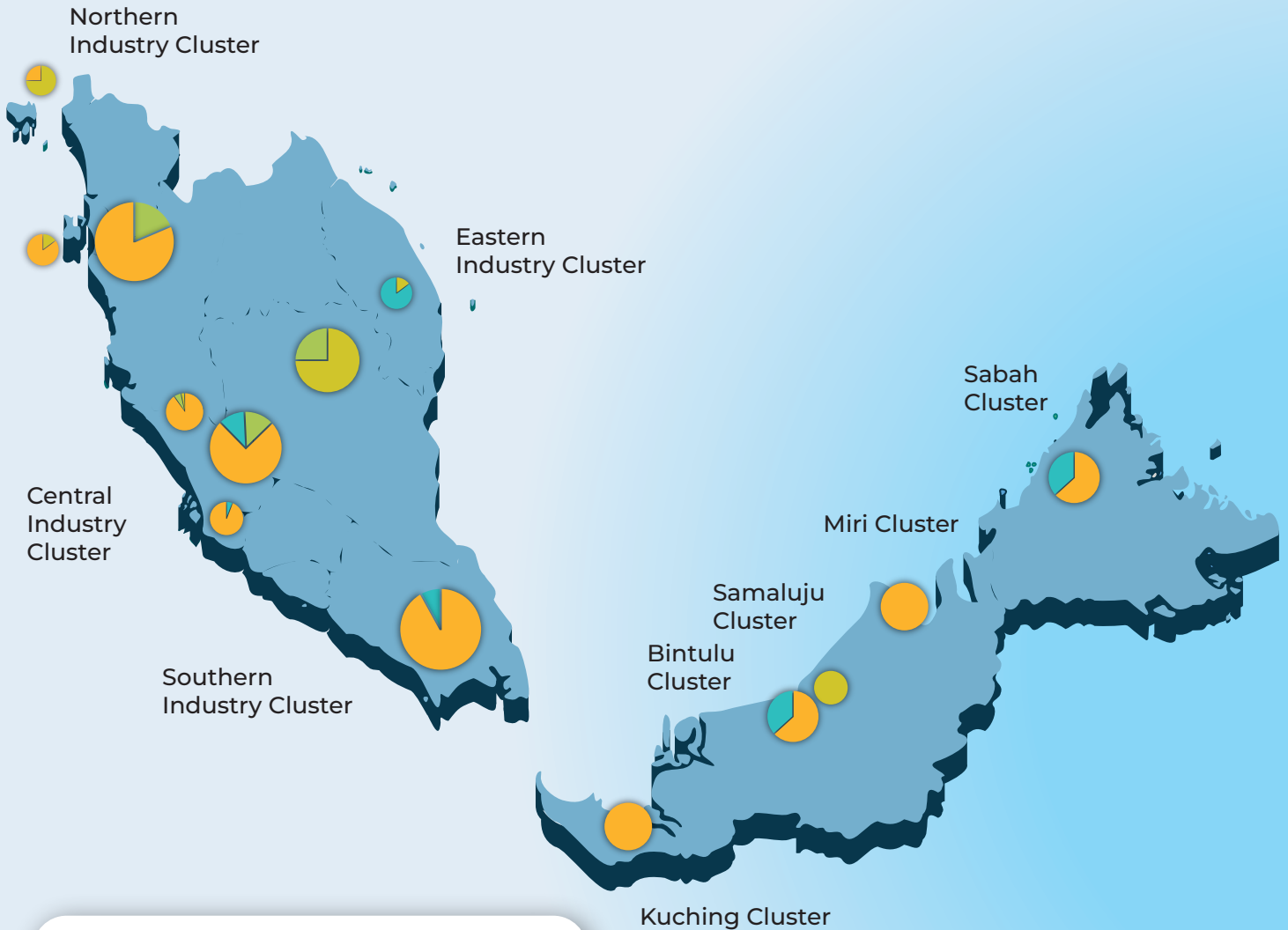


Malaysia's Emission Clusters: Decarbonising Hard-to-Abate Industries



Legend:

Size of pie represents relative emission rates and contribution by sector



Key Observations

1. Biggest emitters are from the power generation sector
2. Power generation, hard-to-abate industries and transportation sector accounts for 70% of the total emissions in Malaysia
3. Most emissions are concentrated in the West Coast of Peninsular

