

PUTRAJAYA

LOW CARBON CITY MODEL

2030

TOWARDS A GREEN

CARBON NEUTRAL CITY



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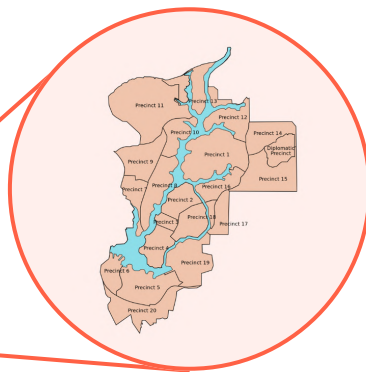


PROFILE OF PUTRAJAYA

THAILAND

MALAYSIA

INDONESIA



Function

**Federal Government
Administrative Centre Malaysia**



Administration

**Putrajaya Corporation
(PPj)**



Location

Strategically located within
Greater Kuala Lumpur / Klang Valley
and the Multimedia Super Corridor
2° 57' 7.2" N, 101° 42' 57.6" E



Area

49 km²

with Garden City concepts with
about 38% open spaces



Population

134,391
2021



Gross Domestic Product (GDP)

RM 216, 362 mil.
2020

CLIMATE AGENDA AND POLICIES: GLOBAL, NATIONAL AND PUTRAJAYA LEVELS

GLOBAL AGENDA

NATIONAL AGENDA

PUTRAJAYA AGENDA

Sustainable Development Goal



THE GLOBAL GOALS
For Sustainable Development

The Paris Agreement



Malaysia signed and ratified the Paris Agreement (COP21) in 2016 and submitted the first Nationally Determined Contribution (NDC) in accordance with decisions 1/CP.19 and 1/CP.20 of the UNFCCC. Malaysia has pledged to reduce GHG emissions intensity of GDP by **45% by 2030** relative to the emissions intensity of GDP in 2005.

Twelfth Malaysia Plan

Theme 3: Advancing Sustainability

Chapter 8
Advancing Green Growth for Sustainability and Resilience

Strategy A1
Moving Towards a **Low-Carbon Nation**

National Physical Plan 4

KD 3: Development Towards a Carbon-Neutral State

Strategy KD 3.1
Expanding the Implementation of Low Carbon City Framework

Other national policies



1 National Low Carbon Cities Masterplan



2 Low Carbon Cities Framework



3 National Energy Transition Roadmap

Putrajaya Structure Plan 2025



Vision:
Sustainable Putrajaya 2025 From Garden To Green

Policy 5
Moving Putrajaya Towards Green City

Towards Putrajaya Green City 2025



3 Environmental Target:
Low Carbon Putrajaya Cooler Putrajaya 3R Putrajaya

7 Focus Area in the Implementation of Putrajaya Green City Initiatives

Putrajaya Climate Action Plan 2030



Adaptation Goals for Putrajaya CAP 2030:

- Build a cooler Putrajaya
- Reduce dengue cases
- Improve landscaping against severe wind

