



# Low-Carbon Model Town in Hang Tuah Jaya, Malaysia

TPr Rozaidi bin Mahat,

Urban Planner / Head of  
Sustainability, Hang Tuah Jaya  
Municipal Council

*on behalf of*

Datuk Shadan Othman, President of  
Hang Tuah Jaya Municipal Council,  
Melaka, Malaysia

## APEC Low-Carbon Model Town Project Wrap-up Symposium

10 September 2021

# Introduction of HANG TUAH JAYA



## HANG TUAH JAYA MUNICIPAL COUNCIL

Hang Tuah Jaya Municipal Council established under Section 3 of The Local Government Act 1976 (Act 171) as a Local Authority of Hang Tuah Jaya.



### Establishment

Officially begin the operation on 1<sup>st</sup> Januari 2010



### Area

144.6 square kilometre / 35,733.04 acres



### Population

190,529 (2018)



### Economy

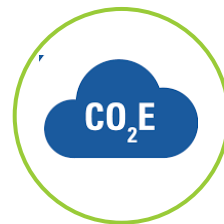
City GDP estimated at 7,897 (RM millions 2010 prices)\*



### Climate

	Current Observation	Projection for 2030	Projection for 2050
Average Annual Temperature	26.2 °C	27.1 °C (+3.3%)	27.7 °C (+5.7%)
Average Annual Rainfall	1,891 mm	1,998 mm (+5.6%)	2,068 mm (+9.4%)

Reference – Assumption Remarks: Southern Region (NC3 & BUR2, 2018, pg.87)



