SUSTAINABLE ACTION CONFERENCE 3.0

MDBC NL INNOVATION & SUSTAINABILITY AWARDS 2025

SUSTAINABLE ACTION CONFERENCE 2025
MDBC INNOVATION & SUSTAINABILITY AWARDS

22 October 2025 | 8.00am - 6.00pm | 6.00pm - 7.30pm
Grand Ballroom, Grand Hyatt Kuala Lumpur

THE FUTURE IS NOW:
ACCELERATING SUSTAINABLE TRANSFORMATION

Co-Organised by: CONTROLUNION, MDBC Malaysian Dutch Business Council

Supported by: Kingdom of the Netherlands

Sustainable Venue Partner: GRAND HYATT KUALA LUMPUR

Gold Sponsors: TENAGA NASIONAL, UOB, Signify

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Strategic Innovation Partner: CarbonSpace

Climate Solutions Partner: SAXON RENEWABLES

Sustainable Token Partner: NATURELOOP

Strategic Partners: EIC, SME CORP, Malaysia Convention & Exhibition Bureau, Meet in Malaysia, Visit Malaysia 2026

Endorsed by: ECO STEPS, MCMA, MCMTC, MICCI, MOGSC, MOGEC, MPMA, MWMJC, SEDM, TEAM

Media Partners: Actualidad Marítima y Portuaria, Agro malaysia, clean energy pipeline, DEW, Eco Voice, eco news, GREEN IN FUTURE, GREEN, PROCLAIM, PLANT AUTOMATION Technology, PETROFINDER, Railway Gazette, TDM, TradeAsia

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Managing Director
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Panellist:

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Senior Director of Corporate Development, Sustainable Finance and Strategy
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UOB | 90 Years and Beyond

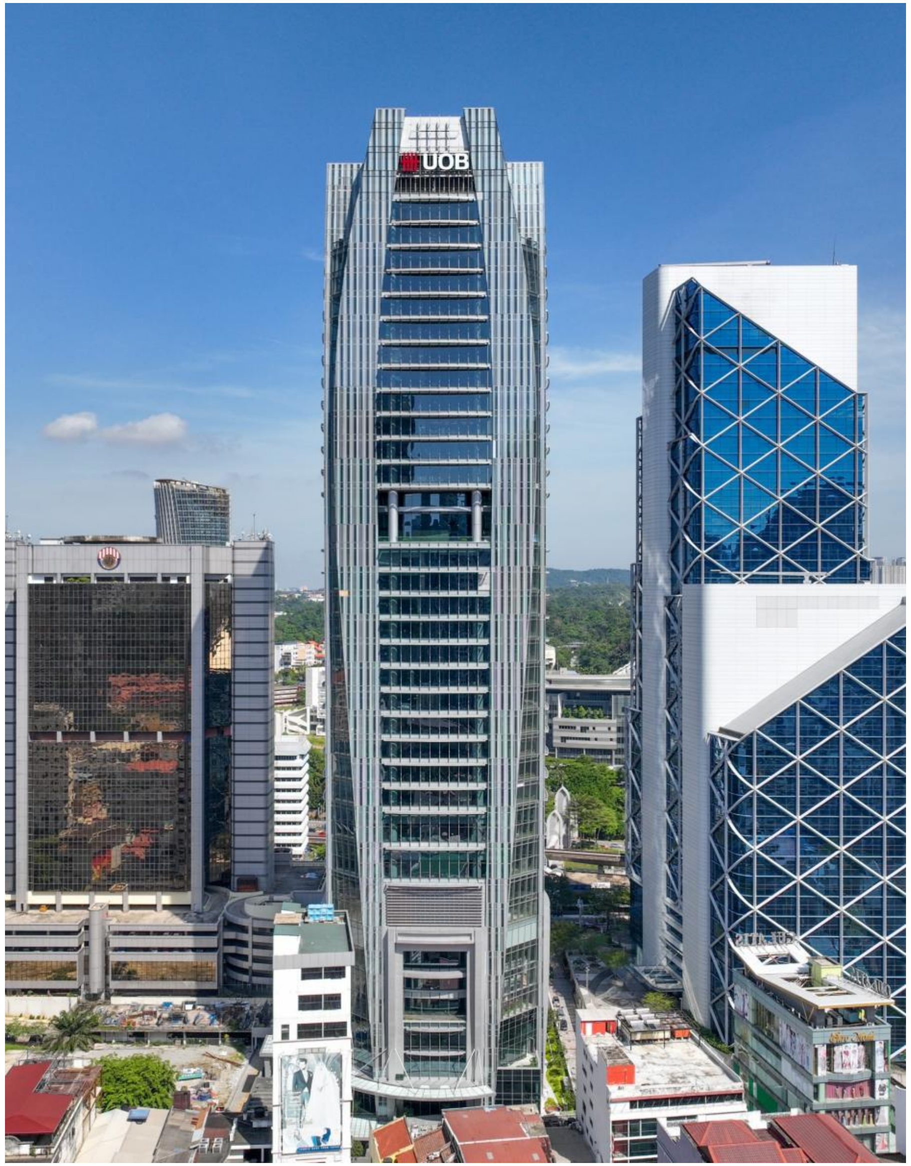
UOB Malaysia Sustainability Journey

Moreen Joseph

Country Chief Sustainability Officer

22 October 2025

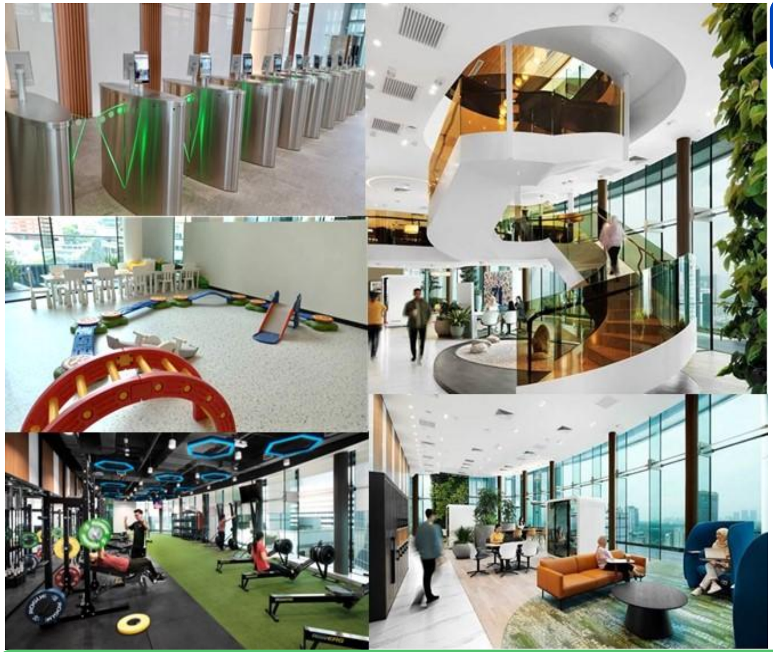
What Began as Modern, Evolved into Platinum Sustainability



RESTRICTED

UOB Malaysia Sustainability Progress

UOB



UOBM Walk the Talk

- 1st bank to win Energy Efficient Building Award (National Energy Awards & ASEAN Energy Efficiency & Conservation 2024).
- Achieved Platinum Certifications: GreenRE, Building & Construction Authority (BCA) Green Mark, BCA- Health Promotion Board (HPB) Green Mark.

BCA GREEN MARK

Sustainable Financing Growth

- UOBM's sustainable financing portfolio has grown by ~30% over the past two years, with ~30% of this directed to SMEs.
- Ongoing momentum in green financing supporting solar development, green data centres, green warehouses, sustainable trade finance.
- The rollout of the National Sustainability Reporting Framework can drive demand for SLL, as companies seek financing aligned with measurable ESG targets.

Progressively, Integrating Sustainability Across the Bank

Client Engagement via Partnerships

SAP 2.0 x Bursa Malaysia
Navigating EECA x MAREMA
Agri-Sector Decarb x South Pole
CBAM Supply Chain x PwC

Governance & Risk

Country Sustainability Committee
Climate Change and Principle-based Taxonomy
Climate Risk Management and Scenario Analysis (CRMSA) -including TCFD-aligned disclosures

Internal Capacity Building

Sustainability Academy
101 & 200 Series
Management Masterclass
RM Targeted Training

CBAM- Carbon Border Adjustment Mechanism, EECA- Energy Efficiency & Conservation Act, MAREMA- Malaysian Association of Registered Energy Managers & Energy Auditors, SAP- Sustainability Accelerator Programme

UOB commitment to Net Zero by 2050

UOB

Energy   Built environment

Net zero targets and commitments for six sectors

Power
Reduce emissions intensity by **64%** by **2030** and **98%** by **2050**

Automotive
Reduce emissions intensity by **58%** by **2030** and **net zero** by **2050**

Oil & Gas
No new project financing for upstream oil and gas projects approved for development after **2022**

Real estate
Reduce emissions intensity by **36%** by **2030** and **97%** by **2050**

Construction
Reduce emissions intensity by **31%** by **2030** and **85%** by **2050**

Steel
Reduce emissions intensity by **20%** by **2030** and **92%** by **2050**

Supporting our clients in their decarbonisation journey by providing advisory and financial solutions

We focused on two significant, high-emitting ecosystems, **energy** and **built environment,** spanning 6 sectors based on:

- Significant contributors to GHG emissions regionally: ~73% of global emissions[1]
- Material to UOB's corporate lending portfolio: ~60% of total corporate lending portfolio

Key enablers to Net Zero - Stakeholder Collaboration, clear national and sectoral level decarbonisation plans, policies and incentives aligned to driving decarbonisation efforts, etc.