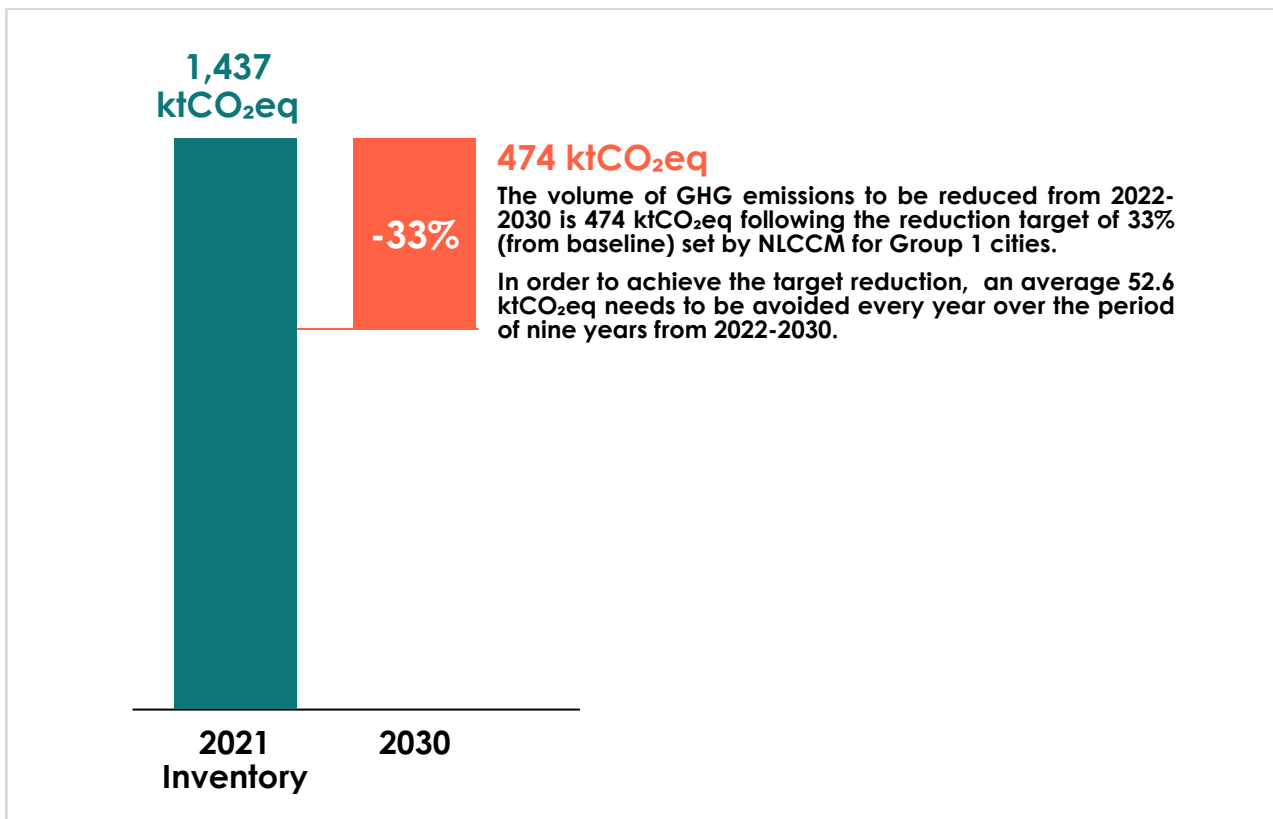
VISION OF PUTRAJAYA STRUCTURE PLAN 2025



**Sustainable Putrajaya 2025
From Garden to Green**

33% REDUCTION TARGET IN ABSOLUTE GHG EMISSIONS BY 2030

Figure 1: 33% reduction target in absolute GHG emissions by 2030.



Based on the National Low Carbon Cities Masterplan (NLCCM), Putrajaya is under the category of Group 1 selected target cities.

Group 1 has developed GHG Inventories that include baseline emissions (2022) and established 33% reduction target in absolute GHG emissions by 2030.

Based on the 2021 GHG inventory, Putrajaya recorded a total emission of 1,437 ktCO₂eq. To achieve the target set by NLCCM, Putrajaya needs to reduce absolute GHG emissions of 474 ktCO₂eq by 2030.

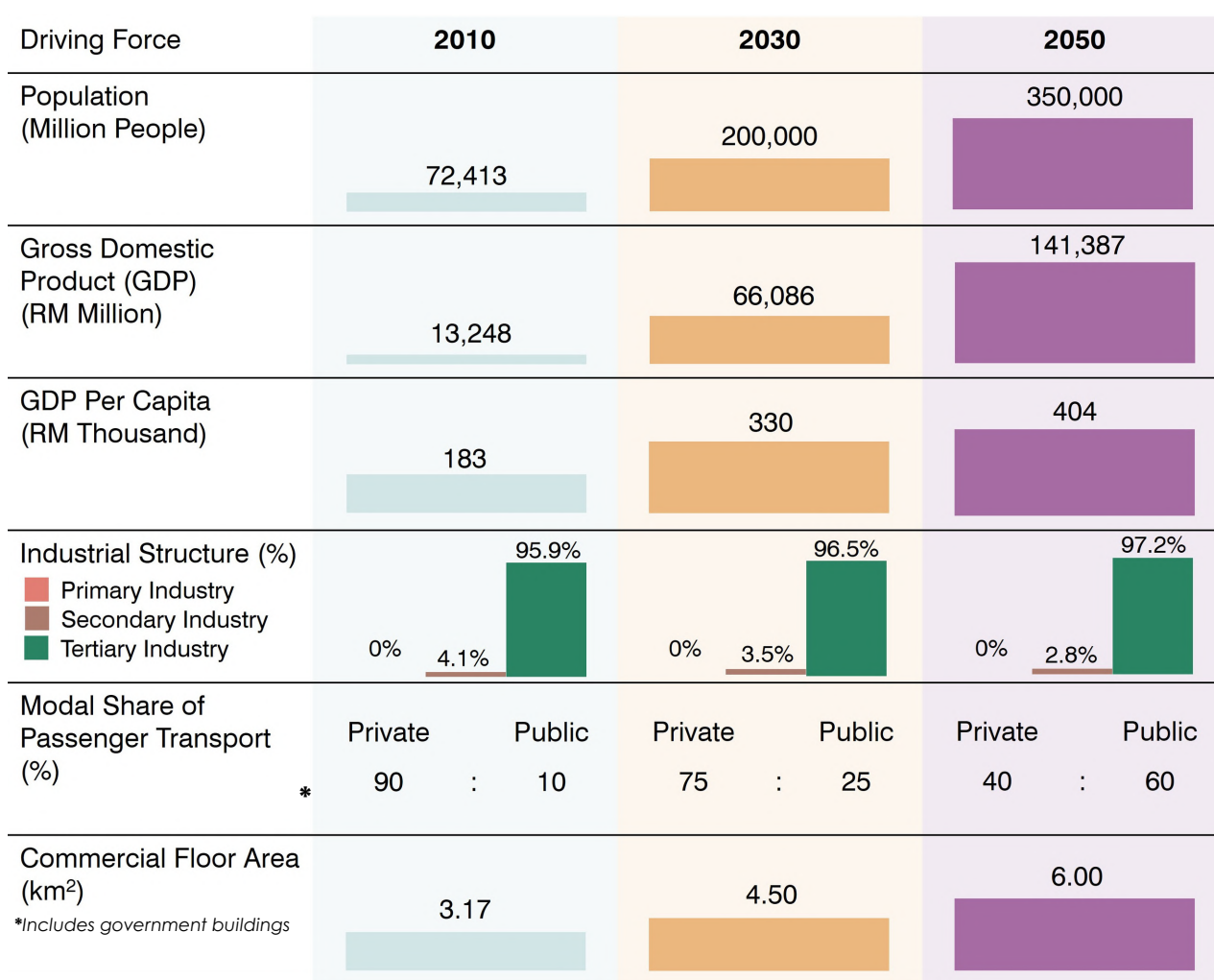
In order to remove the 474 ktCO₂eq of GHG emissions over the period of 9 years, on average, approximately 52.6 ktCO₂eq of GHG emissions need to be reduced per year.