### GHG Inventories\*

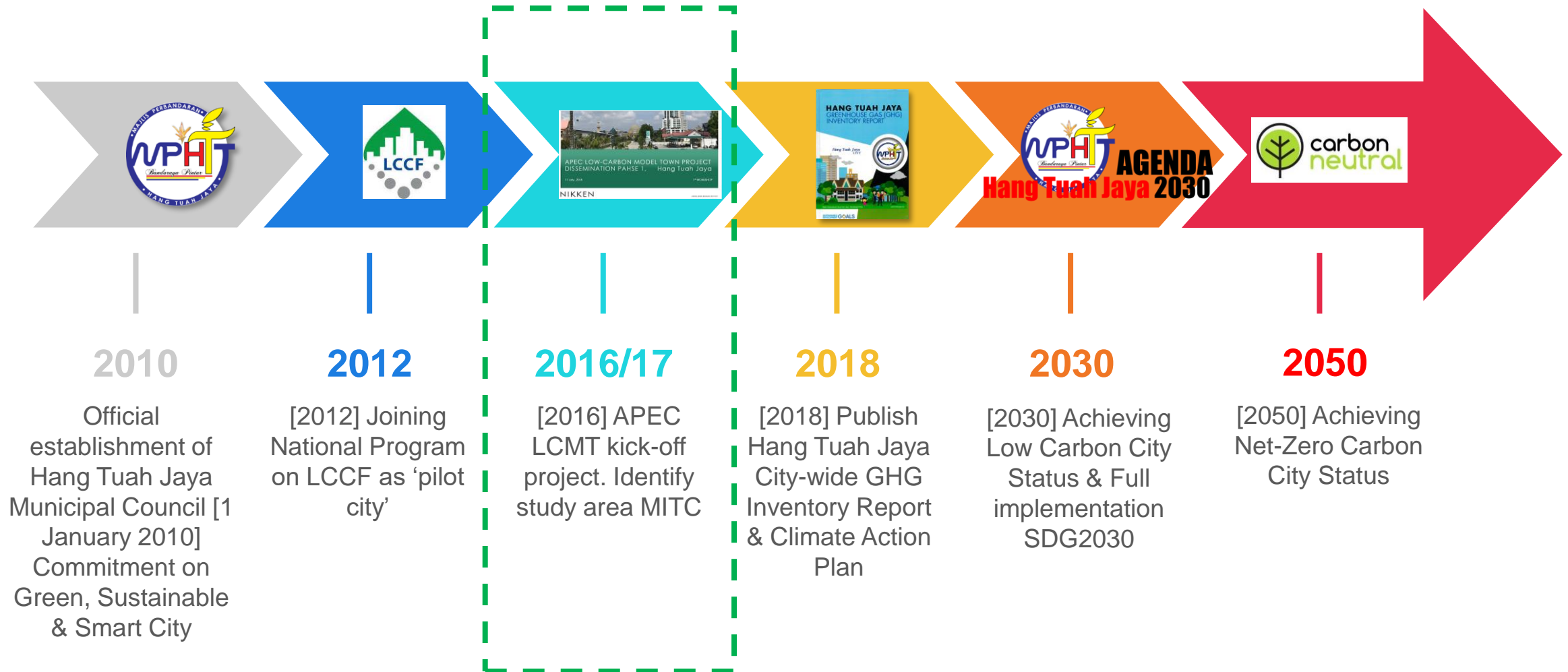
1.03 million ton CO<sub>2</sub>e

\* Reference – Hang Tuah Jaya GHG Inventory Report 2019

**Strategic Vision / Goal :**  
**'HANG TUAH JAYA LOW CARBON CITY 2030'**  
**'IMPLIMENTING SDGs 2030 AT LOCAL LEVEL'**  
**'HANG TUAH JAYA NET-ZERO CARBON CITY 2050'**

**HANG TUAH JAYA**

# Introduction of HANG TUAH JAYA



# Introduction of HANG TUAH JAYA

## Strategy towards Low Carbon City (2030) & Net-Zero Carbon City (2050)

### Mitigation Target:

“As City Manager, we committed to **reduce 665,000 tCO<sub>2</sub>e** by 2030 relatively to the BAU scenario; to achieve the level of **0.072 intensity Carbon per GDP** (reduction of 45%) to support national vision and commitment”

### MITIGATION

### Adaptation Goal:

- Reduce property damage caused by monsoon and flooding by 2030
- Reduce the number of dengue cases by 2030
- Reduce the days of water rationing caused by drought by 2030

### ADAPTATION

### Current Level / Projection / Target:

To increase green cover in the city for lowering temperature and carbon sequestration

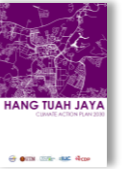
### OFF-SETTING

### Document / Report / Project / Program

Hang Tuah Jaya Greenhouse Gas Inventory Report (GHGI)



Hang Tuah Jaya Climate Action Plan (CAP) 2030



Hang Tuah Jaya Climate Risk and Vulnerability Assessment (CRVA)

APEC Low-Carbon Model Town Project Dissemination Phase 1, Hang Tuah Jaya



Hang Tuah Jaya Carbon Sequestration Report



# Low-Carbon Model Development in HANG TUAH JAYA

- Sectors where low-carbon policies or actions were applied & timeline



## Buildings

### Tier 1: Demand

All new development within the area to apply Green Building Rating (volunteer basis)

Adoption of Malaysia Standard (MS) 1525:2019 (Mac 2020)

Green incentive on green construction & development



## Transportation

### Tier 1: Demand

Apps for Smart Parking Hang Tuah Jaya (2018)

Introduction 'Green Bus Network Corridor' (under study – GFCP)

Incentive and parking rebate for EV (2018)

Mobility as a Service (MaaS) – e-hailing



## Area Energy System

### Tier 1: Supply

Smart Grid program (2019)

District Cooling System (DCS) project in MITC area (preliminary stage)



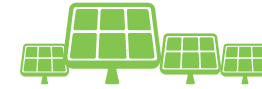
## Education & Management

Community awareness on mitigation and adaptation

Special program on Low Carbon Eco-Schools and Green Ambassador

Climate financing and Budgeting

### Tier 1: Governance



## Renewable Energy

### Tier 1: Supply

Decarbonized Community program. To encourage community to apply solar panel installation through Net Energy Metering Program (on going project)

Completion of 2 solar farm project (private initiatives) with total capacity 58 MW (2019)

