

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

Humanising
Financial Services





About this document

This “Banking on a better tomorrow: our commitment to net zero” White Paper (the White Paper) provides an overview of Maybank Group’s (Maybank) approach to setting net zero 2030 targets for select hard-to-abate sectors, against a backdrop of unique regional challenges in ASEAN. It describes the challenges and choices we have faced and our nuanced approach to resolving them. Given Maybank’s balance sheet strength and scale in the region, we believe we are well-positioned to accelerate decarbonisation efforts by redirecting capital flows to markets and clients that present the greatest climate opportunities, and to the toughest-to-transition hotspots. The White Paper, initially published in May 2024, set forth our decarbonisation targets for the power and palm oil sectors. In November 2024, we expanded our focus to include the steel and aluminium sectors, expanding our coverage of Net Zero Banking Alliance (NZBA) sectors for decarbonisation. Building on this momentum, in February 2025, we have included two additional critical sectors, namely the automotive and commercial real estate sectors. Notably, in the automotive sector, we are proud to become the first commercial bank outside Europe to commit to a retail automotive decarbonisation target.

Acknowledgements

This report is the outcome of a whole-of-bank effort with particular involvement from Maybank’s sustainability office, M25+ Strategic Programme on Sustainability (SP9), frontline business, sector experts in risk and business, risk management, communications department, Maybank’s senior management, the EXCO Sustainability Committee, the Board Sustainability Committee and Maybank Group Board of Directors. We will continue this collaboration as Maybank strengthens its journey towards achieving the net zero targets outlined in this paper. We would also like to acknowledge the dedicated expert team from Oliver Wyman for its invaluable support throughout the work to set our net zero targets.

Feedback

By setting out our methodology transparently, we hope to encourage dialogue and engagement with our investors, clients, peers, partners and the broader ecosystem of stakeholders. We welcome all feedback, ideas and questions, and invite other financial institutions operating in similar markets to share learnings from their decarbonisation journeys and/or use this methodology to help shape their approach. For enquiries and further engagement, please contact Maybank Group Sustainability (sustainability@maybank.com).

Disclaimers

The content and viewpoints provided in this document are solely for informational purposes. This does not constitute an offer or solicitation to buy or sell or subscribe for any security or financial instrument or to enter any transaction or to participate in any particular trading or investment strategy. While the information and opinions in this paper have been arrived at based upon information obtained from sources we believed to be reliable at the time this paper was published, Maybank makes no representation or warranty of the quality, precision or thoroughness of such information. The details, opinions and outcomes mentioned may vary or differ from those presented, and Maybank is under no obligation to revise or update the content or viewpoints. Maybank has the authority to alter or depart from the views and pledges made in this document at its discretion, without prior notification. Views or opinions of third parties included in this document should not be interpreted as reflecting the stance or opinion of Maybank, or its associates, directors or staff. This document is not intended to be a comprehensive manual on the topic and is not tailored to the specific situations, needs or goals of any individual or entity. It is recommended that readers make their own informed decisions regarding the material in this document. Maybank, along with its affiliates, directors and employees, disclaim any liability or responsibility for any reliance placed on the information, opinions and statements made in this document by anyone. This document may be available in languages other than English. Should there be any discrepancies between the English version and any translated versions, the English version shall prevail.



Foreword

The transition to net zero is an era-defining challenge that must be met collectively by consumers, policymakers, corporates and financial institutions globally. To protect our quality of life and ensure collective economic prosperity, it is essential that we reduce greenhouse gas emissions into the atmosphere.

Maybank has long recognised the importance of transitioning to a low-carbon economy. In 2021, underpinned by our mission of Humanising Financial Services, we announced our ambition to achieve net zero by 2050. Sustainability is a core pillar of our M25+ strategy to drive differentiated, sustainable, long-term growth anchored by a deeper purpose. We believe that driving a systemic transformation towards net zero starts from within. Internally, we have reduced 49% of our Scope 1 and 2 emissions compared to our 2019 baseline, and we have taken actions in line with our commitment to reach carbon neutrality (for Scope 1 and 2 emissions) by 2030. In a short span between 2021–2023, we mobilised RM68 billion in sustainable finance. We have ambitions to grow this in the coming years as we support our clients in undertaking stronger sustainability practices while balancing elements of a just transition.

This paper takes our commitment to the next level by outlining what we will be doing to help decarbonise key high-emitting sectors we lend to — our Scope 3 or financed emissions. This is by far the most testing but also the most important part of our journey. It is also the most exciting. By leaning into the megatrend of decarbonising industries, we position ourselves alongside the pioneers and future winners in those industries, and ensure we are ready to support the technologies and companies that will shape our collective future.

These are commitments we do not take lightly. Decarbonising the world's major industries will require massive investments, innovation, courage and hard work. Anchored by our mission, we are actively challenging obstacles to achieve equitable growth and sustainability for all of ASEAN's communities. In line with our commitment to deliver values based financial solutions and services to our customers and key stakeholders, we firmly believe in a net zero transition that is economically positive, socially inclusive and acts in support of, rather than against, the economic development of the countries we operate in. That includes our own returns — these plans have been tested against what our clients and governments have outlined, and against our business plans, and they represent a plan for growth and returns, not for shrinkage. More importantly, the transition to a net zero economy presents significant economic opportunities, including job creation, innovation in clean technologies, and new markets for sustainable products and services.

We are highly encouraged that the targets detailed below are achievable and we are in a good position to advise our clients on their decarbonisation journey, but we cannot achieve them alone. A significant portion of our portfolio reflects the capital we mobilized to our clients. We therefore need our clients to continue to make bold plans, to stretch those plans further, and to achieve them — we stand ready to support them in that journey. We also need policymakers to continue to set supportive policies to encourage the adoption of mature technologies, ease the phase-out of older technologies, and ensure economic incentives are aligned with the net zero goals, without doing significant harm to the environment or the social fabric to the society. I welcome you to join us on this crucial and meaningful journey to achieve a better and greener future for all of us, individuals and businesses, in Southeast Asia and beyond.



Dato' Khairussaleh Ramli
President and Group
Chief Executive Officer

**MAYBANK**

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

Contents

Executive summary

1. Introduction

2. Our Approach To Net Zero Target-Setting

- 2.1 Key principles of target-setting
- 2.2 Sector prioritisation approach
- 2.3 Overview of our six-step methodology for target-setting
 - 2.3.1 Aligning on design decisions
 - 2.3.2 Baselining emissions
 - 2.3.3 Projecting emissions (passive levers)
 - 2.3.4 Selecting a reference scenario
 - 2.3.5 Framing a sector decarbonisation strategy
 - 2.3.6 Setting emissions reduction targets

3 The Power Sector

- 3.1 Industry overview
- 3.2 Summary of our targets for the power sector
- 3.3 Our approach to net zero target-setting for the power sector
- 3.4 Enablers to meet our net zero glidepath

4 The Agriculture Sector

- 4.1 Industry overview
- 4.2 Summary of our targets for the agriculture (palm oil) sector
- 4.3 Our approach to net zero target-setting for the palm oil sector
- 4.4 Enablers to meet our net zero glidepath

5 The Steel Sector

- 5.1 Industry overview
- 5.2 Summary of our targets for the steel sector
- 5.3 Our approach to net zero target-setting for the steel sector
- 5.4 Enablers to meet our target

6 The Aluminium Sector

- 6.1 Industry overview
- 6.2 Summary of our targets for the aluminium sector
- 6.3 Our approach to net zero target-setting for the aluminium sector
- 6.4 Enablers to meet our target

4 Exhibits

7

- Exhibit 1: Maybank's journey in driving decarbonisation and embedding climate action to date 10
- Exhibit 2: Proportion of exposure and financed emissions by sector, as of December 2023 13
- Exhibit 3: From baselining to target-setting: Our six-step approach 14
- Exhibit 4: Scope 1, 2 and 3 greenhouse gas (GHG) emissions types and sources by GHG Protocol across the value chain for any given sector 16
- Exhibit 5: Fallback methodology of data sources utilised 18
- Exhibit 6: Electricity generation mix targets by regional markets 23
- Exhibit 7: Decarbonisation glidepath to 2030 and associated design decisions kgCO₂e/MWh, 2022–2030 25
- Exhibit 8: Approach to CCUS treatment 29
- Exhibit 9: Overview of the regional palm oil sector 32
- Exhibit 10: A comparison of palm oil vs substitutes, on land use productivity and emissions intensity 34
- Exhibit 11: Decarbonisation glidepath to 2030 and associated design decisions – tCO₂e/tCPO, 2022–2030 35
- Exhibit 12: Key activities and sources of emissions across the palm oil value chain 36
- Exhibit 13: Overview of sustainable palm oil certifications: RSPO, MSPO and ISPO 40
- Exhibit 14: Global energy-related carbon emissions from final consumption in 2022, by percentage of GtCO₂ 43
- Exhibit 15: Steel sector emissions, by scope 2023, by percentage of GtCO₂ 46
- Exhibit 16: Decarbonisation glidepath to 2030, target and associated design decisions (tCO₂e/tSteel), 2023 – 2030 48
- Exhibit 17: Aluminium semi-finished products consumption, 2020 vs 2030, Mt 52
- Exhibit 18: Aluminium sector emissions by scope 2023, by percentage of GtCO₂ 53
- Exhibit 19: Total direct carbon emissions and direct carbon emissions intensity in aluminium production in the IEA Net Zero Scenario, 2010 – 2030 55
- Exhibit 20: Decarbonisation glidepath to 2030, target and associated design decisions (tCO₂e/tAluminium), 2023 – 2030 57
- Exhibit 21: Aluminium production value chain and associated carbon emissions 58



Contents

7	The Automotive Sector	62		
7.1	Industry overview	62	Exhibit 22: Global energy-related carbon emissions from final consumption in 2022, by percentage of Gt CO ₂	63
7.2	Summary of targets for the automotive sector	67		
7.3	Our approach to net zero target-setting for automotive sector	68	Exhibit 23: Breakdown of emissions across transportation modes in 2020, by % of Gt CO ₂ released by the transportation sector	63
7.4	Enablers to meet our glidepath	74	Exhibit 24: IEA Global Net Zero Pathway for absolute emissions from the automotive sector, 2010–2050, Gt CO ₂	64
8	The Commercial Real Estate Sector	76		
8.1	Industry overview	78	Exhibit 25: Number of new non-electric and electric cars sold between 2015–2023, by type, globally	65
8.2	Summary of targets for the commercial real estate sector	83		
8.3	Our approach to net zero target-setting for the commercial real estate sector	84	Exhibit 26: Decarbonisation glidepath to 2050 and associated design decisions (gCO ₂ /vehicle-km), 2023–2050	67
8.4	Enablers to meet our glidepath	88	Exhibit 27: In-scope value-chain segments in our commercial and retail design decisions coverage	68
9	The Road Ahead	90	Exhibit 28: Prospective dependencies affecting EV retail market adoption	73
10	Glossary	91	Exhibit 29: Annual global carbon emissions from the built environment as of 2022	76
			Exhibit 30: Global carbon emissions from the operation of buildings in the Net Zero Scenario, 2015–2030	77
			Exhibit 31: Share of ZCR buildings between 2020 to 2050	79
			Exhibit 32: Governments’ energy efficiency plans and policies for buildings in selected markets	80
			Exhibit 33: Energy from solar PV generation (TWh)	81
			Exhibit 34: Energy consumption of appliances (Indexed to 2020 = 100%)	82
			Exhibit 35: Decarbonisation glidepath to 2030, target and associated design decisions (kgCO ₂ e/m ²), 2023–2030	83
			Exhibit 36: Comparison of operational and embodied emissions	85

**MAYBANK**

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

Executive Summary



Maybank has long recognised that Southeast Asia, with the core markets we serve, is one of the world's most vulnerable regions to climate change impacts. This recognition, underpinned by our mission in humanising financial services, drove us in 2021 to announce our ambition to achieve net zero by 2050. A core part of this ambition relates to reducing the greenhouse gas emissions emitted by the clients that we finance, as captured in our scope 3 financed emission. This paper outlines our targets to reduce our scope 3 financed emission (hereafter denoted as "our targets") from our financing of companies in the power, palm oil, steel, aluminium, automotive and real estate sectors. These sectors are critical sectors in the region and in our portfolio, serving as a natural choice for this target setting exercise.