PUTRAJAYA GHG EMISSIONS KEY DRIVING FORCE

Covering an area of 49 km², Putrajaya (officially the Federal Territory of Putrajaya) is home to 72,413 people (2010), which is projected to grow to 200,000 (2030) and 350,000 (2050).

As the Federal Government Administrative Centre, Putrajaya involves in several bilateral, regional and multi-lateral relations with foreign countries and organisations in various aspects particularly matters on politics and economic affairs. These provide international exposures and offer opportunities for Putrajaya to have an international branding and address to attract high net value investments, MICE (Meetings, Incentives, Conferences & Exhibitions) delegates and international tourists that will further propel Putrajaya's economy.

Figure 2: Putrajaya GHG emission key driving force.



In 2010, the gross domestic product (GDP) of Putrajaya was RM 13,248 million, accounting for 2.4% of Malaysia's GDP (RM 559,554 million). It also projected to increase to RM 66,086 million in 2030 and RM 141,387 in 2050 (refer to Figure 2). Key economic activities of Putrajaya are mainly in the tertiary sector, particularly in services such as finance and insurance; wholesale and retail; and information and communication. In 2010, the tertiary sector's share of Putrajaya's GDP is 95.9% while the secondary sector takes up the remaining 4.1%. The secondary sector is contributed by manufacturing and the construction industry. The same scenario is expected to happen in 2030 and 2050.

Expected shift in the transportation modes in Putrajaya from private to public in 2030 and 2050 are expected to be achieved if good Low Carbon Society mobility policies are implemented, which will potentially contribute to a good reduction in GHG emissions of the transportation sector.

The commercial floor area is expected to increase from 3.17 km² to 4.50 km² (2030) and 6.00 km² (2050). This leads to an increase in stationary energy consumption and GHG emissions of commercial sector, which points to a good potential for reduction measures to be progressively introduced towards 2030 and 2050.

PUTRAJAYA GHG EMISSIONS MODELLING

The GHG emissions modelling results are derived from AIM model and based on the recent official data and future trends in GHG emissions driving force, including population, gross domestic product (GDP), transportation and commercial floor area.

The GHG emissions in Putrajaya are projected to increase from 939 ktCO₂eq in 2010 to 2,515 ktCO₂eq under the 2030 BaU scenario and to 3,131 ktCO₂eq under the 2050 BaU scenario.

The GHG emissions from the transport sector will be about four (4) times the total as compared with year 2010 in the 2030 BaU and 2050 BaU scenario and the share will be around 35% and 57% of total GHG emissions, respectively (refer to Table 1 and Figure 3).

