Sector Spotlight: Case study of transition finance within the real estate sector

Panittra Vejjajiva

Head of ESG Solutions, UOB Thailand

GFANZ Glasgow Financial Alliance for Net Zero Asia Pacific Network

SEC

UN environment programme | finance initiative

Financing the Future - UOB's Transition Journey: Real Estate

Panittra Vejjajiva

Head of Financial Institutions and ESG Solutions
United Overseas Bank (Thai)

14 July 2025

In 2022, we announced our commitment to achieving net zero by 2050, with a focus on 6 priority sectors

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**

Covers **~60%** of our corporate lending portfolio

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

Our commitments were defined in line with guidance by the **Net Zero Banking Alliance (NZBA)** and the **Glasgow Financial Alliance for Net Zero (GFANZ)**

Source: 1) Our World in Data

UOB focuses on four key areas in its holistic transition plan

Our ambition is to be a leading sustainable bank in Southeast Asia, Balancing growth with responsibility through supporting a just transition

Developing granular sectoral plans

Setting targets, measuring progress, and capturing opportunities across sectors to achieve our overall decarbonisation ambitions

Supporting our customers

Providing advisory and financial solutions to help our customers in their decarbonisation journey

Embedding net zero in our operating model

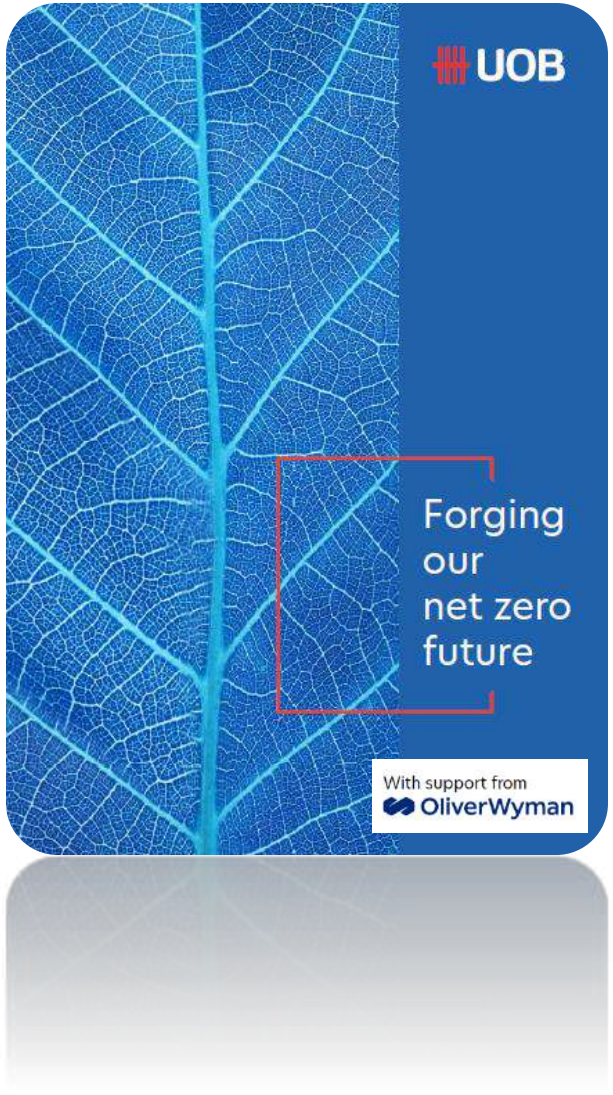
Enhancing our operating model across governance, policies, processes and capabilities to support our decarbonisation efforts

Driving effective stakeholder engagement

Working collaboratively with a broader ecosystem of governments , regulators, industry and trade associations, and peers to drive collective action

Designing a sectoral net-zero pathway: real estate net zero as a case study

Alignment with best practices for Net Zero



In October 2022, we shared our commitment to achieving net zero for our financed emissions by 2050, and became a signatory of the Net Zero Banking Alliance (NZBA).

Glasgow Financial Alliance for Net Zero (GFANZ)

for guidance on how financial institutions should set targets and use sectoral pathways

Partnership for Carbon Accounting Financials (PCAF)

for data quality score guidance on what data and methodologies to use to calculate client-level GHG emissions

Paris Agreement Capital Transition Assessment (PACTA)

for guidance on both client-level GHG emissions calculations and aggregation of our emissions

Science Based Targets initiative (SBTi)

for sector specific target-setting guidance.

Net Zero is core to our strategy…

- Set net zero targets across 6 priority sectors in 2022
- Resolved to managing climate risk and greenwashing effectively
- Developed ambitious commercial targets to capture revenue potential

… Steps to designing a sector Net Zero pathway …

1 **Choose Sectors**

Principles to adopt when deciding sectors

2 **Scope of Sector**

Decisions to make within each sector

3 **Mapping the Pathway and Setting Target**

Strategies to reach Net Zero

1

Choose sectors – the principles to consider

UOB six sectors chosen based on materiality

Principles for prioritising sectors

1 Emissions materiality

Focus on "brown" sectors with highest GHG emissions and criticality for achieving climate goals

2 Sector abatement horizon

Focus on sectors with largest expected decline in GHG emissions in coming years

3 Portfolio materiality

Cover sectors representing a significant portion of UOB book, where the Bank has greatest potential to effect change

~ 60% of our corporate lending portfolio

1

Choose sectors – Real estate forms an integral part of overall built environment ecosystem

Built environment value chain – real estate, construction, and steel sectors

Material manufacturing (cement* and steel) › **Construction** › **Development and operations**

- Examples: cement and steel manufacturers
- Responsible for operational emissions during manufacturing processes such as cement calcination and plant fuel use

- Examples: construction companies and contractors
- Responsible for operational emissions during construction processes such as vehicle fuel use, and electricity used in construction sites

- Examples: real estate developers and operators
- Responsible for operational emissions in building operations such as electricity used

* Cement is excluded from target calculation

2

Scope of sector – key decisions to make

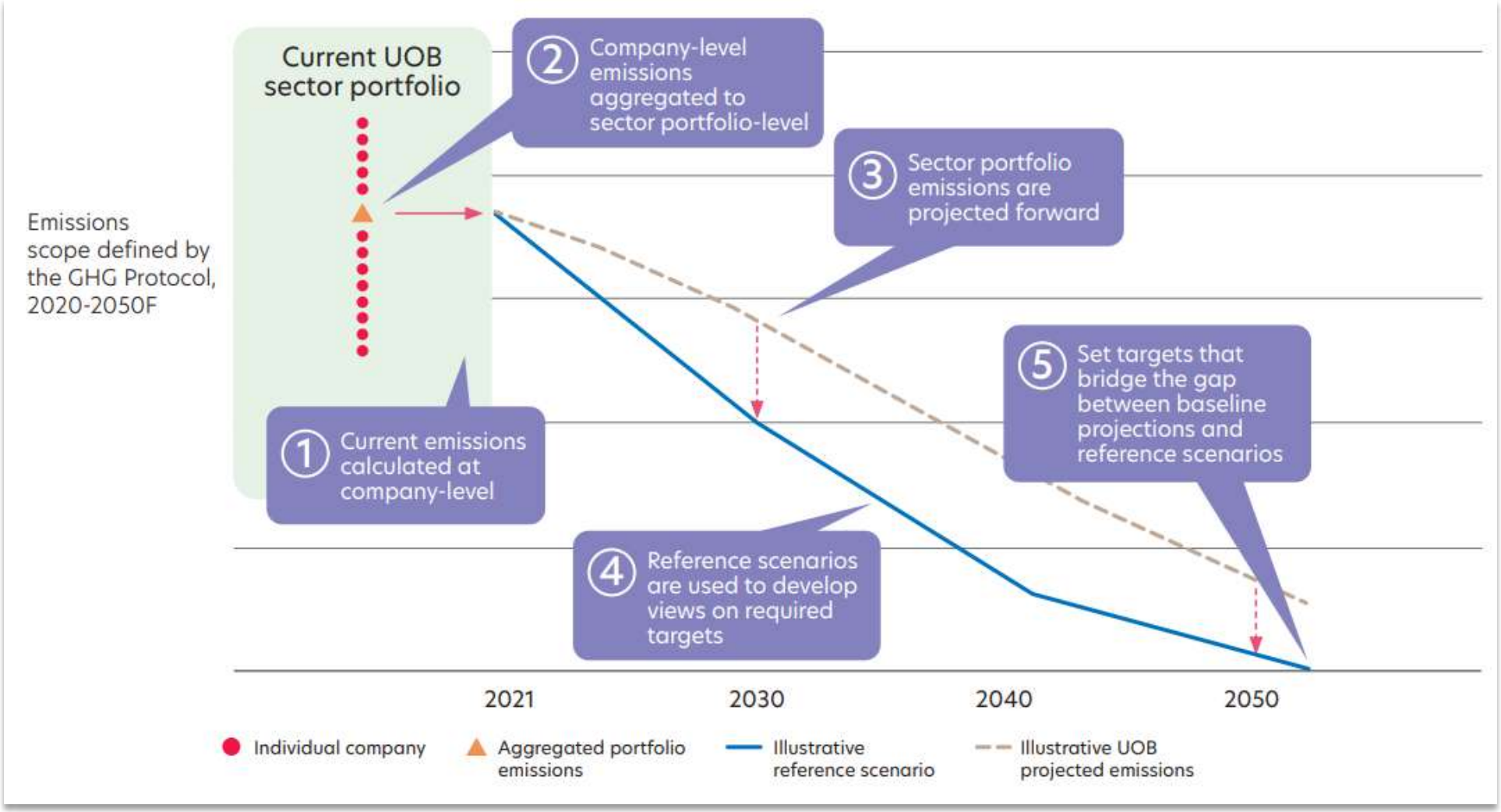
Sector Example: Real estate

Emissions Scope	Value Chain Players	Emissions Metric	Reference Pathway
Operational (Scope 1 & 2)	Upstream: Developers / Investment Companies	Physical Emissions Intensity: $kgCO_2/m^2$	CRREM Emissions Intensity $1.5^{O}C$ ($kgCO_2/m^2$)
	Downstream: REITs / Operators		
Covers 78% of **sector GHG emissions**	Covers > 85% # of clients and **loan exposure**	Considers the demand expectations and preferred client profile	Align with regional portfolio, value chain players and emissions metric

3

Mapping the pathway & target setting - strategies to reach Net Zero

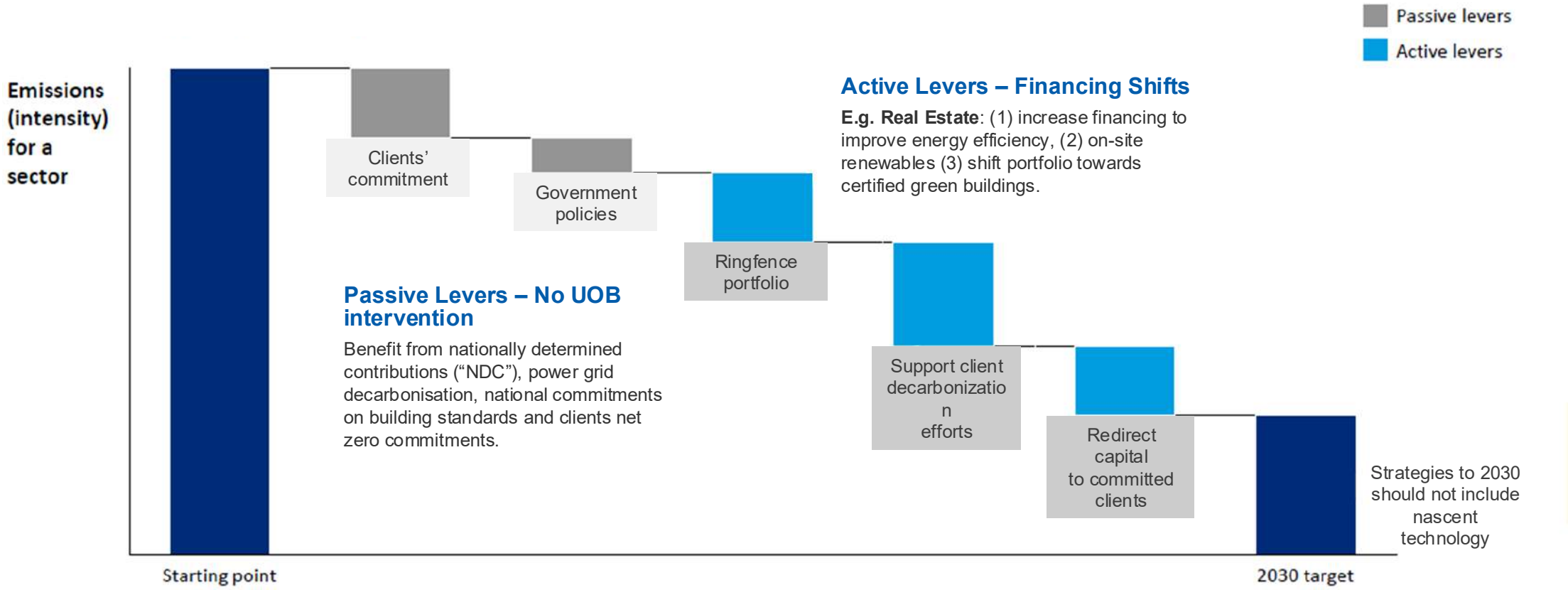
Five-step approach to setting targets and baselines



3

Mapping the pathway & target setting - strategies to reach Net Zero

Real estate serves as an illustrative example of green strategies



While the long-term goal is to be 2050 Net Zero aligned, we have set interim 2030 targets to channel our efforts to shape our portfolio accordingly in the next decade and explored green sector strategies available to meet our interim targets

Example: Net Zero for Real Estate

Commitment	36% reduction by 2030 (interim) and 97% by 2050
Metric measured	Physical emissions intensity, measured as kilograms of CO_2 produced per square metre of floor space ($kgCO_2/m^2$)
Emissions scope	Scope 1 and 2 operational emissions
Value chain scope	Investment companies
	Real estate investment trusts
	Developers
	Operators
Reference pathway used	Regional – Carbon Risk Real Estate Monitor (CRREM)

Supporting our customers

Key types of ESG financing instruments

Green Instruments

Proceeds directed to an eligible project with clear environmental benefits.

Sustainability-Linked Instruments

To improve sustainability management and achieve ambitious targets.

Sustainable Trade Finance

Proceeds directed to support the purchase and sales of sustainable goods and services.

Transition Finance

Support the transition of energy-intensive and hard-to-abate sectors.