In this exercise, we have set targets for 2030 as an interim checkpoint, to chart our course towards our longer-term goal of achieving net zero by 2050 and limiting global warming to 1.5°C above pre-industrial levels. To this end, we have used credible science-based reference pathways as benchmarks to ensure the targets we set are sufficiently ambitious. Where possible, we have selected region-specific reference pathways to account for the unique ground realities in ASEAN and the need for a just transition.

To set our targets, we adopted a six-step methodology. We started by aligning on key design decisions which define the boundaries of our exercise – including the scope

of emissions to include, the parts of a sector value chain to cover, and the emissions metric that most appropriately captures our financed emissions. These decisions were taken in a manner that best reflects the unique characteristics of each sectors. Subsequently, we captured the emissions profile of each of our clients included within this target-setting exercise, and aggregated these across our portfolio at a sector level. We then selected the appropriate reference pathway and designed a sectoral strategy to reduce financed emissions in line with the reference pathway benchmark, allowing us to set ambitious, credible and feasible targets.



Executive Summary

An overview of the outcomes of our baselining and target setting exercise can be seen in the snapshot of our results below.

Decarbonisation glidepath to 2030 and associated design decisions						
Sector	Value Chain	Emission Scopes	Target Metric (Emissions Intensity)	Reference Scenario	Baseline (As of)	2030 Target
Power 	Generation: Both renewable and non-renewable Construction and engineering: Only companies tied to power generation	- Scope 1 (emissions for generation companies) - Scope 3 (downstream emissions for construction engineering companies)	kgCO ₂ e/MWh	IEA NZE pathway, enhanced with regional insights from the IEA Sustainable Development Scenario (SDS) ¹	442 (Jun'23)	272
Palm Oil 	Primary palm oil production (growing and milling)	- Scope 1 and 2 (as they relate to primary production) - Scope 3 (upstream emissions included for palm oil mills that procure FFB from 3rd party growers)	tCO ₂ e/tCPO	Augmented global pathway (SBTi Flag +NGFS REMIND) ²	1.47 (Jun'23)	1.40
Steel 	Crude steel production (BF-BOF, EAF (Scrap) and/or DRI-EAF methods)	Scope 1 and 2 emissions from the crude steel production process	tCO ₂ e/tSteel	MPP TM (SEA)	0.80 (Dec'23)	To maintain below the reference pathway
Aluminium 	Primary aluminium production (alumina refining and primary aluminium production plant)	Scope 1 and 2 emissions from the upstream aluminium production	tCO ₂ e/tAluminium	MPP (Global)	2.36 (Dec'23)	To maintain below the reference pathway
Automotive 	Commercial: Midstream and downstream Vehicle type: Passenger cars Retail: Auto vehicle loans Vehicle type: Passenger cars and light commercial trucks	Scope 1, 2 and 3 (Tailpipe emissions)	gCO ₂ /vehicle-km	IEA NZE Passenger Cars Pathway	138 (Dec'23)	94
Commercial Real Estate 	Operational emissions: Building development, operators and REITs	- Scope 1 and 2 (whole-building operational emissions) - Scope 3 (from lessees/tenants)	kgCO ₂ e/m ²	Regionalised Hybrid – Carbon Risk Real Estate Monitor (CRREM) V2 – 1.5°C scenario and IEA Announced Pledges Scenario (APS)	80.5 (Dec'23)	56

¹ The enhancement is to account for different starting points and shape of the transition arising from the unique ground realities in ASEAN.
² SBTi FLAG provides commodity specific pathway for palm oil and NGFS REMIND to account for methane from palm oil milling.

**MAYBANK**

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

Executive Summary

In the upcoming sections of this report, we will outline the unique ASEAN context considered in each sector, the principles underpinning our methodology, our key results and our continued commitment to supporting our clients and partners in their growth and decarbonisation journey.

Attaining our outlined objectives for the year 2030 will not only be a significant achievement in itself, but it will also serve as a crucial stepping stone on our path towards environmental sustainability. This milestone will provide the necessary momentum to propel us towards our ultimate aim of achieving Zero Net Emissions.

The strategy to reach this ambitious goal is centered around four primary areas of focus:

- **Guiding Our Clients through a Just Transition:** Acknowledging the intricate balance between economic growth and societal welfare, we are poised to engage in a collaborative journey with our clients. Through close collaboration and tailored financial support, we will expedite their sustainability endeavours, spanning across diverse industries, from conglomerates to SMEs, thereby ensuring equitable access to innovative financing solutions tailored to their unique requirements.
- **Spearheading Change in Collaboration with Real Economy Ecosystems:** Our unwavering commitment to achieving net zero emissions in our select hard-to-abate sectors is a testament to our dedication to fostering sustainable transformation. Through strategic partnerships with regulators, industry bodies, and NGOs, we are resolute in fulfilling our commitments and facilitating a just transition across carbon-intensive sectors.
- **Regular Review and Adaptation:** We are committed to conducting regular assessments of our progress towards meeting our targets, conducting annual analyses of financed emissions in priority sectors. This commitment to transparency is encapsulated in our annual sustainability disclosures.
- **Charting the Path to Decarbonisation:** Our targets outlined in this White Paper encapsulate significant emissions contributors. Looking ahead, we aspire to broaden our target-setting framework to encompass additional sectors and value chains, ensuring comprehensive coverage of our portfolio.





1. Introduction

The United Nations has declared that the Earth has surpassed “the era of global warming” and has firmly entered “the era of global boiling”. More recently, at the 28th meeting of the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC), global leaders underscored the “irreversible impact of climate change on our planet”. Immediate action to combat climate change is a global imperative, especially in Southeast Asia, a region that bears an outsized burden of climate change’s physical, social and economic repercussions.

ASEAN is bearing the heat of climate change

Southeast Asia is one of the world’s most vulnerable regions to climate change impacts such as erratic weather and natural catastrophes from rising sea levels, forest fires, droughts, floods, typhoons and heat waves. According to the United Nations Intergovernmental Panel on Climate Change (IPCC), the region is expected to warm from an already high base, and shorelines are retreating faster than elsewhere, threatening to flood or even submerge coastal areas where 450 million people reside.

It is not only environmental but social impacts of climate change that affect our region. For example, in the past decade, floods, storms, wildfires and other weather-related disasters have caused c. 22 million annual displacements globally, of which Southeast Asia accounted for over 30%.³ The growing consequences of climate change are a reminder that without proper adaptation plans to improve resilience, displacement of vulnerable communities and more widespread humanitarian crises will become increasingly frequent in the years ahead.

The complex realities of decarbonising in ASEAN

ASEAN is characterised by great political, social and economic diversity — ranging from high-tech cities to agrarian economies — each presenting unique decarbonisation challenges. Carbon-intensive industries like oil and gas, coal, mining, agriculture and heavy industry have been the lifeline of the regional economy, contributing on average between 30–40% of GDP and giving rise to up to 150 million jobs, employing nearly half of ASEAN’s working population.⁴

Reliance on fossil fuels is deeply entrenched, given the region’s extensive use of fossil fuels to support its rapid urbanisation, industrialisation, and economic growth over the last two decades. According to International Energy Agency (IEA) estimates, ASEAN’s energy demand is set to grow by 60%⁴ until 2040. Efforts are underway to increase the use of renewable energy systems in the region, but these face challenges from the region’s current high prevalence of young fossil fuel power plants, availability of financial resources, solutions to technology and infrastructure issues, and policy uncertainties.

Complicating the need to accelerate the transition to affordable and clean energy systems and a sustainable economy in emerging ASEAN markets is the need for a just transition that balances climate action with the socioeconomic well-being of ASEAN’s population. Striking such a balance is possible but will require a nuanced approach that ensures equitable distribution of the benefits of moving to a net zero economy. Maybank is committed to playing our part in this balance, as embodied in our mission of Humanising Financial Services.

Financial institutions’ role in driving decarbonisation

As a facilitator of capital to the real economy, banks are uniquely positioned to drive the systemic shift towards net zero. The United Nations and global alliances like the NZBA and the Glasgow Financial Alliance for Net Zero (GFANZ) emphasise the pivotal role of the financial sector in driving the economy towards a net zero future.

³ “Disaster Displacement in Asia and the Pacific”, Internal Displacement Monitoring Centre, 2022.

⁴ ASEAN Secretariat Statistical Yearbook, ASEAN Secretariat, 2023. Specifically, see the sections on Agriculture, Mining & Quarrying, and Manufacturing (Light and Heavy).

**MAYBANK**

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

1. Introduction

The role of financial institutions involves:

A. Mobilising capital and technical support for a just transition

The scale of the transformation to a net zero economy is vast. It requires huge amounts of capital, beyond the amount available to governments alone. While governments and large corporates are making progress, the pace is not sufficient to bring us closer to a future where global warming is limited to 1.5°C. As such, it is critical that private capital, including the banking sector, is crowded into financing the technological changes required. Beyond the quantum of capital required, it is equally important to employ it to support a just transition. The International Labour Organization (2022) defines a just transition as the “greening of the economy in a way that is as fair and inclusive as possible to all involved, creating decent work opportunities and leaving no one behind”. Such a transition requires capital, technical expertise and specialised support for affected communities. As Southeast Asia’s fourth-largest financial institution by assets with

global access across 18 countries (including in all 10 ASEAN markets), we are uniquely placed to mobilise capital to drive meaningful decarbonisation and a just transition. Indeed, the first pillar of Maybank’s sustainability strategy is a “Responsible Transition”, where we not only finance sustainability-led innovations and projects, but also partner with a variety of stakeholders to drive progress towards verifiable commitments and sustainability milestones.

B. Shaping incentives in the real economy

How financial institutions mobilise capital shapes the real economy’s ability and incentives to move away from higher emitting activities and channel resources towards greener projects. Leveraging our full suite of offerings, including our innovative sustainable finance solutions such as sustainability-linked bonds/loans, green trade loans and sustainable supply chain financing, Maybank aims to drive real change across industries, geographies and client segments irrespective of their current maturity level in their sustainability journey.

C. Avoiding and mitigating transition and physical risk

Policies and market dynamics are shifting in response to climate risks, as seen through the adoption of carbon pricing, stricter emissions standards and shifts in consumer preferences. This may result in assets from carbon-intensive industries becoming stranded — e.g. fossil fuel reserves, power plants, infrastructure and other investments — or becoming economically unviable due to climate-related factors. Stranded assets may suffer from unanticipated or premature write-downs, devaluations or conversions to liabilities. As banks, we need to quantify and price for these risks, and help our clients to anticipate and plan for them to avoid or minimise disruption to their businesses.



1. Introduction



Maybank's commitment to progressing towards a net zero future

We are committed to playing a leading role in the systematic transformations towards a net zero economy and making rhetoric into reality in the region and beyond. To this end, we proudly became a signatory of the UN-convened NZBA in 2022. The NZBA sets forth rigorous requirements for its member banks: transitioning operational and attributable greenhouse gas (GHG) emissions towards net zero by 2050, undergoing an initial round of sector-level targets for carbon-intensive sectors for 2030 within 18 months, and a second round of sector-level targets in all or a significant majority of carbon-intensive sectors – agriculture, power, coal and more – within 36 months. Further advancing our commitment, we have been appointed as a member of the NZBA Steering Group, representing the Asia-Pacific region and joining 13 other esteemed members, effective from July 2024.