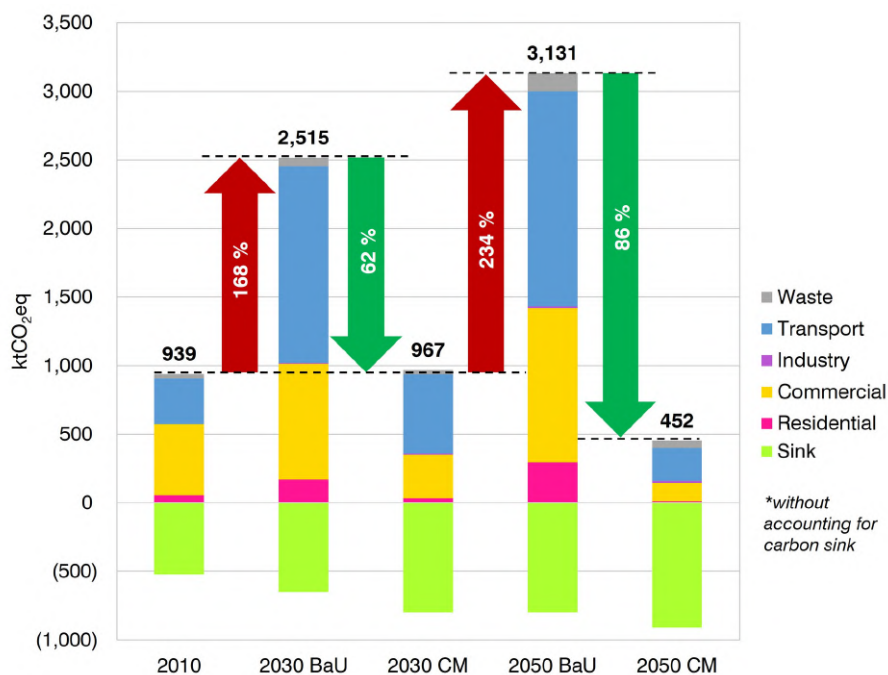
Table 1: Putrajaya GHG emissions by end-use sector 2010, 2030 and 2050 (BaU, CM)

	2010	2030 BaU	2030 CM	2050 BaU	2050 CM
Residential	56	168	31	294	10
Commercial*	516	844	319	1,125	133
Industry**	1	6	7	12	14
Transport	332	1,435	579	1,570	241
Waste	34	62	30	130	52
Sink	(523)	(650)	(799)	(799)	(911)
Total (ktCO₂eq)	939	2,515	967	3,131	452

*Includes government buildings.

**Refers to construction activities.

Figure 3: Putrajaya GHG emissions by end-use sector 2010, 2030 and 2050 (BaU, CM)



Notes:

BaU - Business As Usual

CM - Counter Measure

PUTRAJAYA CARBON NEUTRALITY PATHWAY 2050

Putrajaya can potentially reduce its GHG emissions intensity (compared to the 2010 level) by up to 79% by 2030 (equivalent to an absolute reduction of 1,549 ktCO₂eq from the BaU scenario) and 95% by 2050 (equivalent to an absolute reduction of 2,680 ktCO₂eq from the BaU scenario) (refer to Figure 4). The most significant reduction in GHG emissions in 2050 CM comes from the commercial sector compared to the 2050 BaU scenario.

Figure 4: Putrajaya GHG emissions intensity by GDP.