Source: 1) Our World in Data

UOB's Sustainable Finance Frameworks

UOB

Green Building Framework

Supports a sustainable built environment with resource-efficient assets

- Construction of New Buildings
- Renovation of Existing Buildings
- Acquisition or Ownership of Buildings
- Tenancy or Leasing of Buildings

UN SDGs: 3 7 8 9 11 12 13 15 17

Sustainable Cities Framework

Supports liveable, future-ready cities with cleaner energy, transport & smart infrastructure

- Energy
- Transport
- Chemicals
- Metals & Mining
- Building Materials & Equipment
- ICT
- Carbon Capture & Storage
- Climate Change Adaptation
- Pollution Prevention & Control
- Water
- Waste

UN SDGs: 3 6 7 8 9 11 12 13 14 15

Circular Economy Framework

Supports circular models to preserve value in resources & regenerate natural systems

- Materials & Resource Recovery
- Circular Design & Production
- Circular Inputs
- Circular Product-as-a-Service
- Circular Facilitators & Enablers

UN SDGs: 9 11 12 13

Sustainable Food & Agribusiness Framework

Supports resilient, productive global food systems & sustainable forestry

- Sustainable Forest Management
- Forestry Plantation
- Natural & Pristine Forests
- Agriculture
- Animal Production
- Food Waste

UN SDGs: 2 6 7 12 13 14 15

Sustainable Trade Framework

Supports trade flows for certified raw materials & products

- Animal Feed
- Animal Production
- Aquaculture
- Biomaterials
- Building Materials
- Crops
- Circular Economy
- Energy Efficient Equipment
- Forestry
- Metals
- Palm & Palm Derivatives
- Rice
- Sugar
- Textile, Apparel & Footwear

UN SDGs: 6 7 9 11 12 13 14 15

Transition Finance Framework

Supports a just and orderly transition of emissions-intensive & high-impact sectors

- Energy
- Transport
- Chemicals
- Metals & Mining
- Building Materials & Equipment
- ICT
- Carbon Capture & Storage
- Water
- Waste
- Materials & Resource Recovery
- Circular Inputs
- Renovation of Existing Buildings
- Acquisition or Ownership of Buildings
- Sustainable Forest Management
- Forestry Plantation
- Agriculture
- Animal Production
- Carbon Credits

UN SDGs: 1 6 7 8 9 10 12 13 15

UOBM's Sustainability Initiatives Beyond Financing

UOB

Capacity Building

UOBM helps customers navigate complex ESG requirements by initiating client capacity building programmes such as:

- **CBAM Supply Chain Imperatives Masterclass** with PwC Malaysia
- **Navigating Decarbonization Pathway including EUDR in the Asian Agri-Sector** with South Pole, RSPO and Agridence
- Promoting **awareness on EECA** for our coverage team and clients – linking to our U-Energy solutions

Anchor Supply Chain Program

- UOBM launched its **Sustainable Vendor Financing Program (SVFP)** with anchors/ large corporates to support suppliers along their value chains.(verified by credible SPO)
- Engaged with clients from various sectors such as energy, palm oil and healthcare working alongside their sustainability and procurement team to identify and incentivize key sustainability performance targets (SPTs) that are most relevant to the anchors' respective supply chains.

Partnership to Scale

SAP 1.0 launched in 2023

- Availed UOB Sustainability Compass to our SME clients to assess their level of ESG maturity, including step-by-step guide to kickstart their ESG journey.

SAP 2.0 launched in 2025

- Partner with Bursa Malaysia, funding our SME clients on CSI Platform (to calculate and report their GHG emissions).
- UOBM also joined forces with Control Union and DHL Express Malaysia to offer a suite of solutions in various areas pivotal to decarbonization.

JC3 SME Focus Group – Collective Industry Effort

UOB

SFG Achievements

The SME Focus Group (SFG), under JC3 since Aug 2023, is tasked to accelerate the adoption of sustainable practices and business models by SMEs. UOBM co-chairs the SFG with BNM, members of the SFG comprises banks, insurers and ESG experts.

BANK NEGARA MALAYSIA CENTRAL BANK OF MALAYSIA, UOB, AmBank, Allianz, ALLIANCE BANK, BANK ISLAM, CIMB, GENERALI, HongLeong Bank, midf, PUBLIC BANK, RHB, SME BANK GROUP, TOKIO MARINE INSURANCE GROUP, ZURICH, CGC, CM2 capital markets MALAYSIA, MALAYSIAN TAKAFUL ASSOCIATION, pwc, Suruhanjaya Sekuriti Securities Commission Malaysia, SME CORP MALAYSIA, UN GLOBAL COMPACT Network Malaysia & Brunei

At the JC3 Conference in 2023, the SFG launched the **ESG Jumpstart**, a one-stop gateway for SMEs with the following features:

- ESG capacity building and training programs
- List of green certifications schemes
- Financial solutions and incentive schemes
- Various useful resources and tools
- SME Feature Stories

SCAN QR to Register for Climate Conference for SMEs 2025

For this year, the SFG aims to launch our inaugural SFG SME Conference with the theme "Practical Pathways for SMEs" that will be held at Sasana Kijang.

The conference will discuss on basic ESG principles and their importance for SMEs, ESG risks and opportunities with a focus on environmental challenges and solutions, practical strategies for implementing ESG, successful case studies, and sharing of updated information pertaining ESG grants, funding options, and support from the government and FIs.

Right By You

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signify

Signify Climate Transition Plan

Lighting For Brighter Lives, Better World

Signify is the World Leader in Lighting

We provide high-quality energy efficient lighting products, systems and services

No.1

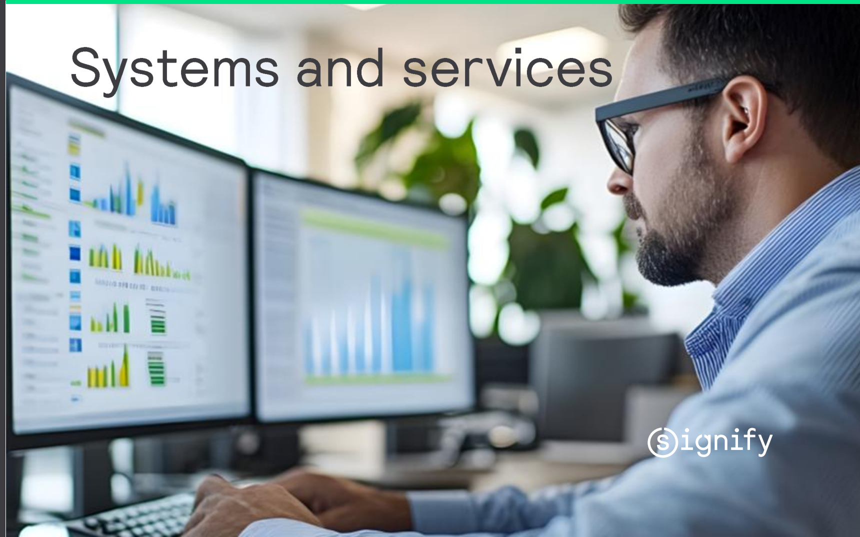
connected, LED, conventional

29,400

people in over 70 countries

€6.1bn

sales in 2024



Lighting Matters

With leadership, comes the responsibility for the way lighting impacts the environment around us

2%

of global CO_2 emissions are driven by lighting

Source: IEA

Our Ambition

90% reduction of full-scope GHG emissions by
by 2040

Net-zero target

Net-zero greenhouse gas emissions across our value chain by 2040

Near-term target

50% reduction in absolute scope 1, 2 and 3 GHG emissions by 2030

(compared against 2019 base year)

Long-term target

90% reduction in absolute scope 1, 2 and 3 GHG emissions by 2040

(compared against 2019 base year)

signify

2024 Status

More than 99% of our emissions coming from Scope 3

Signify' s scope 1,2 and 3 emissions
(tCo_2e, based on 2024 data)

0.1%
Scope 1 emissions

0.1%
Scope 2 emissions

99.86%
Scope 3 emissions

The chart above is based on emissions scopes and categories, published in the Greenhouse Gas Protocol. We have excluded six scope 3 categories as not applicable to Signify: upstream leased assets, downstream transport and distribution (included in upstream transportation and distribution), processing of sold products, downstream leased assets, franchises and investments.

Actions to Meet Ambition Targets

How we will reach 90% reduction in absolute
GHG emissions by 2040

Upstream

Suppliers

Logistics

$-0.7\%\ CO_2$ $-0.3\%\ CO_2$

Scope 3

Signify operations

Factories

Offices

Travel and commuting

$-0.04\%\ CO_2$

Scope 1 & 2

$-0.02\%\ CO_2$

Downstream

Product use

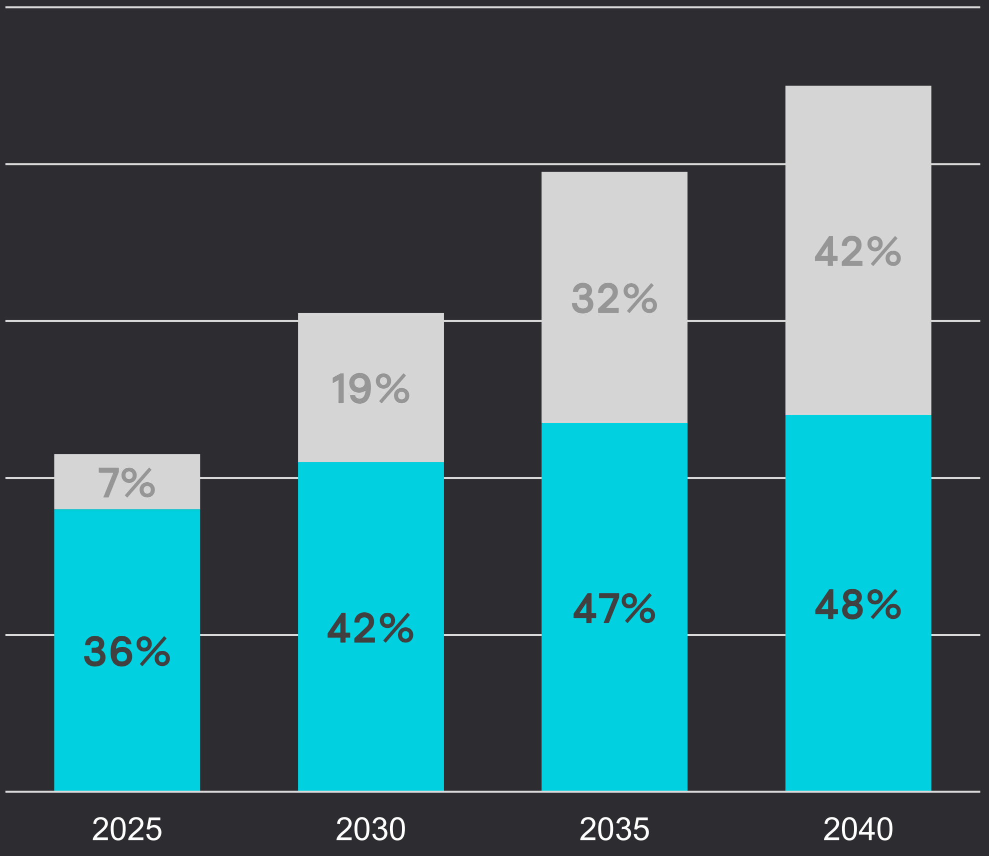
End-of-life treatment

$-88\%\ CO_2$ $-1.1\%\ CO_2$

Scope 3

Our Net Zero Drivers

With most emissions outside our operations, we have 2 main drivers to achieve our net-zero ambition



Be an Advocate for the Use of Green, Renewable Energy

Further Improve the Energy Efficiency of our Products

SBTi verified

The chart above shows expected percentage reduction in greenhouse gas emissions by driver (increased energy efficiency/green energy transition), leading to 90% emissions reduction across Signify's entire value chain by 2040, in line with our net-zero ambition.

