



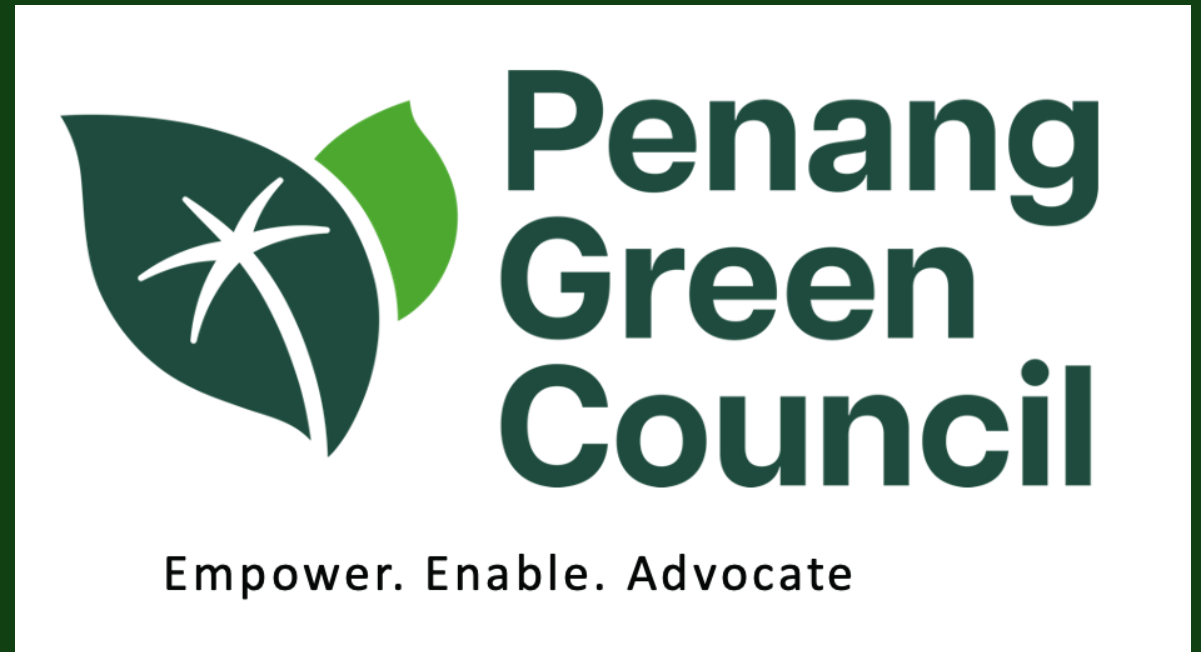
# Building a Sustainable E&E Sector for a Greener Penang

Dr Ng Shin Wei

Penang Green Council

27 February 2025

- Established in 2011
- by Penang State Government
- A social profit company
- Nurtures, facilitates and co-ordinates environmental causes in Penang