It emphasises the importance of science-based targets aligned with the 1.5°C low/no-overshoot scenarios, regular target reviews and updates in alignment with the latest scientific research, and the development of a board-reviewed transition strategy. Maybank is actively taking steps towards fulfilling its obligations under the NZBA.

Maybank is committed to setting transparent, science-based targets and engaging with clients on decarbonisation in a manner that aligns with best practices. These targets will guide us in strategically channelling financing away from high-emitting activities towards greener alternatives, supporting our clients and partners through the transition, and embedding the climate agenda across all parts of the bank.



1. Introduction

Exhibit 1: Maybank’s journey in driving decarbonisation and embedding climate action to date

PRELUDE

2014:

Starting with Sustainability Conversations

- Held the first Invest ASEAN, Maybank’s flagship conference**
- Discussed business cases for sustainability
 - Facilitated green award-winning deals executed by Maybank Group



PHASE 1

Up to 2021:

Laying the right foundations

- 2021**
Establishing group-wide sustainability governance and sustainability commitments
- Appointment of Chief Sustainability Officer (CSO) and set up of Group Sustainability
 - Group Board approves Maybank’s 4 Sustainability Commitments, later included in Group Scorecard

Sustainability Commitments			
1	2	3	4
To mobilise RM80 billion ⁵ in Sustainable Finance by 2025	To improve the lives of Two Million ⁵ Households across ASEAN by 2025	To achieve a Carbon Neutral Position of our own emissions by 2030 and Net Zero Carbon Equivalent position by 2050	To achieve 1 Million hours per annum on sustainability and delivering 1,000 significant SDG-related outcomes by 2025

- 2021**
Devising groundworks and conceptual cornerstones
- Sustainability framework approved by Board
 - Commencement of climate resiliency project
 - Launched No Deforestation, No New Peat, No Exploitation (NDPE) policy and no new coal financing policy

⁵ Revised from RM50 billion to RM80 billion and one million household to two million household in Feb 2023.



1. Introduction

PHASE 2

2022 – 2023

Consolidation and continued refinement

2022
Announced concrete commitments

- First bank in Malaysia to establish Scope 3 financed emission baseline
- Launch of Sustainability Product Framework
- Maybank CSO appointed Chairman of The Association of Banks in Malaysia (ABM) ESG Committee
- Board approved revision of Commitments 1 and 2

2022–2023
Forged ahead with steady momentum

- Executed the largest sustainability-linked loan amongst S-REITS in Singapore in 2022 and structured first sustainability-linked Islamic profit rate swap in Malaysia
- RM68 billion in Sustainable Finance, on track to meet RM80 billion target by 2025
- Sustainability ranking of 374 in the **TIME's World's Best Companies 2023, the only Malaysian company** to be included in the list of top 750 companies in the world



Best Sustainable Bank (MY); Best Bank for Sustainable Finance (MY); Outstanding Leadership in Sustainability Transparency (APAC)



Launched ASEAN's first of its kind Transition Finance Framework, aligned to more than 12 international principles, standard and guidelines

PHASE 3

2024 and beyond

Operationalisation and the path ahead

*As Maybank progresses on our sustainability journey, our priority will shift from fundamental frameworks to **operational changes that translate our plans into reality**. Our work thus far puts us in good stead to meet the goals we have set for ourselves, **as we continue to do our part for the world's path to net zero.***



MAYBANK

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

2. Our Approach To Net Zero Target-setting

In setting our targets and measuring our baseline financed emissions, we have taken guidance from relevant science-based approaches and credible sources to apply global best practices in a manner fit for our reality. Key resources included:

- Guidance from the NZBA regarding financial institutions' targets.⁶ As an NZBA signatory, we have ensured we are following the guidance underpinning the alliance
- Guidance from the Partnership for Carbon Accounting Financials (PCAF) for sourcing high-quality emissions data for our portfolio and methodologies used to calculate client-level emissions
- Sector-specific guidance from several bodies, including the IEA, Science Based Targets initiative (SBTi), Network for Greening the Financial System (NGFS) and others.

2.1 Key principles of target-setting

We used the following principles at a portfolio level to guide our target-setting exercise:

A. Our goal is to achieve net zero in 2050 and limit global warming to 1.5°C above pre-industrial levels. We set targets for both 2050 and 2030 as part of our goal

The 2050 net zero and 1.5°C goal is consistent with global agreements from the Paris Agreement onwards, and with the aims of global bodies such as NZBA that we are part of. While our ultimate target is to support net zero by 2050, this is too far away to drive the immediate action needed now. By setting interim targets for 2030, we drive requirements for action today.

B. Our targets are anchored on credible science-based reference pathways

To set our interim 2030 targets, we required a credible way to chart how far along the journey we need to be in the short term. Here we rely on climate science. Reputable industry bodies such as the IEA have combined science and

economic judgements to arrive at reference pathways forecasting annual GHG emissions under various scenarios. Some of these scenarios reflect business as usual, while others express "net zero" outcomes in which concerted climate action is taken to meet the objectives of the Paris Agreement and the UN Sustainable Development Goals to keep the world within the remaining carbon budget, compatible with a $\geq 50\%$ likelihood of limiting global warming to 1.5°C. We have used these net zero pathways as reference points to shape our decarbonisation glidepaths,⁷ calibrating our 2030 targets to be compatible with limiting global warming to 1.5°C.

C. Chosen sector abatement trajectories are compatible with a just transition in ASEAN

A just transition requires us to progress towards ambitious decarbonisation goals without impeding continued socioeconomic growth and development. As the ASEAN population grows larger and more prosperous, pushing up demand, we will likely need higher levels of activity and output in our target sectors — power and agriculture (palm oil). A sector abatement trajectory that involves a drop in production from these critical sectors would adversely impact over 150 million workers relying on these sectors for their livelihoods and the broader community requiring energy security and access to these critical commodities.

D. Our 2030 targets are only an interim checkpoint guiding us towards our commitment to net zero by 2050

We recognise that different parts of the world are moving towards net zero at different rates, in line with their unique ground realities, such as varying levels of market maturity, socioeconomic constraints and technological readiness. At the time of this publication, 44 economies in Asia have at least proposed some sort of net zero target, yet many of these

commitments are still works in progress, less definitive or aim for a net zero position at a later stage than 2050.⁸ For instance, Indonesia, one of our home markets, is aiming to reach net zero by 2060. Nonetheless, in line with our ambitions to drive the sustainability agenda in the region and to meet our responsibility as a signatory of the NZBA, Maybank has consciously committed to achieving a net zero carbon equivalent position by 2050, and a carbon neutral position for our own Scopes 1 and 2 emissions by 2030. To this end, the targets announced in this paper are aligned with a net zero by 2050 trajectory.⁹

2.2 Sector prioritisation approach

The NZBA has indicated nine carbon-intensive, hard-to-abate sectors as priorities for target-setting given their criticality for achieving climate goals. This includes all sectors involved in extracting and supplying fossil fuels as well as key sectors involved in demanding and consuming fossil fuels: agriculture, aluminium, cement, coal, commercial and residential real estate, iron and steel, oil and gas, power generation and transport. The NZBA guides signatories to set sector-level targets for these sectors, where they are material to the bank by exposure and emissions, and where data and methodologies allow.

We have prioritised the power and palm oil (within agriculture) sectors from the NZBA's list for our first set of sector targets. These two sectors are material to our portfolio and are critical to the Southeast Asia region, while many of the technological solutions to decarbonise these sectors are already known and commercially viable. Since our initial publication, we have broadened our focus to encompass the steel, aluminium, automotive and commercial real estate sectors, reinforcing our commitment to decarbonisation. This milestone reflects our alignment with the NZBA commitment to establish an initial set of sector targets within three years of joining the alliance.

⁶ "NZBA Intermediate Target Disclosure Checklist", UN Environment Programme, June 2022.

⁷ We use the term "glidepaths" to denote Maybank's decarbonisation trajectory; this differs from "reference pathway", used to denote the needed decarbonisation trajectory within a given region or sector, as developed by various scientific/ industry bodies.

⁸ "Getting Asia to Net Zero: Benchmarking Asia's Climate Action", Asia Society, September 2023.

⁹ "Maybank establishes Scope 3 financed emissions baseline: first in Malaysia", Maybank press release, August 2022.



2. Our Approach To Net Zero Target-setting

Maybank exposure to NZBA priority sectors

NZBA Priority Sectors		Total Lending and Investments (RM millions) ¹⁰	Financed Emissions (Million tCO ₂ e) ¹¹
Agriculture, excluding Palm Oil		7,586.92	1.63
Palm Oil		9,945.95	2.86
Aluminum		732.54	0.04
Cement		1,122.99	0.61
Coal		5.15	0
Commercial and Residential Real Estate		313,100.37	5.34
Iron and Steel		1,063.27	0.18
Oil and Gas		11,088.33	2.29
Power Generation		8,940.80	1.81
Transport, including Aviation		103,297.67	3.85

Exhibit 2: Proportion of exposure and financed emissions by sector, as of December 2024¹²

¹⁰ As of December 2024.

¹¹ Based on PCAF emissions estimations.

¹² Across all our markets, c. 80% of our financed emissions come from listed equities and corporate bonds, business loans, unlisted equities, and project finance. Most of our financed emissions come from our home markets Malaysia, Singapore, and Indonesia.



2. Our Approach To Net Zero Target-setting

Portfolio emissions need to be measured with relative accuracy to ensure targets are set against an accurate baseline. Having a foundational level of data readiness within the Maybank portfolio was a key consideration in selecting the power and palm oil sectors for our initial targets. Data availability is a challenge, especially for SMEs, which are an important part of our portfolio, particularly in sectors such as agriculture. In such sectors where climate data is scarce, we have attempted to use the best available information to make informed decisions in the absence of directly reported data. Where this was not feasible, we scoped out parts of the value chain for the time being until more, and more robust, data becomes available.

In sectors where relevant science-based reference pathways lack the sectoral or regional granularity required for a like-for-like comparison against our in-scope emissions data, we have developed augmented pathways with robust methodological justification.

We will continue to monitor how data availability and science-based reference pathways evolve. However, in the absence of perfect information, we have still

taken steps to enable us to move forward, given the urgency to progress towards a net zero future.

2.3 Overview of our six-step methodology for target-setting

To establish our targets and baselines, we followed a six-step approach. Having aligned on key design decisions, we started with emissions baselining per sector. This was performed in June 2023¹³ by directly capturing or estimating emissions at a client level and then calculating sector average emissions by proportionately weighting clients' emissions in accordance with our financing exposure. We then projected forward our sector emissions to 2030 and compared them against the 2030 benchmark from an appropriate science-based reference pathway. Where Maybank's projected baseline was estimated to be above the reference pathway in 2030, we computed the "emissions gap" that needs to be closed via active levers that we can use to steer our portfolio towards lower emissions.

This approach has been adopted across all our markets and sectors covered in this exercise.