Achievement of agreed-upon External ESG Rating

Achievement of agreed-upon Sustainability Performance Targets

UOB Frameworks validated by: ERM

UOB Sustainable Finance Frameworks 2025

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

Sustainability Linked Finance Framework

Supports companies with financial incentives linked to achievement of sustainability targets

- Client's own Sustainability Performance Targets (SPTs), validated by a Second Party Opinion (SPO)

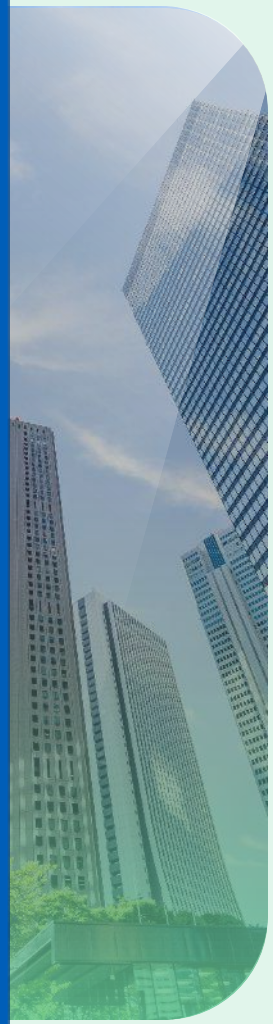
- or -

Pre-validated SPT options:

- **Option 1:** Reduction of GHG Emissions
- **Option 2:** Certification of Management System
- **Option 3:** Improvement of ESG Rating

UN SDGs: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17

UOB Green Building Framework ("GBF")



How We Build Our Cities

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

* Data Centres are covered under UOB Sustainable Cities Framework

Green Building Certifications accepted across all countries and property types (excluding Data Centres*)

- BEAM Plus – Gold; or Platinum
- BREEAM – Excellent; or Outstanding
- CASBEE – A; or S
- EPC – B; or above
- EDGE – Advanced; or Zero Carbon
- GBEL – 3-Star
- GBI – Gold; or Platinum
- GM:2021 – GoldPlus; or Platinum; or GoldPlus Super Low Energy ("SLE"); or Platinum SLE
- GM Restaurants – GoldPlus; or Platinum
- GreenRE – Gold; or Platinum
- GRA Green Restaurant – 4-Star
- G-SEED – Green2; or Green1
- Green Star Buildings – Certified, and comply with Climate Positive Path; or 5-Star; or 6-Star
- Green Star Homes – Certified, and comply with Renewable Energy Pathway A or B, and do not include swimming pool
- GREENSHIP – Gold; or Platinum
- IGBC Green Homes V3.0 – Certified; or above
- IGBC Net Zero Energy Buildings Rating System – Net Zero Rating
- LEED – Gold; or Platinum
- Living Building Challenge – Zero; or Petal; or Living
- LOTUS – Platinum
- NABERS – 4.5 Stars; or above
- NatHERS – 7-Star; or above
- TREES – Gold; or Platinum

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

UOB Sustainable Cities Framework ("SCF")

How We Power Our World

Energy

- Solar
- Wind
- Ocean
- Hydropower
- Geothermal
- Biomass, Biofuel & Bioenergy
- Waste-to-Energy
- Hydrogen Production
- Electricity Generation from Hydrogen
- Electricity Generation from Fossil Gas
- Heating & Cooling
- Batteries
- Storage of Electricity
- Storage of Hydrogen or its Derivatives
- T&D of Electricity
- T&D of Renewable & Low-Carbon Gases

How We Harness Technology

ICT

- Data Processing, Storage, Transmission & Management (Data Centres)
- GHG-related Solutions & Software

How We Transform Resources

Chemicals

- Basic Chemicals
- Plastics

Metals & Mining

- Iron Ore Mining
- Lithium Hard Rock Mining
- Nickel Ore Mining
- Copper Ore Mining
- Basic Iron & Steel
- Aluminum

Building Materials & Equipment

- Cement
- Other Building Materials
- Energy Efficient Equipment & Products

Water

- Water Abstraction & Treatment
- Water Distribution Networks
- Desalination
- Water Efficiency
- Water Storage
- Wastewater Collection & Treatment

How We Move Around

Transport

- Land Transport
- Water Transport
- Air Transport
- Transport Infrastructure

How We Mitigate & Adapt

Carbon Capture & Storage

- Point-Source Capture of CO_2
- Transportation of Captured CO_2
- Permanent Sequestration of Captured CO_2
- Research, Development & Innovation for CCS

Climate Change Adaptation

- Urban Heat Island & Outdoor Thermal Comfort
- Flood Defense & Coastal Protection
- Drought & Wildfire Mitigation

Pollution Prevention & Control

- Air Pollution

Waste

- Waste Collection & Transportation
- Biowaste Treatment
- Landfill Gas Capture & Utilisation

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

De-carbonizing your business with U-Series

UOB

U-Solar

- One-stop solar solution
- Direct savings on electricity bill
- Flexible financing plans with minimum upfront costs
- Trusted partners using quality equipment

Solar Project Developer | Solar EPC Contractor | Equipment Supplier | End-Users (Building owners & homeowners)

U-Energy

- Electricity bill savings with reduced energy consumption
- Zero capital outlay via 'energy-as-service' model
- Potential to lead to green building certification
- Trusted partners using quality equipment

End-Users (Building owners & homeowners) | Energy Service Company | M & E Contractor | Equipment Supplier

U-Drive

- Switch to EV and reduce carbon emissions
- End-to-end solution that simplifies your electrification journey
- Support Auto Brands' penetration into local markets leveraging on UOB's strong ASEAN footprint

Automotive OEM | Dealer | End-Users (Fleet owners & individuals) | EV Charging Infrastructure Provider

For more details of U-Series

UOB Sustainability Compass

Simplify the journey to Sustainability

Let UOB Sustainability Compass lead the way

Start your sustainability journey with a tool that generates a customised guide for busy business owners

- Identify your sustainability maturity stage
- Practical action plan with clear, actionable next steps
- Sector-specific regulations and standards
- Sustainable financing solutions

"Discover more about the Sustainability Compass"

22-page Sustainability Compass Report

Our progress

Power
(kgCO$_2$/MWh)

37% below pathway

Automotive
(gCO$_2$/vehicle-km)

4% below pathway

Note: We have updated both our reference pathway, including our 2030 target, and portfolio data to be in line with the latest market practice. For data consistency, we have omitted 2021 figures.

Oil and gas (O&G)

No new project financing for upstream projects approved for development after 2022

Coal

No new project financing of greenfield or expansion of coal-fired power plants and thermal coal mines; Exit financing for thermal coal sector by 2039

Real estate
(kgCO$_2$/m^2)

11% below pathway

Construction
(tCO$_2$/S$million)

18% below pathway

Steel
(tCO$_2$/tonne)

6% below pathway

- Energy
- Built environment

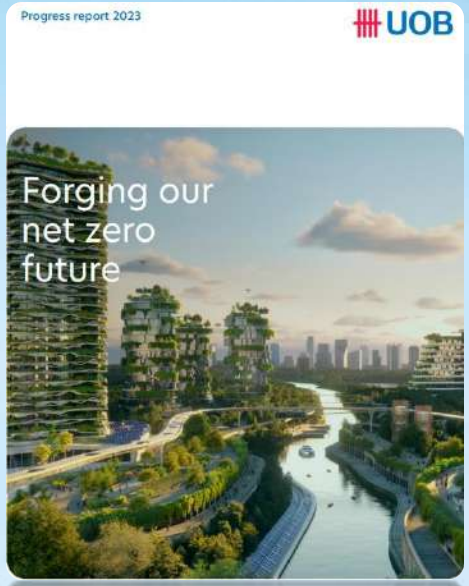
— Reference pathways
- **Power:** NGFS REMIND (regional)
- **Automotive:** IEA NZE 2050 (global)
- **Real Estate:** CRREM (regional)
- **Construction:** NGFS GCAM (regional)
- **Steel:** MPP Tech Moratorium (global)

● UOB data

● UOB data (NEDC for Automotive)

▲▲ 2021 ■■ 2022 ◆◆ 2023

UOB Commitment to Achieving Net Zero



UOB Net Zero Progress Report 2023

UOB Thailand Sustainability Report 2024

More details: ***www.uob.co.th/sustainability-en***

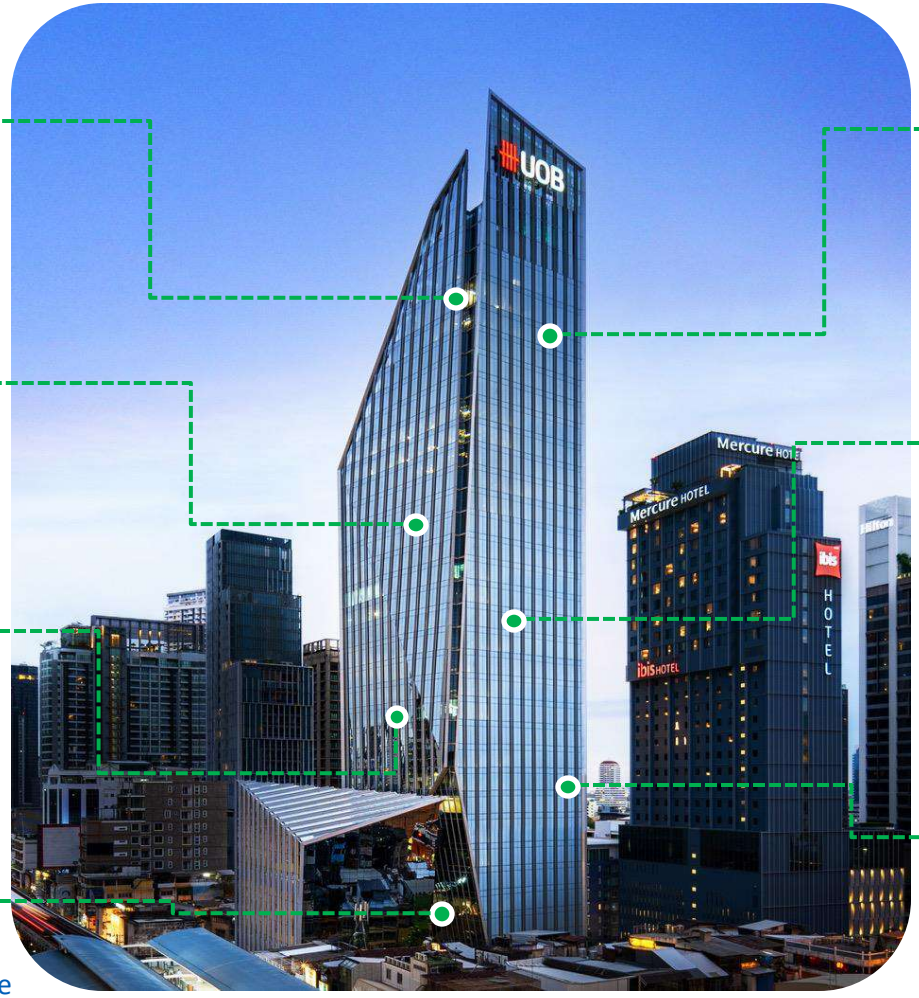
UOB Plaza Bangkok

Smart Building Systems
Enables smooth daily operations

High Efficient Chiller Plant System
Balances energy efficiency and thermal comfort

Indoor Air Quality
Keeps PM 2.5, PM 10 and CO2 low

Flood and Earthquake Resilient
Elevated base for flood protection & able to withstand severe seismic activity (within magnitude of 7 points on the Richter scale)



Green Building Envelop
Reduces pollution, UV rays, noise and heat gain

Green Building Materials
Incorporates environmentally friendly furnishing, appliances and stationery

Waste-To-Wonder
Reduces waste-to-landfill, increases recycling, and creates compost out of food waste

Right By You

Sector Spotlight: Case study of transition finance within the automotive sector

Kelvin Tan

Managing Director, Head of Sustainability and Government Affairs, ASEAN, HSBC

GFANZ
Glasgow Financial Alliance for Net Zero
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Transition Finance in the Automotive Sector

- **The Fortitude Series: What is Transition Finance?**

14 July 2025

Kelvin Tan
Head of Sustainability and Government Affairs, ASEAN

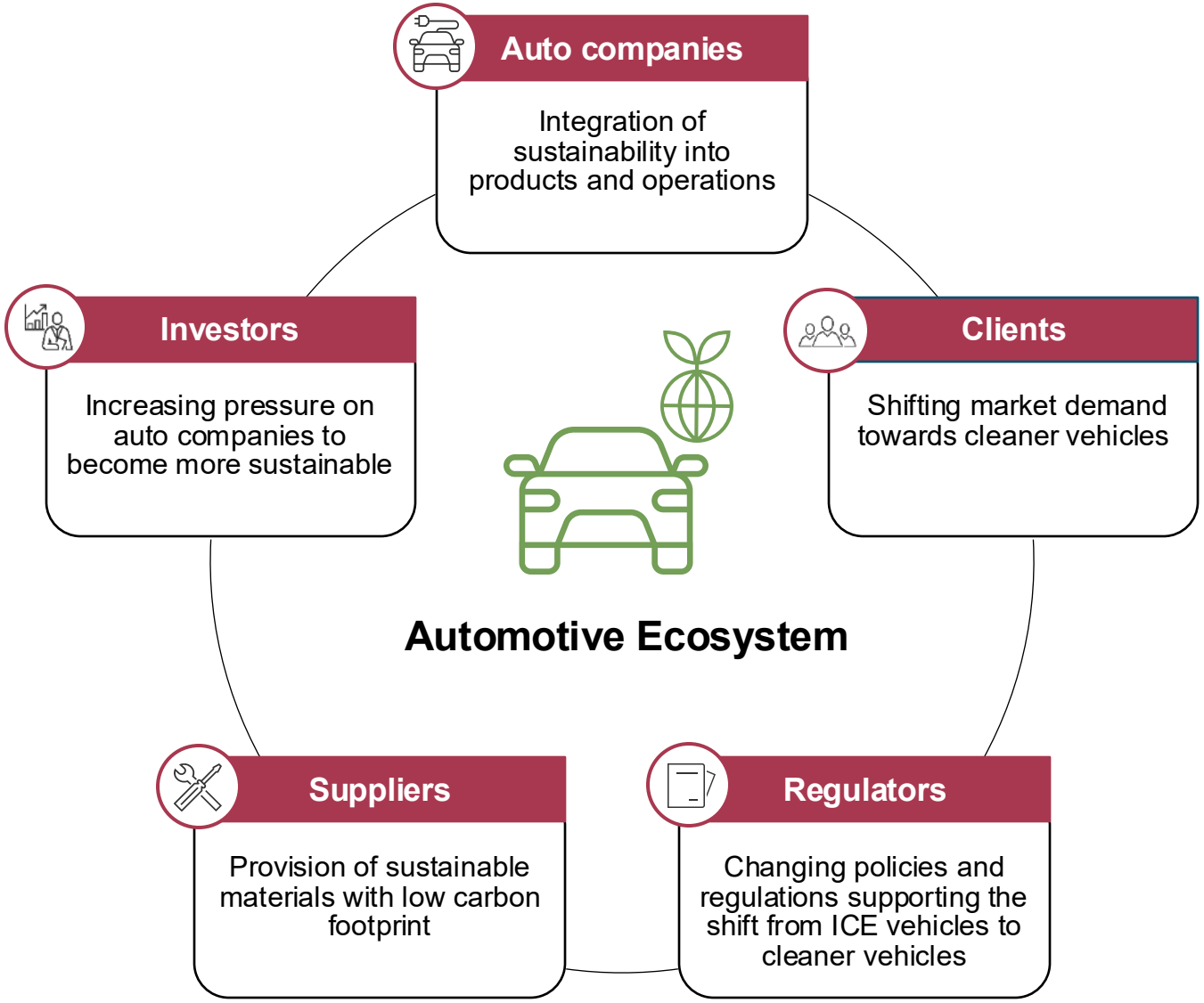
Agenda

• 1	• Transition in the automotive sector	
• 2	• Supporting our customers on their transition	

Transition in the automotive sector

HSBC

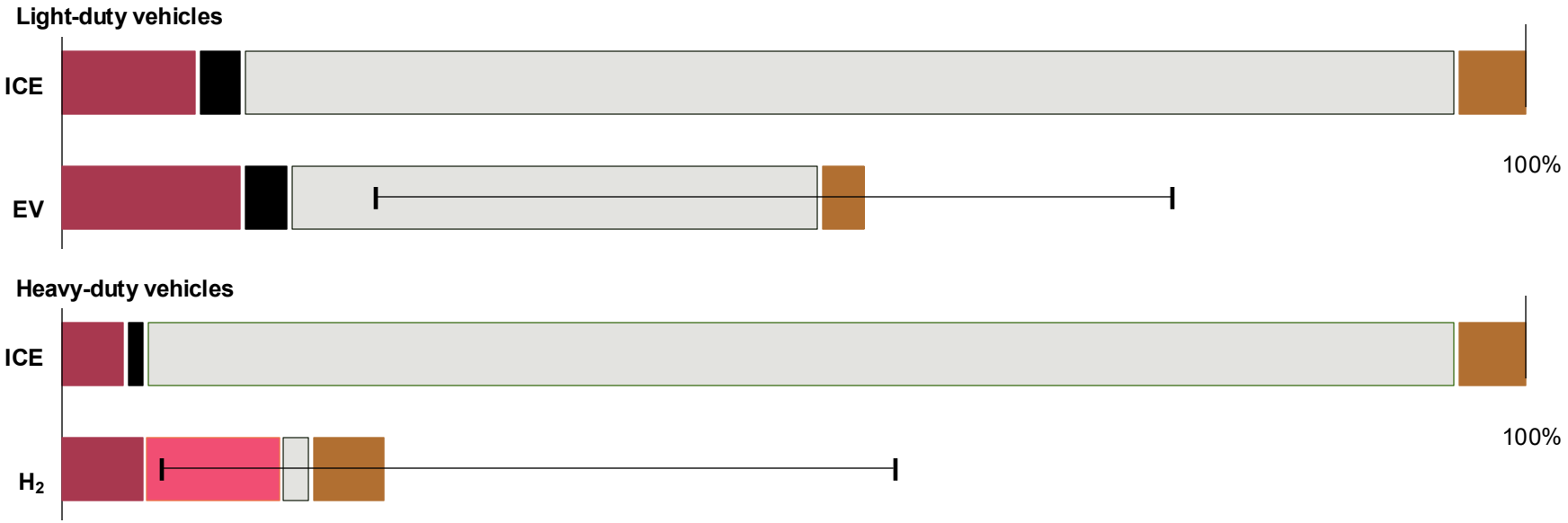
The transition in the automotive sector will involve all stakeholders in the ecosystem



For auto manufacturers, the majority of total emissions is scope 3 emissions from fuel combustion during the lifetime use of vehicles

Automotive value chain – Emissions sources (% per vehicle) for ICE, EV light-duty vehicles and hydrogen heavy-duty vehicles in 2021[1]

Upstream	Midstream	Downstream	
Materials	Manufacturing	Use of transport	End-of-life[2]
Sourcing of raw materials, extraction of minerals, etc Hydrogen production, refining	Manufacturing of components and vehicle assembly	Direct emissions from vehicle use and maintenance (well-to-wheel for ICE, and battery charging for EV[3]	Recycling, material recovery and disposal of vehicles and batteries



Automobile manufacturer emissions classification

Scope 1

Greenhouse gas (GHG) emissions that an organization emits from sources it owns or controls directly

i.e. emissions from the direct manufacturing of vehicles

Scope 2

GHG emissions arising from the generation of electricity, steam, heat or cooling purchased by companies

i.e. associated emissions from the energy procured to power the manufacturing process

Scope 3

GHG emissions arising across the value chain, both upstream and downstream

i.e. includes the following:

- Emissions from the supply and manufacture of materials (e.g. steel)
- Tank-to-wheel emissions from the use of the vehicles
- End of life dismantling and waste processing

- 1) Source: Analysis deduced from IEA (2023) Energy Technology Perspectives 2023, UK Department for Transport (2021) Lifecycle Analysis of UK Road Vehicles
- 2) End-of-life emissions are not included in the IEA's estimates. Depending on scenario assumptions around the volume of recycling, EOL activities could reduce overall lifecycle emissions of vehicles by up to 18%.
- 3) The main EV emissions are related to the electricity that is used to charge the battery. Though classified under use of transport, these emissions are actually realised at generation point, not point of use.