Sustainable Innovation

Sustainable product design and offering is at the core of our strategy and business model

253M EUR

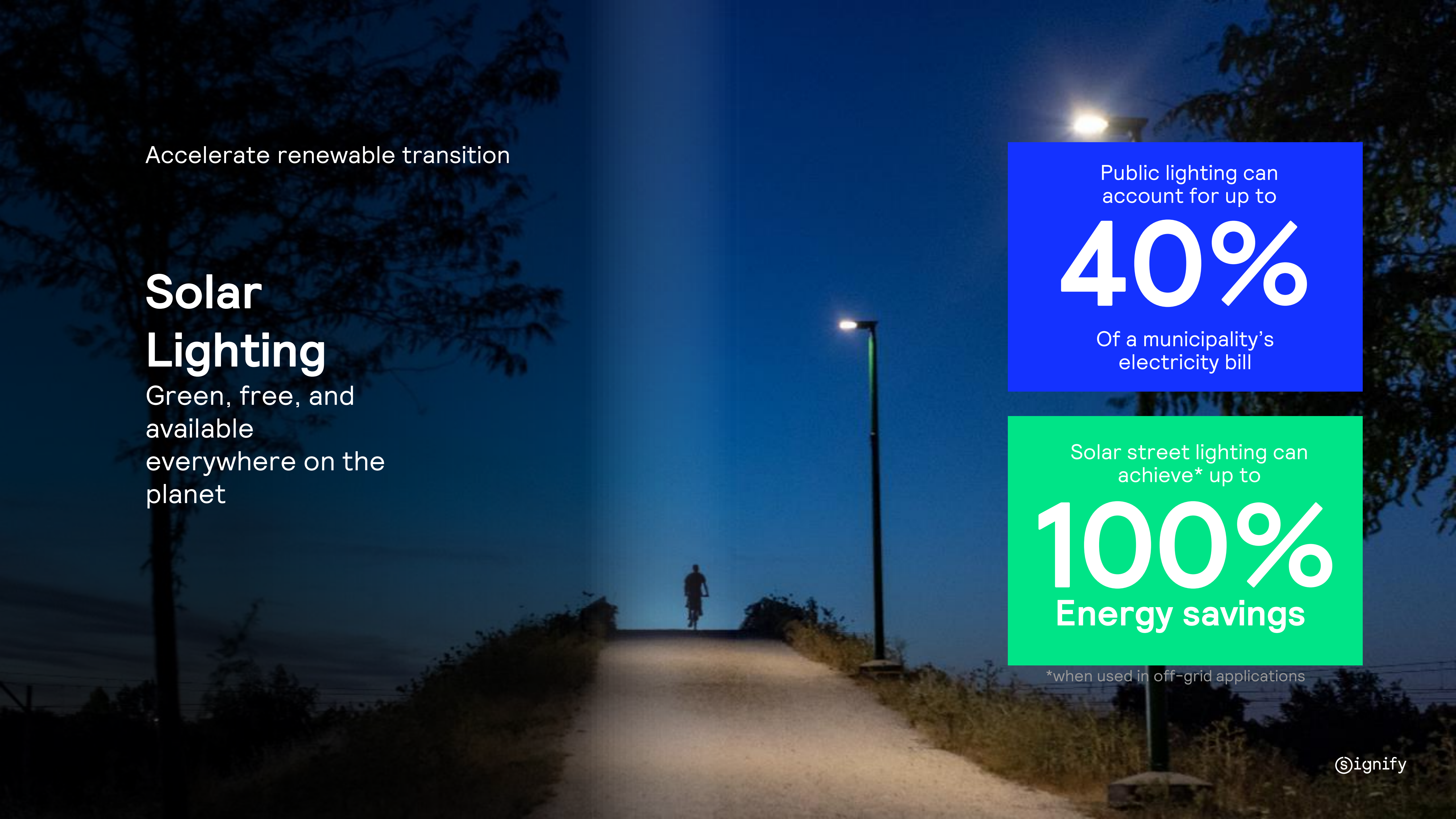
Investment in R&D aimed at sustainable innovation in 2024

Source: Signify Annual Report

Using lighting only when and where needed

Smart Lighting

for a responsive infrastructure, enabling the reduction of carbon emission by up to 90%



Accelerate renewable transition

Solar Lighting

Green, free, and available everywhere on the planet

Public lighting can account for up to

40%

Of a municipality's electricity bill

Solar street lighting can achieve* up to

100%

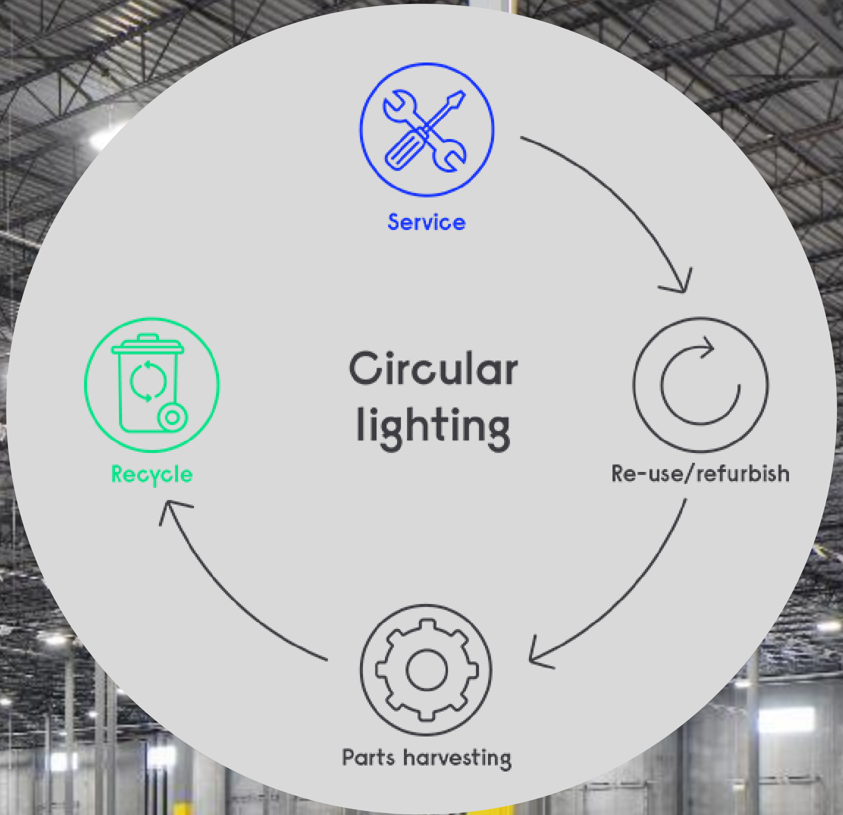
Energy savings

*when used in off-grid applications

Reuse, Recycle

Refurbishment and Remanufacturing

To reduce waste and emissions from end-of-life treatment



Signify

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Transformation into a decarbonizing solution provider

SAMLING

Excellence Through Wood

GROWING AND
EXPANDING THE HORIZONS

Contents:

SAMLING
Excellence Through Wood

Timber 2.0

SAMLING
Excellence Through Wood

2019

Transformation of our traditional natural forest business to focus on forest plantation operations

Align government's policy to reduce demand for timber from natural forests by sourcing it from plantations

Planted Forests Certified under MTCS, Endorsed by PEFC

BUSINESS TRANSFORMATION

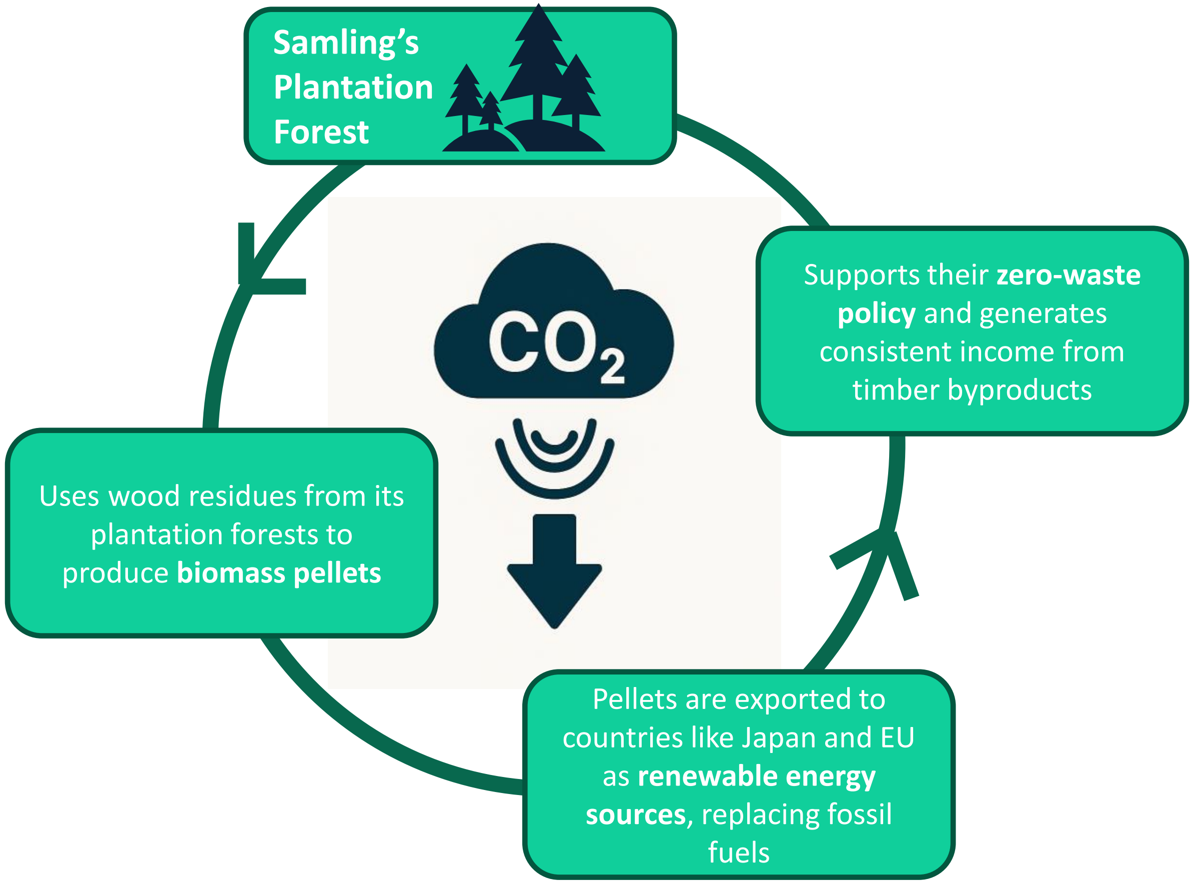
- **Zero Waste Resource Utilization**
  - Optimizing timber resource use across all timber operations, promoting sustainability.
- **Diverse Sustainable Products**
  - New markets and high value products have been developed to expand sustainable timber usage.
- **Circular Economy Support**
  - Wood residues are converted into fiber-based products supporting a green and circular economy.