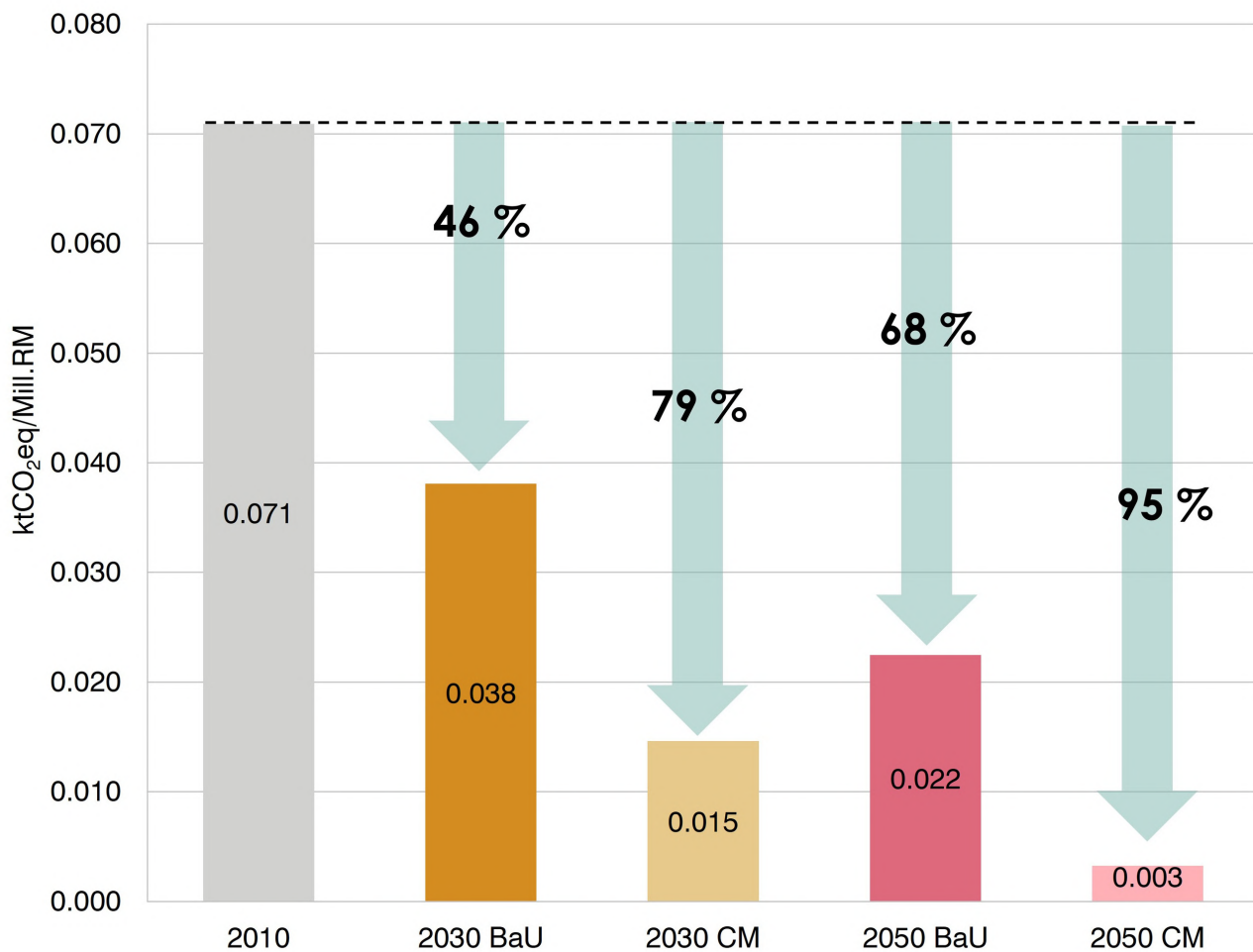
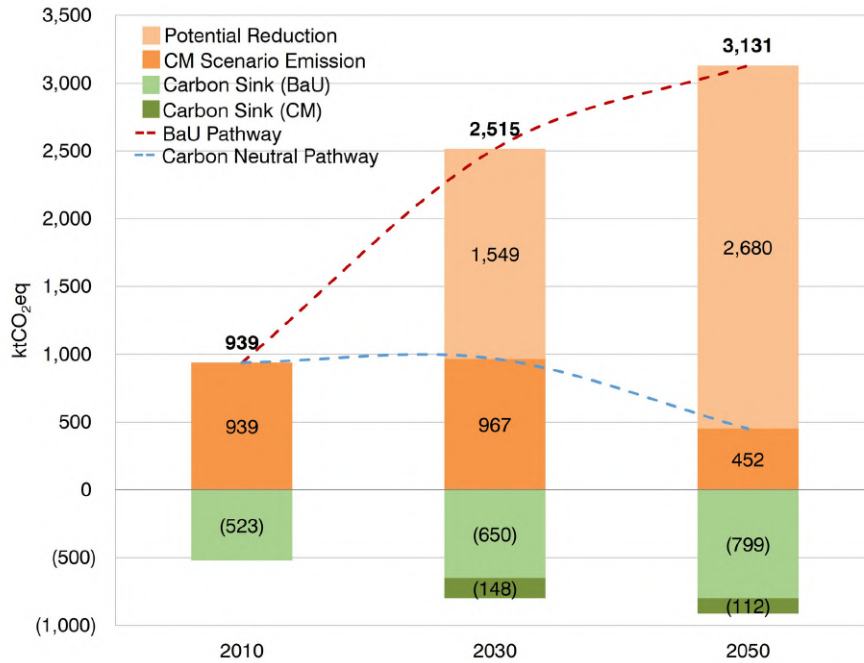


Figure 5: Putrajaya Carbon Neutrality Pathway.