The decarbonisation of the automotive industry involves multiple levers, including electrification which is key to reduce scope 3 emissions

Decarbonisation levers in the automotive industry

Electrification

- Switching internal combustion engine (ICE) vehicles to battery electric vehicles (BEV) for passenger and light-duty commercial applications, and a mix of BEVs and hydrogen fuel cell electric vehicles (FCEVs) in heavy-duty applications

Clean electricity and transportation

- Using electricity from renewable energy sources to reduce emissions from manufacturing operations
- Using low-carbon transportation for inbound and outbound logistics

Sustainable materials and eco-design

- Using sustainable version of materials which have a lower carbon footprint (e.g. green steel)
- Using less materials or using lightweight materials to make vehicle lighter, which can reduce fuel/electricity consumption for vehicles

Circularity and end-of-life treatment

- Optimise design to make vehicles easier to recycle
- Processing end-of-life vehicles to recover and recycle materials, and increasing the use of recycled materials (e.g. batteries, steel, aluminium), which reduces the use of virgin materials

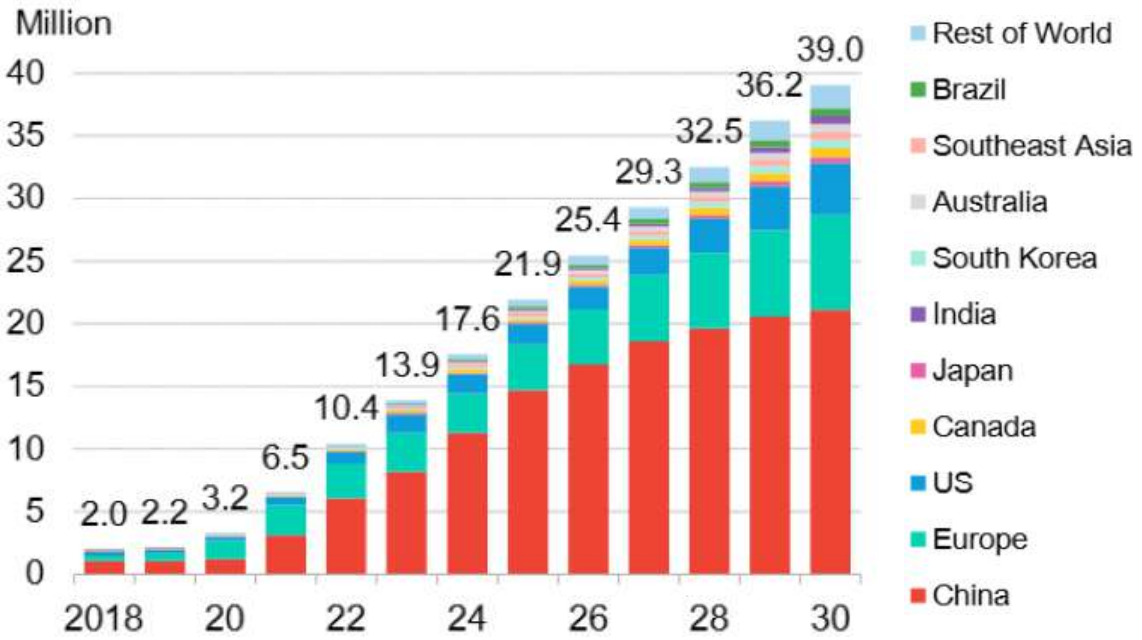
New mobility solutions

- Fostering novel approaches, such as mobility-as-a-service, autonomous vehicles and innovative logistics, which can help reduce kilometres travelled and decongest roads

Global EV sales are growing fast

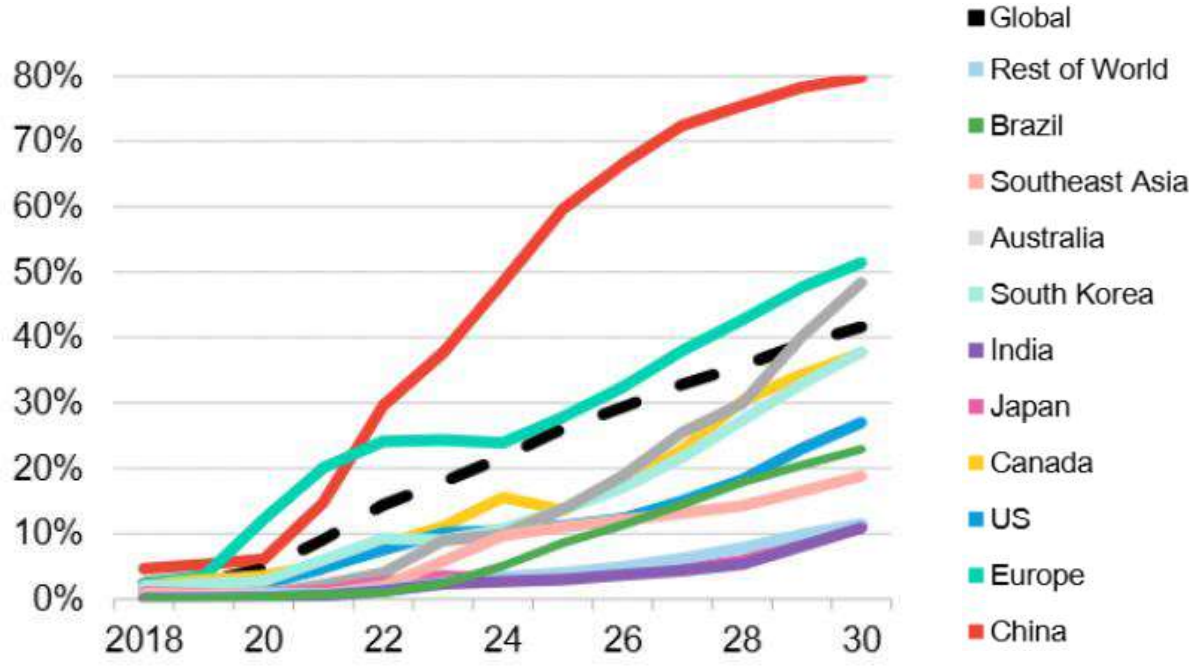
In 2025, EV sales are expected to amount to ~22 million vehicles, representing a 24% increase from 2024

Passenger EV sales by market[1]



EV share of global new passenger vehicle sales is expected to increase from 26% in 2025 to 42% in 2030

EV share of new passenger vehicle sales by market[2]



Generally, to accelerate the shift to EVs, there will be a need for:

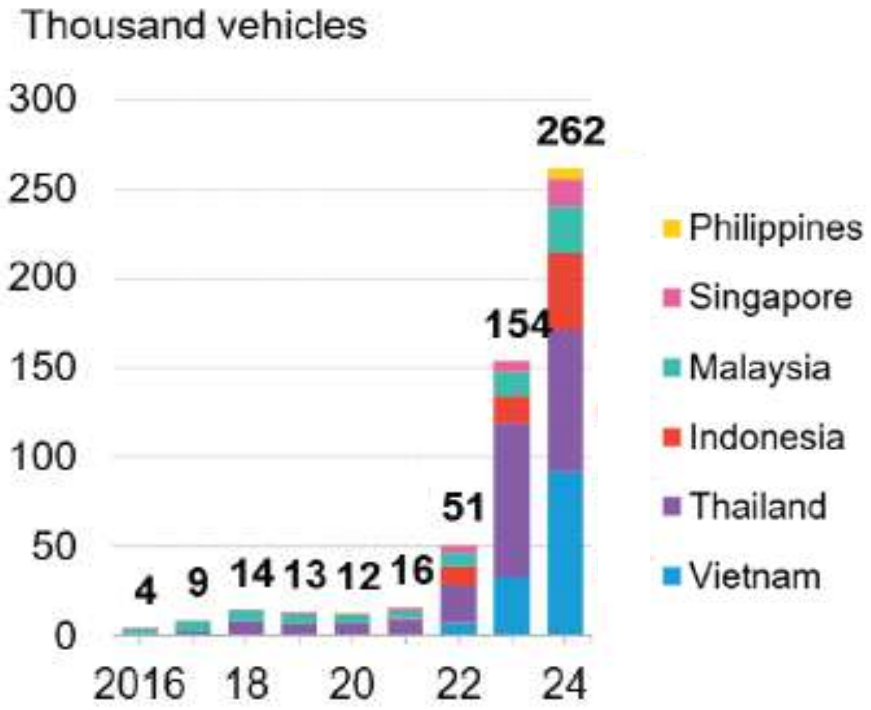
- **Government interventions,** e.g. tailpipe emissions standards, phase-out dates for new ICE vehicle sales, EV fleet targets and EV production subsidies
- **Targeted support to drive consumer uptake,** e.g. upfront subsidies, tax incentives, relief from congestion charges and tolls, and rapid rollout of charging networks
- **Uninterrupted supply of critical metals for battery manufacturing**, which can be supported via streamlined permitting, expedited development of new mines, and enhanced recycling

1) Source: BloombergNEF, Electric Vehicle Outlook 2025, 18 June 2025
2) Source: BloombergNEF, Electric Vehicle Outlook 2025, 18 June 2025

The adoption of EVs is rising in Southeast Asia

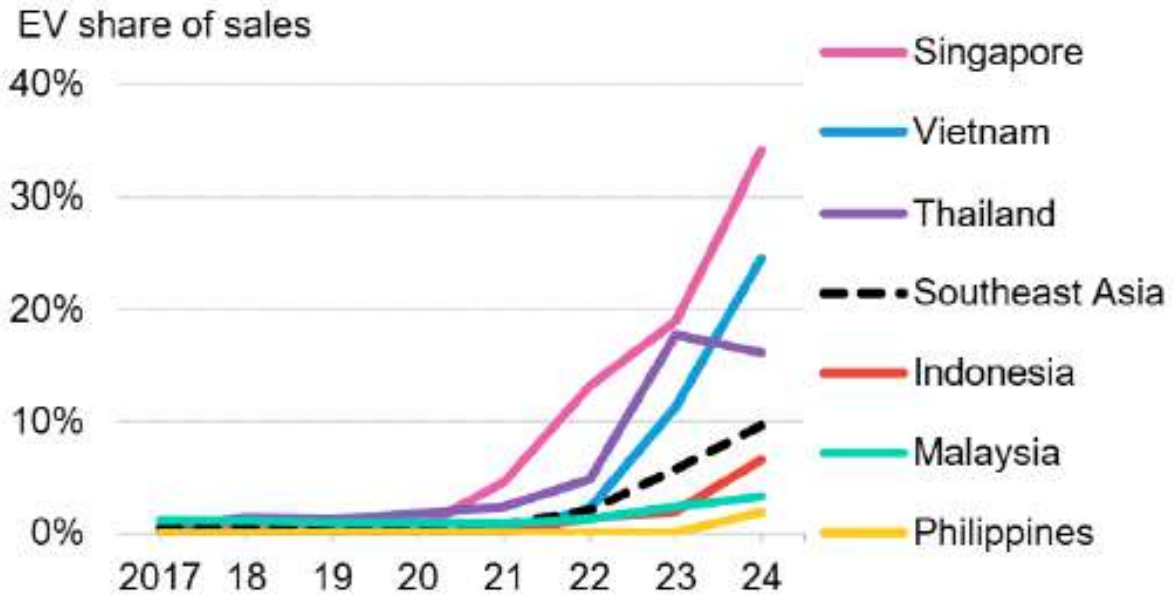
Sales of passenger EVs increased by 70% in 2024

Annual passenger EV sales by country in Southeast Asia[1]



Singapore and Vietnam are currently leading the region on passenger EV adoption

EV share of new passenger vehicle sales by country in Southeast Asia[2]



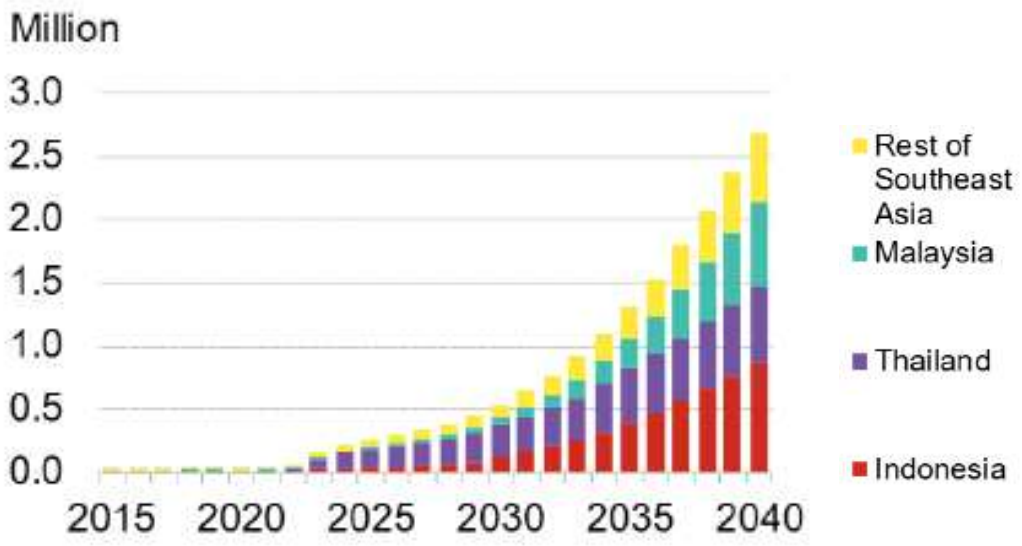
- The combination of supportive policies with an increase in the number of available EV models has supported the growth of EV sales in Southeast Asia.
- Vietnam has now the biggest market in terms of EV sales in Southeast Asia, representing almost 35% of all EV sales in the region, while Thailand is the second largest market
- 9.6% of all passenger vehicles sales in Southeast Asia in 2024 were EVs

- 1) Source: BloombergNEF, Southeast Asia EV Market Update: Adoption Picks Up, 28 March 2025
- 2) Source: BloombergNEF, Southeast Asia EV Market Update: Adoption Picks Up, 28 March 2025

In the long term, Thailand and Singapore are expected to have the highest EV adoption rates in Southeast Asia