Policy on investment and developing solar farm



## Policy Framework

### Tier 1: Governance

High level commitment on achieving Low Carbon City Status by 2030 and Net Zero Carbon City by 2050

Integration and link-up with National commitment on GHG reduction and environmental protection

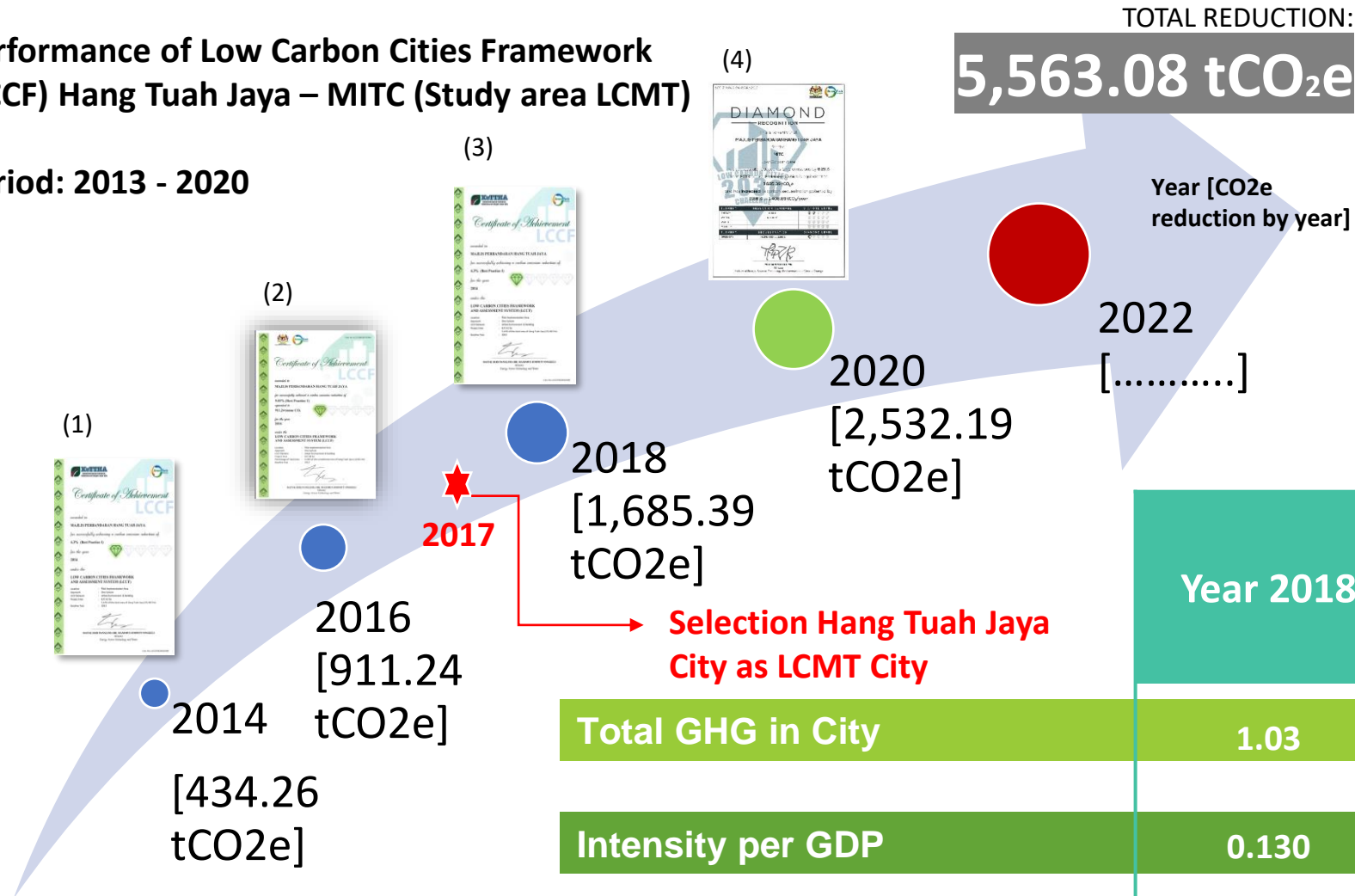


Low Carbon Town Indicator (LCT-I)