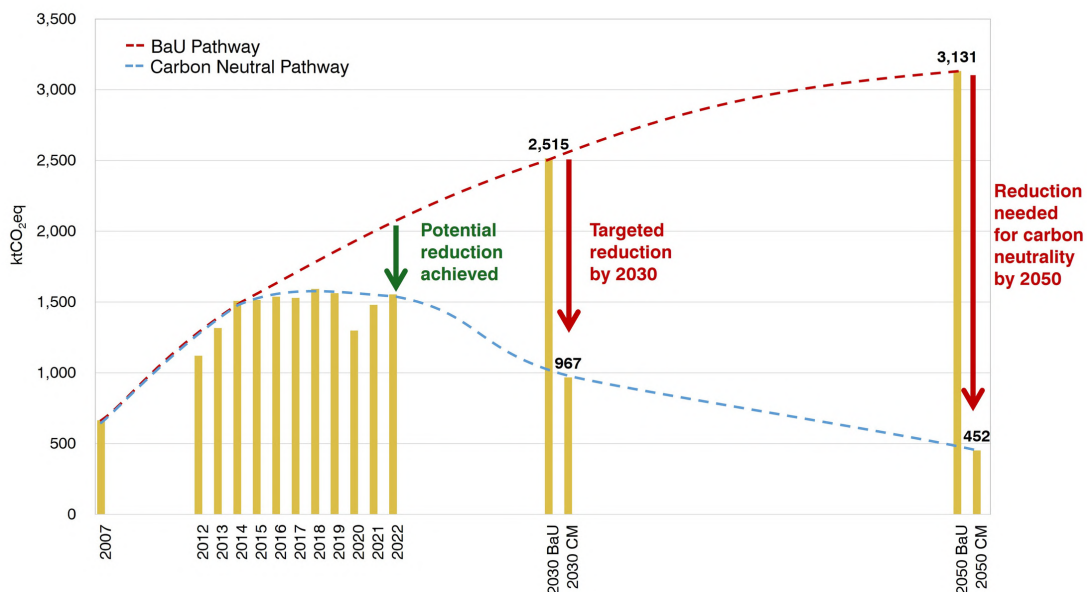


The Putrajaya Corporation sets Putrajaya on the path towards a more ambitious target to be Carbon Neutral by 2050. Hence, it is important to go beyond low carbon society by 2030 and to set a concrete pathway to achieve carbon neutrality by 2050 (refer to Figure 5).

Proper implementation are essential to enable Putrajaya to significantly contribute to Malaysia's global commitment to mitigating climate change and achieving carbon neutrality while maintaining strong economic growth.

TRACKING PUTRAJAYA'S 2012-2022 GHG EMISSIONS AGAINST 2007-2050 PROJECTIONS

Figure 6: Tracking Putrajaya's 2012-2022 GHG emissions against 2007-2050 projections.



2012-2022 emissions are actual GHG inventory using the C-ExSS tool conducted by Putrajaya Corporation.

LOW CARBON CITY TARGETS

THEME ENERGY



100%
Government office complexes with BEI below 150kWh/m²/year by 2030



15,000 MWh
Annual electricity generates from solar energy by 2030



100%
Street lighting using LED by 2030



100%
Upgrading LED lighting system at all neighbourhood center by year 2025

THEME URBAN PLANNING & BUILDING REGULATIONS



Establish Putrajaya Net Zero Carbon Building Action Plan by 2025



5 New buildings
with low energy building design by year 2030



100% New Building
Adoption of Uniform Building By Law for natural lighting and ventilation by 2025



100% New Building
Adoption of Uniform Building By Law for rainwater harvesting system by 2030

THEME MOBILITY



5%
Annual ridership increment for transit buses



Monthly
Putrajaya vehicle free zone programme at Persiaran Perdana



Electric bus
for Nadiputra Putrajaya local bus services by 2028



4 nos
Single decker city tour electric bus by 2025



100 nos
EV charging station by 2030

THEME BLUE & GREEN



400,000 nos
Trees planted
by 2025



1,376.80 ha
Gazetted open
space by 2025



220,000 nos
of aquatic
vegetations
replanted at
Putrajaya Wetland
by 2025



3,000 data
Inventory report
for park (MyBIS)
by 2025

THEME COMMUNITY



10
Urban farming
increase by year
2030



**Incentive or
rewards**
to community on low
carbon practices



100%
Zero single used plastic
by year 2030



30%
Reduction waste per capita
below national level yearly
(2019:1.17kg per capita)



2%
Increase of
recycling rate yearly

THEME CLIMATE RESILIENCE



5%
Reduce dengue episode
cases yearly



5 million litres
Water saving by
using lake water
collection yearly



1 Guideline
Establish tree
planting guideline
by 2025



1 System
Putrajaya Dam
Safety System
by 2026

IMPLEMENTATION AND MONITORING ROADMAPS

ACTIONS ON ENERGY

ACTION	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

ACTION	TIMELINE			KEY PARTNERS
	QUICK WIN	2022-2025	2022-2030	
B3 Protect cultural identity, precincts character and sense of place through sustainable urban design practices (TOD, compact development)	»»	»»	»»	Developer, Building Owners, Badan Warisan, PSP, CIDB NRES & MET Malaysia
B4 Incorporate the latest green building design and certification in development control	»»	»»	»»	Developer & Building Owners
I4 Adopt and implement safe city practices to promote active mobility and public transport		»»	»»	MIROS, Developers, Building owners, 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 MOBILITY