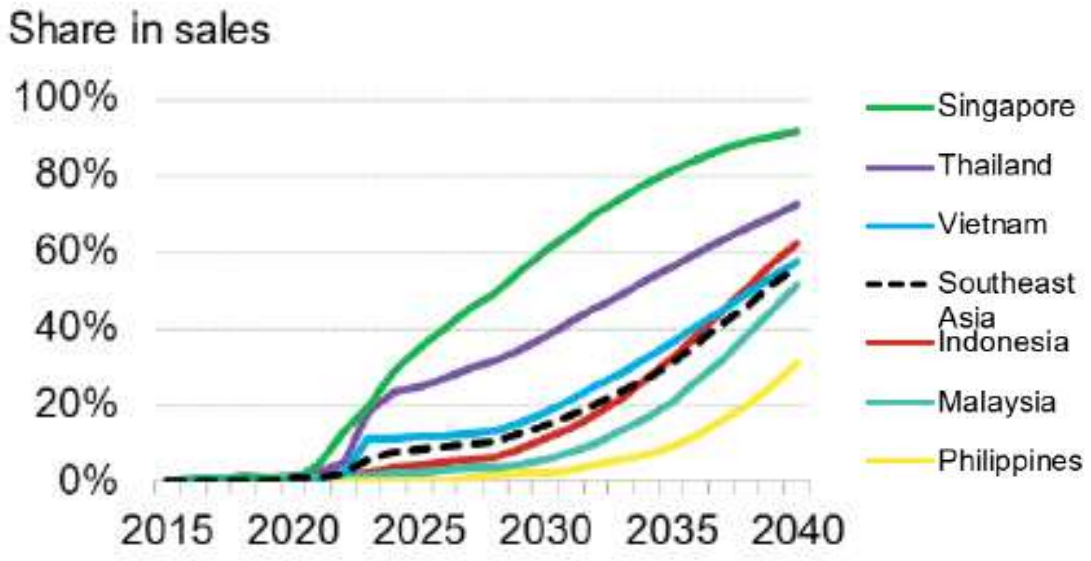
Annual EV sales in Southeast Asia are expected to exceed 2.5 million of vehicles by 2040

Annual passenger EV sales by country[1]



By 2040, almost 60% of all passenger vehicle sales in Southeast Asia will be EVs

EV share of new passenger vehicle sales by country[2]



- With the most supportive EV policies and higher per capita GDP, Thailand and Singapore are expected to lead the region in EV adoption. These countries also possess stable electricity infrastructure, and relatively more companies are seeking to deploy charging infrastructure
- In Indonesia, as Chinese and Korean automakers build local manufacturing plants and release new EV models, EV adoption is expected to increase

- 1) Source: BloombergNEF, Southeast Asia Electric Vehicle Outlook 2024, 26 August 2024
- 2) Source: BloombergNEF, Southeast Asia Electric Vehicle Outlook 2024, 26 August 2024

Thailand has become Southeast Asia's leading EV manufacturing hub

Thailand has been introducing supportive EV policies and regulations

Major EV support policies and regulations in Thailand[1]

2017

- **Excise taxes lowered** to 2% for BEVs and 5-25% for PHEVs based on CO2 emissions
- Corporate income tax and machinery import tariff reductions for EVs

2020

- **Corporate income tax exemption** for EV makers for three years
- **Import duty reduction** of 90% for two years on raw materials used for battery cells and modules

2022

- **Purchase subsidies and tax incentives** for electric passenger vehicles, pick-up trucks and two-wheelers
- **Import duty reduction** on BEVs depending on vehicle price
- **Excise duty reduction** on BEVs from 8% to 2%

2023

- **Purchase subsidies and tax incentives** for electric passenger vehicles, pick-up trucks and two-wheelers subject to local production requirements to be met through 2027
- **Import duty reduction** on BEVs depending on vehicle price
- **Excise duty reduction** on BEVs from 8% to 2%

2024

- **Lower excise duties** on hybrid vehicles to 6%-9% (from 8%-16%) for automakers that make an investment of at least THB3bn from 2024 to 2027

A number of Chinese automakers have built EV manufacturing plants in Thailand

Current presence of selected EV makers in SEA[2]

Automaker	Operational manufacturing plants in SEA	
	Vehicles	Batteries
BYD	Thailand	
MG	Thailand, Indonesia	
GWM	Thailand	Indonesia
Hozon Auto (Neta)	Thailand, Indonesia	
GAC Motor	Thailand	
Wuling	Thailand, Indonesia, Vietnam	
Hyundai	Thailand, Indonesia, Singapore, Vietnam	Indonesia

Chinese automakers

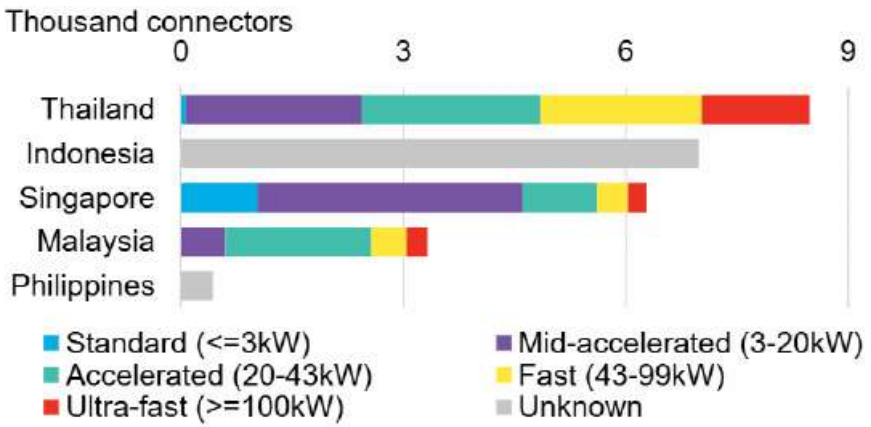
Korean automakers

- 1) Source: BloombergNEF, Southeast Asia Electric Vehicle Outlook 2024, 26 August 2024
- 2) Source: BloombergNEF, Southeast Asia EV Market Update: Adoption Picks Up, 28 March 2025

Southeast Asia's EV charging connectors are growing, especially in Thailand

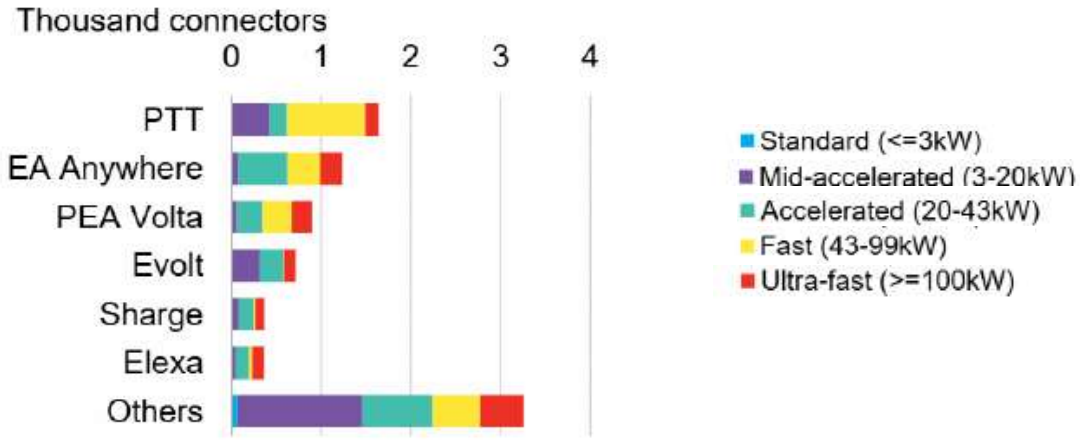
Southeast Asia (ex. Vietnam) had 25,500 public charging connectors installed by 2024 (+c.56% YoY)[1]

Number of public EV charging points in selected Southeast Asian markets, 2024[1]



Over 33% of Southeast Asian public EV charging connectors were in Thailand, which also has the region's largest EV fleet[1]

Cumulative public EV charging connectors of the largest operators by power capacity in Thailand[2]



Charging Infrastructure Trends in Thailand

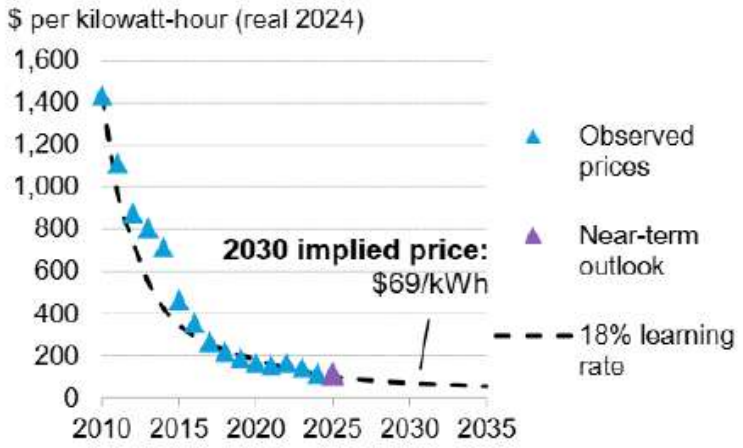
- **Thailand is expanding its fast-charging network:** 43% of its public EV charging points are capable of delivering power at 43 kilowatts or more
- **State-owned companies dominate public EV charging networks in Thailand:**
  - 33% of the country's public EV charging connectors are operated by state-owned companies, such as PTT, Provincial Electricity Authority and Metropolitan Electricity
  - Private operators include EA Anywhere (owned by Energy Absolute), Evolt Technologies and Sharge

- 1) Source: BloombergNEF, Southeast Asia Electric Vehicle Market Update: Adoption Picks Up, 28 March 2025 - Note: data for the Philippines as of FEB25. For Indonesia, BNEF assumes each charging station has two connectors.
- 2) Source: BloombergNEF, Southeast Asia Electric Vehicle Market Update: Adoption Picks Up, 28 March 2025

Battery prices are falling and manufacturing capacity is rising

Overall, battery prices continue to decline

Lithium–ion battery pack price outlook[1]

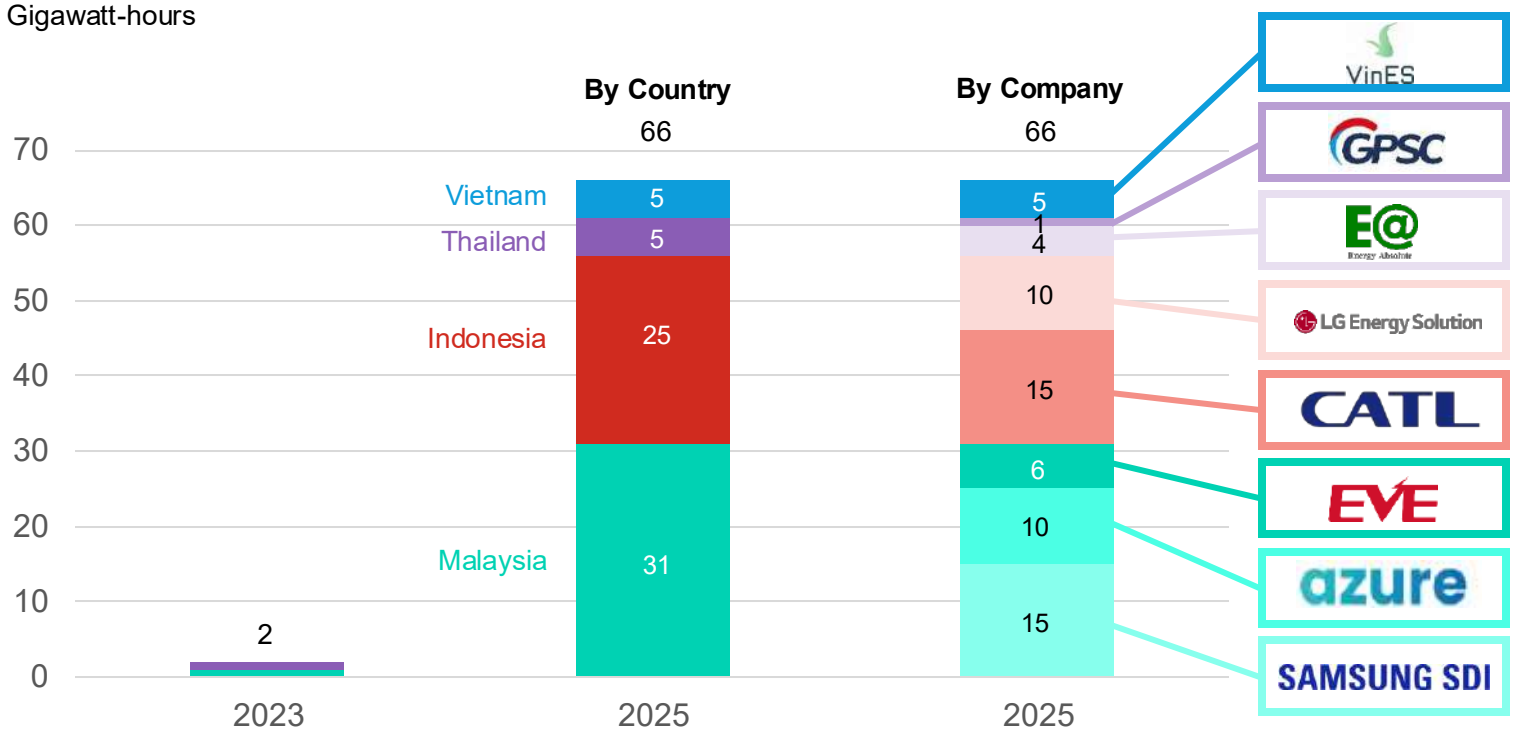


In 2024, lithium–ion battery pack prices fell by 20% - the biggest drop since 2017[1]

- **Battery price packs have been falling** - between 2010 and 2023, prices have fallen 90%[2]
- **In the long-term, battery prices are expected to keep declining** as the industry continues to grow and adopt cheaper technology

Southeast Asia's battery manufacturing capacity could rise to 66GWh this year

Proposed lithium–ion battery cell manufacturing capacity in Southeast Asia[2]

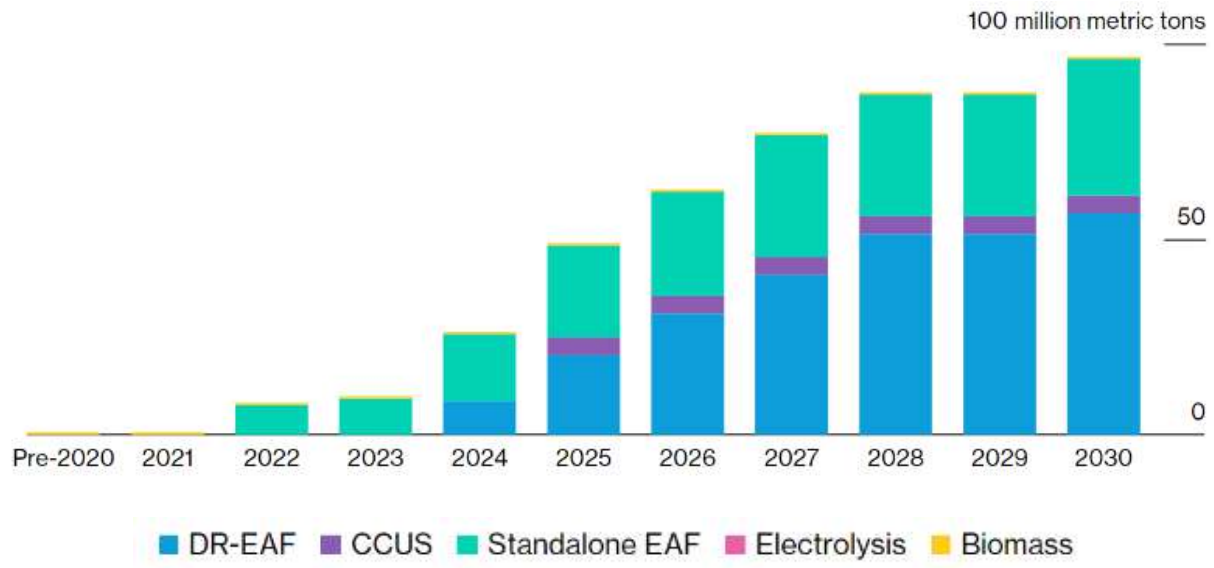


- 1) Source: BloombergNEF, Electric Vehicle Outlook 2025, 18 June 2025
- 2) Source: BloombergNEF, Southeast Asia Electric Vehicle Outlook 2024, 26 August 2024

In addition to electrification, the automotive industry can further reduce emissions by using sustainable materials, such as low-emissions steel