Rising Global Temperatures from CO₂ Emissions: The Effects

Impact on Ecosystem



Impact on Health



Impact on Economy



Source : Consequences of Climate Change European Commission

3 Main Methods of Capturing CO₂

Pre-combustion Technology



Similar to sieving the clumps from the flour before baking → Excessive CO₂ is separated from natural gas before being used to produce electricity or other natural gas products

Post-combustion Technology



Works like a giant air purifier for factories and power plants → Catches CO₂ after fuel is burned, before it escapes into the air → Can be added to existing facilities - like fitting a filter to an exhaust pipe

Oxy-fuel Technology

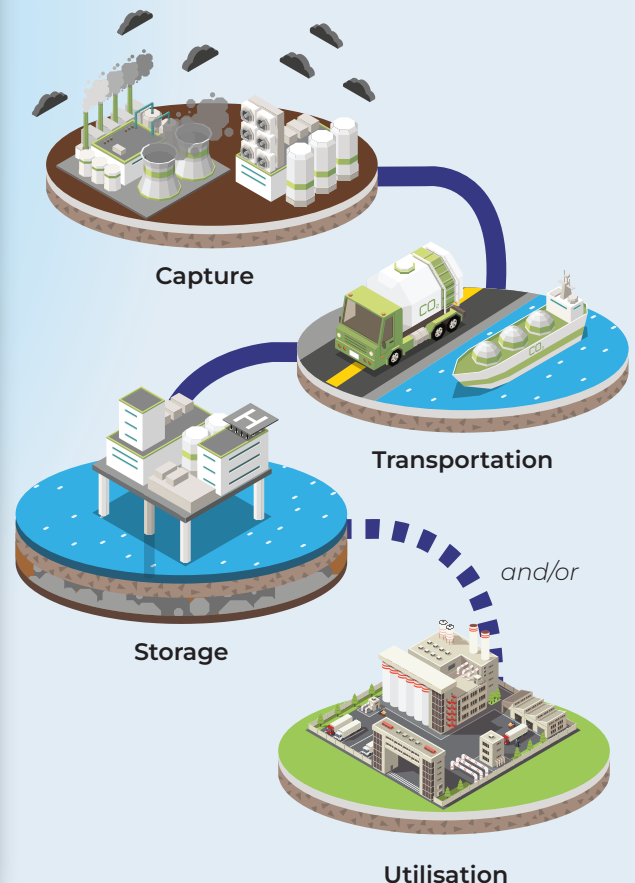


Burns fuel with pure oxygen instead of regular air → Creates exhaust that contains mostly CO₂ and water vapour → Makes it easy to separate and capture CO₂ → Akin to having a dedicated playroom that is easier to clean up

Source: NETR

Carbon Capture, Utilisation and Storage (CCUS)

helps industry reduce CO₂ emissions



Empowering Malaysia's Economy through CCUS



Capture

Future proof the hard-to-abate sectors.



Utilisation

Significant potential of **economic growth** influenced by the benefits of CCUS technology.



Storage

Malaysia possesses significant CO₂ storage capacity potential to **capitalise on regional market demand**.



GVA

Cumulative Gross Value Added of **200-250 billion USD** by 2050.



Job Creation

Up to **200,000 direct and indirect jobs** created by 2050.

Source: NETR

Malaysia's CCUS Potential

Malaysia views its potential CO₂ storage capacity as a valuable resource, not a dumping ground.

With sufficient fields already identified for safe carbon storage, Malaysia is capable of catering to both domestic and regional emissions:



Based on the Global CCS Institute, Malaysia is estimated to possess **13.3 gigatonnes of CO₂ storage capacity**.



Indicatively, this storage potential surpasses Malaysia's domestic needs, suggesting **long-term viability of storage capacity**.

Source: NETR

Future Uses of Captured CO₂

CCUS projects are an important link in Malaysia's transition to new circular economies such as:



Building Materials

- CO₂-cured concrete
- Carbon-negative aggregates
- CO₂-based insulation materials



Fuel and Energy

- Synthetic fuels (e-fuels)
- Enhanced geothermal systems
- CO₂-based energy storage



Agriculture

- Greenhouse atmosphere enrichment
- Fertiliser production
- Soil amelioration



Environmental Applications

- Water treatment
- pH control in industrial processes
- Algae cultivation for biofuels

Source: NETR