# VISION

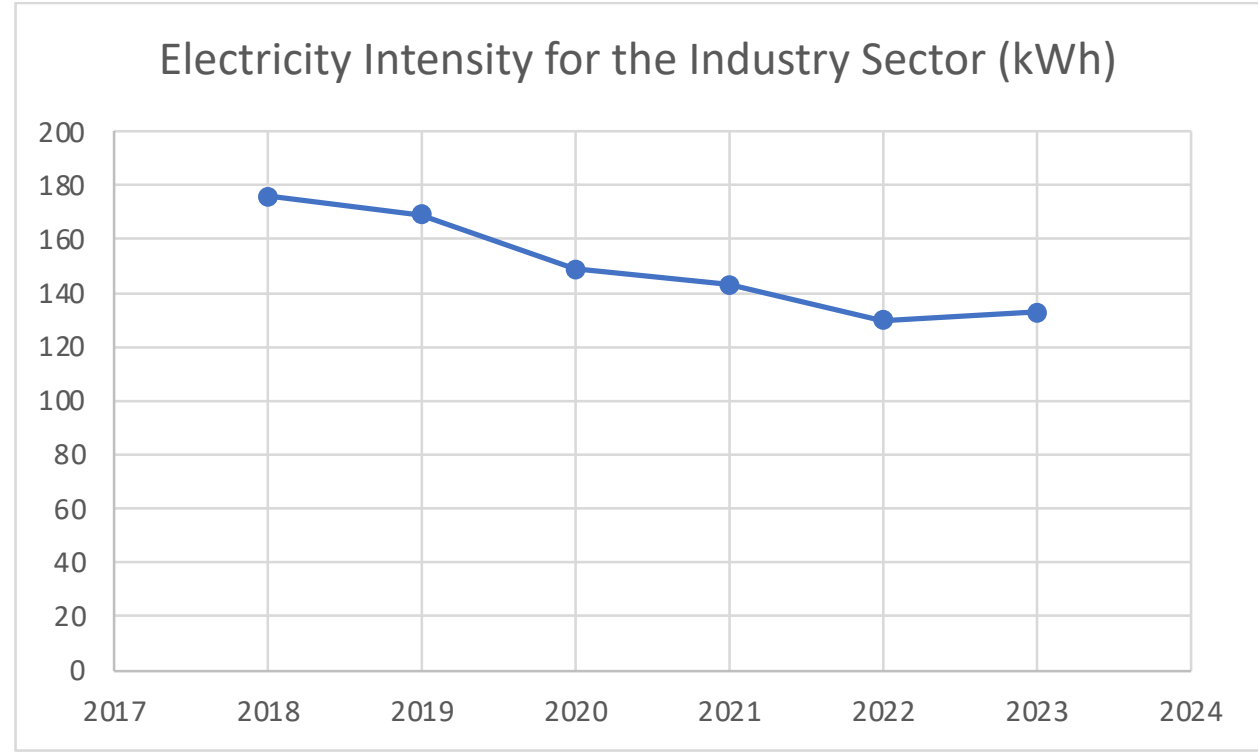
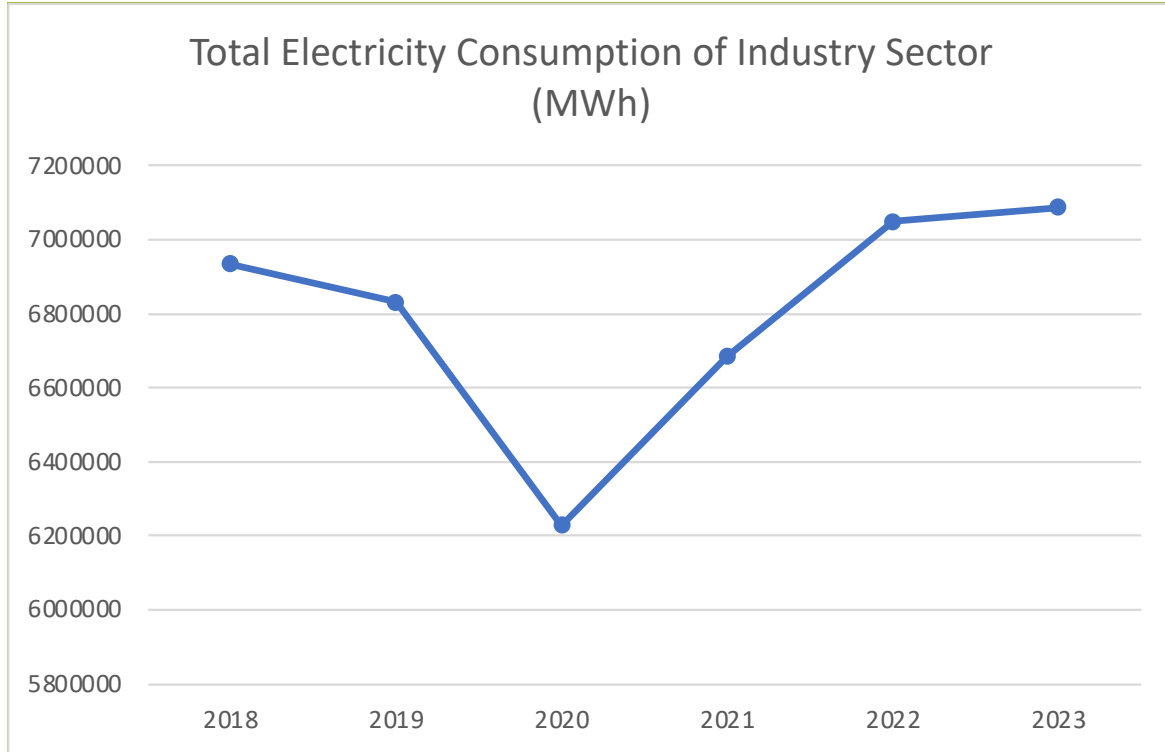
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PGC as a central hub in  
shaping a green and  
sustainable future of  
Penang