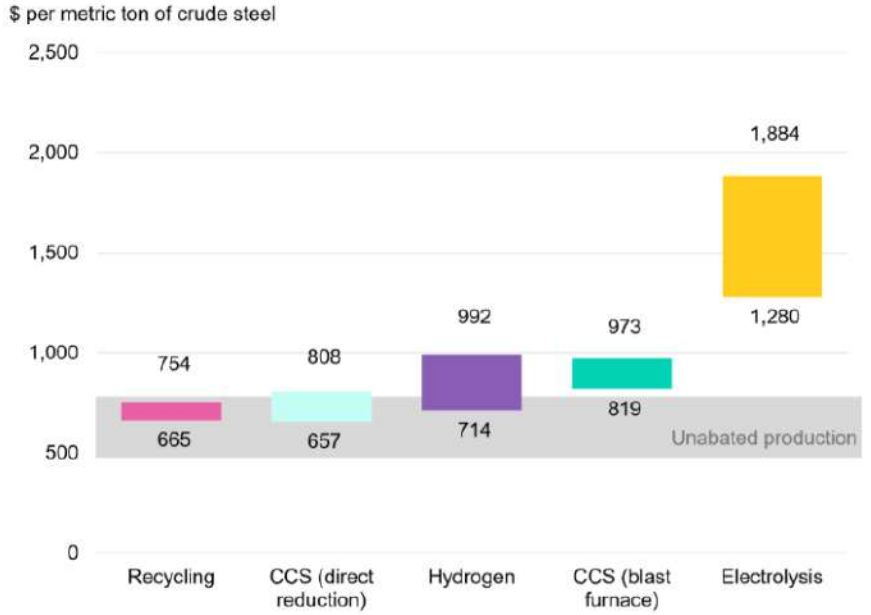
Based on announcements from steel producers, global production capacity for low-emissions steel could amount to approximately 100 million tons per year by 2030

Proposed low-emissions steel production capacity, by abatement technology and commissioning year[1]



But low-emissions steel will come with a green premium

Levelised cost of net-zero steel production, 2030[2]



- The automotive industry can play a role in supporting steel producers to invest in low-emissions steel production. Most green steel projects are financed using project finance, and offtake agreements from customers committing to procure green steel can help de-risk those projects
- By 2030, the cost of some of the low-emissions steel production will be on par with the highest cost of unabated production. On average, the production of green steel is expected to be 66% more costly than existing production methods in 2030, and 39% by 2050

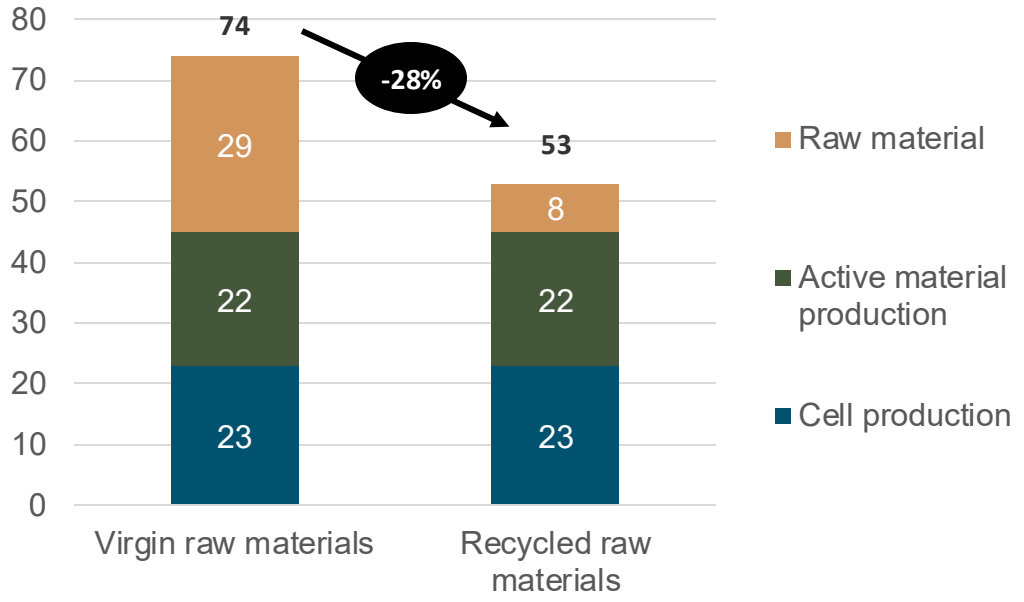
1) Source: BloombergNEF, public announcements. Note: Data is as of January 2024. Year is expected commissioning year. Projects without a commissioning year are not included. Only includes disclosed material production capacities. DR-EAG is direct reduction furnace (DR) and an electric arc furnace (EAF). The DR-EAF category includes both EAF capacity within DR-EAF plants and DR-EAF that discloses only steel capacity. CCUS is carbon capture, utilisation and storage. One EAF project coupled with smelting reduction is not represented.

2) Source: BloombergNEF, 2024 Levelised Cost of Net-Zero Materials. Note: CCS is carbon capture and storage. Carbon pricing for European unabated production is not included. Unabated production range includes existing and new-build plants. Costs are shown in real 2023 USD.

Circularity and end-of-life treatment will also be important to support the decarbonisation of the automotive industry

Recycled battery materials can help reduce carbon emissions from the production of batteries by 28%, compared to using virgin raw materials

Total CO2e battery cell production emissions from a nickel-based lithium-ion battery with virgin vs. recycled materials (kgCO2e per kWh)[1]



There are a few key enablers which can help accelerate materials circularity in the automotive industry[2]

Recoverable and recyclable materials	The design of the vehicle is adapted to improve the recoverability and recyclability of materials. This may involve reducing the variability and complexity of the materials used in a vehicle
Product passport	A product passport is implemented for vehicles and/or components and materials, providing relevant information, such as origin and material composition. This can help to enhance re-use, improve recycling rate and allow better traceability
Advanced recycling technology and infrastructure	Progress in recycling technologies can enhance recycling rates and the quality of recycled materials from end-of-life vehicles
Platform for trading circular inputs	A platform may be developed to match supply and demand for circular inputs (e.g. recycled materials, remanufactured components)

- 1) Source: McKinsey Battery Insights, United States, 2023 Q1. The recycled raw materials scenario assumes mechanical pre-treatment and hydrometallurgical recycling
- 2) Source: World Economic Forum, Raising Ambitions: A New Roadmap for the Automotive Circular Economy, December 2020

Supporting our customers on their transitions

HSBC

We offer transition solutions to support customers on their transitions

We have a range of solutions for our corporate and institutional clients as well as personal and private banking clients

For corporate & institutional clients	Green, sustainable and sustainability-linked bonds	Project finance
	Green and sustainability-linked loans	Financial advisory
	Sustainable trade finance solutions	Market solutions
	Solutions for SMEs (e.g. HSBC Sustainability Improvement Loan, Sustainability Tracker)	Solutions for institutional clients
For personal & private banking clients	Sustainable homes (e.g. green mortgages)	Sustainable consumption
	Sustainable mobility (EV loans)	Sustainable investing

We are helping to advance innovation to deliver transition solutions to our customers across four key areas

Financing sustainable infrastructure	Overcoming challenges to financing and investment in sustainable infrastructure to help decarbonise energy systems and hard-to-abate demand-side sectors, such as steel or cement
Scaling new economy companies	Scaling the new economy, including funding companies developing the climate technology solutions that can accelerate systemic change
Ecosystem collaboration for supply chain decarbonisation	Collaborating across ecosystems with large corporate customers, their suppliers, and other stakeholders to help decarbonise supply chains
Establishing natural capital as an asset class	Enabling positive outcomes for nature and mainstreaming nature-regenerative action by developing natural capital as an asset class

Case studies: HSBC is actively supporting the transition in the automotive industry (1/2)

Battery

Company overview

- AESC is a Japanese company that develops and manufactures batteries for EVs and energy storage systems

Transaction overview

- HSBC, with 4 other banks, provided GBP680 million in financing to AESC for the construction and operation of a new plant manufacturing batteries for EVs in the UK, powering up to 100,000 EVs each year
- National Wealth Fund and UK Export Finance provided financial guarantees to help unlock bank financing
- The Government's Automotive Transformation Fund also invested GPB150 million in grant funding

Sustainable operations for EV manufacturing

Company overview

- Geely Auto is a leading automobile manufacturer based in China

Transaction overview

- HSBC was Sole Global Coordinator, Joint Mandated Lead Arranger and Bookrunner, and Joint Sustainability Structuring Bank for a USD400 million sustainable club loan to Geely
- The proceeds from the loan were used to fund new facilities for production and distribution that meet a variety of environmental and social criteria and support R&D of low-carbon vehicles
- The deal was the first overseas sustainable club loan from a Chinese automaker

Case studies: HSBC is actively supporting the transition in the automotive industry (2/2)

Charging infrastructure

Company overview

- SP Mobility is a leading EV Charging Point Operator in Singapore and is part of SP Group

Transaction overview

- HSBC Asset Management Energy Transition Infrastructure (ETI) Team invested in SP Mobility
- The investment aims to support SP Mobility's mission to scale up its EV charging infrastructure

Company overview

- ChargePoint is a US Company that supplies EV charging hardware and software solutions to businesses that want to offer drivers access to charging stations

Transaction overview

- HSBC was Joint Lead Arranger for a USD150 million revolving credit facility to ChargePoint
- The facility helped strengthen ChargePoint's ability to grow with its market opportunities

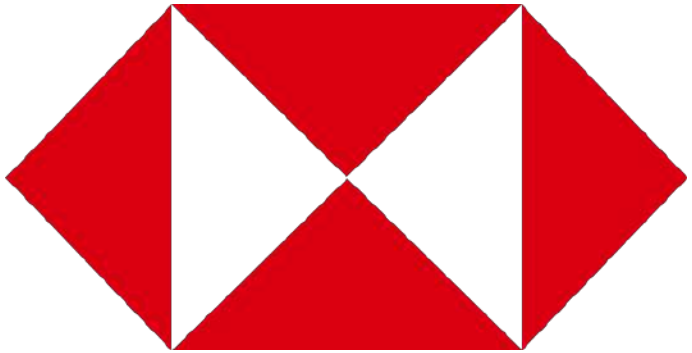
EV acquisition

Company overview

- Bluebird Group is an Indonesia-based company which is mainly engaged in taxi services and car rental
- Bluebird Group is committed to using 10% of electric vehicles by 2030

Transaction overview

- HSBC Indonesia provided a IDR350bn term loan financing to Bluebird Group, which includes a IDR50bn Green Term Loan which proceeds were used to import and purchase EVs from China



Opening up a world of opportunity

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Investor Spotlight: Nippon Life's Transition Finance Approach

Masaaki Iwabuchi

General Manager, Finance & Investment Planning Department, Nippon Life Insurance Company

GFANZ Glasgow Financial Alliance for Net Zero Asia Pacific Network

SEC

UN environment programme | finance initiative

Issuer Spotlight: Automotive Sector

Dr. Saruda Siriphattarapreecha

Sustainable Development Manager,
Fortune Parts Industry

GFANZ
Glasgow Financial Alliance for Net Zero
Asia Pacific Network

SEC

UN environment programme | finance initiative

Share ecology transition towards sustainable development

Experience Sharing Automotive Sector

Dr.Saruda Siriphattarapreecha

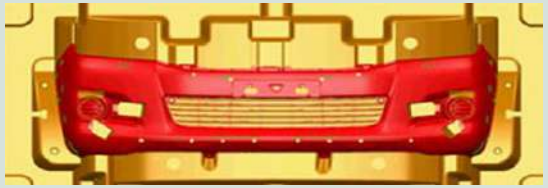
Executive Committee and

Sustainable Development Manager

What is Fortune Parts Industry's transition plan and climate target

Fortune parts industry public company limited

"An integrated automotive parts specialist, offering comprehensive services covering product design and development, mold manufacturing, plastic injection molding, chrome plating, and painting"



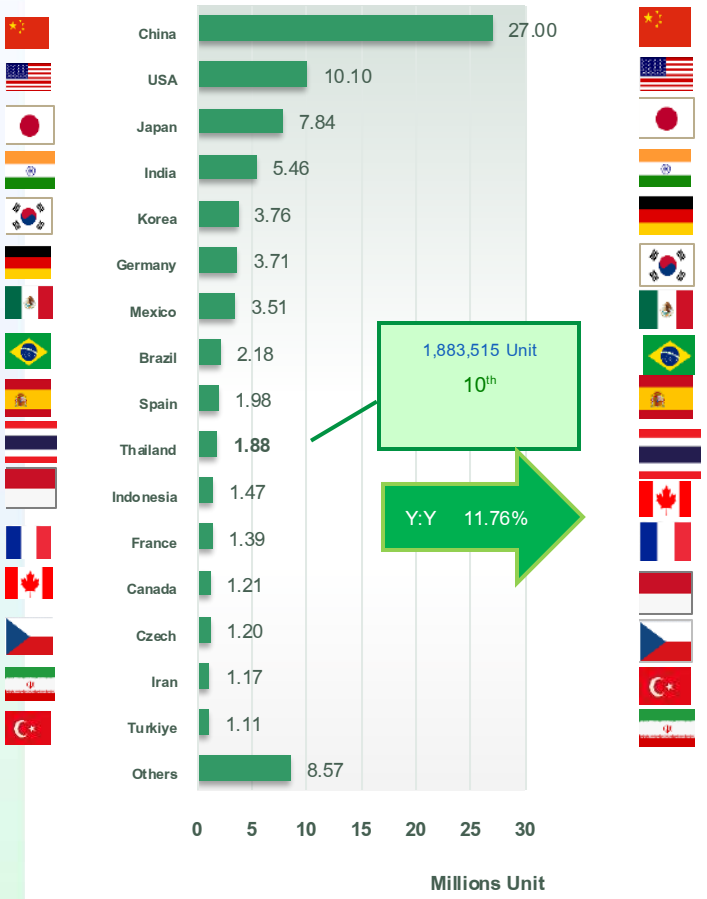
- IATF 16949: 2016 — Quality Management System for Automotive Industry
- ISO 14001: 2015 — Environmental Management System
- ISO 45001: 2016 — Occupational Health and Safety Management System
- TCAS 9-2022 — Plastics recycling traceability and assessment of conformity and recycled content
- ISO 9001: 2015 — Quality Management System
- ISO 50001: 2016 — Energy Management System
- CEMS 2 Part 2–2564: Circular Economy Management System for Organizations

Eco Excellence Centre

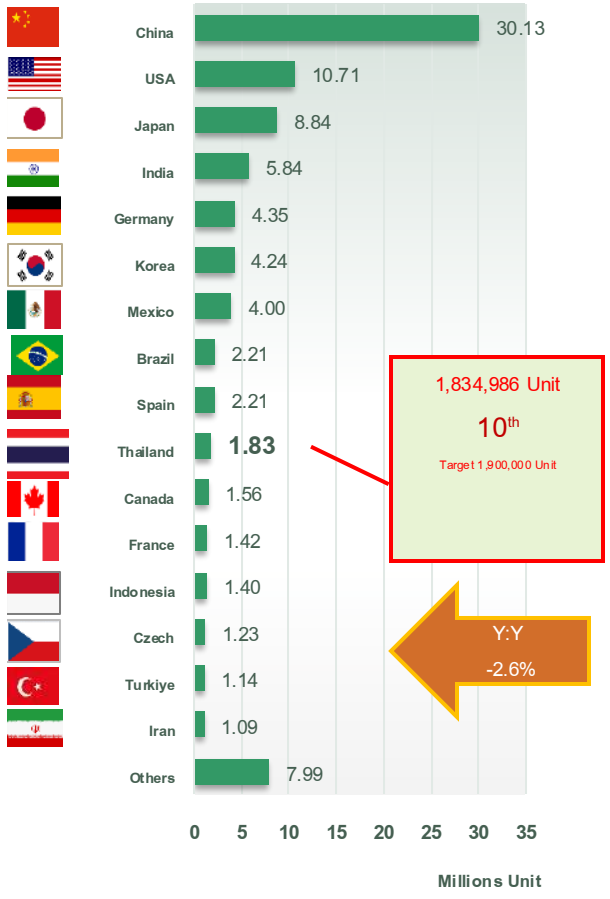
- Strategic consulting services to elevate Businesses toward sustainability
- sustainability reporting aligned with international standards
- Advisory services for achieving Net Zero Emissions
- Organizational assessment and development based on sustainability standards.