2030, emission metric for given sector e.g. tCO₂e/sector unit

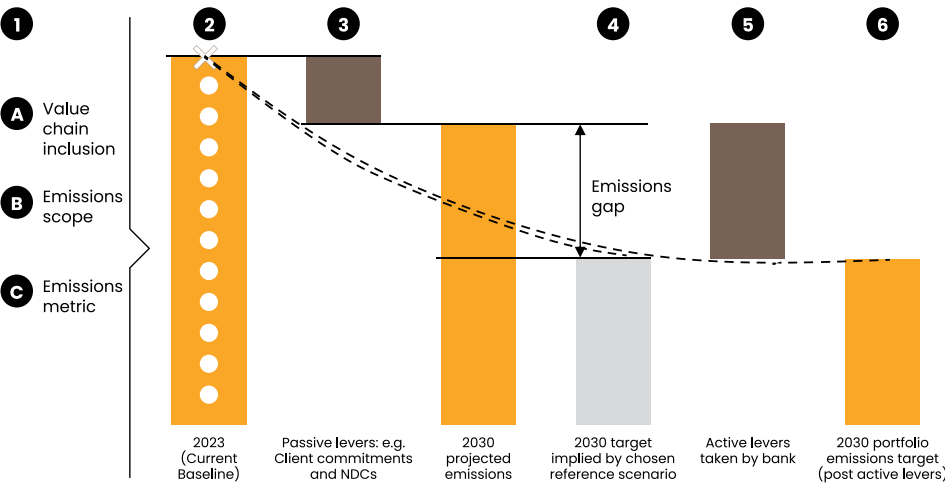


Exhibit 3: From baselining to target-setting: Our six-step approach

Legend ○ Individual company ✕ Aggregated portfolio emissions

¹³ Power and Palm Oil: At the time of this exercise, we used the latest available snapshot of our portfolio (as at June 2023) for the most accurate weighting of our lending and financing activities. However, clients' latest reported emissions data were from December 2022. For comparability against our baseline emissions profile in 2022, we have used reference pathways starting from 2022 to inform our target-setting.
Other Sectors: At the time of this exercise, we used the latest available snapshot of our portfolio, clients' reported emissions data and reference pathways as at December 2023 to inform our target setting.



2. Our Approach To Net Zero Target-setting

2.3.1 Aligning on design decisions

A. Selecting in-scope value chain segments

We have focused our sector targets on specific parts of the sectors by assessing emission materiality and the “sphere of influence” across the sector’s value chain. Not all parts of the value chain contribute equally to emissions and we wanted to focus our efforts on those parts that contribute directly to material levels of emissions. For example, in the power sector, generation companies are the key emitters, especially where they use generation assets reliant on the combustion of fossil fuels. By contrast, companies involved only in transmission and distribution (T&D) have relatively low emissions. Moreover, the priority for T&D companies in the transition is not in further decarbonising their limited emissions, but in building the infrastructure required to enable greater use of renewable generation assets. As such, we have focused our power sector target on the power generation activities of our clients, both the actual generation and the construction of power generation assets. Similar decisions were needed in each sector and outlined later in this document.

B. Defining in-scope emissions scopes

We have measured emissions for our sectors following the guidance of the GHG Protocol. The GHG Protocol categorises emissions into three scopes that are defined from the perspective of a given entity, recognising the source of the emissions and the level of control that the entity has over the emissions. Broadly, Scope 1 emissions are those that an entity makes directly, Scope 2 are emissions that arise to generate imported energy (i.e. electricity and district-generated steam, heating or cooling) that an entity uses, and Scope 3 are emissions made by upstream or downstream third parties to facilitate a given entity’s activities, or as a result of a given entity’s activities (Exhibit 3).

We have decided which GHG emissions scopes to include in our targets on a sector-by-sector basis. We have included emissions scopes that are the most material and relevant to the necessary decarbonisation from each sector to the extent that the emissions can be measured and attributed.

We recognise that measuring Scopes 2 and 3 emissions will cause double-counting in our measurements, within or between sectors, as the Scope 1 emissions of a specific entity will be the Scope 2 or 3 emissions of another. For instance, the Scope 1 emissions of our power sector clients could be the Scope 2 emissions of our palm oil sector clients. We make no effort to reduce or remove double-counting, but instead view this as a positive feature, as decarbonisation requires action from those who produce emissions and those who consume it in the form of the end product.

C. Choosing an appropriate target metric

There are multiple metrics we could choose to target. Commonly used metrics include:

- A. Absolute financed emissions.
- B. Physical emissions intensity.
- C. Financed emissions lending intensity.

To balance the dual objectives of supporting decarbonisation and a just transition, the power and agriculture sectors need to grow, rather than reduce their output, while rapidly reducing their emissions per unit of output. The world will need more electricity if we want to electrify things like transportation, heating and industries that currently rely on fossil fuel burning, and that means more power. The world’s population will continue to need food, and the societal demand to reduce food poverty means continued expansion of food supply in a just transition. For both of these sectors, we are therefore targeting a reduction in physical emissions intensity in order not to constrain the output of the sector. By setting a target to reduce the intensity, we commit to supporting our clients in transitioning their businesses via more sustainable practices, and to steering our financing towards lower emissions intensity activities.

Similarly, for the steel and aluminum sectors, the use of physical emissions intensity not only reflects the anticipated steady growth in global demand through 2050 but also underscores the pivotal role these industries will play in driving broader climate objectives. By focusing on reducing physical emissions intensity in these sectors, we aim to balance the inevitable rise in production with the urgent need to mitigate climate change, ensuring that progress in these industries contributes positively to a low-carbon future.

For the automotive and commercial real estate sectors, the use of physical emissions intensity metrics reflects the growing demand from population growth and urbanisation. As these sectors expand to meet the needs of a larger and increasingly urban population, the challenge of balancing development with environmental responsibility becomes more critical. By focusing on improving energy efficiency and reducing emissions intensity, we aim to address these challenges while supporting the sustainable development of these vital sectors.

¹⁴ We note that this logic is not sufficient on its own to imply an increase in the production of palm oil, as substitutes could instead be found. This will be discussed further in the section on palm oil.



2. Our Approach To Net Zero Target-setting

Greenhouse Gas Emissions

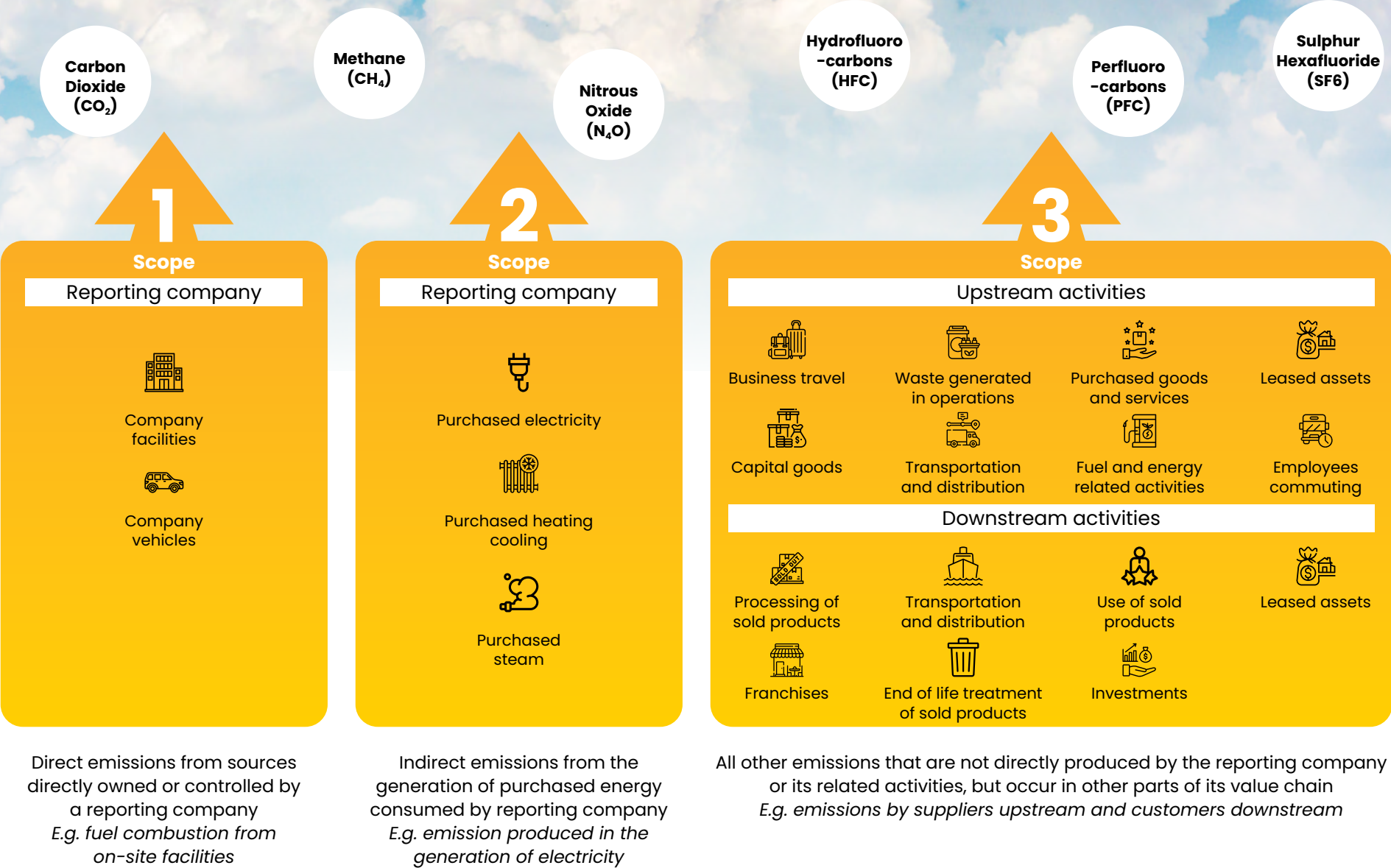


Exhibit 4: Scope 1, 2 and 3 greenhouse gas (GHG) emissions types and sources by GHG Protocol across the value chain for any given sector



2. Our Approach To Net Zero Target-setting

2.3.2 Baselining emissions

Our baselining exercise captures the emissions profile of the activities we finance for a given sector. This is an aggregation of our emissions from our clients and is calculated as an exposure-weighted average of our clients' individual emissions intensities per sector.

A. Products and portfolio coverage

The NZBA guidelines require us to set targets for the emissions arising from our lending and investment activities. As such, we have accounted for emissions stemming from corporate bonds, corporate loans and loan equivalents, and specialised finance like project finance. We have expanded this scope to also cover facilitated emissions resulting from our involvement in capital market finance activities such as debt capital market (DCM) transaction underwriting. Unlike financed emissions, facilitated emissions are off balance sheet activities and a financial institution's association with the transaction is temporary. Nonetheless, these facilitation activities play a crucial role in enabling our clients to secure financing, and hence have a material impact on capital allocation towards economic activities in the transition towards net zero. We have accounted for emissions from our share of syndicated transactions in the past year, after which time we believe emissions should be attributed to the party that ultimately purchased the debt.

B. Treatment of parent vs subsidiary relationships

We finance a wide range of clients, including parent-level organisations as well as specific legal entities or subsidiaries within a wider corporation. Our financing may be provided for general purposes, or ringfenced with "use of proceeds" covenants for a dedicated project. We have attempted to measure emissions from clients at the level of our financing, i.e. when we finance a parent company, we account for emissions across its subsidiaries, whereas when we finance a subsidiary, we account for emissions only from that subsidiary. Where our financing is ringfenced with "use of proceeds" covenants, e.g. financing for dedicated projects, we have attempted to account only for the emissions of that activity rather than the total emissions of our client. Where emissions data is not available at the desired level, but is at the next level up, we have used the higher-level data to reflect the emissions of our client to the best extent possible.

C. Data used

Year-on-year, the number of our clients publishing their own emissions data is increasing, accelerated by the additional reporting requirements from regulators, exchanges and international standards setters. However, gathering comprehensive and precise data remains a hurdle, especially for SMEs and smaller companies. These firms may lack resources or technical capabilities to compute their emissions and face less external pressure to report their emissions, delaying progress towards comprehensive emissions reporting.