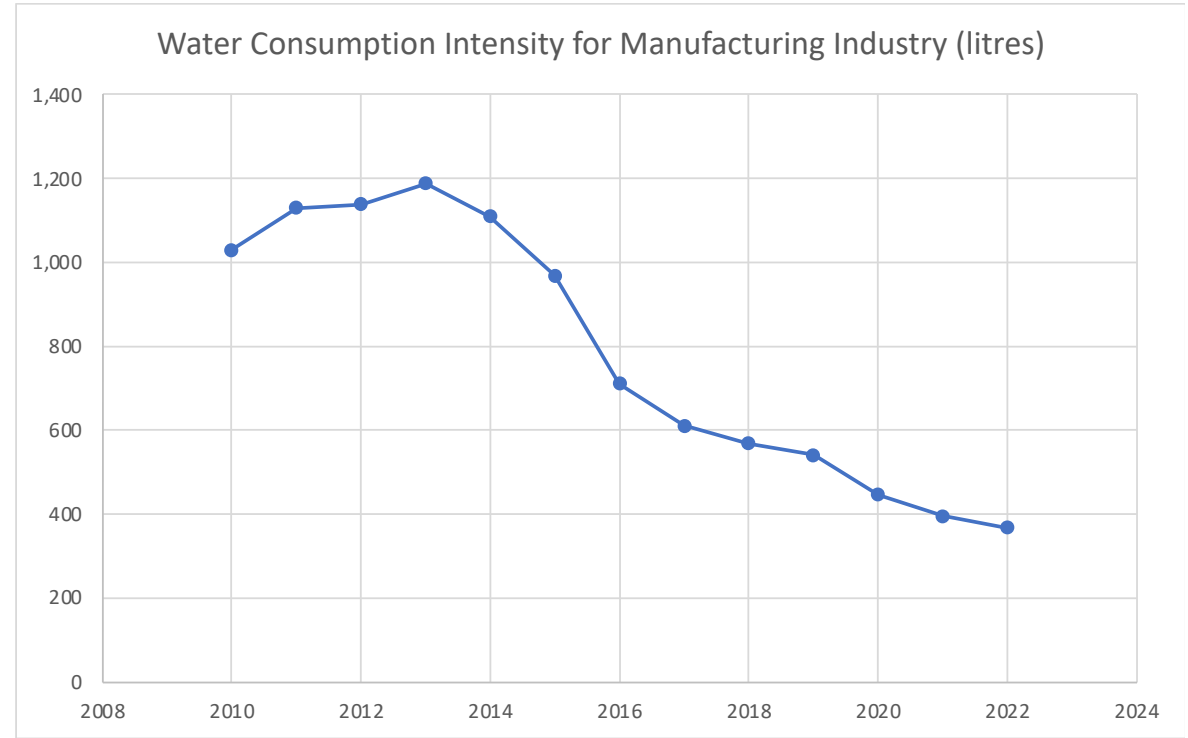
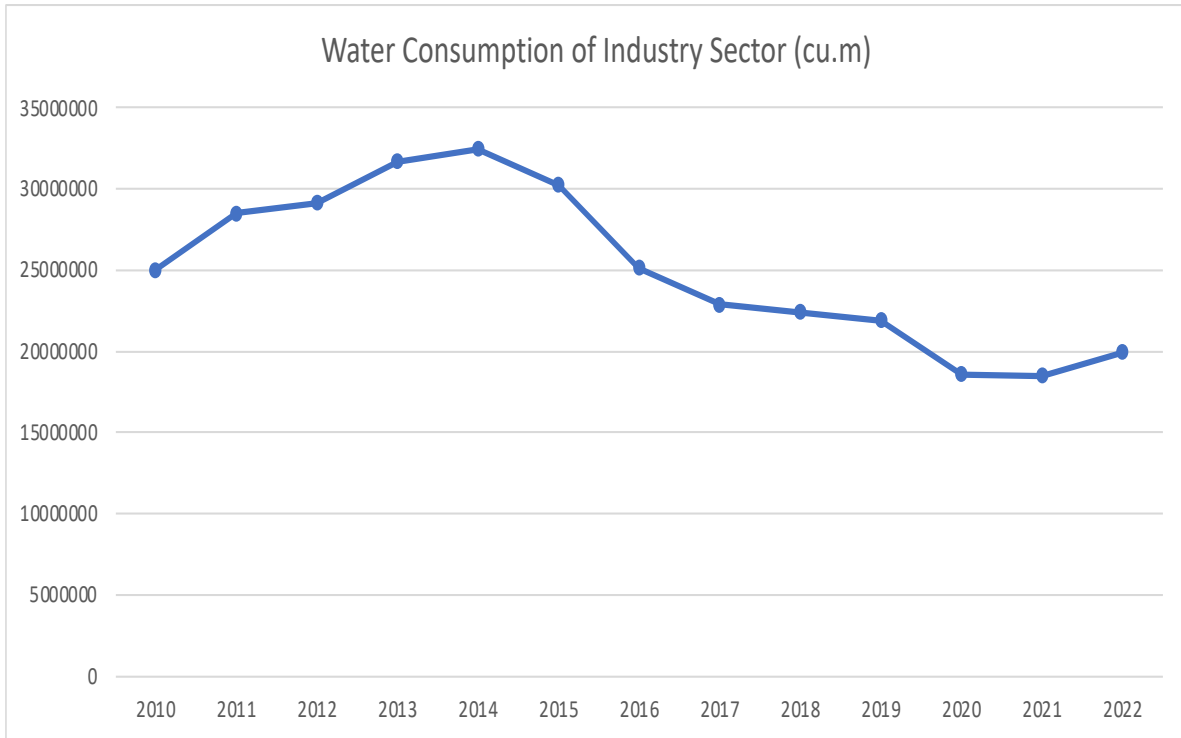
# MISSION