Production Statistic Range 2022 – 2025/05

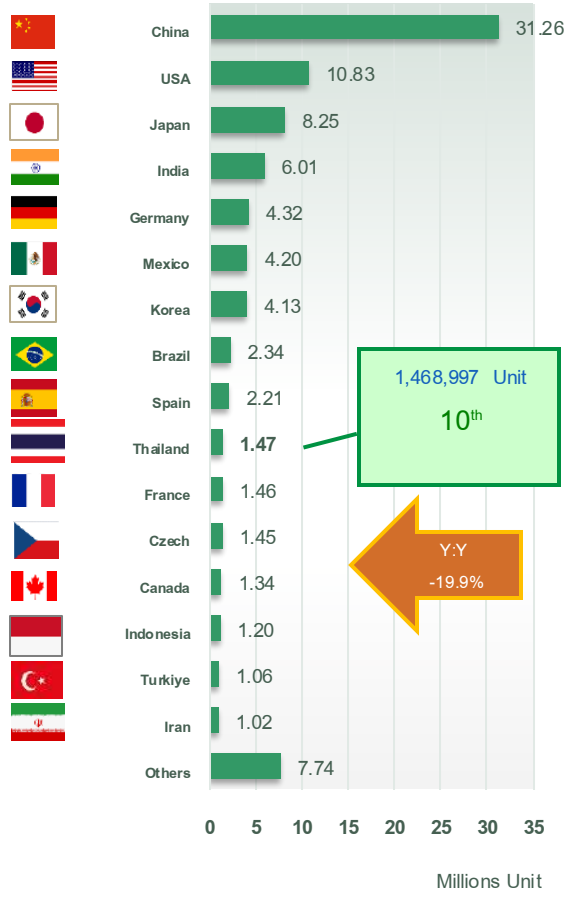
The Federation of Thai Industries (FTI) expects that the total production of all types of vehicles in 2025 will be 1.5 million vehicles.*



YEAR 2022



YEAR 2023



YEAR 2024

YEAR 2025

Report https://www.mreport.co.th/news/industry-movement/117-thailand-vehicle-production-forecast-2025

Moving Ahead of Change MARKLINES Automotive Industry Portal

Crisis regulations affecting the automotive and automotive parts industry

Measures to reduce CO2

1. CO2 Target (g/km)
2. GHG Target (g/km)
3. Fuel consumption (liter/100 km)
4. Fuel economy, Fuel efficiency (km/liter)
5. Energy consumption (MJ/km)

Calculation based on corporate average fuel economy (CAFE).

Australian New Vehicle Efficiency Standard (**NVES**)

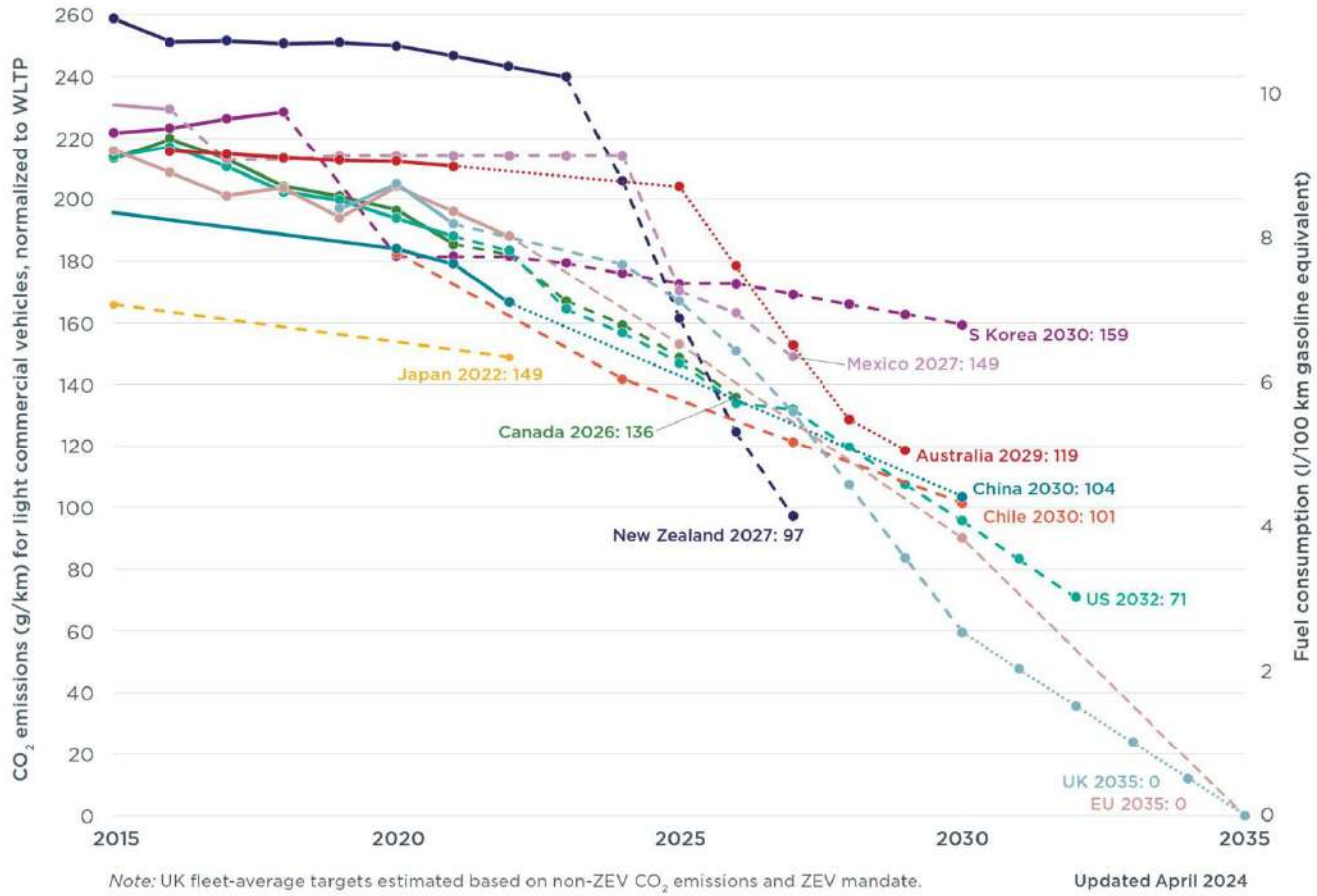
CO_2 Target for pick up trucks and vans

(g CO_2/km)

2025	2026	2027	2028	2029
210	180	150	122	110

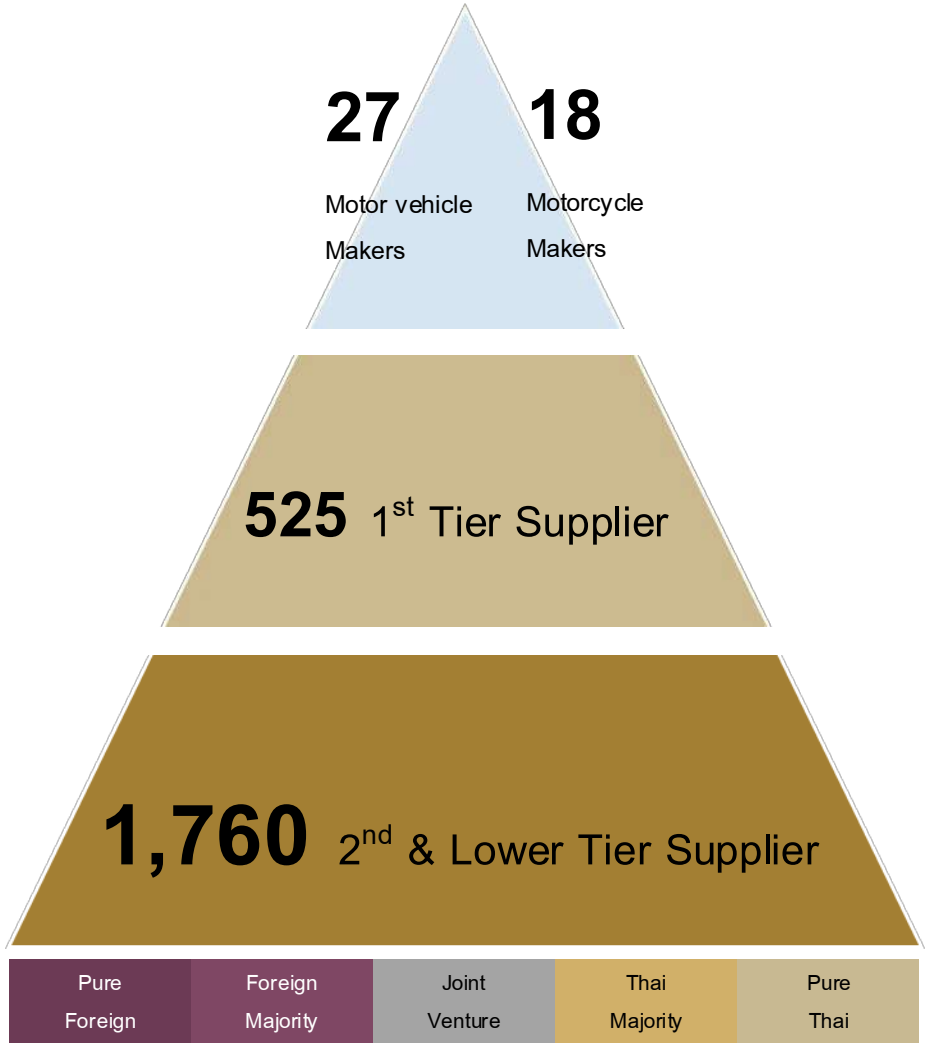
https://www.infrastructure.gov.au/sites/default/files/documents/nves-department-of-transport-and-main-roads-queensland.pdf

Target for Light Truck CO_2 Reduction



Source: The International Council on Clean Transportation, https://theicct.org/pv-fuel-economy/

Overview of automotive industry and automotive parts.



Data source from Thailand Automotive Institute, 2022

The Thai Auto-Parts Manufacturers Association (TAPMA)

- **Thai automotive industry** is structured in pyramid with car makers on top and auto parts makers in lower layers by deliveries.
- **27** motor vehicle makers and **18** motorcycle makers. Over 90% of which are owned by multinationals.
- **525** suppliers in 1st tier. About 65% of which are majority owned by foreigners.
- **1,760** suppliers in 2nd & lower tiers. About 70% of which are Thai owned.

The Automotive Transition Journey

Red/Brown
(High Carbon Intensity)

- Internal Combustion engine(ICE) manufacturers
- Fuel power engine parts
- Fossil fuel systems
- Assembly plants with no EV line
- ICE infrastructure

Amber/Less Brown
(Transitioning)

- Assembly plants adding EV line
- Tire makers reducing GHG emissions
- Plastics with recycled content
- GHG reduction logistics providers
- Remanufacturing of component

Green
(Low Carbon Intensity)

- EV only battery makers
- Renewable energy in value chain
- Circular auto businesses
- Recycling of end-of-life vehicles
- Remanufacturing of component

The FPI's Transition Journey toward a Green Business

40,323 tCO2eq

20,959 tCO2eq (without REC)

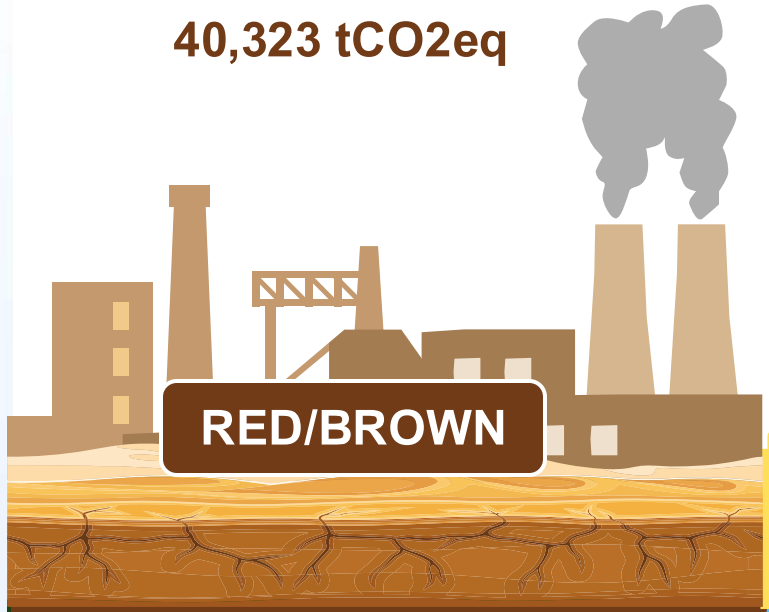
19,159 tCO2eq (with REC)

AMBER/LESS BROWN

Transition Activity

4,032 tCO2eq

90% GHG reduction



Pollution releasing activities emitting high levels of greenhouse gases

Low carbon products

Net Zero

36% Renewable Energy

84% Circular Material

100% Zero Waste to Landfill

17% Recycled Water

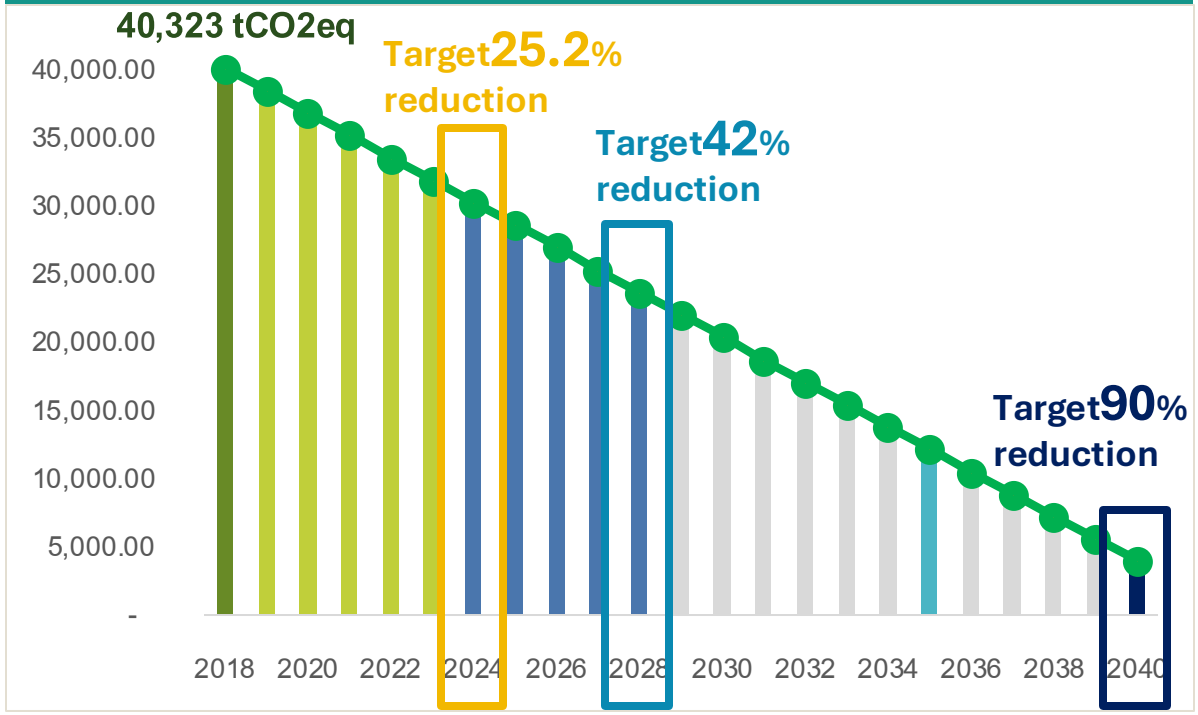
6 Year - 48%

2018 — 2024 — 16 Year 42% — 2040

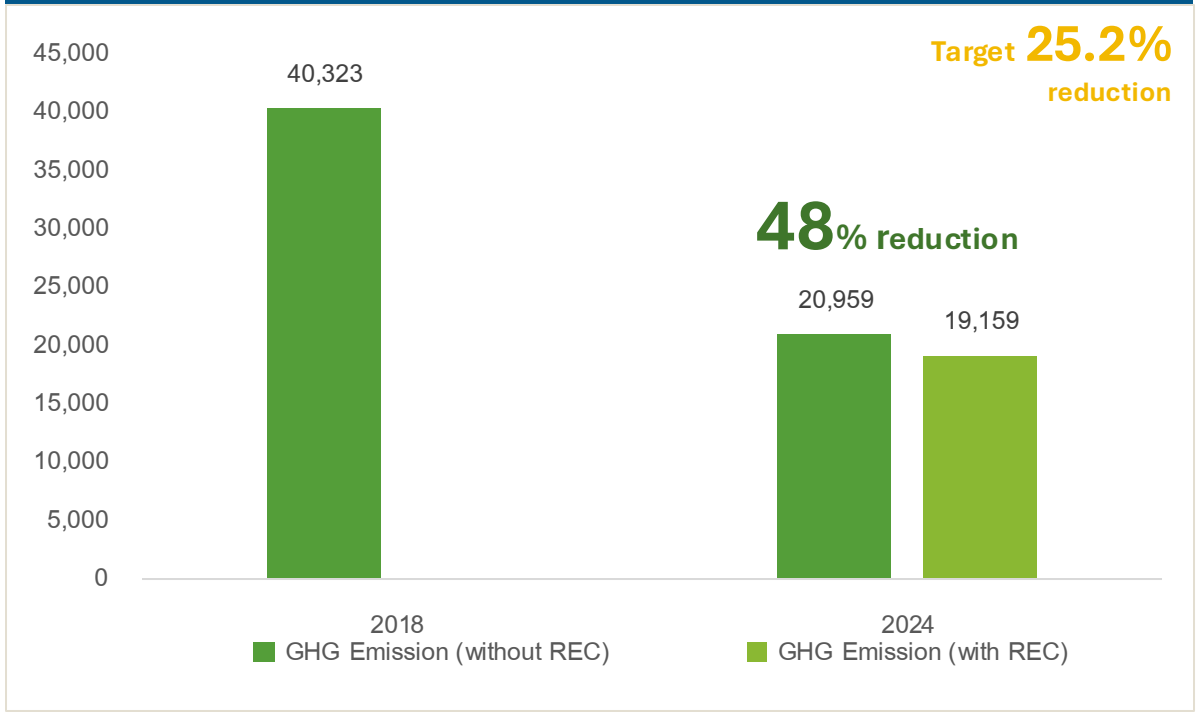
How Fortune Parts Industry has set targets