# CO<sub>2</sub> reduction results and roadmap

## Performance of Low Carbon Cities Framework (LCCF) Hang Tuah Jaya – MITC (Study area LCMT)

Period: 2013 - 2020



(1) (2) (3) (4): Recognition Certificate on achievement in National Program called Low Carbon Cities Framework (LCCF) Malaysia

\* BAU = Business as usual  
\*\* CM = Counter measures

## Green Growth Hang Tuah Jaya

Item	Trend (Increase / Decrease)	Explanation Factor
Gross Domestic Product (GDP)	Increase	Economy driven by city
Population	Increase	Natural growth
Carbon Emission / GHG	Increase (with control) Lower than Business As Usual (BAU)	Due to increase population, lifestyle and demand
Carbon Intensity (per GDP / per Capita)	Decrease (due to high GDP and lower Carbon Emission / footprint)	* More business opportunity. Example: Shifting to clean energy (solar panel)

	Year 2018	Year 2030 [BAU]*	Year 2030 [CM]**
Total GHG in City	1.03	1.52	0.86
Intensity per GDP	0.130	0.127	0.072
Intensity per Capita	5.41	6.39	3.61

City Roadmap GHG Year 2030

# Notable achievements

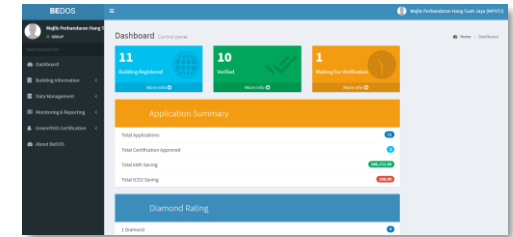
## Building Energy Online Data Monitoring System



*“Building Energy Online Data Monitoring (BEDOS)” System is a system designed to monitor the energy usage by consumer/building owner. Energy consumer/building owner will be able to publish their energy consumption by this system.*

*BEDOS able to provide historical energy consumption data display and analyze the data to provide energy report. Apart from energy consumption, it is also allow users to establish energy baselines and trace energy saving performance to help consumer manage energy usage.*

*Municipal has encouraged all building in city area to install the system through some financial assistance. The system will directly serve the reporting for GHG inventory*



Screenshot of Hang Tuah Jaya Office Building Energy Consumption on 19 July 2020  
<http://ivis.wapps.my/login.asp>

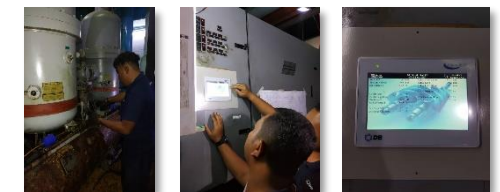
## Rainwater Harvesting Project for Schools in Hang Tuah Jaya

Hang Tuah Jaya Low Carbon Eco Schools Program has launched the project to support the implementation to reduce the water usage at the schools building. Some financial assistance was provided to all the school within the city area. The project contribute some of reduction carbon footprint and efficient water management. Also focus on awareness among students as future investment.



## Energy Audit Report Implimentation

Retrofit high efficiency chiller no 1 and no 3: Upgrade controller and displayed from NC25-4 to Vision 2020i Touchscreen. Upgrade refrigerant control from modulator motor to electric expansion valve



## Smart Grid Project Melaka (Hang Tuah Jaya)



Launching ceremony for Smart Grid Demonstration Project on 15 September 2020

*Melaka is one of the pioneer states in the country to debut smart grid technology with an aim to spearhead its high-tech city concept. Melaka was among 28 cities from 11 countries worldwide to be chosen for the smart grid demonstration project.*

*The project is under the initiative of the Global Environment Facility (GEF) and the United Nations Industrial Development Organisation has been appointed as global project manager*

*The implementation of the project comes under the purview of Housing and Local Government Ministry as well as Malaysian Industry-Government Group for High Technology (MIGHT).*