Biomass Fuel

SAMLING
Excellence Through Wood

Why Biomass Pellets?

- **Global Energy Challenges**
  - Depleting fossil fuel reserves and rising greenhouse gas emissions.
- **Applications**
  - Can replace coal in power generation.
- **Market Trends**
  - Increasing global demand, particularly in Japan, South Korea, and Europe, with significant growth potential in energy transition strategies.
- **Sustainability**
  - Renewable feedstock.
- **Black Pellet**
- Feasibility study with Kobe Steel from Japan
- Black Pellet much more energy efficient and considered as solution for non-grid sector industries.
- Calorific value 40% better than white pellet



Carbon Project

SAMLING
Excellence Through Wood

Marudi Peat Swamp Forest Conservation & Restoration Project
Verra ID 4814
VM0007 REDD+ Methodology

- Carbon Activity Area -> 25,675 ha
- Nearly 100% Peat Swamp Forest
- Permanence is 30 Years + 10 Years
- Carbon Activities
  - Avoided Planned Deforestation of ~21,410 ha of Forest (APDD)
  - Avoided Drainage of ~20,374 ha in Wetland Areas (CIW)
- Improvement of Biodiversity in the Project Area
- Approximately 1.6 million tonnes of CO_2e Emissions Reductions will be achieved annually Over a Period of 40 Years.

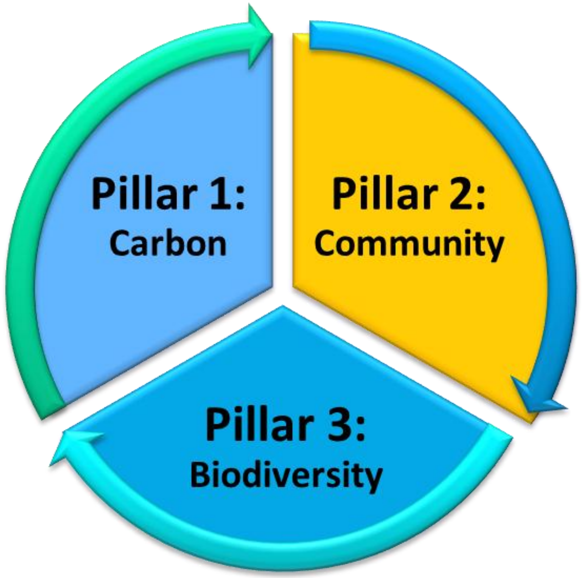
14 LIFE BELOW WATER

13 CLIMATE ACTION

15 LIFE ON LAND

SaraCarbon
EMBRACING A SUSTAINABLE FUTURE

3 Pillars of a World Class Carbon Project



- Improving the carbon equation by protecting the natural forest, and implementing conservation measures on degraded lands;
- Enhancing the environmental aspects and biodiversity; and
- Facilitating sustainable economic empowerment activities to improve the livelihood of local communities.

Key Challenges

SAMLING
Excellence Through Wood

Policy

- Governmental policies / frameworks

Stakeholder Expectations

- Management of expectations, especially with Communities

Changes in Methodologies

- Frequent changes

Marketing

- Low demand in VCM market for REDD+ credits, especially reduction credits
- Premium market such as CORSIA requires Art 6 and JNR.

Leakages

- Without a unified state or national (Jurisdictional) approach to emission control, emission reduction efforts may be compromised, leading to fewer environmental benefits.


SAMLING
Excellence Through Wood
Thank you

SAMLING

Excellence Through Wood

Disclaimer

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TENAGA NASIONAL

TENAGA NASIONAL Better. Brighter.

SUSTAINABLE ACTION CONFERENCE 2025 (SAC 2025)

Decarbonising Malaysia: Sectoral Pathways to Net Zero

Date: 22 October 2025 (Wednesday)
Time: 10.40am – 12:00pm
Venue: Grand Hyatt Kuala Lumpur

TNB is the largest electricity utility company in Malaysia and at the forefront of the country's energy transition

Sabah Electricity Sdn Bhd (SESB)
(83% owned by TNB)

Tenaga Nasional Berhad (TNB)

Our Presence in Peninsular Malaysia

Holds **47.6%** of Domestic Generation Capacity

Our grid network and retail business* are governed by the Incentive Based Regulation (IBR) framework

Transmission length: **29,519 km**
Substations: **543**
System Minutes: **0.0019 minutes**

Distribution Network: **738,028 km**
Substations: **99,374**
SAIDI: **47.88 minutes**

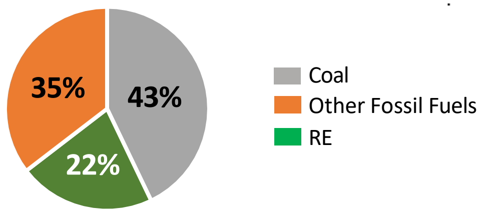
Retail customers: **10.4 mil**
Customer Satisfaction Index (CSI): **87%**

*Data as of July 2025

Group Portfolio

Total TNB Gross Capacity: **21,193MW**
(as of June 2025)

- Domestic: **17,924MW**
- International: **3,269MW**



Notes:
1. RE inclusive of large hydro and small RE
2. Data is based on gross installed capacity
3. Solar capacity based on MWp

Main Subsidiaries

TNB GENCO, Sabah Electricity, TNB Engineering Corporation, TNB Remaco, GSPARX, allo!, Malaysia Transformer, TSG, tci, TNBX, ILSAS, TNB Research, Universiti Tenaga Nasional, REV

We are also a global player as we strive to future proof our business by expanding our RE footprint and establishing strategic partnerships with leading RE players

TENAGA NASIONAL
Better. Brighter.

International Portfolio

2021 — VANTAGE RE

- **Equity stake:** 100%
- **Capacity**:
  - 123.9MW in onshore wind
  - 365.0MW in solar *(55% equity)*
  - 41.5MW in offshore wind *(49% equity)*
  - 276.0MW in solar

2016 — GAMA ENERJİ A.Ş.

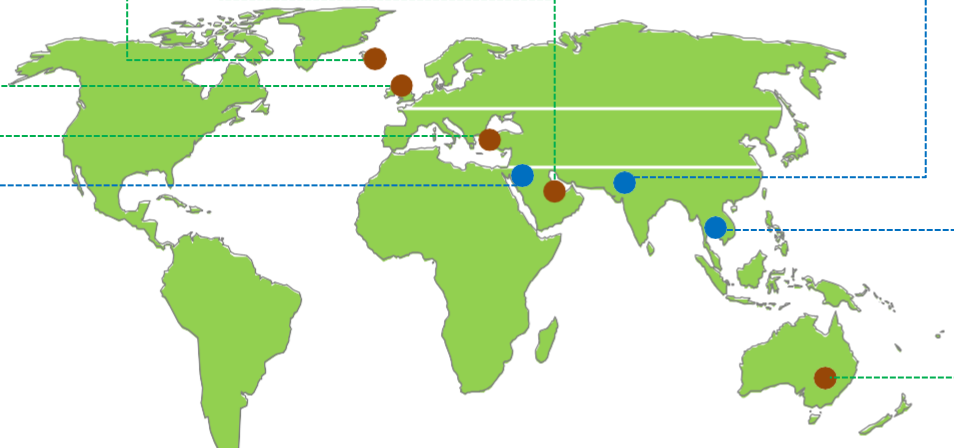
- **Equity stake**: 30%
- **Capacity**:
  - 1,151.5MW in gas, hydro and wind. Water conveyance in Jordan

REMACO (A subsidiary of TNB Power Generation) — Kuwait

- **Operation & Management Services**:
  - Operation & Maintenance Contract for Doha West and Shuwaikh Power Stations
  - Maintenance, Repair and Overhaul Contract for Sabiya Station-1, Sabiya Station-2 & Shuaibah North Power Stations

2005 — SEPCO, SWEC

- **Equity stake:** 6% effective equity stake
- **Capacity**:
  - 1,190.7MW in oil
  - Water desalination of 376 mcm p.a.



REMACO (A subsidiary of TNB Power Generation) — Pakistan

- **Operation & Management Services**:
  - TNB Remaco & Balloki Power Plant National Power Park Management Company Limited 276.0MW in Solar

REMACO (A subsidiary of TNB Power Generation) — Cambodia

- **Technical Advisory:**
  - Technical Advisory for Electricité du Cambodge (EDC) Heavy Fuel Oil Plant of 400MW

2023 — SPARK RENEWABLES

- **Equity stake:** 100%
- **Capacity**:
  - 120.5MWp in Solar

Solar | Wind | Hydro | Gas

Our International Presence

United Kingdom | Ireland | Australia | Turkiye | Saudi Arabia

New Energy Division | Remaco

We started our Sustainability Journey with the Reimagining TNB strategy and we continue to strive towards our Net Zero aspiration by 2050

TENAGA NASIONAL
Better. Brighter.