FPI's Strategic Approach to Setting Net Zero Targets

The 2040 Ambition: Our Long-Term GHG Reduction Goal



2024 Milestone Achieved : Outperforming Our Near-Term Target



FPI's Mid-Term Execution Plan (2024-2028): Bridging the Gap with Transition Finance

13 CLIMATE ACTION

What

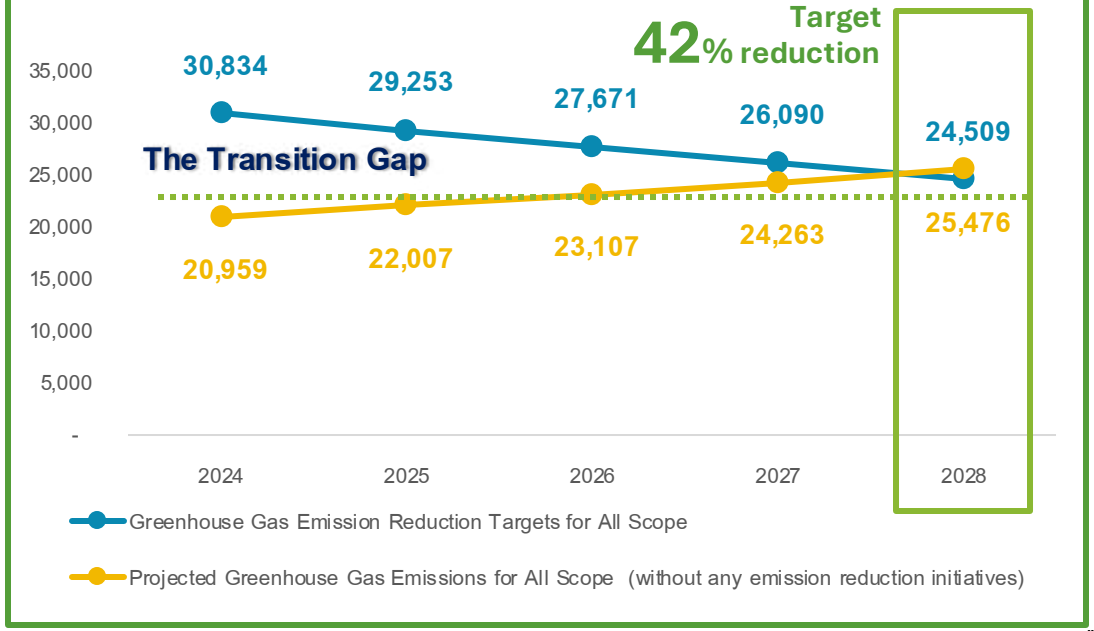
- Aligning with a 1.5°C Pathway
- Accelerating the Phase-Out of GHG-Intensive Assets
- Driving the Switch to Renewable Energy
- Integrating Green Finance into Our Core Strategy

How

49%
Low carbon product revenue

Green Revenue

Overall Mid-Term Target



Low Carbon Technology

Remanufacturer

24 %
GHG reduction

Three-dimensional (3D) printing

63%
GHG reduction

CE Design

100%
Waste to VALUE

84%
Recycled material

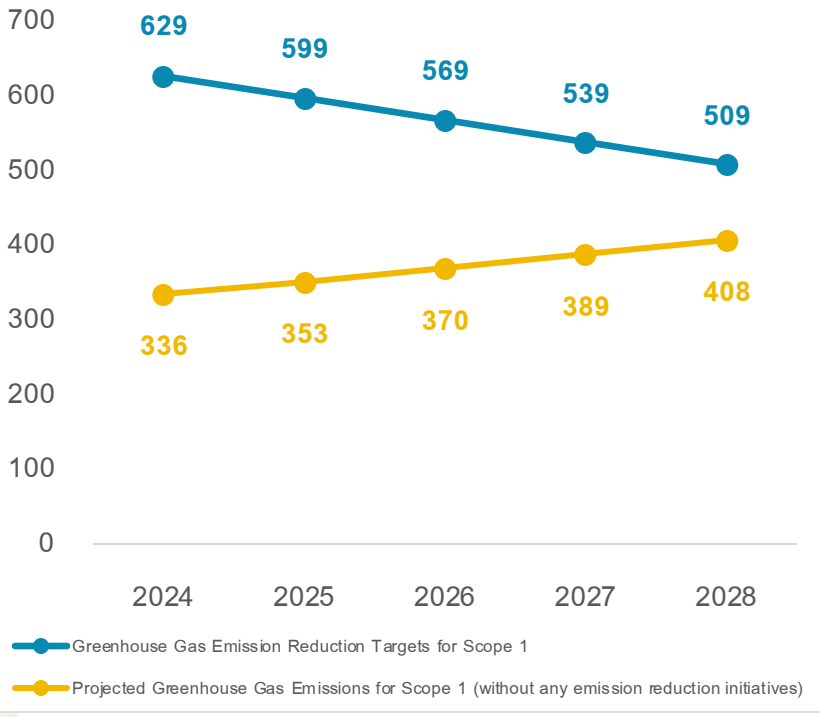
Renewable Energy

36%

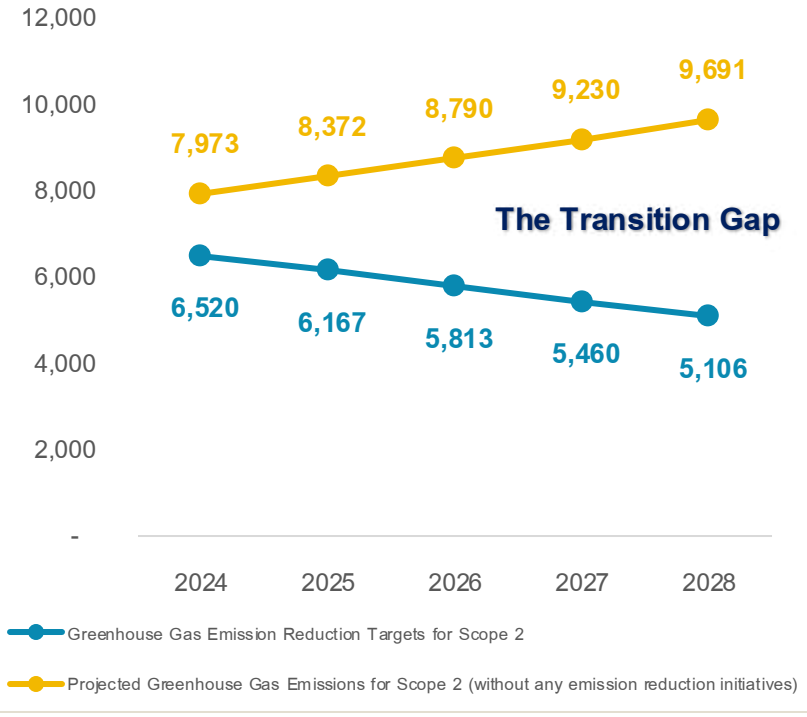
"The assumption used in the BAU forecast is a GHG growth rate of 5% per year."

Our Scope-Based Action Plan

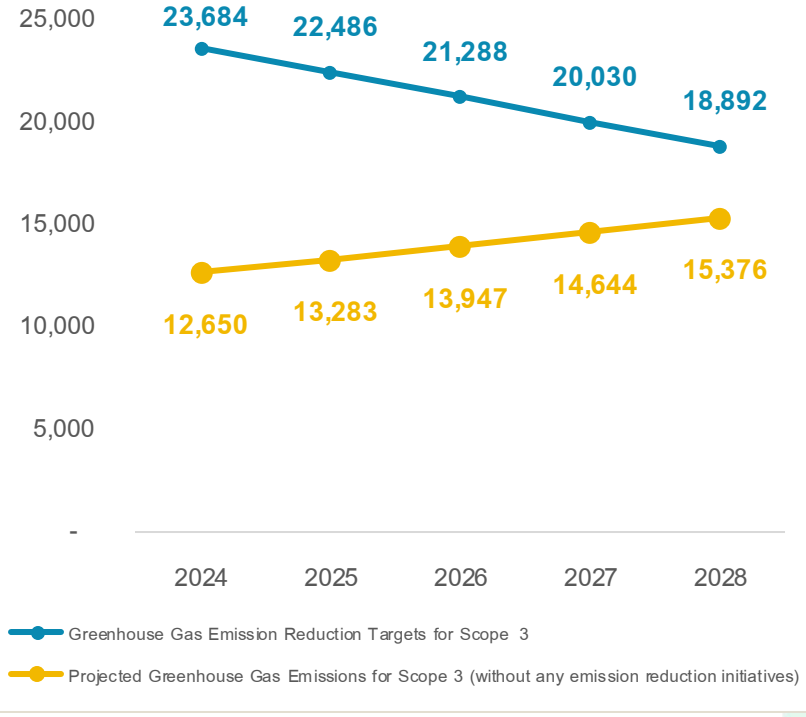
Net Zero Pathway by 2028 : Scope I



Net Zero Pathway by 2028 : Scope II

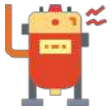


Net Zero Pathway by 2028 : Scope III



Scope 1 GHG Reduction Plan

Transportation System



Boiler Efficiency

Scope 2 GHG Reduction Plan

Renewable energy

Increase the efficiency of the injection machine

Scope 3 GHG Reduction Plan

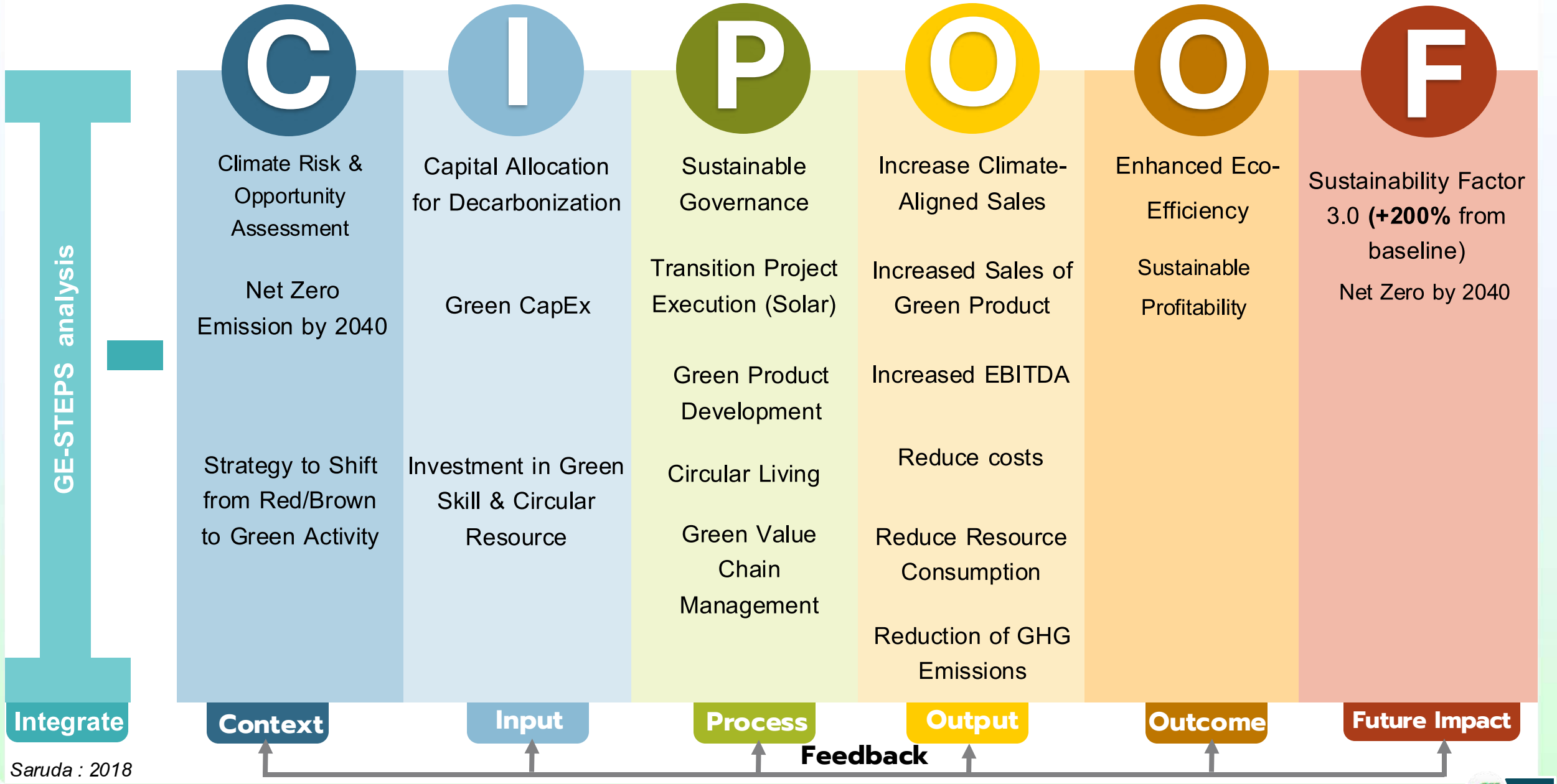
Recycled plastics

Ocean waste

"The assumption used in the projected is a GHG growth rate of 5% per year."

How Fortune Parts Industry Collaborates with Financial Partners to Mobilize Transition Finance

FPI's Value Creation Journey: Our I-CIPOOF Model for Sustainable Impact



Saruda : 2018

Aligning FPI's KPIs & Actions with the GFANZ Framework

Climate Solution

FPI's KPIs & Actions

- ✓ Revenue from Low-Carbon Products
- ✓ Strategic Investment in Low-Carbon Technology
- ✓ Operational Decarbonization Initiatives

Aligned

FPI's KPIs & Actions

- ✓ Eco-Efficiency (Sustainability Factor: Factor X)
- ✓ Net Zero Certified Plants

Aligning

FPI's KPIs & Actions

- ✓ Science-Based GHG Reduction Targets
- ✓ Proactive Carbon Footprint Management
- ✓ Driving the Transition through Circular Living

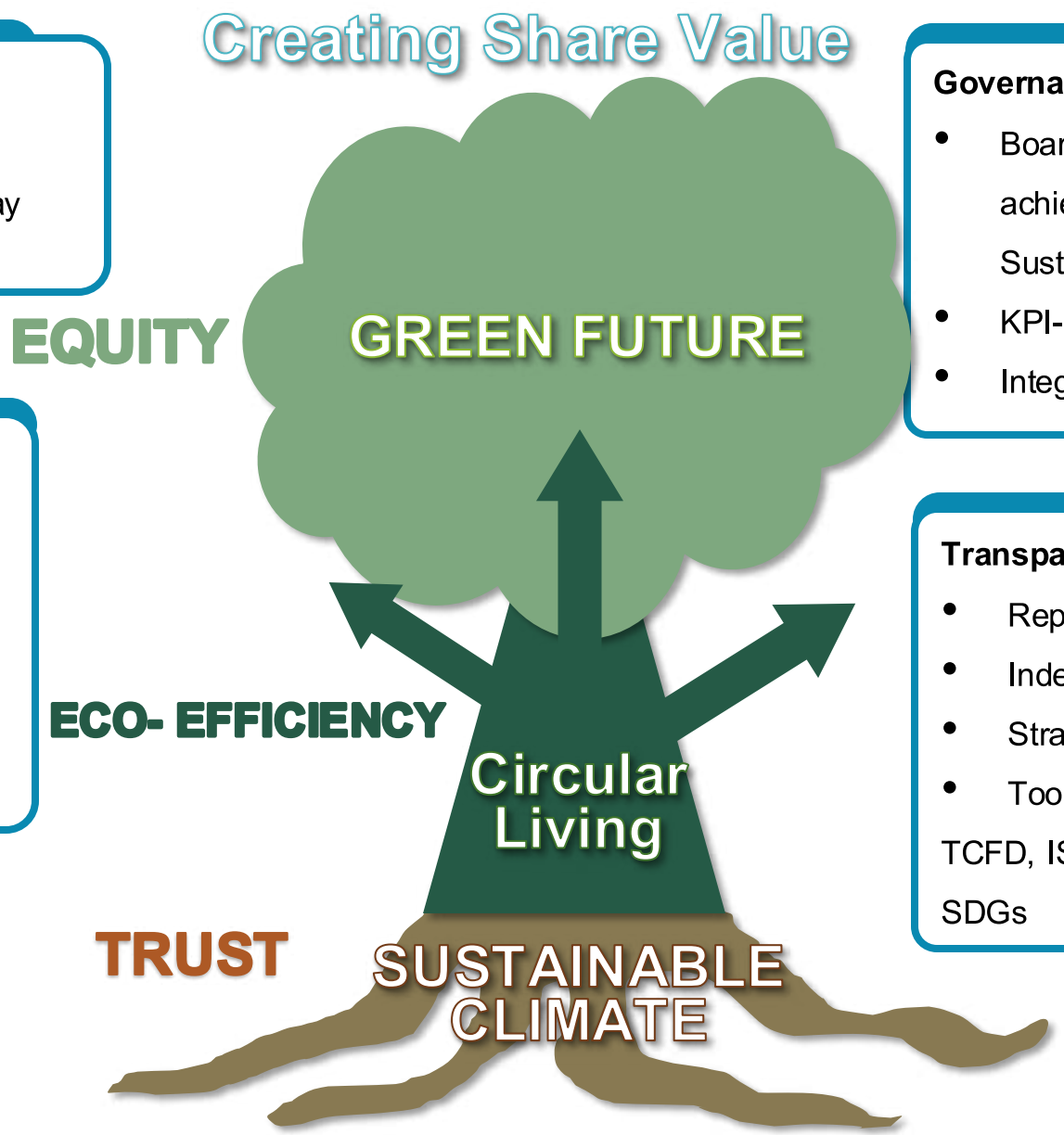
Manage Phaseout

FPI's KPIs & Actions

- ✓ Strategic Shift to Renewable Energy (Solar, Biomass)
- ✓ Phasing out GHG-Intensive Energy Sources

What are the expectations from financial institutions regarding access to transition finance?

