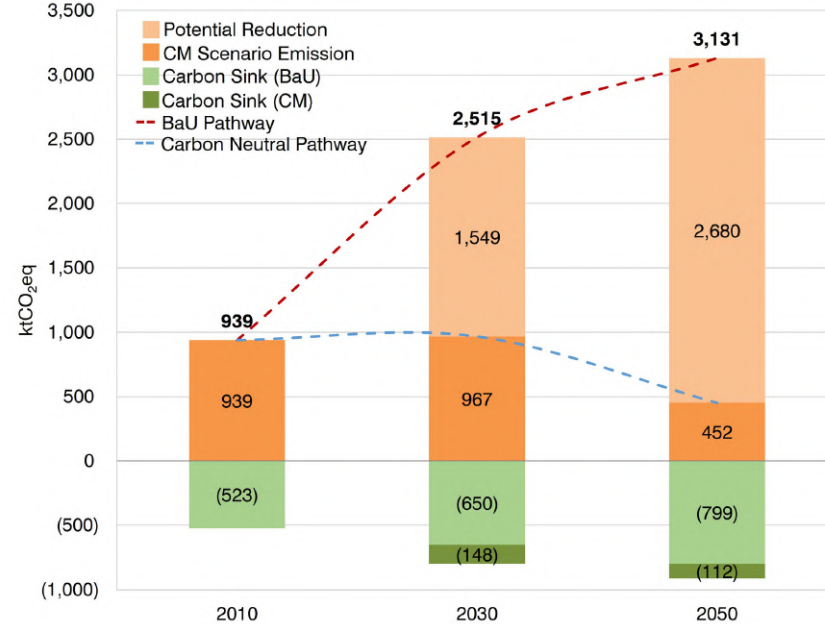
## GHG EMISSIONS INVENTORY VS. TARGETS



## GHG EMISSION INTENSITY OF GDP



## CARBON NEUTRALITY PATHWAY 2050



## LOW CARBON CITY TARGETS

THEME ENERGY	THEME URBAN & BUILDING REGULATIONS
<ul style="list-style-type: none"> <li>100% Government office complexes with BEI below 150kWh/m<sup>2</sup>/year by 2030</li> <li>15,000 MWh Annual electricity generates from solar energy by 2030</li> <li>100% Street lighting using LED by 2030</li> <li>100% Upgrading LED lighting system at all neighbourhood center by year 2025</li> </ul>	<ul style="list-style-type: none"> <li>Establish Putrajaya Net Zero Carbon Building Action Plan by 2025</li> <li>5 New buildings with low energy building design by year 2030</li> <li>100% New Building Adoption of Uniform Building By Law for natural lighting and ventilation by 2025</li> <li>100% New Building Adoption of Uniform Building By Law for rainwater harvesting system by 2030</li> </ul>
THEME MOBILITY	THEME COMMUNITY
<ul style="list-style-type: none"> <li>5% Annual ridership increment for transit buses</li> <li>Monthly Putrajaya vehicle free zone programme at Persiaran Perdana</li> <li>Electric Bus for Nadiputra Putrajaya local bus services by 2028</li> <li>4 nos Single decker city tour electric bus by 2025</li> <li>100 nos EV charging station by 2030</li> </ul>	<ul style="list-style-type: none"> <li>10 Urban farming increase by year 2030</li> <li>Incentive or rewards to community on low carbon practices</li> <li>100% Zero single used plastic by year 2030</li> <li>30% Reduction waste per capita below national level yearly (2019: 1.17kg per capita)</li> <li>2% Increase of recycling rate yearly</li> </ul>
THEME BLUE & GREEN	THEME CLIMATE RESILIENCE
<ul style="list-style-type: none"> <li>400,000 nos Trees planted by 2025</li> <li>1,376.80 ha Gazetted open space by 2025</li> <li>220,000 nos of aquatic vegetations replanted at Putrajaya Wetland by 2025</li> <li>3,000 data Inventory report for park (MyBIS) by 2025</li> </ul>	<ul style="list-style-type: none"> <li>5% Reduce dengue episode cases yearly</li> <li>5 million litres Water saving by using lake water collection yearly</li> <li>1 Guideline Establish tree planting guideline by 2025</li> <li>1 System Putrajaya Dam Safety System by 2026</li> </ul>