ACTION	TIMELINE			KEY PARTNERS
	QUICK WIN	2022-2025	2022-2030	
T1 Promote walking 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
T2 Maintain comfortable and safe pedestrian networks	»»	»»	»»	MIROS, PLANMalaysia, JKR, BPH/JPM, MOF, MOE, Government Agency & PJH
T3 Rebrand existing car Free day event into monthly active mobility program	»»	»»		Government and Private Agency, PDRM, JPJ, MIROS, MGTC & PLANMalaysia
T4 Promote a shift from private vehicles to public transport	»»	»»	»»	APAD, MIROS, MGTC & PLANMalaysia
T5 Provide more environmentally friendly public bus services by using clean and green fuel	»»		»»	PETRA, MITI, MGTC, APAD, Pulse Group, MOT, MIROS & Futurise Sdn Bhd
T6 Install digital display board for real time information on public transport		»»	»»	RAPIDBUS
T7 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 BLUE AND GREEN

ACTION	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 on 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





ACTIONS ON COMMUNITY

ACTION	TIMELINE			KEY PARTNERS
	QUICK WIN	2022-2025	2022-2030	
S1 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
S3 Expand food waste composting programme for the purpose of community farming in every residential precinct	»»		»»	Local residents, Commercial Owner, AFSB/AFES, SWCorp & NGOs
I6 Further expand waste-to-wealth program (e.g., CAREton@Putrajaya) by collaborating with other private companies	»»		»»	Local residents, NGOs, private sectors & AFSB
I7 Cultivate recycling behaviour of the public through FIKS (Fasiliti Inovasi Kitar Semula)	»»		»»	AFSB/AFES, SWCorp, Local Residents, Building Owner & JPSPN
S2 Strengthen Putrajaya Urban Farming Program (Program Pertanian Bandar 'PUF') by increasing participation and involvement of residents			»»	Local residents & Farmers
S4 Enhance community awareness on 3R, proper disposal and illegal dumping			»»	Local residents, Building Owner, Business Association, Commercial Owner, AFSB & SWCorp