2016
Reimagining TNB.
- Introduced Reimagining TNB, our corporate strategic plan.

2017
Sustainability at the core.
- Formalisation of Sustainability Development Committee (SDC) and published first standalone Sustainability Report.
- Commenced carbon footprint assessment.
- Establishment of the TNB Green Energy Development Fund to channel profit after tax towards Green Energy projects annually.

2018
Innovation.
- First rollout of smart meters as part of Advanced Metering Infrastructure.
- Incorporation of GSPARX Sdn. Bhd. to promote self-generation from solar energy by facilitating the Net Energy Metering (NEM) scheme and Supply Agreement for Renewable Energy (SARE).

2019
Alignment with international sustainability standards.
- Sustainability Report prepared in accordance with the GRI Standards: Core Option.
- Enhanced disclosure based on the TCFD framework.

2020
Refreshed corporate strategy – Reimagining TNB 2025.
- Unveiled new aspiration "To be a leading provider of sustainable energy solutions in Malaysia and internationally".

2021
Positioning for the Future.
- Unveiled the TNB Sustainability Pathway 2050 (TNB SP2050).

2022
Moving forwards towards energy transition.
- Embarked on TNB's energy transition plan. Established Sustainability & Energy Transition Council (SETC).

2023
Strengthening sustainability governance.
- Formed Sustainability Division
- Established Board Sustainability & Risk Committee (BSRC)
- Updated Environmental Policy

2024
Embedding ESG Behaviors
- ESG as part of operations
- Established Sustainability Framework
- Established Sustainability Policy
- Established Labour Rights
- Established the Transition Finance Framework
- Sustainable Procurement Code of Conduct

2025
Emerging of renewable energy generation.
- 5% carbon intensity reduction
- Established TNB Biodiversity Framework
- Scaling renewable energy generation.
- Support the realisation of 8% national energy savings target.

2035
Accelerate decarbonisation efforts.
- 35% emission intensity reduction by 2035.
- Halve coal generation capacity by 2035.
- Upskilling and reskilling our people.

2050
Net Zero by 2050.
- Aspire to achieve net zero emissions and be coal-free.
- Grid Division targets to achieve zero pollution impact on nature and 30% reduction of deforestation in forest reserve.

TNB has announced our Net Zero Emission aspiration by 2050 with clear targets and commitments for 2025 and 2035

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Better. Brighter.

Our Target for 2025

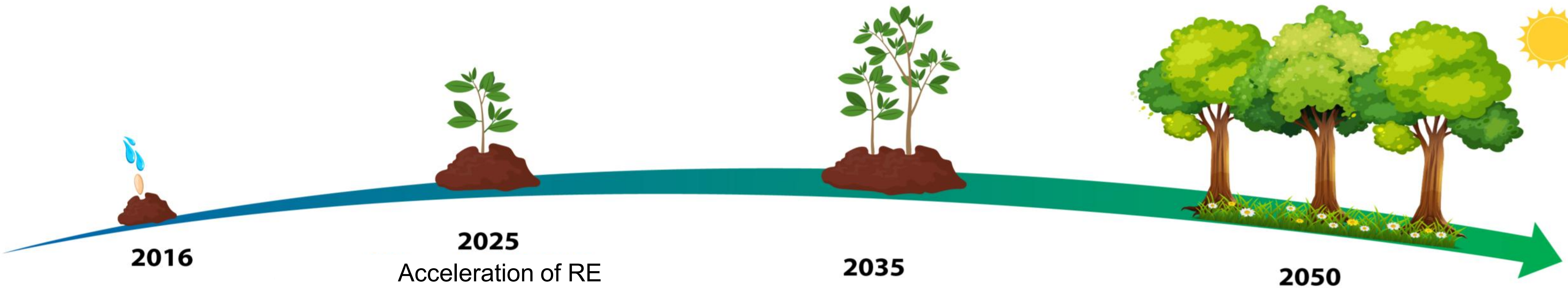
- Build scale in renewable generation
- Improve thermal plant efficiency
- 5% annual reduction through carbon emission intensity

Our Commitment to 2035

- Significant renewable generation growth
- 50% reduction in coal generation capacity

Our Aspiration to 2050

- Invest and grow our emerging green technologies including Hydrogen, Carbon Capture, Utilization and Storage (CCUS) and Interconnection



2016

Our Energy Transition journey started **here**

2025

Acceleration of RE investments towards 2050

Reduction of **5% carbon emission intensity starting 2025 (Scope 1)**

2035

Emission intensity **reduction of 35%**
Reduction of **coal capacity by 50%**

2050

Aspire to achieve Net Zero & be Coal-Free by 2050

Continuous commitments:
- **No new stake in new coal plants**
- **Revenue from coal investments will not exceed 25% of TNB Group revenue**

TNB's efforts also help contribute to the 8 Sustainable Development Goals (SDGs) set by the United Nations

- 3 GOOD HEALTH AND WELL-BEING
- 4 QUALITY EDUCATION
- 7 AFFORDABLE AND CLEAN ENERGY
- 8 DECENT WORK AND ECONOMIC GROWTH
- 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
- 10 REDUCED INEQUALITIES
- 13 CLIMATE ACTION
- 17 PARTNERSHIPS FOR THE GOALS

TNB has also crafted a comprehensive strategy to ensure Malaysia's energy security while supporting sustainable growth

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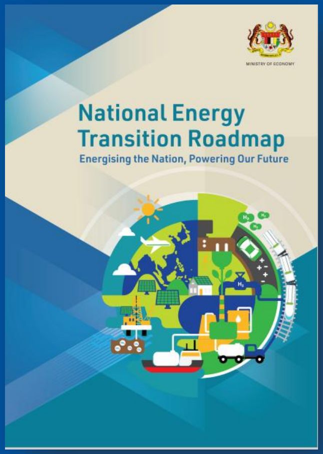
TNB's flagship project under NETR Phase 1



TNB plays three pivotal roles in advancing Malaysia's ambitions..

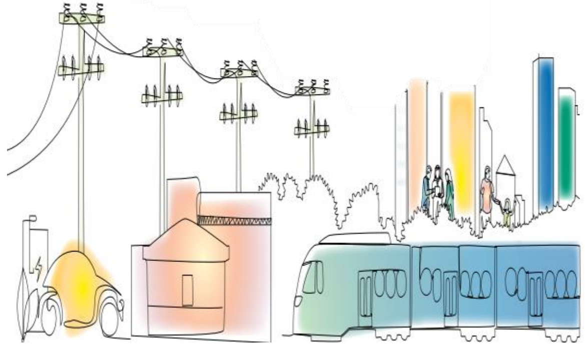
1 Accelerate generation decarbonization

- **A** Decarbonize thermal plants while ensuring security of supply
- **B** Explore, invest and develop RE
  - Nenggiri 300MW
  - NETR Solar Park 5 x 100 MW
  - NETR Hybrid Hydro Floating Solar 2.5GW
- **C** Invest in clean tech at scale
  - Hydrogen, ammonia co-firing, CCUS, nuclear
- **D** Expand RE generation focus market

2 Develop flexible and cross-border grid

- **A** Enhance Smart & Autonomous Grid & Distribution Network (e.g., DER integration, self-healing grid)
- **B** Deploy flexible solutions (e.g. grid-scale storage, community storage)
- **C** Deliver Renewable Energy Zones
- **D** Catalyze ASEAN Power Grid (e.g. 6 MOUs signed, 2 feasibility studies on-going)

3 Empower cross-sector electrification and prosumers



- **A** Electrify mobility (e.g., 30 – 44 TWh EV demand by 2050) through grid upgrades, charging station build
- **B** Scale industrial (e.g. iron, steel and cement) electrification solutions
- **C** Power rapid data center growth
- **D** Support power-intensive hydrogen economy (e.g. electrolysis)
- **E** Unlock energy management solutions for prosumers (e.g. rooftop PV, EE)

To ensure effective implementation of sustainability agenda, we are guided by TNB Sustainability framework to streamline the TNB ESG focus areas

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Main Components of TNB Sustainability Framework

TNB Sustainability Framework

TNB Aspiration

To Be a Leading Provider of
Sustainable Energy Solutions in Malaysia and Internationally

TNB Sustainability Commitments

TNB Sustainability Policy

(Strategic Policy)

TNB Sustainability Disclosures to Stakeholders

TNB Sustainability Disclosures

are aligned with

Standards

- Bursa Malaysia Sustainability Reporting Guide (3rd Edition)
- Global Reporting Initiative (GRI) Standards and GRI Electric utilities Sector Disclosures
- Task Force on Climate-related Financial Disclosures (TCFD) Framework
- United Nations Sustainable Development Goals (UN SDGs)

Guides

(i) TNB Materiality Matrix
(ii) Financial Times Stock Exchange4Good Bursa Malaysia Index (FTSE4GBM)
(iii) Morgan Stanley Capital International (MSCI) ESG Rating

Effective implementation of sustainability strategies and initiatives through operational policy statements, procedures & guidelines on ESG focus areas

TNB Sustainability Pillars

(Operational Policy Statements , Procedures & Guidelines on ESG focus area)

Environmental (E)

1. Carbon Emission
2. Water Stress
3. Biodiversity & Land Use
4. Opportunities in Renewable Energy
5. Toxic Emissions & Waste

Social (S)

6. Human Capital Development
7. Health & Safety
8. Labour Rights
9. Privacy & Data Security
10. Supply Chain Management
11. Community Relations

Governance (G)

12. Corporate Governance
13. Corporate Behavior
14. Risk Management

TNB aims to achieve its carbon emission intensity reduction targets through 1) Carbon Management Strategy and 2) Renewable Energy Capacity Expansion

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Emissions Intensity Target	**5%** annual reduction from 2024	**35%** reduction by 2035	Net Zero by 2050

Carbon Management Strategy

Three (3) carbon management strategies:

Reduce Carbon Emissions — Lowering carbon emissions across the company (scope 1, 2 & 3).

Capture Carbon Emissions — Capturing and storing of carbon dioxide (CO_2) before it is released into the atmosphere.

Offset Carbon Emissions — Offset carbon emissions with the goal of reducing overall emissions over time.

