INTRODUCTION TO LOW CARBON CITIES PLANNING

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Low Carbon Cities

There is no universally applicable definition of a low-carbon city.
DEFINITION OF LOW CARBON CITIES

Cities and towns that pursue a SYSTEMATIC PROCESS to achieve ambitious GHG emission reductions
- NLCCM (draft) MESTECC, 2019

A community “that PURSUES A SYSTEMATIC PROCESS to achieve GHG emission reductions”. - World Wildlife Fund

LOW-EMISSION DEVELOPMENT STRATEGIES (LEDS) are generally used to describe forward-looking national economic development plans or strategies that encompass low-emission.
- WORLD BANK, 2014

It pursues a step-by-step approach towards carbon neutrality, urban resilience and energy security, supporting an active green economy and stable green infrastructure.
- ICLEI and C40 Cities

A city’s ability to take effective action on MITIGATING CLIMATE CHANGE, AND MONITOR PROGRESS, depends on having access to GOOD QUALITY DATA on GHG emissions.
- ICLEI and C40 Cities

A city that comprises of SOCIETIES THAT CONSUME SUSTAINABLE GREEN TECHNOLOGY, GREEN PRACTICES AND Emit RELATIVELY LOW CARBON or GHG as compared with present day.
- PLANMalaysia, 2010

LOW CARBON CITIES DEFINITION OF
FEATURES OF LOW CARBON CITIES

Green Economy

Green Infrastructure

Low-emission development

Green Practices

Sustainable green technology

GHG Inventory

Source: NLCCM (draft) MESTECC, 2019; WORLD BANK, 2014; World Wildlife Fund; ICLEI and C40 Cities; PLANMalaysia, 2010
**Types of Green House Gaseous**

- **Carbon Dioxide (CO₂)**: 53%
  - Released through natural processes such as respiration and volcano eruptions and through human activities such as deforestation, land use changes, and burning fossil fuels.
  - NASA

- **Methane (CH₄)**: 15%

- **Nitrous Oxide (N₂O)**

- **Hydro Fluorocarbons (HFCs)**

- **Chlorofluorocarbons (CFCs)**

- **Water Vapor (H₂O)**

- **Sulfur Hexafluoride (SF₆)**

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**CARBON EMISSION**

**ABSOLUTE BASED CALCULATION**
Refer to the total quantity of greenhouse gas emissions being emitted.

**INTENSITY BASED CALCULATION**
Refer to the volume of emissions per unit of GDP (economic output).

50,901.32 tonne CO$_2$

Reduction of carbon emission intensity to 45% per GDP by 2030, as compared to 2005 levels.

**Eg:**

SHAH ALAM

**Calculation based on scale and sector.**
WHY CALCULATE CARBON

To establish baseline year emissions
To identify emission sources and reduction opportunities
To set target
To track progress and benchmarking
To develop action plans

Low-Carbon Planning Cycle

Base Year Emission
Scenario Analysis
Target Setting
Action Plan
Implementation
WHY LOW CARBON CITY PLANNING

CITIES CONSUME 75% OF THE WORLD NATURAL RESOURCES and account for 80% OF GLOBAL GREENHOUSE GAS EMISSIONS - UNITED NATION -

THE MAIN SOURCES OF THE EMISSIONS

- Energy (Electricity Consumption),
- Mobility (Vehicles),
- Waste (Municipal Solid Waste That Ends Up In Landfills)

Source: BP Statistical Review of World Energy 2019
EMISSION LEVEL

Malaysia
8.13 mt/capita (2014)
Ranked 33rd emitter in the world rank (2016)

Singapore
10.31 mt/capita (2014)
Ranked 20th contributor in the world rank (2016)

Indonesia
1.82 mt/capita (2014)
Ranked 113th emitter in the world rank (2016)

Source: Carbon Dioxide Information Analysis Center, Environmental Sciences Division, Oak Ridge National Laboratory, Tennessee, United States.
Commitment
Malaysia, State and Local Commitments
Malaysia Commitment Emission of Intensity Carbon


2011: COP 21, Paris – Pengurangan karbon 45% menjelang 2030

2014: MALAYSIA umum pengurangan 33% pembebasan karbon, United Nation Climate Summit, NEW YORK 2014

2015: Senarai Semak LCCF DI Perkenalkan

2017: COP 23, BONN - Malaysia lapor komitmen masih “on track” untuk mencapai komitmen COP21

2019: GTALCC – GREEN TECHNOLOGY APPLICATION FOR LOW CARBON CITIES
COMMITMENTS BY MALAYSIA AND STATES

Selangor

Johor

Melaka

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COMMITMENTS AT LOCAL LEVEL

MAJLIS BANDARAYA SHAH ALAM

SHAH ALAM BANDAR RAYA MAMPAN

"PENMBANGUNAN YANG MEMbolehkan GENERASI SEMASA MEMenuhi keperluannya TAMPAH MENGHIDUPKANAN KEMAMPUAN GENERASI MENARUH MEMenuhi keperluannya NERUSA" - Suruhanjaya Dunia mengenai Alam Sekitar dan Pembangunan

(Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.)
ADVANTAGES OF LOW CARBON CITY PLANNING

- Mitigate Climate Change
- Optimum Use of Energy
- Achieve Sustainable Economy
- Efficient and Systematic Management Structure
- Improve Economic Status
- Improve Quality of Life

Environment (ENV) - Community (COM) - Economy (EC)
Low Carbon Cities Framework

Low Carbon Cities Framework (LCCF) aims to provide guidance for Local Authorities, universities and any other regions on how to transform their cities into low carbon cities.
## VARIOUS TYPES OF CARBON ASSESSMENT TOOLS

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OVERVIEW OF LOW CARBON CITIES FRAMEWORK

LCCF VERSION 1
Date Launch: SEPTEMBER 2011

LCCF VERSION 2
Date Launch: October 2017

DEVELOPER
Serves as a guide to uses on pertinent areas (elements) that contributes to the reduction of GHG emission. It comprises 4 key elements, 15 criteria and 41 sub-criteria. This information would help the user identify areas in which they could target an overall carbon reduction.

**FRAMEWORK**

**PART 01**

**LOW CARBON CITIES FRAMEWORK**

**ASSESSMENT SYSTEM**

An in built carbon calculator will help a user determine their current baseline. The user will then apply the various strategies recommended in the framework to achieve a reduction level.
PART ONE: FRAMEWORK

4 Elements

15 Performance Criteria

41 Sub Criteria

ELEMENTS

UE Urban Environment

UI Urban Infrastructure

UT Urban Transportation

B Building

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PERFORMANCE CRITERIA

**UE Urban Environment**
- UE 1 - Site selection
- UE 2 - Urban form
- UE 3 - Urban greenery & environmental quality

**UI Urban Infrastructure**
- UI 1 - Infrastructure provision
- UI 2 - Waste
- UI 3 - Energy
- UI 4 - Waste management

**UT Urban Transportation**
- UT 1 - Reduction use of private transportation on urban road network
- UT 2 - Increase in public transport
- UT 3 - Mode shift from private to public transport and non-motorised transport
- UT 4 - Use of low carbon transport
- UT 5 - Improvement to level of service of road links and junctions
- UT 6 - Utilization of transit oriented development approach

**B Building**
- B 1 - Sustainable energy management system
- B 2 - Low carbon building

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PART TWO: ASSESSMENT SYSTEM

LCCF Checklist

- TO SHOW COMMITMENT

LCCF Track

- TO MEASURE CARBON EMISSION