The PCAF advises banks to prioritise the highest quality emissions data available, offering guidelines on what constitutes different levels of quality. Our data collection methods prioritise directly reported data, followed by a preference for bottom-up asset estimation where that is not available. If neither of these data sources are available, we rely on a range of proxy emissions values, with the most appropriate values selected per sector or asset class. Over time, we expect more and more of our clients to calculate and report their own emissions – the introduction of standard accounting standards for emissions under the International Sustainability Standards Board (ISSB) is an important move in this direction – improving the quality of our data. This may result in some restatement of our baselines if the missing data turns out to be materially different from our estimates. Further data availability may also allow for the widening of the scope of companies included and/or the breadth of the industry it is possible to set targets for.



MAYBANK

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

2. Our Approach To Net Zero Target-setting

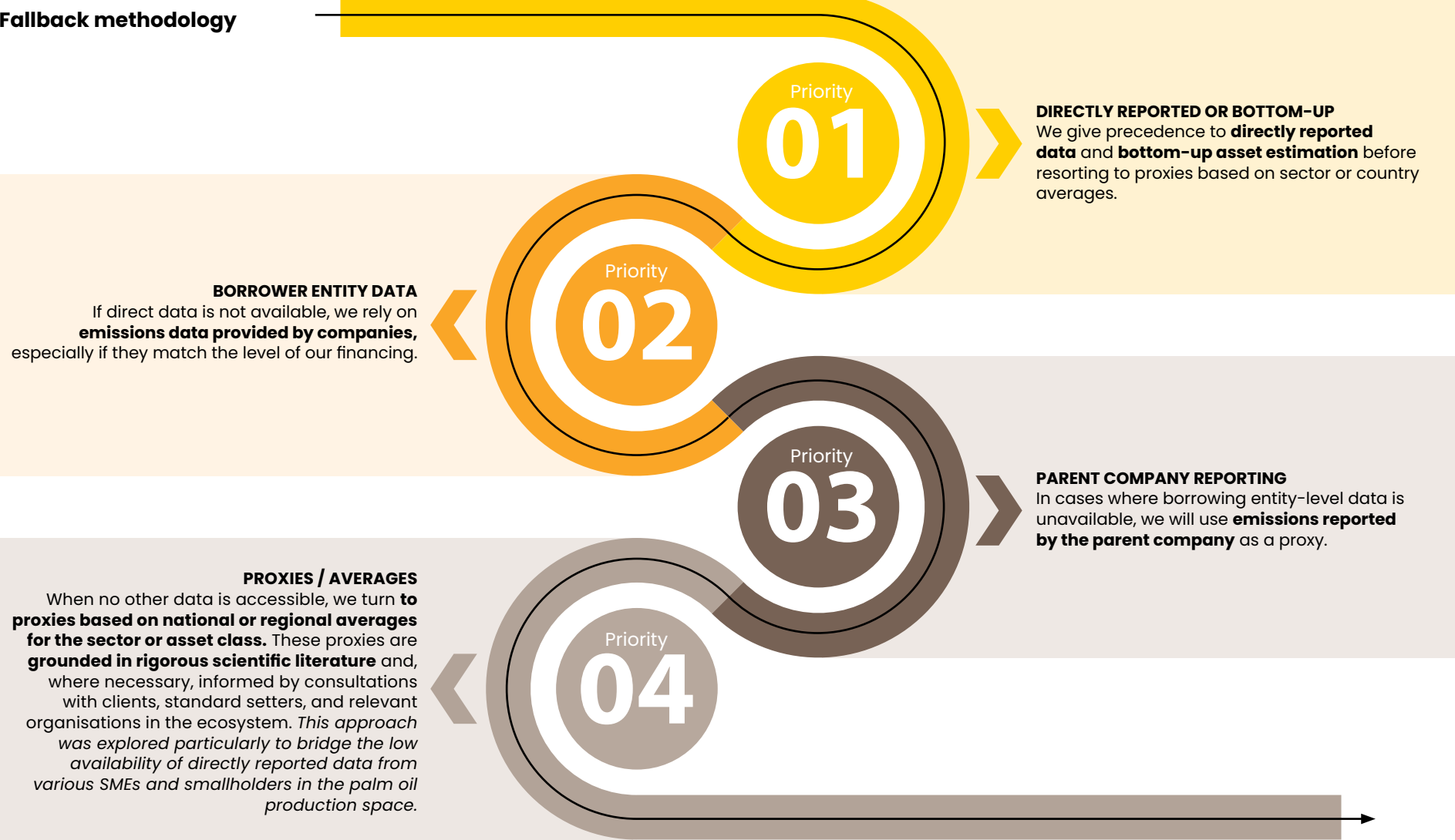


Exhibit 5: Fallback methodology of data sources utilised

Power and Palm Oil: We have used 2022 emissions data where possible, otherwise opting for the closest available year. A June 2023 cut-off has been used consistently across the portfolio for computing our exposures to our clients.

Other Sectors: We have used 2023 emissions data where possible, otherwise opting for the closest available year. A December 2023 cut-off has been used consistently across the portfolio for computing our exposures to our clients.



2. Our Approach To Net Zero Target-setting

Maybank's approach to carbon credits and carbon offsets

We believe that high-quality carbon credits can be an efficient way to allocate capital towards net zero solutions, playing a role in addressing residual carbon emissions in hard-to-abate sectors.

While, we are mindful that the use of carbon credits is currently controversial and there has been intense scrutiny regarding the quality of some currently available carbon credits, as well as whether the level of offsetting that they provide has been overstated, we are supportive of efforts to grow the availability of high-quality carbon credits and to create market mechanisms to trade them.

2.3.3 Projecting emissions (passive levers)

In projecting our 2023 emissions baseline to 2030, we considered various "passive levers". Passive levers are actions taken by external parties that could influence market dynamics and demand, potentially resulting in lower emissions intensity for our sector portfolios. These factors, beyond our direct control, plays significant role in projecting our emissions targets.

- Client-specific initiatives: Some of our clients, especially larger ones, already have their own transition plans and forecasts. Our ability to meet our targets is enhanced if our clients follow through on their own decarbonisation strategies.
- Nationally Determined Contributions (NDCs): We factored in governmental plans and targets relevant to our industries. For example, country-level commitment on generation mix and renewables-focused policies, leading to early decommissioning of fossil-fuel-based power plants, have informed our forecasts in the power and commercial real estate sectors. Similarly, country-level initiatives to increase the adoption of electric vehicles (EVs) and phase out the sale of internal combustion engine vehicles (ICEVs) have shaped our projections for the automotive sector.
- Potential technological or natural developments: For example, in the power, steel and aluminium sectors, the deployment of evolving carbon capture, utilisation and storage (CCUS) technologies could have a significant impact. In the palm oil sector, we anticipate a natural reduction in emissions as the impact of historical land use changes amortise and plantations contribute positively to carbon sink capture, provided there is no further deforestation or planting on peatland.

- Commitments by automotive manufacturers: Pledges made by individual Original Equipment Manufacturer (OEM) brands on the mix of vehicle engine type they produced have been taken into account in our automotive sector forecasts.

2.3.4 Selecting a reference scenario

Our reference pathway choice is crucial as it sheds light on whether there is a gap between where our 2030 emissions are projected to be, forecasted based on passive levers alone, and where they need to be in a 1.5°C scenario.

For each sector, we have selected the most appropriate reference scenario from a variety of choices developed and maintained by reputable and independent bodies. Selecting a single reference scenario provider to use across all sectors would better ensure that all our separate sector targets combine to an overall net zero scenario. In practice, none of the reference scenario providers give sufficient detail in all sectors, driving us to select scenarios from different providers for different sectors. We have compared the overall decarbonisation trajectories of these sector-specific scenarios with a global scenario and have assessed that they are consistent with a path to net zero emissions by 2050.

**MAYBANK**

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

2. Our Approach To Net Zero Target-setting

Four considerations have driven our reference scenario selection:

- A.** Widely accepted and science-based: Scenarios should be published by credible, independent organisations and based on robust climate science.
- B.** Purpose driven: Scenarios should be aligned with 1.5°C outcomes following low or no-overshoot pathways. As a member of the NZBA, we recognise the importance of striving to limit global warming to this level.
- C.** Regionalised: Scenarios should reflect the reality of our markets. We serve many emerging markets and the transition that we will see in our portfolio will likely occur at a slower pace than in more developed regions.
- D.** Sector granularity: Scenarios should cover like-for-like parts of sectors and scopes of emissions with what we are measuring for our clients in the sectors we are setting targets for.

It is not always possible to maximise all four of our considerations, especially the degree of regionalisation and sector granularity that can be achieved. As a Malaysian-headquartered bank, our portfolio has strong exposure to emerging markets in ASEAN. However, it is not necessarily a clear-cut choice to use a regional scenario; in some instances global pathways can offer better sector granularity or be more widely accepted.

2.3.5 Framing a sector decarbonisation strategy

Where Maybank's projected baseline is estimated to be above the reference benchmark in 2030, we compute the 2030 "emissions gap". To close this gap, we have defined sector decarbonisation strategies, with "active levers" Maybank could pull to steer its portfolio. This includes growing the portfolio towards more efficient clients to rebalance it over time, supporting existing clients to adopt more sustainable practices, and supporting new green technologies with lending to specialist companies and projects. These strategies have been developed iteratively with key representatives across sustainability and business and relationship managers who best understand our clients' practices, growth ambitions and business needs. Nevertheless, beyond the levers that we have established, our ability and pace to facilitate meaningful decarbonisation and achieve our 2030 targets is heavily dependent on that of our clients, as well as the continuous development of favourable policies with support from regional governments.

2.3.6 Setting emissions reduction targets

Our overall approach has been to set targets that allow us to match the 2030 benchmark along the chosen reference pathways. After 2030, we aim to track the reference pathway through to 2050 to ensure that our portfolio is aligned to our objective of reaching net zero in 2050 under 1.5°C aligned pathways.

All relevant internal stakeholders — including Maybank's sustainability office, M25+ Strategic Programme on Sustainability (SP9), frontline business, sector teams and risk management teams — were involved in a highly collaborative target-setting exercise capturing our business realities and climate action ambitions. The targets were endorsed at the highest levels, by Maybank's senior management, the EXCO Sustainability Committee, the Board Sustainability Committee and Maybank Group Board of Directors.



3. The Power Sector



The power sector constitutes a material part of Maybank's total financed emissions.¹⁵ Over 95% of our power sector exposure is concentrated on clientele primarily involved in power generation and power equipment construction. Given their sphere of influence, and the materiality of emissions these players are associated with, we focus on these subsegments when setting emissions reduction targets for the power sector.

3.1 Industry overview

The power sector is the single largest source of global greenhouse gas emissions, accounting for over 40% of energy-related carbon emissions.¹⁶ Scope 2 emissions of all other sectors measure emissions associated with their usage of electricity — underscoring the importance of accelerating decarbonisation in the power sector to achieve broader climate goals. The power sector is the first high-emitting sector that is required to achieve net zero under 1.5°C-aligned pathways, both due to its position as a critical dependency for other sectors and the viability of low-emissions renewable technologies expected to support the transition.

A key driver of decarbonisation across most sectors is electrification, which replaces fossil fuel processes and technologies (e.g. internal combustion engines, diesel generators, gas boilers) with electrically-powered equivalents. This increased electrification will be met with increased carbon emissions within the power sector (Scope 1) and outside the power sector (Scope 2). Therefore, driving the power sector to decarbonise by 2040 is a crucial enabler to allow all other sectors to then reach net zero by 2050.