Measures:
Carbon Emissions (tCO_2e)
Carbon Emissions Intensity (tCO_2e/MWh)

Renewable Energy Capacity Expansion

Capture RE growth potential in domestic and international markets:

Local

Capture Malaysia market through TRe & Genco:
- LSS
- Corporate Green Power Programme (CGPP)
- NETR (Solar park & HHFS)
- TPA

International

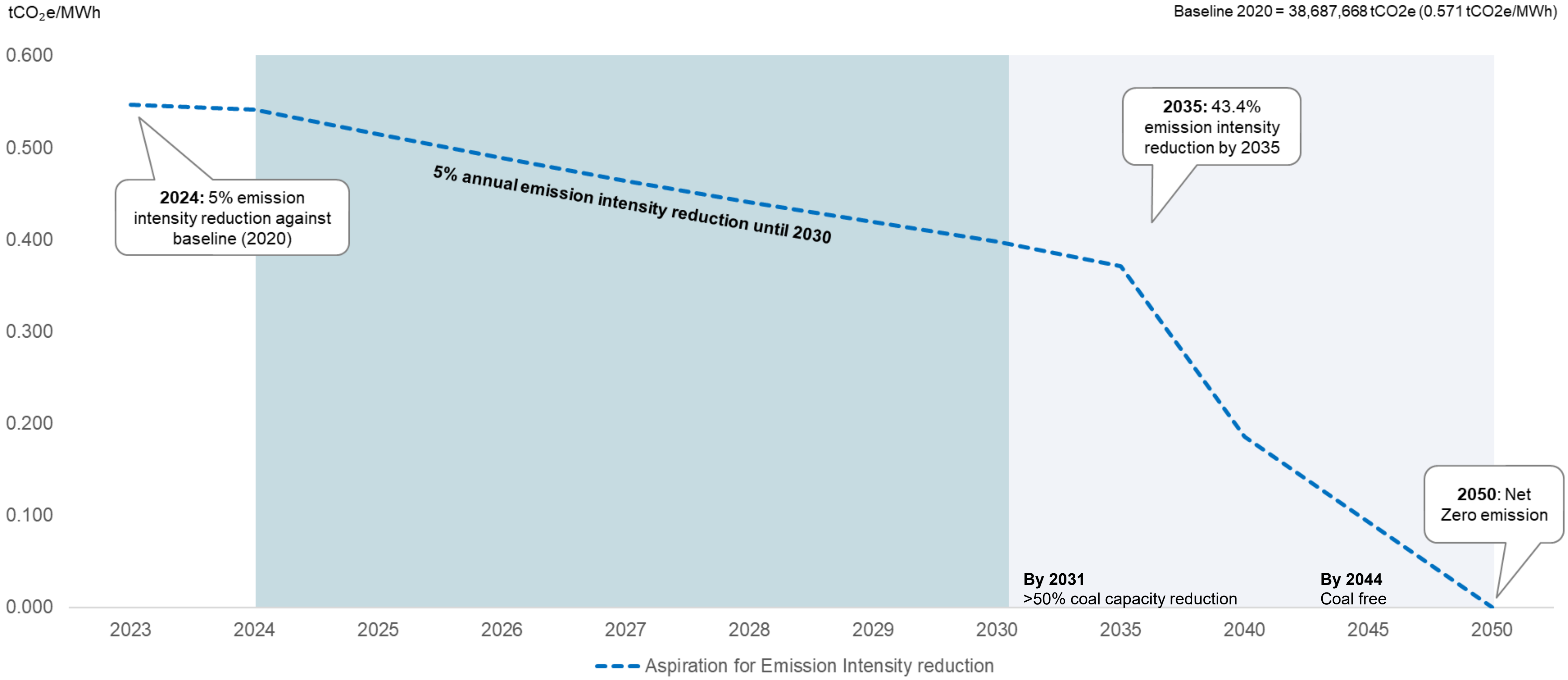
- Capture United Kingdom market through Vantage RE.
- Capture Australia market through Spark Renewables

Embark on strategic partnership for new technology, e.g., grid-scale BESS.

Measures:
RE Capacity (MW)
Net Generation from RE (MWh)

Read more on our carbon management plan:
"Calling For Action: The Urgency Of Carbon Emission Management For A Sustainable Future"

Anchored to the strategy, we aim for a 5% annual reduction in emission intensity until 2030. Our emission intensity projection illustrates our confidences in achieving the emission intensity reduction targets.



Thank you

Check out our ESG Stories!

Disclaimer

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SUSTAINABLE ACTION CONFERENCE 2025
MDBC INNOVATION & SUSTAINABILITY AWARDS

22 October 2025 | 8.00am - 6.00pm | 6.00pm - 7.30pm
Grand Ballroom, Grand Hyatt Kuala Lumpur

THE FUTURE IS NOW:
ACCELERATING SUSTAINABLE TRANSFORMATION

SESSION 1:
Decarbonising Malaysia: Sectoral Pathways to Net Zero

Moderator:

Mr. Supun Nigamuni
Managing Director
Control Union Malaysia

Panellist:

Ms. Moreen Joseph
Chief Sustainability Officer
UOB Malaysia

Mr. Vardan Sharma
Head of Public/Government
Business for Asia Pacific
Signify Inc

Mr. Francois Blignaut
Assistant General Manager
(Reforestation)
Samling Timber Malaysia

Ms. Leo Pui Yong
Chief Sustainability Officer
Tenaga Nasional Berhad
(TNB)

Pn. Suhaini Haron
Senior Director of Corporate
Development, Sustainable
Finance and Strategy
Malaysia Forest Fund (MFF)

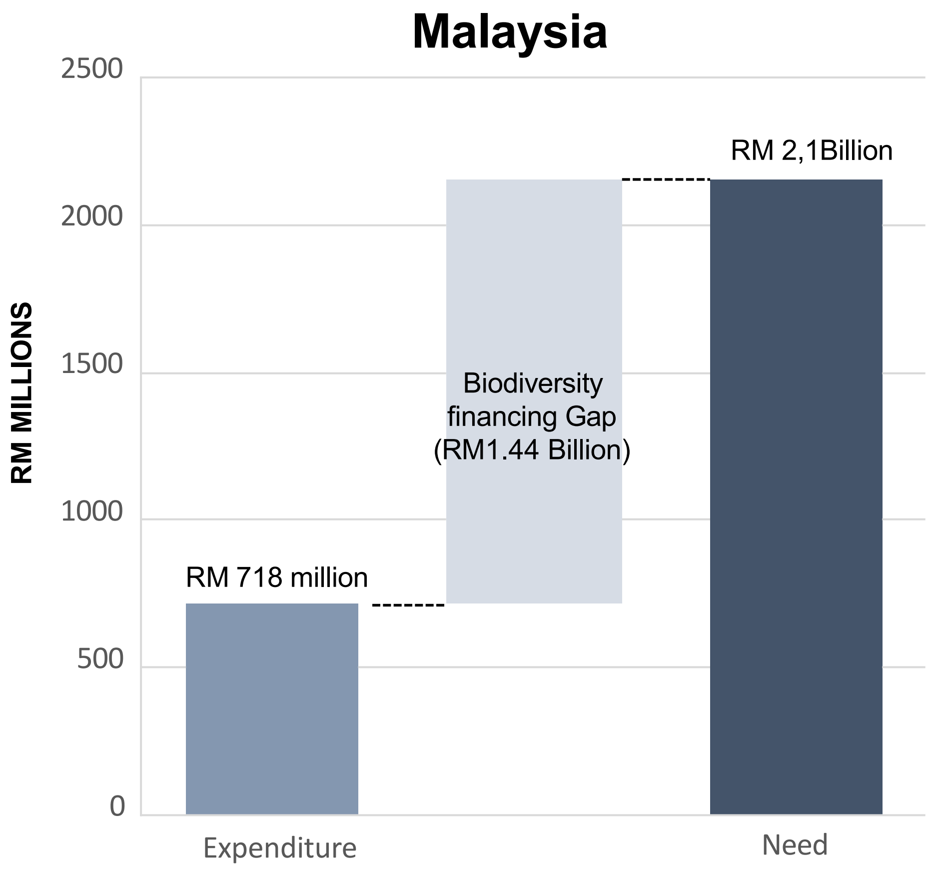
Sustainable Actions Conference I

INTRODUCTION TO MALAYSIA FOREST FUND & NATURE BASED SOLUTIONS

22nd OCTOBER 2025

SUSTAINABLE FUNDING NEEDED TO SUPPORT FOREST CONSERVATION & RESTORATION AND FACILITATE THE DELIVERY OF NATIONAL AGENDAS RELATED TO FORESTRY, BIODIVERSITY & CLIMATE

MALAYSIA FOREST FUND



CHALLENGES:

The use of innovative and sustainable funding mechanisms beyond government sources has not been fully explored and is still underdeveloped.

MALAYSIA FOREST FUND

Approved by the Cabinet of Malaysia on **28 August 2020.** Incorporated on **30 June 2021** under Company's Act, under the purview of **MINISTRY OF NATURAL RESOURCES, & ENVIONMENTAL SUSTAINABILITY (MNRES)**

Mandates

- Develop and implementation of **innovative finance strategies**
- Develop **standards, guidelines and procedures**
- Develop and operationalise **forest innovative financing initiatives**
- Facilitate **communication** public, stakeholders, and industry player
- **Verification and reporting** on the developed forest initiatives.