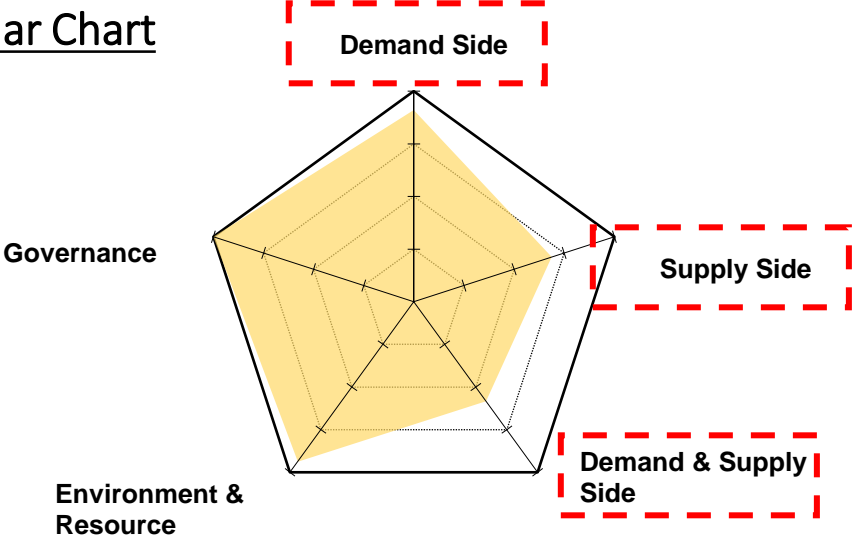
*This five-year-long project aims to make Melaka a sustainable city through methods of reducing greenhouse emissions and boosting renewable energy.*

*“MIGHT showed their appreciations to the technology contributors in Melaka that allowed their technologies to be integrated with this smart grid demonstration project i.e. large-scale solar farm, EV charging system, BEMS, AMI, solar thermal system etc. All four municipals in Melaka had agreed to become the technology contributors and lead the initiatives in Melaka. They were Majlis Bandaraya Melaka Bersejarah (MBMB), Majlis Perbandaran Alor Gajah (MPAG), Majlis Perbandaran Jasin (MPJ) and Majlis Perbandaran Hang Tuah Jaya (MPHTJ). Other contributors come from various types of background i.e. state GLCs, industries and universities”*

<https://www.thestar.com.my/news/nation/2020/09/15/melaka-to-debut-smart-grid-technology-as-part-of-global-project-says-mb>

# Self-assessment results by LCT-I system

LCT-I Radar Chart



To focus on 3 aspect on Tier 1 (demand side, supply side and demand & supply side) and maintain / enhance the performance for governance and environment & resource

## Current Status

As result from LCMT study, Hang Tuah Jaya focus on building sector and transport sector for GHG reduction.

### Current project / program:

De-carbonize community program, solar installation, energy monitoring, mobility as a service project MaaS (e-hailing, food delivery service, etc. & greenery (carbon sequestration)

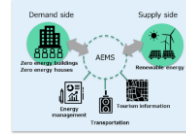
## Challenges

Hang Tuah Jaya put an efforts on capacity building to all the stakeholders and community as a continuous learning process and increase understanding. Limitation on implementation of large-scale project due to the availability of funding available. Actively to promote the green growth as one of the main indicator and game-changer for the city



# Future plan

1 Put priority on specific target for Hang Tuah Jaya based on LCMT recommendation



2 Focus on energy management part and integration with Sustainable Development Goals (SDGs) 2030



- SDG 7: Clean Energy
- SDG 13: Climate Action

3 Looking forward for additional support from APEC for implementation stage. Establish networking with other participants city