A Global FI's Perspective



1

Ambitious Net Zero Roadmap

- Net Zero Target by 2040
- Clear and science-based pathway

2

End-to-End Value Chain Management

- Reduction of Scope 1 , 2 & 3
- Supplier Engagement & ESG Risk Assessment

3

Governance and Risk Oversight

- Board-Level oversees and monitors toward achieving Net Zero Emissions and Sustainability Factor (Factor X)
- KPI-Linked Remuneration
- Integrated Risk Management

4

Transparency and Global Alignment

- Reporting aligned with global standards
- Independent third-party verification
- Straightforward Communication
- Tools and frameworks: SBTi, ICP, CDP, TCFD, ISSB, SASB, GHG Protocol, GRI, UN SDGs

The Financial Toolkit for Transition

Current Tools

- Green Bond
- Social Bond
- Sustainability Bond
- Sustainability-Linked Bond

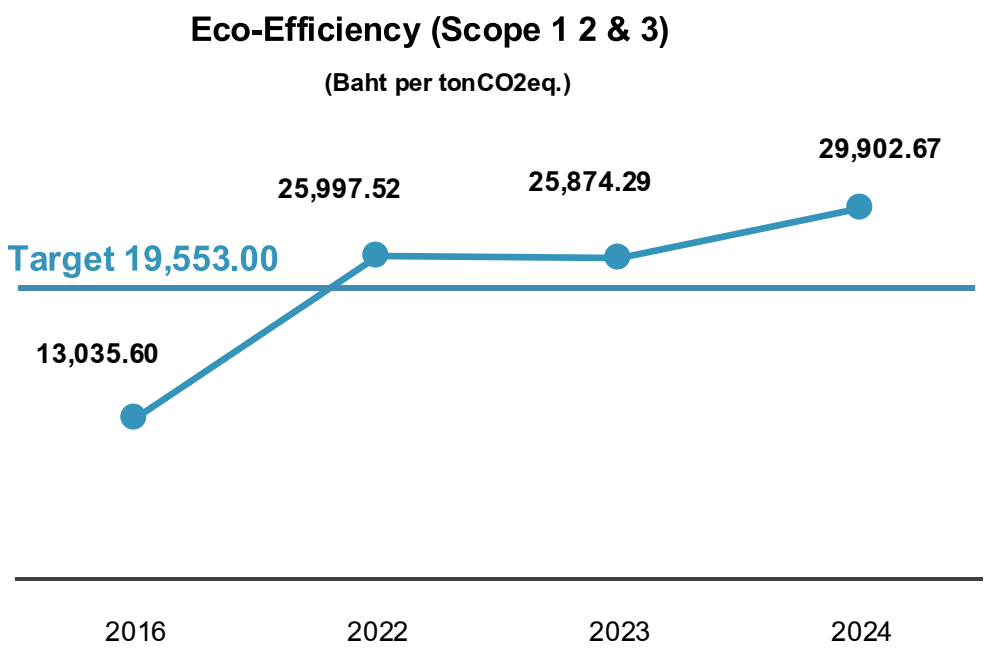
FPI's Proposals for the Future

- Transition-Linked Financing
- Supply Chain Decarbonization Fund
- Circular Economy Transformation Bond
- Green IPO Pathways for Transitioning Companies

Delivering Verifiable Impact: Our Performance and Future Value Proposition

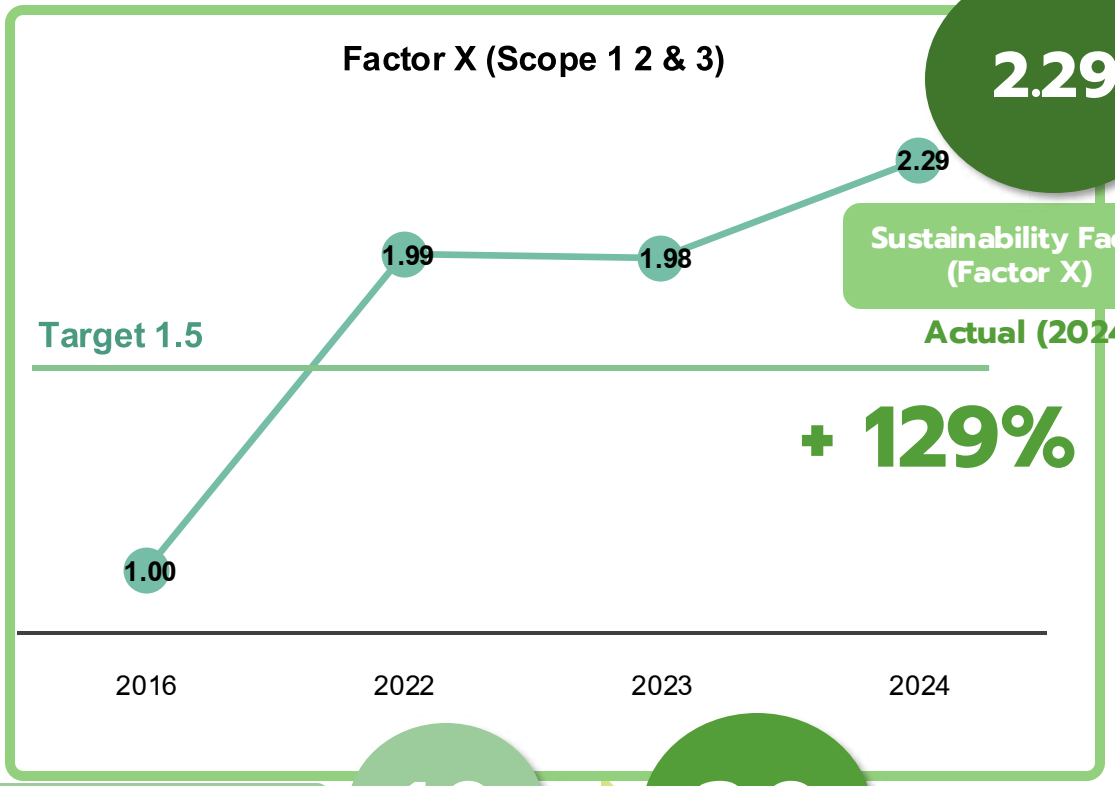
Outcome : The Result of Our Strategy

Corporate Governance and Sustainability Committee



Future Impact : The Value We Create for Stakeholder

Board of Directors



Sustainability Factor (Factor X) Target

1.0 → 3.0

Challenges in Mobilizing Transition Finance in Thailand

Challenges and Solutions of Transition Finance for Businesses in Thailand

Challenge 1: Lack of Clarity in Standards and Taxonomy

Businesses are uncertain whether their activities qualify as "transition" due to evolving or unclear standards.

Solution : Adopt global frameworks like SBTi to establish credible Net Zero pathways and classification clarity.

Challenge 2: Limited Access to Transition Finance Instruments

SMEs and even large companies struggle to access tailored financial products.

Solution : Co-develop new instruments (e.g., Transition Bonds) and present credible transition plans with transparent disclosures to unlock funding opportunities.

Challenge 3:Limited Internal Capacity and GHG Data Readiness

Many companies lack reliable emissions data, internal expertise, and tools for climate-aligned planning.

Solution : Build internal capacity through collaboration with government programs, climate platforms, and technical consultants for emissions tracking and scenario planning.

Transition Finance is not just funding—it's a business transformation journey. With the right tools and support, Thai businesses can unlock green capital and accelerate sustainable growth.

ECO EXCELLENCE CENTRE

Thank You

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เรา คือ ผู้ให้บริการที่ปรึกษาด้านสิ่งแวดล้อม
การบริหารจัดการก๊าซเรือนกระจก และการพัฒนาองค์กรที่ยั่งยืน

ติดต่อ FPIS

E-mail

sustainable_admin@sd.fpiautoparts.com

Website

https://sd.fpiautoparts.com

Facebook

https://www.facebook.com/Fortunepartsindustry

Phone number

02 993 4970 - 77 ต่อ 230 หรือ 232
062 627 4915

LINE ID

Q&A

Panittra Vejjajiva
Head of ESG Solutions, UOB Thailand

Kelvin Tan
Managing Director, Head of Sustainability and Government Affairs, ASEAN, HSBC

Masaaki Iwabuchi
General Manager, Finance & Investment Planning Department, Nippon Life Insurance Company

Dr. Saruda Siriphattarapreecha
Sustainable Development Manager, Fortune Parts Industry

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Coffee Break

1535 – 1550 HRS

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Roundtable Discussion

Turning Ambition into Action: Multi-Stakeholder Approaches to Transition Finance

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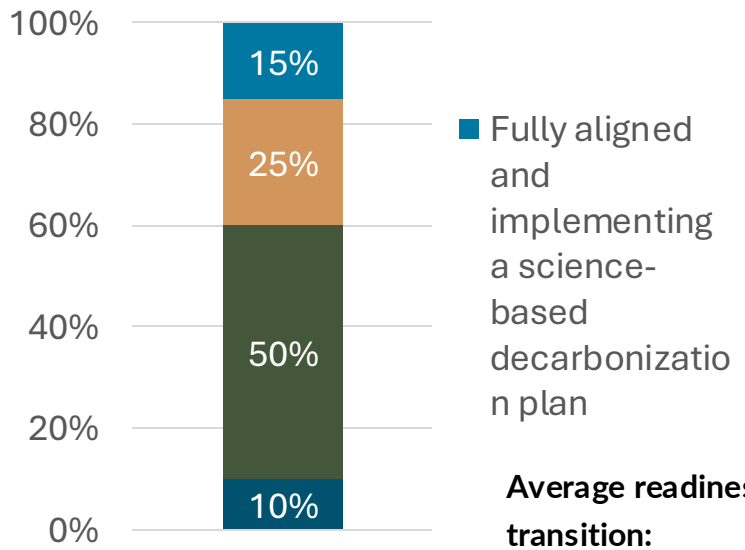
Key Observations from Questionnaire

Turning Ambitions into Action: Multi-Stakeholder Approaches to Transition Finance

Motivators to engage in Transition Finance

Respondent's rating on readiness to transition



Average readiness to transition:
3.5 out of a scale of 5

Top 3 risks associate with implementing transition finance

Regulatory or policy risk (e.g., shifting or unclear transition criteria).	Technology risks (e.g., unproven or emerging technologies)	Reputational risk (e.g., greenwashing concerns)
16/50 responses	10/50 responses	9/50 responses

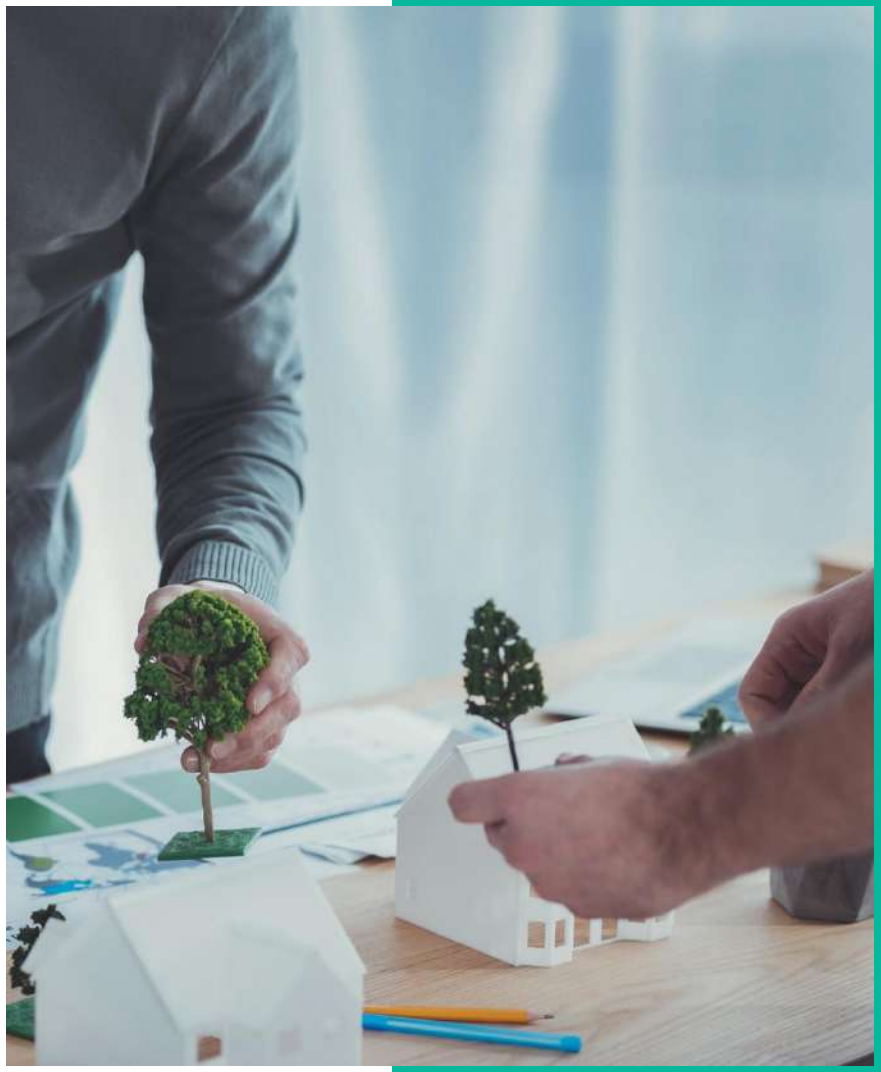
Tools suggested to better manage identified risks

Sector-specific transition benchmarks or roadmaps	Scenario analysis under relevant policy and market conditions	Verified emission data and independent assurance of progress
15/46 responses	10/46 responses	10/46 respondents

Roundtable Discussion Approach

Turning Ambitions into Action: Multi-Stakeholder Approaches to Transition Finance

[15 minutes].	Discuss the assigned questions provided on the printout on your table Nominate a spokesperson for your table to feedback response to each questions.
[30 minutes].	Each table to feedback, approximately 5 minutes per table. GGGI notes debrief for further analysis on actional steps to scale transition finance in Thailand.
[5 minutes].	*Closing Remarks*



Key Takeaways

Turning Ambitions into Action: Multi-Stakeholder Approaches to Transition Finance

Table	Key Notes
Table 1	
Table 2	
Table 3	
Table 4	
Table 5	
Table 6	
Table 7	
Table 8	

Thank you.

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