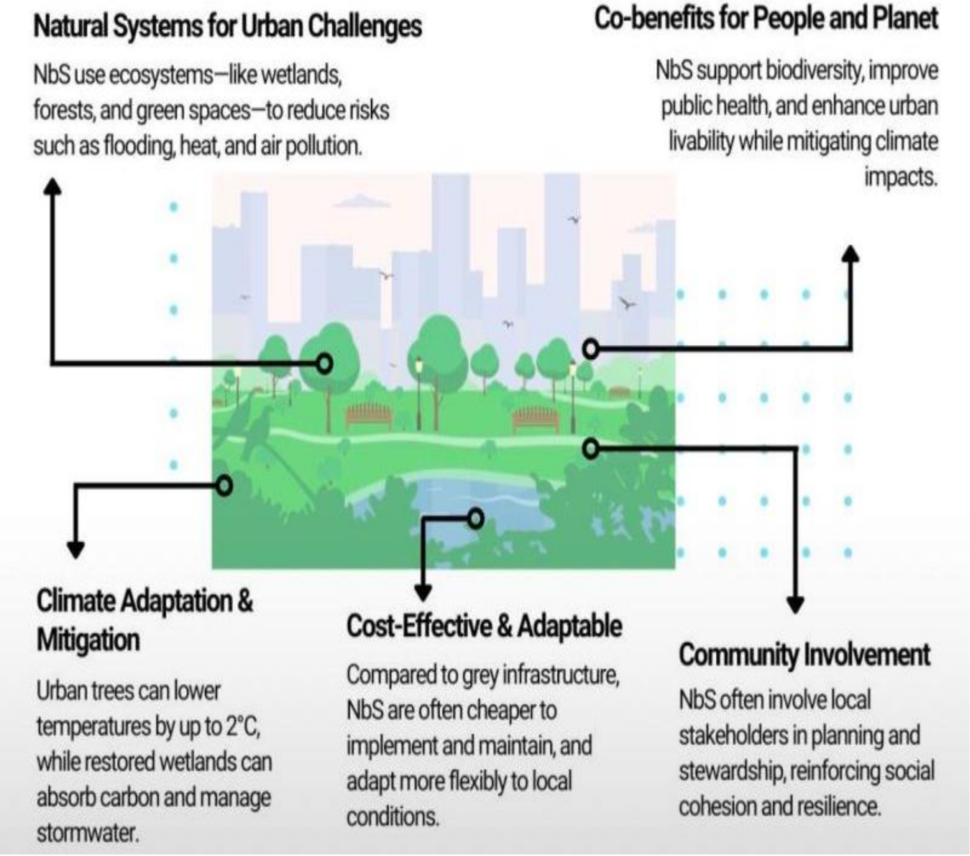
MFF to look into all nature-based mechanism and financial instruments for forest positive impact funding

Source of data: BIOFIN Report, 2019

HARNESSING NATURE'S POWER – EMBRACING NATURE-BASED SOLUTIONS AS A SUSTAINABLE AND COST-EFFECTIVE MEANS TO ADDRESS ENVIRONMENTAL & SOCIOECONOMIC CHALLENGES, BIODIVERSITY LOSS AND CLIMATE CHANGE IMPACTS

MALAYSIA FOREST FUND

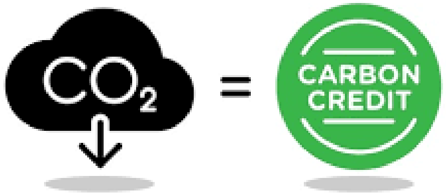
Nature Based Solutions



Source: Nature-Based Solutions by UN-Habitat (United Nations Human Settlements Programme)

Innovative Approaches for Scaling Up Nature-Based Solutions Financing

Market Mechanism



***Involve transfers of quantified and verified GHG benefits** including carbon credits/carbon allowance/ internationally transferred mitigation outcomes between parties / entities

Non-Market Mechanism

***Voluntary contributions with no transfers** of carbon credits/carbon allowance/ internationally transferred mitigation outcomes between parties / entities; **impact are monitored, reported and verified using performance standard**

RFF IS AN INNOVATIVE FINANCE STRATEGIES TO GENERATE POSITIVE INCENTIVES FOR THE PROTECTION, CONSERVATION AND SUSTAINABLE MANAGEMENT OF FORESTS

FOREST CONSERVATION CERTIFICATE (FCC)

A NON-MARKET INSTRUMENT that Voluntary Contribution By Private Sectors To Support Conservation Activities

Recognizing Corporate's Support in Conserving & Protecting Forest

Support Transparency & Assurance

3rd Party Verification & Certification

Tax Incentives up to 10% of aggregate income

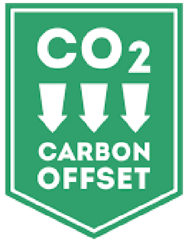
FOREST CARBON OFFSET (FCO)

A MARKET INSTRUMENT that focus on on **high quality and verified GHG emission** reduction and removals enhancement

Enable quantification, verification of GHG Impact in Conserving & Protecting Forest

3rd Party Verification & Certification

Enable carbon offset



Ensure environmental integrity

MALAYSIA FOREST FUND

Our progress:

Launched in May 2024, MFF has to date received 26 applications from various actors ie state agencies, private sectors and NGOs; located in nationwide. **9 projects were duly reviewed and endorsed** by the independent Advisory Committee for fund raising.

Enrichment Tree Planting Program At Tasik Chini Biosphere Reserve

Forest Conservation & Improvisation Of Darul Aman Sanctuary

Preparation of the Forest Management Plan for Federal Forestry Department

Turning ex-rubber fields into living ecosystems for landscape

Penjaga Gunung – Empowering Orang Asli Youth For Forest

Conserving the Batang Ai Landscape, critical orangutan habitat in Sarawak

Improving HCV Management To Enhance Sustainable Management Practices In Sarawak

Collaborative Landscape-level Strategy For Reconnecting Wildlife Corridor In Oil Palm Landscapes

Surveying, Marking, and Maintenance Of The Permanent Reserved Forest In The Ulu Sedili Tambahan Forest Reserve

Fund needed:

RM32.7 million

Key value propositions:

- **Impact-driven** – ties funding to measurable outcomes across biodiversity, social equity, and environmental integrity;
- **Credible governance layer** - third-party verified structure offers highest level of assurance for sustainability reporting ;
- **Tax deductible** – balancing ESG cost via tax incentives

Acceptance from companies:

51	11	5
Engaged (*23PLCs)	Company Registered (*6PLCs)	Negations for Cons. Agrmt (*3PLCs)

Benefit to company:

[1] FCC allows companies to quantify and disclose real biodiversity, conservation, and community impacts in their ESG or sustainability reports.

[2] Projects are third-party verified and registered, giving companies credible metrics to showcase their support for forest preservation, carbon sinks, and ecosystem services.

[3] FCC supports multiple UN Sustainable Development Goals (SDGs), such as:

- SDG 13: Climate action
- SDG 15: Life on land
- SDG 6: Clean water and sanitation (for watershed protection)
- Even though FCCs are not carbon offsets, they complement net-zero pathways by demonstrating co-benefit actions

DEVELOPMENT OF FCO AS CREDITING SYSTEM – Robust accounting will be applies to generate the carbon offsets, applying methodologies for GHG estimation, calculation, environmental integrity as well as transparent, complete and accurate reporting.

MALAYSIA FOREST FUND

INTERNATIONAL | NATIONAL | PENINSULAR MALAYSIA, SABAH & SARAWAK

MAIN GUIDELINES

THE MAIN GUIDELINES FOR FOREST CARBON OFFSET PROGRAM (FCO)

General Provisions for FCO Development, including high level project criteria, registration, Forest Carbon Units (FCU) certification and fees

SUBSIDIARIES GUIDELINES

Subsidiary Guidelines on FCO Project Development

1. **REGISTRATION** – Pre-requisite for FCO projects in Malaysia
2. **REQUIREMENT** – Mandatory requirement and conditions for FCO Projects
3. **INTEGRITY ASSESMENT** – Criteria and procedures for evaluating and demonstration of GHG
4. **CERTIFICATION & ISSUANCE** – Framework for certifying FCUs in FCO
5. **SDG & SAFEGUARDS** – Framework to demonstrate alignment of FCO with UNSDG, UNFCCC safeguards and voluntary labels
6. **VALIDATION & VERIFICATION** – Criteria and procedures for validating and verification of FCO Projects

Subsidiary Guidelines on FCO Program Administration

7. **GRIEVANCE & COMPLIANT** – Pre-requisite for FCO projects in Malaysia
8. **REQUIREMENT** – Mandatory requirement and conditions for FCO Projects
9. **CERTIFICATION & ISSUANCE** – Framework for certifying FCUs in FCO
5. **SDG & SAFEGUARDS** – Framework to demonstrate alignment of FCO with UNSDG, UNFCCC safeguards and voluntary labels

**workshop on 4-5 November 2024 and circulated 19 December 2024*

METHODOLOGIES

Methodologies that outline eligible activities, carbon calculation, baseline, additionality, and risk assessment

1. AFFORESTRATION, REFORESTRATION & RESTORATION
2. IMPROVED FOREST MANAGEMENT
3. REDUCING EMISSIONS FROM DEFORESTRATION & DEGRADATION
4. WETLAND RESTORATION

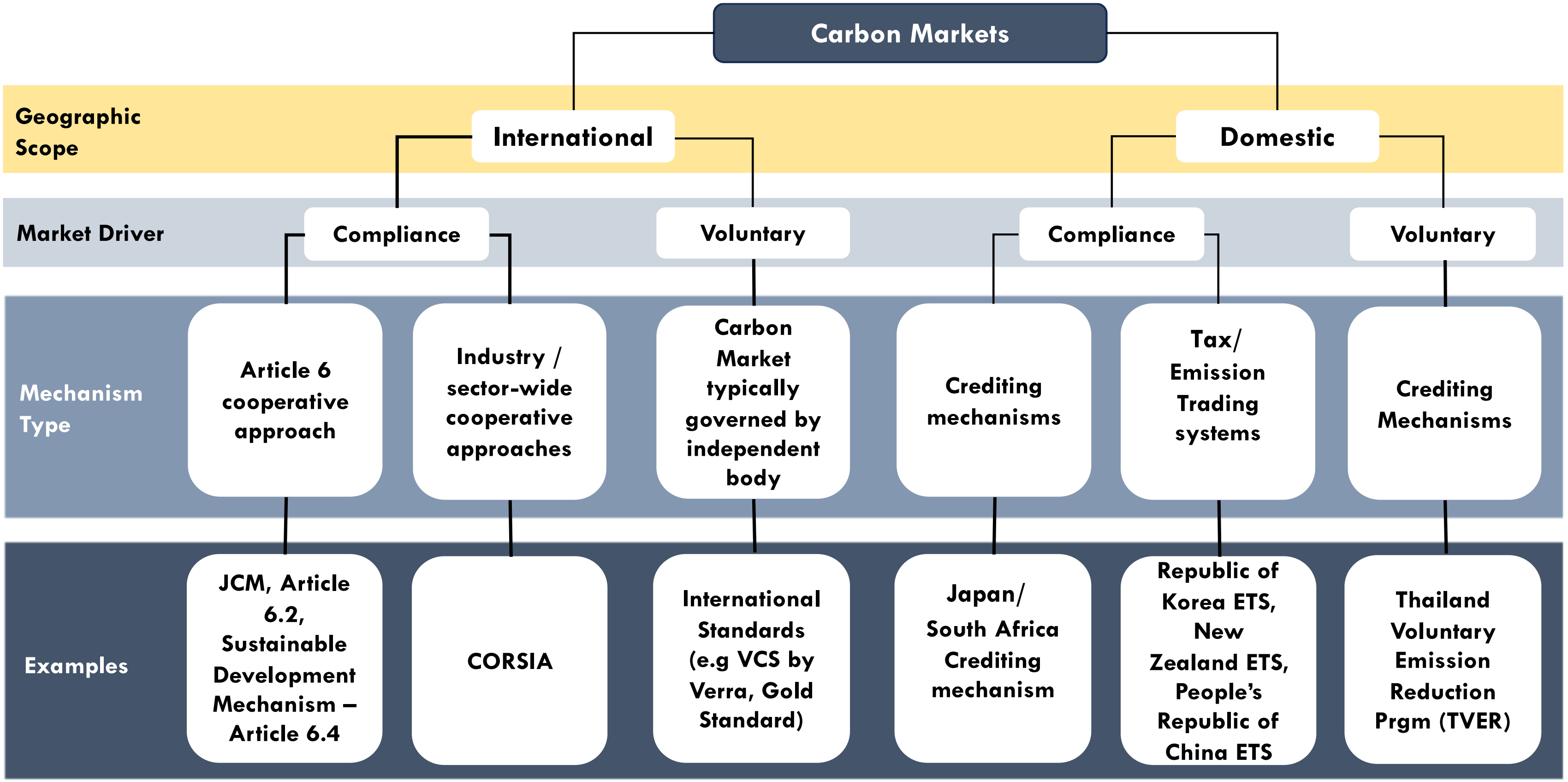
**workshop on 28 April to 2 May 2025 and circulated 23 May 2025*