The urgency to decarbonise the power sector is pronounced in Southeast Asia. Driven by population growth and economic development, including the growing ownership of household appliances and consumption of goods and services, energy demand in ASEAN has surged by over 6% per year in the last two decades — faster than anywhere else in the world.¹⁷ Ensuring energy security and affordability to support continued development therefore remains a priority for the region.

¹⁵ As computed using the PCAF approach to allow for sector aggregation.

¹⁶ The role of CCUS in low-carbon power systems, IEA, 2020.

¹⁷ The role of CCUS in low-carbon power systems, IEA, 2020.



MAYBANK

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

3. The Power Sector

In ASEAN, power generation continues to be heavily driven by fossil fuels – with coal-fired power plants accounting for over 40% of electricity generation in markets like Indonesia and Vietnam.¹⁸ In fact, this is one of the very few regions globally where coal-fired generation has been expanding, with c.20 GW of new coal-fired generating capacity under construction.¹⁹ Fossil fuel reliance has become this entrenched owing to a number of legacy reasons. Domestic coal reserves are abundant and coal infrastructure is established, increasing the real and perceived affordability of coal vis-à-vis renewable energy alternatives. Moreover, as coal exports globally have diminished, regional coal producers have lobbied for more domestic coal use, drawing support from coal royalties' importance as a source of public revenue.²⁰

Coal-fired power plants (CFPPs) are significantly younger in ASEAN than the global average – CFPPs in ASEAN are on average less than 15 years old, which is much younger than in Europe and America. Given that CFPPs have a lifespan of c.50 years,²¹ it would be expensive for CFPP owners in ASEAN to retire and replace them with renewable sources. Many CFPPs have long-term power-purchase agreements or serve as captive power sources to specific industrial operations, further increasing the difficulty and cost of replacing them.

However, there is broad recognition that the environmental and health consequences of this reliance are severe. Air pollution from coal combustion exacerbates climate change, leads to respiratory illnesses, and undermines ecosystem health, impacting communities' well-being and livelihoods.²²

As such, governments are rapidly developing increasingly supportive regulations in a bid to accelerate the energy transition and recent tailwinds show promise. These include:

A. Phase-down and phase-out of coal-fired power plants

The ASEAN Sustainable Finance taxonomy's²³ recent inclusion of coal phase-out paves the way for the region's numerous CFPPs to obtain transition financing provided they retire their assets in a sufficiently accelerated manner that meets all the necessary guardrails to ensure it is done in a credible and just manner. This marks the first time any regional taxonomy has spelled out clear conditions under which coal phase-out can obtain transition financing.

Governments have also begun setting clear, quantitative targets and timelines around CFPP phase-out. Examples of these include Malaysia's commitment in its National Energy Transition Roadmap (NETR) to cease building new CFPPs and its recently launched Request For Information (RFI) for a coal-carbon reduction programme to consider the early retirement of existing CFPPs,²⁴ the Philippines' declaration of a moratorium on new coal-fired power generation, and Indonesia's Just Energy Transition Partnership (JETP), which explores how concessionary capital and carbon credits can enhance the economics of the early phase-out of CFPPs.

¹⁸ Share of electricity generation from coal in Indonesia, Statista, 2022; Progress towards 1.5C power sector benchmarks in Vietnam, Ember Climate, 2023.

¹⁹ Electricity Market Report Dec 2020, 2020 Regional focus: Southeast Asia, IEA, 2020.

²⁰ Jose Antonio Ordonez, Michael Jakob, et al, "Coal, power and coal-powered politics in Indonesia", Environmental Science & Policy, vol. 123 (Sep 2021), pp. 44–57.

²¹ The role of CCUS in low-carbon power system, The CO₂ emission challenge, IEA, 2020.

²² Managing Air Quality and its Impacts on Health, Climate Change and Nature, and Food Security in Asia and the Pacific, Asian Development Bank, November 2023.

²³ ASEAN Taxonomy For Sustainable Finance Version 2.

²⁴ "Malaysia looking into early retirement of coal power plants", The Star, December, 2023.



3. The Power Sector

B. New domestic targets for renewables in energy mix

In the last three years, there has been a notable surge in regional commitment and policy support for renewable energy. Governments are actively investing in renewables to bolster energy supply chains and boost power generation capacity. An estimated RM300 billion in capital expenditure will be needed across key markets like Malaysia, Indonesia and Singapore, as around 40 GW of additional renewable capacity is projected to come online by 2030-35.

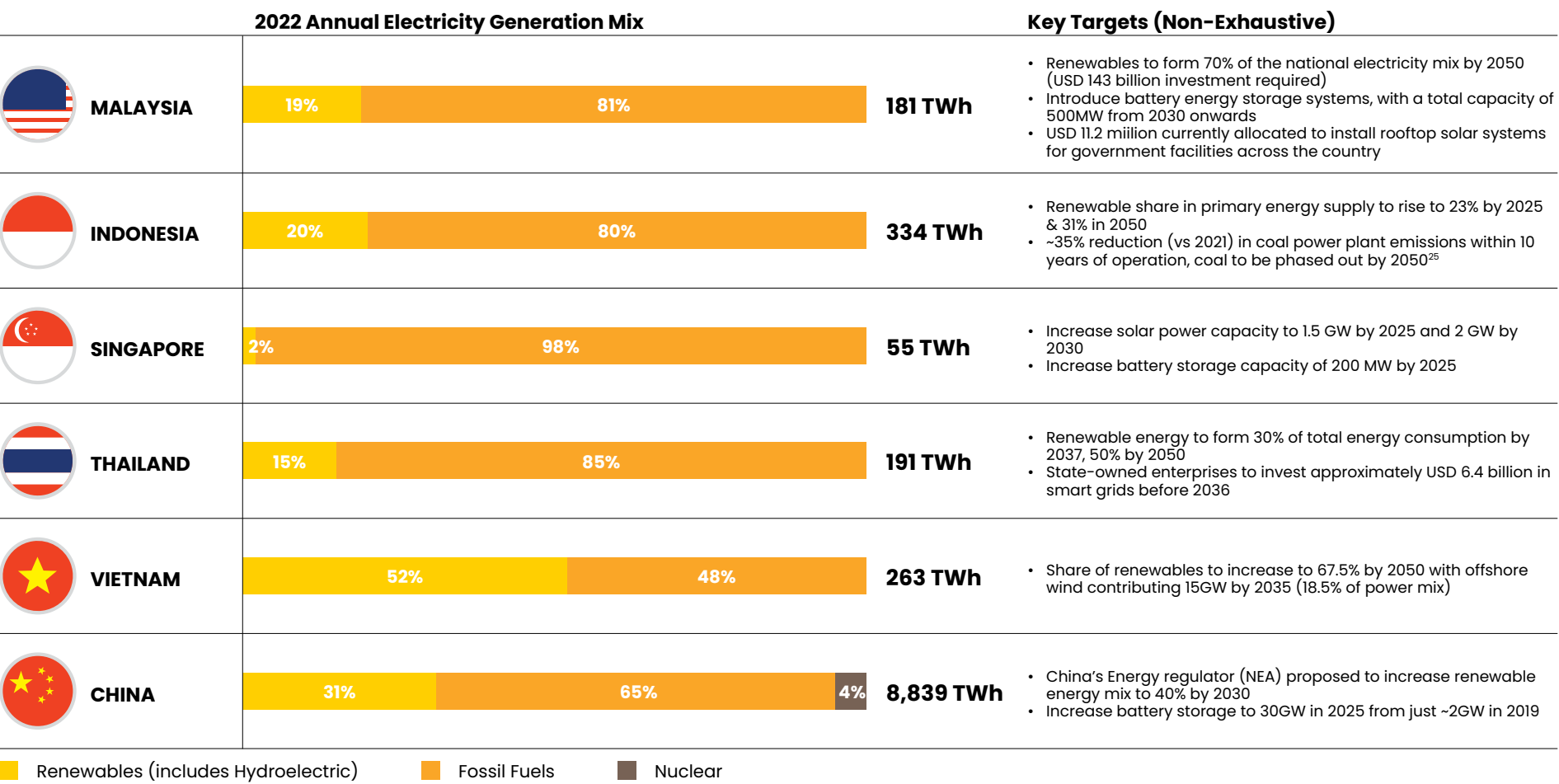


Exhibit 6: Electricity generation mix targets by regional markets

²⁵ Considering accelerating phase out of coal in the 2040s conditional on international funding.
Source: IEA, BP Statistical Review of World Energy, IAEA, various government sources, Ember's Yearly Electricity Data, Energy Institute Statistical Review of World Energy.

**MAYBANK**

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

3. The Power Sector

This push towards renewables is largely driven by the adoption of solar and large hydro projects in countries like Indonesia and Malaysia. Moreover, regional collaborations, such as the ASEAN Power Grid and the ASEAN Plan of Action for Energy Cooperation, are expected to expedite the adoption of renewable energy sources by facilitating cross-border electricity trade and promoting research, technology transfer and capacity building efforts.²⁶

C. Exploration of renewables technology

With decreasing costs, improved efficiency and better grid integration, renewables are poised to be 15% cheaper than fossil fuels by 2030, making them an increasingly attractive investment option.²⁷ Ongoing research and development efforts are focused on long-term solutions, including the advancement of energy storage technologies to bolster reliance on renewables, retrofitting fossil fuel-based plants with CCUS to diminish unabated coal dependence, and optimising grid configurations through advanced algorithms and real-time monitoring for more efficient and reliable power delivery. While fossil fuels are expected to peak in the power generation mix between 2030 and 2040, these emerging technologies will play a crucial role in paving the way towards achieving net zero emissions.



²⁶ Included imported hydro.

²⁷ Khao Yu, "Renewable Energy Investment in ASEAN: Unfolding Trajectories and Challenges", Fulcrum, April, 2023.



3. The Power Sector



3.2 Summary of our targets for the power sector

Emissions scopes

- **Scope 1** emissions for **generation** companies
- **Scope 3 downstream** emissions for **construction & engineering** companies

Value chain

- **Generation:** both renewable and non-renewable
- **Construction & engineering:** only companies tied to power generation

Metric

- Emissions intensity measured in **kgCO₂e / MWh produced**

Reference scenario

- IEA NZE pathway, enhanced with regional insights from the IEA SDS to account for the different starting points and shape of the transition arising from the unique ground realities in the region

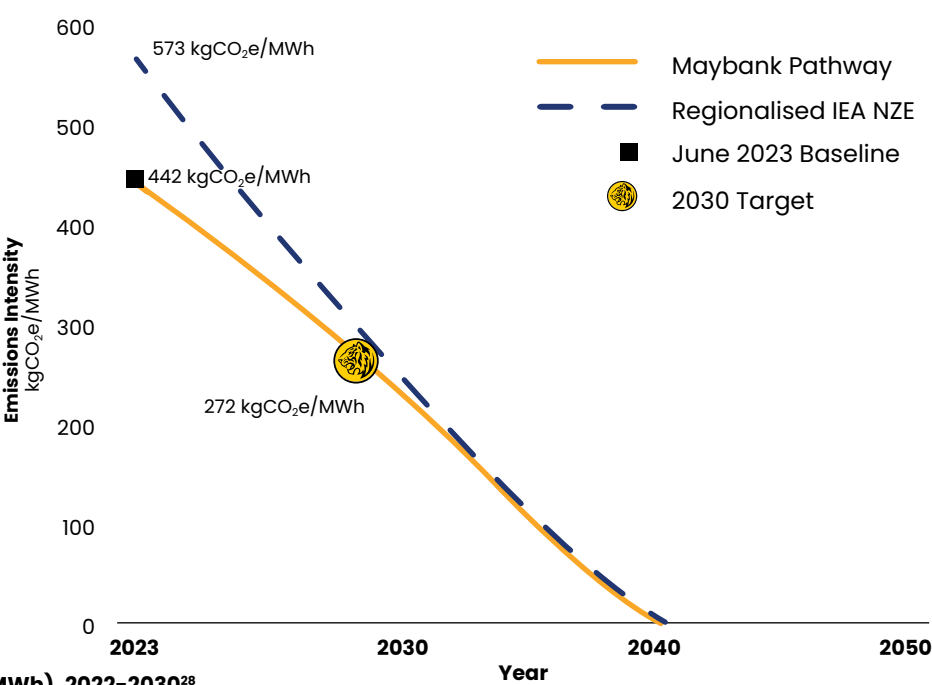


Exhibit 7: Decarbonisation glidepath to 2030 and associated design decisions (kgCO₂e/MWh), 2022–2030²⁸

²⁸ At the time of this exercise, we used the latest available snapshot of our portfolio (as at June 2023) for the most accurate weighting of our lending and financing activities. However, clients’ latest reported emissions data was dated as at December 2022. For comparability against our baseline emissions profile in 2022, we have used reference pathways starting 2022 to inform our target-setting.