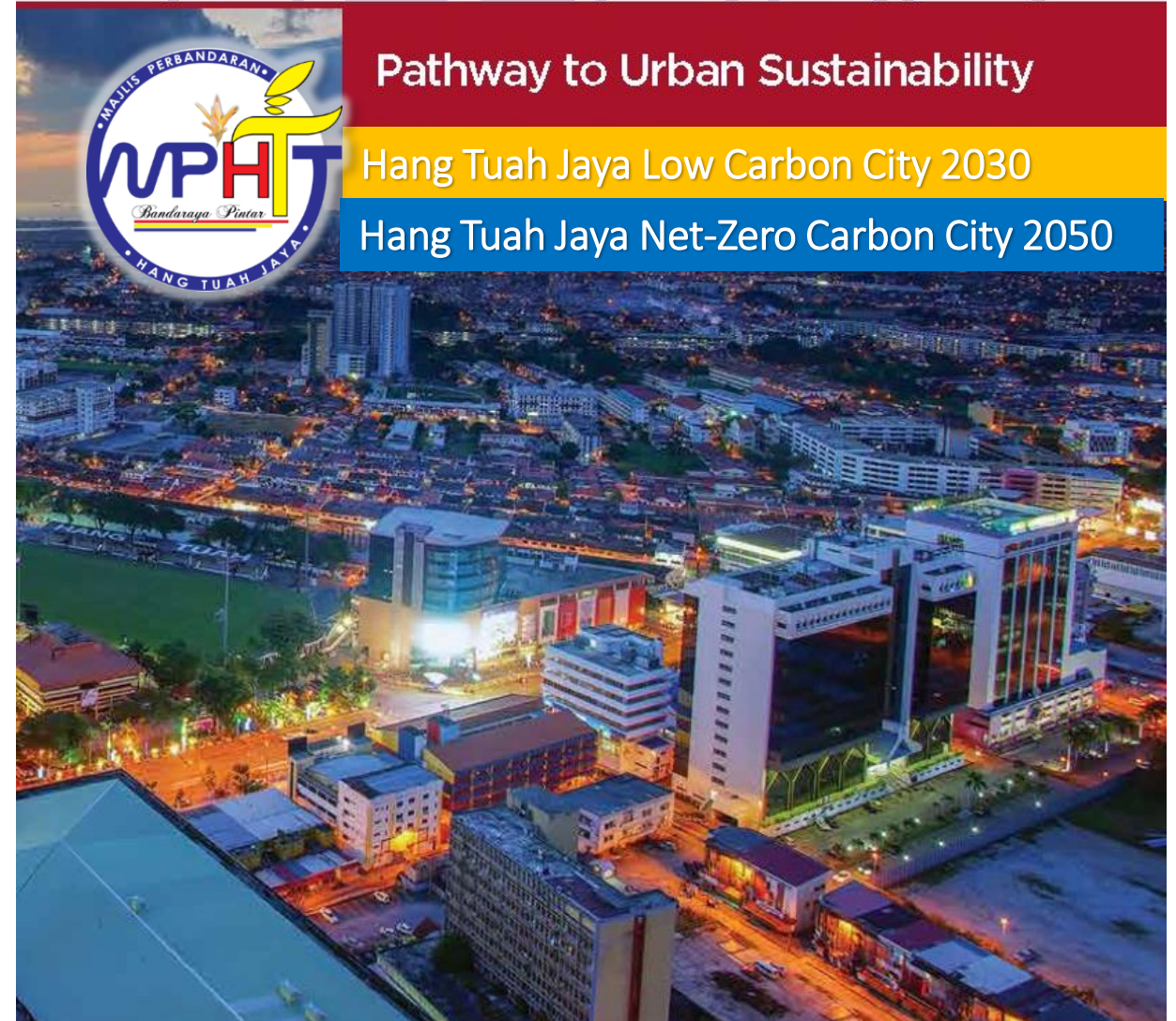
4 Apply for international funding / investment



5 Consider for post pandemic COVID-19



# MELAKA





# Low-Carbon Model Town: MITC, Ayer Keroh, Hang Tuah Jaya, Melaka





TPr Rozaidi bin Mahat  
rozaidi@mphtj.gov.my  
Urban Planner / Head of Sustainability  
Hang Tuah Jaya City, Melaka, Malaysia



**1st APEC Low-Carbon Model Town Symposium  
14-15 September 2017, Jakarta, Indonesia**

**Thank you for your attention !**