## MITIGATION TARGET

33% by 2030  
Reduction in absolute GHG carbon emission, base year 2021



Build a Cooler Putrajaya

Reduce Dengue Cases

Improve landscaping against Severe Wind

## ACTIONS ON ENERGY

PROGRAM	TIMELINE			KEY PARTNERS
	QUICK WIN	2022-2025	2022-2030	
B1: Collaborate with relevant agencies for solar energy system (PV) / solar thermal system on buildings in Putrajaya	»»	»»	»»	Building owners, RSPVI, TNB, SEDA & ST
I1: More and more renewable energy	»»	»»	»»	RSPVI, TNB & SEDA
B2: Install energy efficiency (EE) equipment and smart meters	»»	»»	»»	TNB, Building Owner, SEDA, BPH & Facility Manager
I2: Implement an online energy monitoring system			»»	Building Owner, Facility Manager, JKR, TNB, ST, SEDA, & MGTC
I3: Adopt energy efficiency infrastructures and facilities		»»	»»	TNB, JKR, EPU, BPH & Facility Manager

## ACTIONS ON URBAN PLANNING & BUILDING REGULATIONS

PROGRAM	TIMELINE			KEY PARTNERS
	QUICK WIN	2022-2025	2022-2030	
B3: Protect cultural identity, precinct character and sense of place through sustainable urban design practices	»»	»»	»»	Developer, Building Owners, Badan Warisan, PSP, CIDB NRES & MET Malaysia
B4: Incorporate the latest green building designs and certification in development control	»»	»»	»»	Developer & Building Owners
I4: Adopt and implement safe city practices to promote active mobility and use of public transport		»»	»»	MIROS, Developers, MOT & PLANMalaysia
B5: Promote adoption of passive architecture in new buildings via natural ventilation, shading and lighting			»»	Developer, Building Owners & PSP
I5: Expand the adoption of rainwater harvesting system and promote periodical maintenance of the system			»»	Developer, Building Owners & PSP

## ACTIONS ON GREEN AND BLUE

PROGRAM	TIMELINE			KEY PARTNERS
	QUICK WIN	2022-2025	2022-2030	
E1: Promote vertical gardens and green roofs in commercial buildings, schools and government buildings	»»	»»		Building owners, Schools & JKR
E4: Conduct continuous enhancement of urban biodiversity	»»	»»		PERHILITAN, University & NGOs
E7: Monitor and protect lake water quality	»»	»»	»»	Contractor
E2: Conduct Tree Planting Campaign in Putrajaya in line with 100 Million Tree-Planting Campaign 2020-2025		»»	»»	JPWP, NRES, Residents & NGOs
E3: Conduct continuous monitoring and updating an existing tree inventory		»»	»»	NRES
E5: Promote Nature-Based Solution (NBS) to protect, restore and manage natural and semi-natural ecosystems		»»	»»	UNESCO, NRES, NGOs & Contractor
E6: Enhance Putrajaya Lake Awareness Programme		»»	»»	UNESCO, Relevant Institution, JPS, Wetland International & WWF