MAYBANK

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

3. The Power Sector

3.3 Our approach to net zero target-setting for the power sector

3.3.1 Aligning on design decisions

A. Selecting in-scope value chain segments

The power value chain can be broadly broken down into the following key player types:

- **Equipment manufacturing:** These companies produce essential components like turbines, solar panels and wind turbines, influencing emissions primarily through their support of various electricity generation methods. They wield influence in deciding the infrastructure and energy sources for generation, making them important in advocating for renewables adoption. While including Scope 3 downstream emissions for consistency, companies involved in constructing non-renewable energy power plants are excluded from our focus due to the absence of ties to power generation in the current Maybank portfolio.
- **Power generation:** Power generation companies either produce their own electricity or operate under the single-buyer model, procuring power from independent power producers (IPPs). With the highest emissions in the value chain, mainly from direct emissions (Scope 1) from power generation, these players are integral to our scope.
- **Transmission and Distribution (T&D):** Responsible for managing national grid infrastructure, these entities procure power from various sources and ensure efficiency by minimising leakage and intermittency. These players are excluded from our scope as:
 - A. Emissions attributable to T&D due to loss rates are relatively low (5% of output loss in East Asia and the Pacific).
 - B. Associating these emissions with specific fuel types is challenging.
 - C. T&D companies and retailers have little influence over the source of generation for the electricity they receive (except in regions with state control and single-buyer wholesale markets).
 - D. Methodologies for assessing the impact of grid infrastructure are not yet fully developed.
- **Retail, wholesale and trading/electric utilities:** Operating largely as vertically integrated entities, these players are the link between power generation companies and end-consumers. Although some regional markets have liberalised retail markets, their influence on power generation methods is limited as their business model remains agnostic of power generation. As such, data constraints limit our ability to assess the sources of energy procured by retailers.

Overall, on the basis of materiality of emissions and sphere of influence, we have included upstream players that hold the key levers to sector decarbonisation. These include generation companies and construction and engineering companies that own or operate specific power plants, as well as equipment manufacturers that are tied to power generation.

B. Defining in-scope emissions scopes

In this exercise, we have included Scope 1 emissions for power generation companies. These are direct from the power generation process that arises from the burning of fossil fuels. Emissions factors for Coal in the region can be >900 kgCO₂e/MWh vs 0 kgCO₂e/MWh (or near 0) for renewable sources. We have also included downstream Scope 3 emissions for construction and equipment companies – i.e. emissions associated with running the power plants they help to build – for consistency given inclusion of Scope 1 emissions of Generation borrowers. Scopes 1, 2 and 3 (upstream) for Power equipment manufacturers cannot be easily combined due to differences in emissions type when compared to Generation borrowers. To ensure a single power baseline and target is set, we have included only downstream Scope 3 emissions for these entities, in line with peer banks that have included this borrower type.

C. Choosing an appropriate emissions metric

Regional power demand is expected to continue growing steadily to 2030. Setting a target using an absolute emissions metric would be untenable as this is incompatible with projected increases in power demand and penalises markets and companies for growth, and therefore does not support a just transition and social development. Instead, as was done for palm oil, we have used a “physical emissions intensity (PEI)” metric measured as emissions (in kgCO₂e) per unit of power generated (in MWh). This is in line with peer practices in banking and confers flexibility to acknowledge the required growth in power demand while diversifying into less carbon-intensive generation fuels.

D. Selecting a reference scenario

We have used a 1.5°C-aligned scenario based on the IEA’s Net Zero Emissions by 2050 pathway, enhanced with regional insights from the IEA SDS to account for the different starting points and shape of the transition arising from the unique ground realities in the region (the IEA has not yet released geographical splits of its NZE pathway).



3. The Power Sector

Below, we lay out the key considerations we used to arrive at this pathway of choice, in line with the broad principles for reference scenario selection that were outlined in Section 2.3.4:

- A. Widely accepted and science-based:** Scenarios should be published by credible, independent organisations and based on robust climate science. The IEA reference scenario and the IEA SDS scenarios are both well accepted and highly credible options grounded in the latest climate science.
- B. Purpose-driven:** Scenarios should be aligned with 1.5°C outcomes following low or no-overshoot pathways. The IEA NZE achieves this goal and is the gold standard reference used by banks for the power sector.
- C. Regionalised:** Scenarios should reflect the reality of our markets. In the power sector, despite increasingly supportive government regulations encouraging the shift to renewables, the transition in Southeast Asia is expected to be slower, driven by the prevalence of young CFPPs and increasing power demand for development. Here, choosing a regionalised pathway accounts for the different starting points and shape of the transition arising from the unique ground realities in the region.
- D. Sector granularity:** The chosen reference scenario should cover all parts of the value chain and emissions scopes included in the targets set.

3.3.2 Baselining emissions

The use of a bottom-up approach

To calculate the PEI baseline for our power portfolio, we used a bottom-up approach to obtain power plant-level data, instead of using top-down datasets that typically cover reporting only at a parent company/ group level. This bottom-up approach allowed us to increase the accuracy of our emissions baselines as we could:

- A. Leverage richer information, such as the ages of specific assets operated by clients and their expected retirement.
- B. Set baselines at entity-level for clients part of broader groups.
- C. Focus on specific in-scope emissions — for instance, for an integrated player, only emissions from power generation and not other emissions (e.g. waste management) are included.

While care should be taken for comprehensive emissions accounting, we believe target-setting should be more nuanced to focus on areas where companies have greater spheres of influence to reduce their emissions. We were also able to ensure higher coverage of clients with data, reducing the need for proxies or for applying sector averages unless absolutely necessary.

Baseline calculation approach

We prioritised the usage of established databases on power generation assets (such as the S&P WEPP) that included data on capacity, operating status and type of fuel used, etc. Combined with plant capacity utilisation factors and emission factors by fuel type, we were able to determine emissions at the power plant level.

For a given borrower, aggregating the total power generated by all its power plants with the total emissions associated with those power plants allowed us to determine total emissions intensity ($\text{kgCO}_2\text{e/MWh}$) at a client level.

These client-level emissions intensities were then aggregated to a sector-level emissions intensity using weighted averages based on financing exposure. This approach was in line with the industry, and ensured the sector-level aggregate was representative of the client mix in the Bank's portfolio.

Baseline results

Maybank's baseline as at June 2023 was $442 \text{ kgCO}_2\text{e/MWh}$, below the regional benchmark of $573 \text{ kgCO}_2\text{e/MWh}$. This was largely a result of our Power ESG strategy, which prohibits us from supporting new CFPPs, and decarbonisation actions already taken by our largest clients.

Maybank's Power ESG strategy, Credit Underwriting Standards, and Risk Acceptance Criteria

Our No New Coal Financing policy restricts us from financing new greenfield coal or oil-fired power plants and their value chain activities as all these activities are classified as "unacceptable" under Maybank's ESG Risk Classification. This includes corporate lending, project financing as well as advisory services such as arranging, syndicating, fundraising and underwriting. We will also not support refinancing for expansion of existing CFPPs, including for the coal SPVs of integrated companies. The Group will, however, provide support to clients who are committed to stopping the building of new CFPPs where more sustainable alternatives are available, reducing reliance on coal power, transitioning towards a sustainable energy mix, practices or economic activities, or aiming for carbon neutrality by 2050.²⁹

Lending to a power sector client is governed by our Business Credit Underwriting Standards (CUS), which are complemented by the Risk Acceptance Criteria (RAC). Our RAC constitute key credit and project risk assessment criteria as well as ESG metrics, whereby if select criteria are currently not met, clients should commit to fulfilling them within a stipulated timeframe. Our credit underwriting has to fulfil Maybank's Power Sector ESG Strategy, whereby only clients that avoid triggering the "Knock Out" criteria will be allowed to proceed with the credit application. We nonetheless continue to actively engage and work with our clients across the region to ideate and develop decarbonising solutions to propel them towards a low-carbon business model.

²⁹ "Our Sustainability Journey", Maybank Website.



3. The Power Sector

Treatment of managed phase-outs

Managed phase-outs (MPOs) are initiatives supporting the early decommissioning of high-emitting assets such as CFPPs, and are critical enablers for the transition to clean energy in the long term. In line with our commitment to ensuring a just transition, we recognise the importance of needing to support clients undertaking MPOs. To that effect, in 2023, the Group reviewed and enhanced our existing coal position to allow the financing of MPOs of CFPPs, conditional upon fulfilling internally developed guardrails that ensure a holistic assessment of environmental and social factors surrounding the MPO. Key areas covered in our guardrails are as follows:

1

Emissions leakage: We assess the likelihood that the retired/phased-out CFPP is replaced by a new CFPP, or expansion of an existing one. We do not want our MPO financing to inadvertently cause continued reliance on coal elsewhere in the power fuel mix.

2

Energy security disruptions: We assess the likelihood that the MPO causes a shortfall in energy due to the retired/decommissioned CFPP not being replaced by a clean source of energy. We do not want MPOs to threaten overall energy security, potentially leading to energy disruptions and socioeconomic losses or the widening of socioeconomic disparity.

3

Backsliding and carbon lock-in: We assess the likelihood that the owner of the asset subject to the MPO rows back on its decommissioning timeframe, or repurposes the CFPP to allow co-firing with other fuels rather than phasing it out. While co-firing would lower emissions from the CFPP, it still enables unabated coal combustion to continue, resulting in an inadvertent extension of life of the unabated coal combustion and carbon lock-in, which we do not want our MPO financing to support.

4

Social harm: We ensure that MPO plans include sufficient consideration of reskilling, upskilling and/or compensation of employees of the retired/phased-out CFPP, as well as consideration of the impacted communities.

These guardrails also form part of the Maybank Group Transition Finance Framework (MGTF) – the first such framework established by a Malaysian bank and which was launched at COP28 in December 2023.

Should we participate in any MPO transactions, these transactions will not be included in the scope of our power sector emissions target, and will be reported separately and transparently. This is to avoid causing confusion between our progress in decarbonising our finance to our power sector clients and our specific-purpose financing to help owners of CFPPs to decommission them on accelerated timelines.



3. The Power Sector

3.3.3 Projecting emissions

In projecting our 2030 baseline, we estimated our clients’ own decarbonisation commitments and expected technological developments. We also assessed NDCs that provided insights at a country level on committed generation mix, physical limitations in renewables capacity build and renewables-focused policies leading to early decommissioning. These informed our assumptions on power plant lifespan, replacement mix and carbon capture implementation, which drive projected emissions.

A. Power plant lifespan

We forecast how long our portfolio clients’ existing assets would be in operation, and the resulting energy replacement demand. The average operating lifespan was segmented by fuel type and assumed to be in line with historical trends.