Value proposition:

(i) **Unlike traditional carbon credit systems that may not fully account for national contexts, FCO is tailored to Malaysia’s unique geography, legal frameworks, forestry sector policies - designed to reflect Malaysia’s legal and ecological specificities, ENSURING THAT CREDITS ARE BOTH CREDIBLE AND CONTEXT-RELEVANT.**

(ii) **Group and Jurisdictional Program – ENSURING NO STATE MARGINALIZED, STANDARDIZING BASELINE THAT BUILD CREDIBILITY AND ACCOUNT FOR LEAKAGE AND STRENGTHENS GOVERNMENT OVERSIGHT, ensuring that carbon finance benefits not only the environment but also the people living within or near forested areas**

The market consideration tackles the **integrity requirement that have been a central concern for buyers, decision-makers, and observers of the intended markets**. require design of governance; methodologies; procedures and project portfolio align/comply with the requirements set by each potential source of demand so that the FCO units can be sold and traded in such schemes.

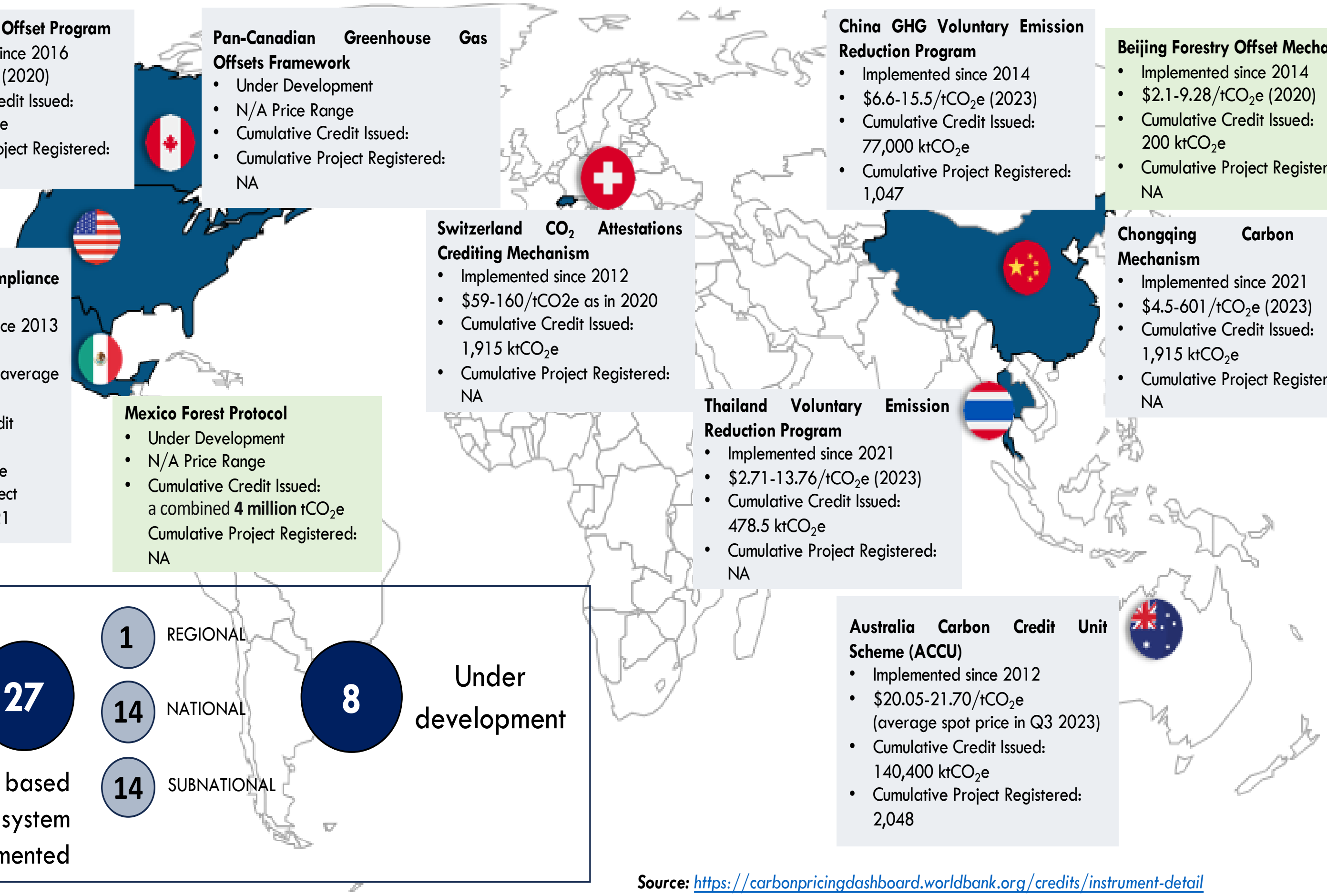


Source: ADB (2023). National Strategies For Carbon Markets Under The Paris Agreement Making Informed Policy Choices November 2023. Available At Https://Www.Adb.Org/Sites/Default/Files/Publication/928596/National-strategies-carbon-markets-paris-agreement.Pdf

Linking FCO program to different market will require a clear decision to join/adhere/seek endorsement that is informed by the implications on how the linkages will influence the design of the protocol regarding capacities, procedures, IT platforms, governance, corresponding adjustments among other aspects.

GOVERNMENT BASED CARBON CREDITING SCHEME

The creation of govt-based crediting systems facilitates Article 6 transactions through co-certification by both buyer and seller countries - **ensuring that credits are both credible and context-relevant.**



British Columbia Offset Program
- Implemented since 2016
- \$6-12/tCO_2e (2020)
- Cumulative Credit Issued: 17,151 ktCO_2e
- Cumulative Project Registered: 46

Pan-Canadian Greenhouse Gas Offsets Framework
- Under Development
- N/A Price Range
- Cumulative Credit Issued:
- Cumulative Project Registered: NA

California Compliance Offset Program
- Implemented since 2013
- \$20.99/tCO_2e (weighted average price for 2023)
- Cumulative Credit Issued: 256,912 ktCO_2e
- Cumulative Project Registered: 521

Mexico Forest Protocol
- Under Development
- N/A Price Range
- Cumulative Credit Issued: a combined **4 million** tCO_2e Cumulative Project Registered: NA

Switzerland CO_2 Attestations Crediting Mechanism
- Implemented since 2012
- \$59-160/tCO2e as in 2020
- Cumulative Credit Issued: 1,915 ktCO_2e
- Cumulative Project Registered: NA

China GHG Voluntary Emission Reduction Program
- Implemented since 2014
- \$6.6-15.5/tCO_2e (2023)
- Cumulative Credit Issued: 77,000 ktCO_2e
- Cumulative Project Registered: 1,047

Beijing Forestry Offset Mechanism
- Implemented since 2014
- \$2.1-9.28/tCO_2e (2020)
- Cumulative Credit Issued: 200 ktCO_2e
- Cumulative Project Registered: NA

Chongqing Carbon Offset Mechanism
- Implemented since 2021
- \$4.5-601/tCO_2e (2023)
- Cumulative Credit Issued: 1,915 ktCO_2e
- Cumulative Project Registered: NA

Thailand Voluntary Emission Reduction Program
- Implemented since 2021
- \$2.71-13.76/tCO_2e (2023)
- Cumulative Credit Issued: 478.5 ktCO_2e
- Cumulative Project Registered: NA

Australia Carbon Credit Unit Scheme (ACCU)
- Implemented since 2012
- \$20.05-21.70/tCO_2e (average spot price in Q3 2023)
- Cumulative Credit Issued: 140,400 ktCO_2e
- Cumulative Project Registered: 2,048

27 Govt. based crediting system implemented

1 REGIONAL

14 NATIONAL

14 SUBNATIONAL

8 Under development

Source: https://carbonpricingdashboard.worldbank.org/credits/instrument-detail

"1.5 Million Hectares Rice Paddy Project- Thailand"

Aims to create a total of approximately 200,000 tons of credits over 10 years.

Green Carbon Inc. (CEO: Jun Okita, hereinafter referred to as Green Carbon), a company engaged in nature-based carbon credit creation and sales, has launched the "1.5 Million Hectares Rice Paddy Project" aiming to create carbon credits in half of the AWD (Alternate Wetting and Drying) capable rice paddies in Thailand in 2027. As the first phase, demonstration in Kamphaeng Phet Province, northern Thailand, to create carbon credits from rice paddies.

To be certified by TVER & Japan Crediting mechanism

"When is now, if not today!"

MALAYSIA FOREST
FUND

I Thank you I