# IMPLEMENTATION AND MONITORING ROADMAPS

## ACTIONS ON MOBILITY

PROGRAM	TIMELINE			KEY PARTNERS
	QUICK WIN	2022-2025	2022-2030	
<b>T1:</b> Promote pedestrian and cycling as mode choice in home to work's travel in Putrajaya	»»	»»	»»	PLANMalaysia, MIROS, MOF, Government and Private Agency, PJH, MOT, JKR, JPJ, PETRA & PDRM
<b>T2:</b> Maintain comfortable and safe pedestrian networks	»»	»»	»»	MIROS, PLANMalaysia, JKR, BPH/JPM, MOF, MOE, Government Agency & PJH
<b>T3:</b> Rebrand existing Car Free Day event into monthly active mobility program	»»	»»		Government and Private Agency, PDRM, JPJ, MIROS, MGTC & PLANMalaysia
<b>T4:</b> Promote a shift from private vehicles to public transport	»»	»»	»»	APAD, MIROS, MGTC & PLANMalaysia
<b>T5:</b> Provide more environmentally friendly public bus services by using clean and green fuel	»»		»»	PETRA, MITI, MGTC, APAD, Pulse Group, MOT, MIROS & Futurise Sdn Bhd
<b>T6:</b> Install digital display board for real time information on public transport		»»	»»	RAPIDBUS
<b>T7:</b> Promote sharing green economy and the future of personal mobility (e.g partnering with EV Car Sharing Companies)			»»	MOF, PETRA, MGTC, MITI, PLANMalaysia, Industrial Player & Pulse Parking

## ACTIONS ON COMMUNITY

PROGRAM	TIMELINE			KEY PARTNERS
	QUICK WIN	2022-2025	2022-2030	
<b>S1:</b> Transform existing residents' association, local businesses and industries into low carbon communities	»»	»»	»»	Local residents, Workers, Commercial Owner, Business Association, Developer, TNB, Air Selangor, AFSB, SWCorp, ST & FAMA
<b>S3:</b> Expand food waste composting program for the purpose of community farming	»»		»»	Local residents, Commercial Owner, AFSB/AFES, SWCorp & NGOs
<b>I6:</b> Further expand waste-to-wealth program (e.g., CAREton@Putrajaya) by collaborating with other private companies	»»		»»	Local residents, NGOs, private sectors & AFSB
<b>I7:</b> Cultivate recycling behaviour of the public through FKS (Fasiliti Inovasi Kitar Semula)	»»		»»	AFSB/AFES, SWCorp, Local Residents, Building Owner & JPSPN
<b>S2:</b> Strengthen Putrajaya Urban Farming Program (Program Pertanian Bandar 'PUF') by increasing participation and involvement of residents			»»	Local residents & Farmers
<b>S4:</b> Enhance community awareness on 3R, proper disposal and illegal dumping			»»	Local residents, MPP, Building Owner, Business Association, Commercial Owner, AFSB & SWCorp

## ACTIONS ON CLIMATE RESILIENCE

PROGRAM	TIMELINE			KEY PARTNERS
	QUICK WIN	2022-2025	2022-2030	
<b>D1:</b> Raise community awareness and participation on prevention of dengue	»»	»»		Local residents, NGOs, Pej Kesihatan WP Putrajaya & JPWPP
<b>D5:</b> Expand and improve monitoring systems through social media or other communication platforms to reduce outdoors activities due to heat wave	»»	»»		MKN, JPS & MET Malaysia
<b>D6:</b> Introduce programs or initiatives to reduce water consumption in commercial and residential areas	»»			TNB, Air Selangor, AFSB, Contractor & Developers
<b>D7:</b> Improve maintenance and house keeping of drainage system in Putrajaya	»»	»»		SWCORP, AFSB & Contractor
<b>D8:</b> Improve early warning systems through Multi-Hazard Platforms such as social media, newspaper, public announcement and other applications	»»		»»	MET, JPS & Jawatankuasa Pengurusan Bencana Daerah Putrajaya
<b>D2:</b> Improve Enforcement by PJC to inspect potential mosquito breeding sites			»»	Local residents, NGOs, Pej Kesihatan WP Putrajaya, JMB, JKR & BPH
<b>D3:</b> Identify potential spots and frequency of downed trees at housing and commercial areas			»»	Jabatan Landskap Negara & BPH
<b>D4:</b> Improve tree selection and landscape design to reduce the impact of wind		»»		Jabatan Landskap Negara

# PUTRAJAYA

## LOW CARBON CITY MODEL

# 2030

## TOWARDS A GREEN CARBON NEUTRAL CITY



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