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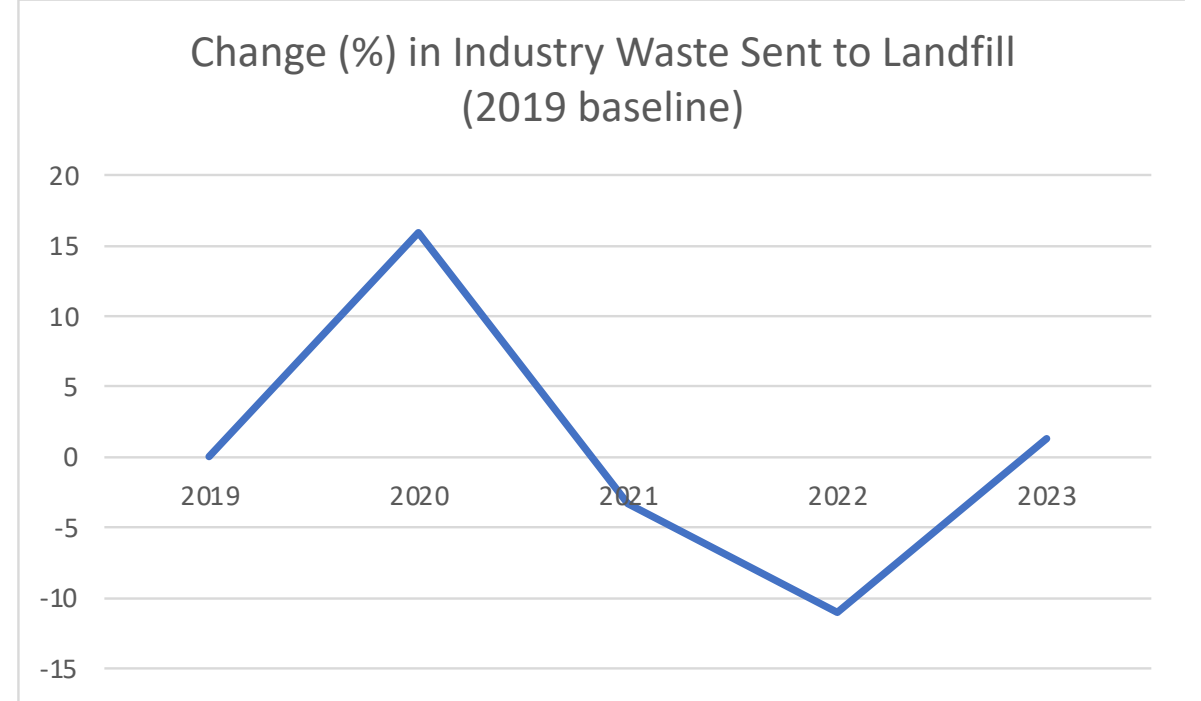
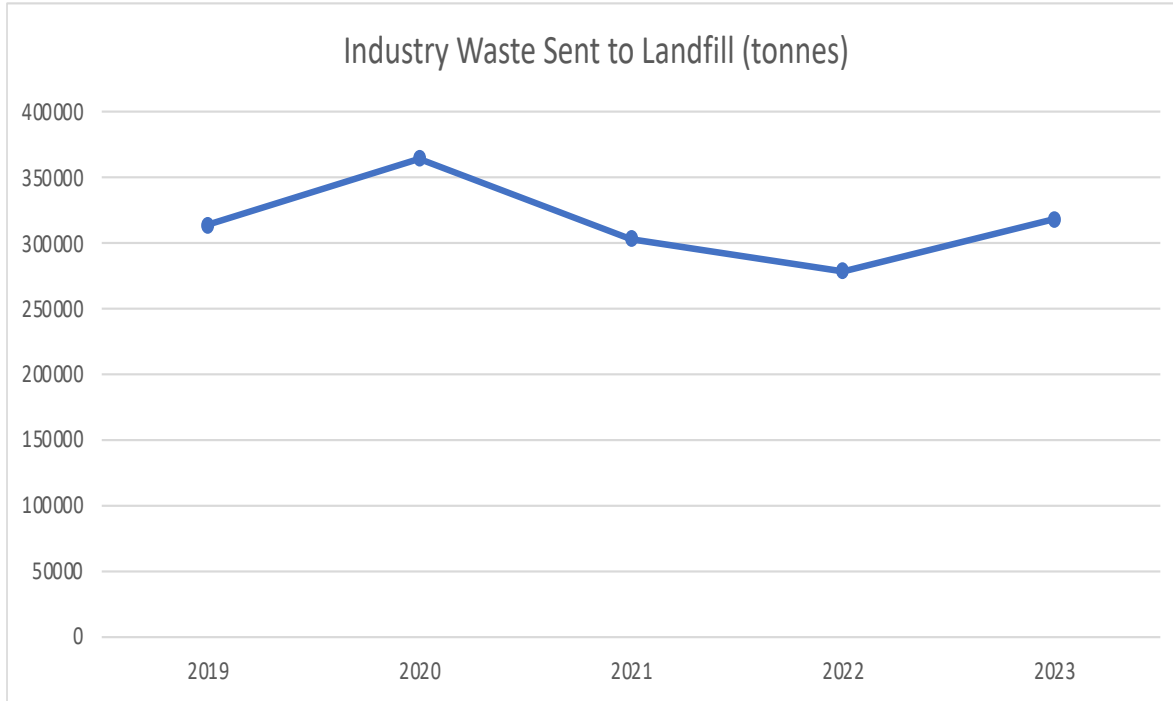
To enable, empower and  
advocate all stakeholders to  
adopt & promote  
sustainable development  
that protects the  
environment and quality of  
life