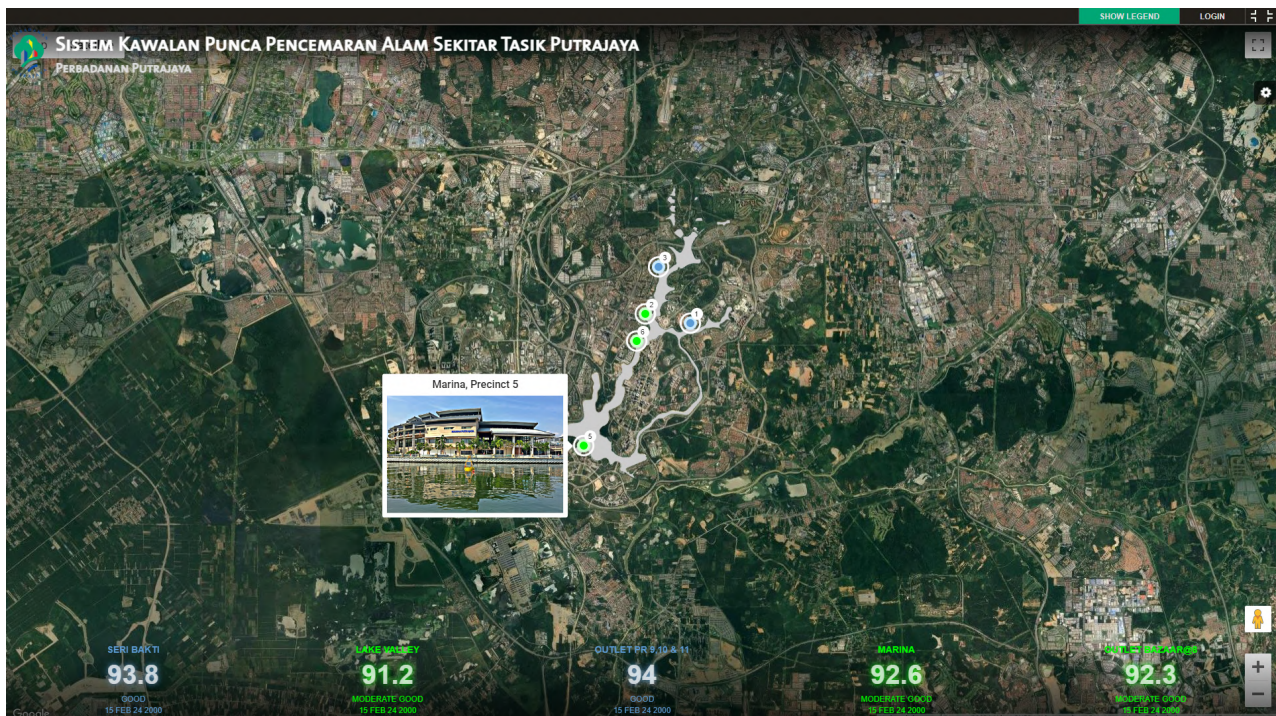
ACTIONS ON CLIMATE RESILIENCE

ACTION	TIMELINE			KEY PARTNERS
	QUICK WIN	2022-2025	2022-2030	
D1 Raise community awareness and participation on prevention of dengue	»»	»»		Local residents, NGOs, Pejabat Kesihatan WP Putrajaya & JPWPP
D5 Expand and improve monitoring systems through social media or other communication platforms to reduce outdoors activities due to heat wave	»»	»»		MKN, JPS & MET Malaysia
D6 Introduce programs or initiatives to reduce water consumption in commercial and residential areas	»»			TNB, Air Selangor, AFSB, Contractor & Developers
D7 Improve maintenance and house keeping of drainage system in Putrajaya	»»	»»		SWCORP, AFSB & Contractor



continue...

ACTION	TIMELINE			KEY PARTNERS
	QUICK WIN	2022-2025	2022-2030	
D8 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
D2 Improve Enforcement by PJC to inspect potential mosquito breeding sites			»»	Local residents, NGOs, Pejabat Kesihatan WP Putrajaya, JMB, JKR & BPH
D3 Identify potential spots and frequency of downed trees at housing and commercial areas			»»	Jabatan Landskap Negara & BPH
D4 Improve tree selection and landscape design to reduce the impact of wind		»»		Jabatan Landskap Negara



PUTRAJAYA'S PLEDGE: COMMITMENT TO GLOBAL COVENANT OF MAYORS FOR CLIMATE AND ENERGY (GCOM)



Global Covenant of Mayors for Climate & Energy

Commitment of
**PERBADANAN PUTRAJAYA
MALAYSIA**



I, **Datuk Dr. Aminuddin bin Hassim**, President of Perbadanan Putrajaya commit to the Global Covenant of Mayors for Climate & Energy, joining thousands of other cities and local governments around the world currently engaged in climate leadership.

The Global Covenant of Mayors for Climate & Energy envisions a world where committed mayors and local governments – in alliance with partners – accelerate ambitious, measurable climate and energy initiatives that lead to an inclusive, just, low-emission and climate resilient future, helping to meet and exceed the Paris Agreement objectives.

Whatever the size or location, the mayors and local leaders committed to the Global Covenant stand ready to take concrete measures with long-term impact to tackle the interconnected challenges of climate change mitigation, adaptation, and access to sustainable energy.

To implement this vision, the **Perbadanan Putrajaya** of Putrajaya, Malaysia pledges to implement policies and undertake measures to (i) reduce / limit greenhouse gas emissions, (ii) prepare for the impacts of climate change, (iii) increase access to sustainable energy, and (iv) track progress toward these objectives. Specifically, within no more than three years of this commitment, we pledge to develop, formally adopt and report on the following:

- A community-scale greenhouse gas (GHG) emission inventory;
- An assessment of climate hazards and vulnerabilities;
- Ambitious, measurable and time-bound target(s) to reduce/limit greenhouse gas emissions;
- Ambitious adaptation vision and goals, based on quantified scientific evidence when possible, to increase local resilience to climate change;
- Ambitious and just goal to improve access to sustainable energy; and
- Plan(s) to address climate change mitigation / low emission development, climate resilience and adaptation, and access to sustainable energy, including provisions for regular (annual or biennial) progress reports.

www.globalcovenantofmayors.com



The targets and action plans for mitigation / low emission development must be quantified and consistent with or exceed relevant national commitments defined through the relevant UNFCCC (Intended) Nationally Determined Contribution (NDC).

We acknowledge that there may be additional region-or country-specific commitments for us to adhere to, agreed through our local membership networks or through our direct engagement with local Global Covenant of Mayors partners.

The **Perbadanan Putrajaya of Putrajaya, Malaysia** acknowledges that continued membership in the Global Covenant of Mayors and associated local chapters or "Regional Covenants" as established, is contingent on complying with the above requirements within established timeframes.

Perbadanan Putrajaya, 21 March 2019



Datuk Dr. Aminuddin bin Hassim

PERBADANAN PUTRAJAYA

Address: Kompleks Perbadanan Putrajaya, 24, Persiaran Perdana, Presint 3, 62675 Putrajaya, Malaysia

Website: www.ppi.gov.my

Name of the Mayor: Datuk Dr. Aminuddin bin Hassim

[Name, email and phone number of the main contact person]:

TPr. Wang Tze Wee, email: wangtw@ppi.gov.my, telephone no: +603-88877180

Number of Inhabitants: 120,000 Inhabitants,

Area: 49.31 sq. kilometres

Country: Malaysia





PUTRAJAYA CORPORATION

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