## Total Electricity Consumption and Electricity Intensity of Penang's Industry Sector (2019-2023)



## Total Water Consumption and Water Consumption Intensity of Penang's Industry Sector (2010-2022)



# Total and Changes in Industry Waste Sent to Landfill (2019-2023)

# Penang Green Industry Programme (PGIP)

Platform for Partnership and Capacity  
Development



# Penang Green Industry Programme



## Objectives

- Reduce environmental impact of production & consumption within the manufacturing sector
  - Improve productivity, environmental performance & competitiveness
  - Transform Penang into Green Manufacturing Hub
- 

## Outcomes

- Tangible reduction in energy, waste & water footprint.
- Collaboration between government & private sector
- Effective partnership between SMEs & MNCs in promoting greener production
- Increase uptake in ESG & CE among those involved.

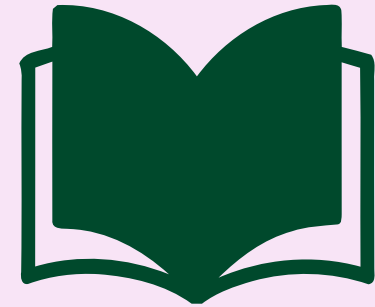
# EXECUTION MECHANISM



PLATFORM  
ESTABLISHMENT

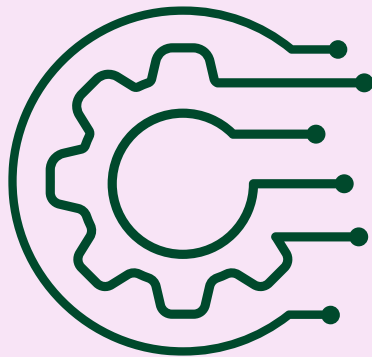


PARTNERSHIP  
PROGRAMME



CAPACITY BUILDING  
PROGRAMME

# SUPPORTING ECOSYSTEM



## GREEN TECHNOLOGY

Network of green technology  
companies and solution  
providers



## GREEN FINANCE

Network of investors and  
financiers

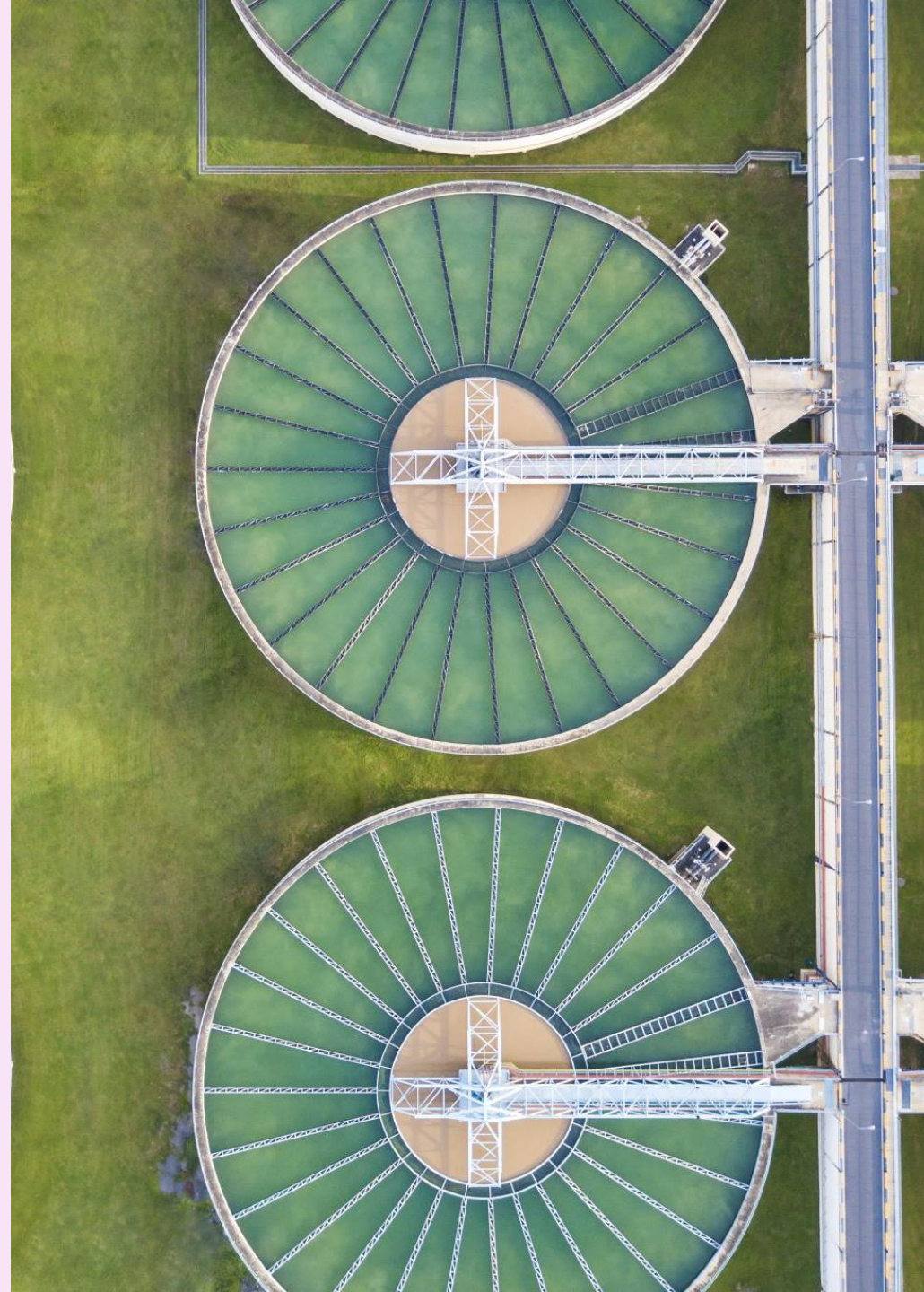


## EXPERT PLATFORM

Network of experts

# Penang Green Manufacturing Hub 2030

- Turn Penang into a “Preferred Investment Destination” by creating the ecosystem and infrastructure for “sustainable production and consumption” (SDG 12)
- Work begins this year and will be completed in Q4 of 2025
- Studies will look into the following (not exclusively):
  - More stringent standards on resource use (energy, water, raw materials etc) and waste generation/disposal
  - Green building requirements
  - Centralised infrastructure e.g. district cooling, renewable energy, water treatment etc
  - Circular economy industrial park (redistribution and reuse/recycling of “wastes” within the zone)
  - AI Centre of Excellence targeting SMEs
  - Talent and skill development



# Penang Climate Mitigation Fund (CM Fund)

- A public-private revolving fund aims at promoting green transition of the industry sector.
- Work also begins this year and is expected to be completed Q4 of 2025.
- A platform to leverage financing sources and aggregating financing demand that emphasizes efficient disbursement and transparent operation.
- Funding sources: seed fund from the Penang State Government with potential sources from international entities, financial sector players like banks, co-funding etc
- First phase will target **medium to large SMEs in the E&E sector on energy projects.**



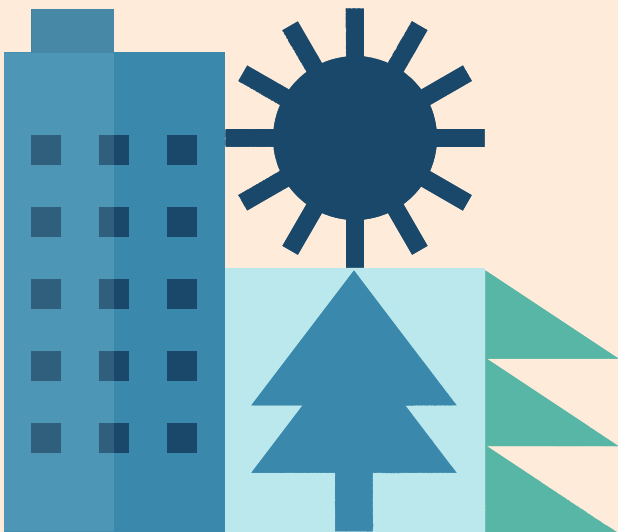
# Penang Energy Framework

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- Objectives**
- Increase RE & EE uptake in Penang through an effective & implementable framework
  - Include necessary regulation/by-laws, incentive & assistance package along with industry/sectoral policy.

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**Background.** The Taskforce formed in June 2020 discussed the scope of the work, challenges and opportunities, as well as recommendations to advance RE and EE in Penang.

- The findings of the report are based on Taskforce meetings and direct interviews with 17 government and non-governmental stakeholders including business associations and professional bodies.



## Penang Energy Framework

The Malaysian government launched the National Energy Transition Roadmap (NETR) to facilitate the transition of the energy sector towards net zero emission by 2050. To help achieve this target, the State Government of Penang set up the Penang Renewable Energy and Energy Efficiency Taskforce (PREET), and introduced RE and EE targets and Action Plan.

RE target of  
**10%**  
by 2030

Reduction of Energy Intensity (Electricity) of  
**25%** by 2030

- Targeting public buildings for the first phase.

### RE & EE in Public Buildings by 2025

Public buildings should be assessed for and to take action to increase RE&EE if deemed suitable:

- All eligible\* NEW\*\* public buildings need to source at least 5% of total energy generated from RE.
- All eligible EXISTING public buildings should strive to source 5% of total energy generated from RE.

\*Meet the criteria set by SED4 for rooftop solar installation

\*\*NEW buildings are buildings at the design stage by the Architect / Principal Submitting Person (PSP) before obtaining the approval of the Local Authority



### NEW Stand-Alone Commercial and Industrial Buildings by 2025

Group	RE Usage	Roof Installation
Group 1: Low Voltage	25% usage of RE	75% of roof installation (solar)
Group 2: Medium Voltage	5% usage of RE	75% of roof installation (solar)
Group 3: High Voltage	2% usage of RE	75% of roof installation (solar)

- All NEW commercial buildings with air-conditioned space exceeding 4,000m<sup>2</sup> to source at least 2% of total energy generated from RE.

### All new buildings need to achieve Building Energy Intensity (BEI) by 2025

- Office Buildings - BEI of 150
- Retail - BEI of 240
- Hotels - BEI of 200 (1-3 stars) and BEI of 290 (4-5 stars)
- Hospitals - BEI of 200 (limited clinical services) and BEI of 290 (major clinical services)

### Annual BEI reporting (Non-Residential Buildings)

- Voluntary submission from 2025
- Mandatory submission from 2026

### Update Uniform Building By-Law Clause 38(A) E

- Ensure MS1525 requirements are applicable to ALL new buildings including residential buildings.

### Penang Building Energy Rating Scheme

- Launch a Penang Building Energy Rating Scheme.

By 2030, targets for NEW buildings should be  
**75%** of the 2025 targets





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