B. Power plant replacement/ new build mix

Once a power plant is retired at the end of its lifespan or decommissioned, the source of fuel used to meet energy replacement demand is critical. Our assumptions on future fuel mix for generation capacity are in line with national policies. For example, in Malaysia, we have assumed coal plants will be replaced by a mix of gas and, increasingly, renewables over time. This is driven by the Malaysia Renewable Energy Roadmap (MyRER), which sets a capacity of c.40% for both renewables and gas by 2035.³⁰

In Indonesia, we expect gas imports in the short term to replace some coal generation along with a full replacement of retired coal capacity with renewables from 2040 onwards. This is in line with the Long-term Paris Compatible (LCCP) scenario, which targets a 40%+ share of renewables in power generation, driven largely by solar.

C. Use of CCUS technology

CCUS can be retrofitted to existing plants, or installed as part of new build capacity. If fully effective, CCUS can abate emissions from fossil fuel power generation substantially. However, given the economic and technological barriers for CCUS to scale, we have conservatively assumed no impact from CCUS before 2030 to avoid over-reliance on this development.

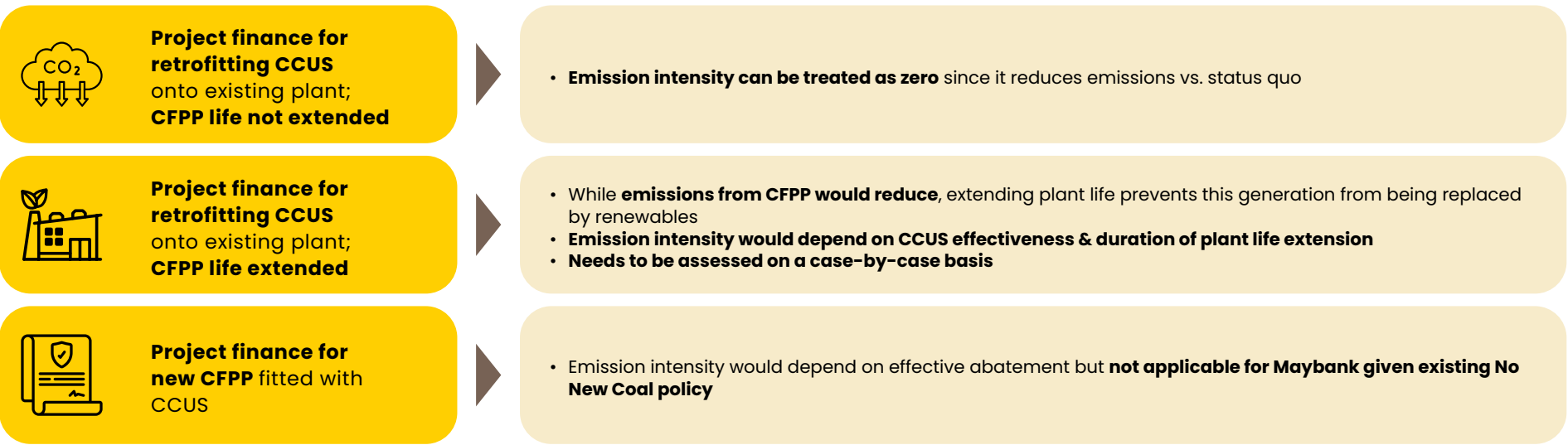


Exhibit 8: Approach to CCUS treatment

³⁰ Malaysia’s renewable energy transition, Reuters, June 2023.



MAYBANK

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

3. The Power Sector

3.4 Enablers to meet our net zero glidepath

In line with our ambition to support a just transition in the region, we recognise more needs to be done. We will continue to systematically drive decarbonisation efforts to achieve net zero by 2040 in line with the regional IEA NZE pathway. To this end, we will:

- **Continue to enforce our coal policy:** In line with our previously established commitments, we will not extend financing to new greenfield CFPPs, nor to borrowers who derive a material amount of annual revenue from thermal coal. This currently includes corporate lending and project financing, as well as advisory services such as arranging, syndicating, fundraising and underwriting. Additionally, transactions and projects within this sector are subject to enhanced due diligence to better assess the nature of transactions and associated ESG impacts. This includes clients' ability to manage associated risks and their current state of performance, capacity and commitment towards sustainability targets. We will, however, continue to support clients who demonstrate their commitment to reducing reliance on coal power and stopping the building of new CFPPs where more sustainable alternatives are available. We will actively partner with our clients, providing ringfenced financing for green projects that can help reduce our clients' dependencies on coal-fired power generation.
- **Offer financing for our clientele and the broader power ecosystem to support the energy transition:** Published national plans for the development and rollout of renewable capacity across Indonesia, Malaysia and Singapore suggest that c.RM300 billion is needed to fulfil the commitments made to new renewables installed capacity. Although not all financing needs will be bankable, Maybank is well positioned to provide financing, advisory and support to clients planning projects in line with these targets, subject to appropriate credit assessment.

Examples of financing support include:

- For upstream power generation and equipment manufacturers:** Project financing for utility-scale solar, hydro, geothermal, wind, etc. Trade or corporate financing for renewable equipment companies (wind turbines, PV cells, transformers, electrolyzers). Trade financing to purchase low-carbon fuels and/ or materials for renewable equipment and capex for CCUS.
- For midstream power transmission and distribution players:** Project financing to expand and/ or improve electricity grids, build energy storage solutions, etc. Corporate loans for cabling and wiring companies, battery manufacturers, etc.
- For downstream players involved in retail, wholesale and trading of energy:** Bundled products for retail customers such as loans for installation of rooftop solar, car loans for EVs, etc. Corporate loans/ trade financing for equipment companies (smart meters, batteries), PV installation and servicing, energy management software and analytics. Platform finance for buying and selling of renewable energy credits (RECs).



4. The Agriculture Sector



The agriculture sector constitutes a material part of Maybank's portfolio and total financed emissions.³¹ Two-thirds of Maybank's financing exposure to the agriculture sector is concentrated in companies involved in the production of palm oil. The remaining third supports a diverse range of agriculture companies involved in agricultural processing (e.g. rice and flour milling), farming for vegetables, fruit and nuts, and livestock (especially poultry). The agriculture sector's huge diversity requires a range of different decarbonisation approaches. We are currently focusing our emissions reduction target on palm oil companies, given their materiality to the Bank and importance to the Southeast Asian region.

The remaining segments of the agriculture portfolio:

- A.** Are individually low in materiality.
- B.** Are highly concentrated, making it challenging to set a sector glidepath, and/or most crucially.
- C.** Lack the required data readiness to set an accurate baseline or target. As data availability increases, it may become more feasible for Maybank to set emissions targets for other areas beyond the palm oil sector.

³¹ As computed using the PCAF approach to allow for sector aggregation.



MAYBANK

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

4. The Agriculture Sector

4.1 Industry overview



Global annual Crude Palm Oil (CPO) production and exports Since 2000, global demand for palm oil has more than doubled. Southeast Asia is the largest producing region of palm oil, with Indonesia and Malaysia producing over 85% of the >70M metric tonnes of global annual production of Crude Palm Oil (CPO), of which these markets export 25.5M and 13.5M tonnes of processed CPO respectively³²	GDP contribution In Malaysia and Indonesia, the palm oil sector is directly responsible for 3-5% of GDP	Future growth outlook Given its criticality to local economies, and burgeoning global demand, production is expected to continue growing in line with historical CAGR of 5% over the last decade.	Employment In Malaysia and Indonesia, the sector employs 5 million smallholders/workers in mills and refineries and 6 million others indirectly, often providing jobs to dwellers in remote rural areas where alternative work is scarce; Also responsible for 3 million downstream jobs in importing countries
---	---	---	---

Exhibit 9: Overview of the regional palm oil sector

³² Vivek Voora, Steffany Bermudez, et al., “Palm oil prices and sustainability”, International Institute for Sustainable Development, June 2023.



4. The Agriculture Sector



Palm oil is a hugely versatile commodity, with high land efficiency in terms of its output per hectare. This makes it an important part of any global path to net zero, contributing both to food security and the Southeast Asian economy.

In recent years, the palm oil industry has taken enormous strides to increase its sustainability. This has involved creating voluntary standards around land use change, biodiversity protection, industrial processes and social practices. Institutions such as the Roundtable on Sustainable Palm Oil (RSPO) certify palm oil producers as adhering to these standards. Sustainable palm oil is that which is produced without recent deforestation and without planting on peatland, with sustainable practices around milling, refining and waste disposal, and with strict social policies.

In recent years, the Malaysian and Indonesian governments have taken up this challenge through policy enhancements and continuous stakeholder engagement. In Malaysia, ESG policies have been enacted, including capping the total area for oil palm cultivation to 6.5 million hectares, and bans on new planting of oil palm in peatland areas and conversion of forest reserve areas for oil palm cultivation,³³ in addition to mandatory implementation of Malaysian Sustainable Palm Oil (MSPO) certification since 2020.

Indonesia has also launched its own sustainable palm oil standard, ISPO, to stop deforestation and improve practices. In Indonesia, the government launched a subsidised palm oil replanting programme back in late 2017 for smallholders, in a bid to increase output without clearing more forested land.³⁴ More recently, the Indonesian

government expects about 200,000 hectares of oil palm plantations found in designated forest areas to be returned to the State and converted back into forests.³⁵

At Maybank, we think it is critical to distinguish between sustainable and non-sustainable palm oil. While we acknowledge that the industry has historically suffered from a wide range of unsustainable practices, we believe that supporting the sustainable palm oil industry is strongly consistent with our net zero ambitions and that it is time for a reset of attitudes globally towards the commodity.

The value of palm oil as a crop

Palm oil has strong characteristics that have driven it to be used in a wide range of applications, in particular, its versatility and high calorific value:

A. Palm oil is the world's most versatile vegetable oil ingredient

Palm oil is a colourless, odourless oil that is found in nearly everything. Its versatility and unique properties allow its usage in various products. For instance, palm oil is semi-solid at room temperature, allowing spreads to be kept spreadable; it is resistant to oxidation so it can give products a longer shelf-life; it is stable at high temperatures so helps to give fried products a crispy and crunchy texture; and it is also odourless and colourless so does not alter the look or smell of food products.³⁶ Today, palm oil is found in countless supermarket products, from soap and cosmetics to chocolate and noodles. It is also used in animal feed and as a biofuel in many parts of the world. Its natural preservative effect extends the shelf life of end-products and its ability to be used in both liquid and solid form confers it a significant advantage over other oils.

B. Palm oil is the world's most productive vegetable oil, with a much higher yield per hectare relative to other oil crops

Palm oil is extracted from the flesh and the kernel of the oil palm fruit. For the same amount of land, oil palms yield up to nine times as many tonnes of oil as other crops such as soybean or rapeseed. Substitution of palm oil with other sources is untenable, given palm oil fulfils >40% of the world's vegetable oil demand but uses under 10% of the total acreage of land used in vegetable oil production. Since a transition to net zero involves getting maximum food value out of scarce land, it is therefore clear that sustainably produced palm oil has a key role to play in that transition.

³³ Mohd Anuar Amirkadra, "Mechanisation is the way forward for the Malaysian palm oil industry", MSPO, 2022.

³⁴ Fransiska Nangoy, "Indonesia must achieve palm oil replating target – senior official", Reuters, February 2023.

³⁵ Bernadette Christina, "Indonesia says 200,000 hectares of palm plantations to be made forests", Reuters, November 2023.

³⁶ "8 things to know about palm oil", World Wide Fund for Nature (WWF).



4. The Agriculture Sector

Statistics of vegetable oils: Productivity and emissions intensity

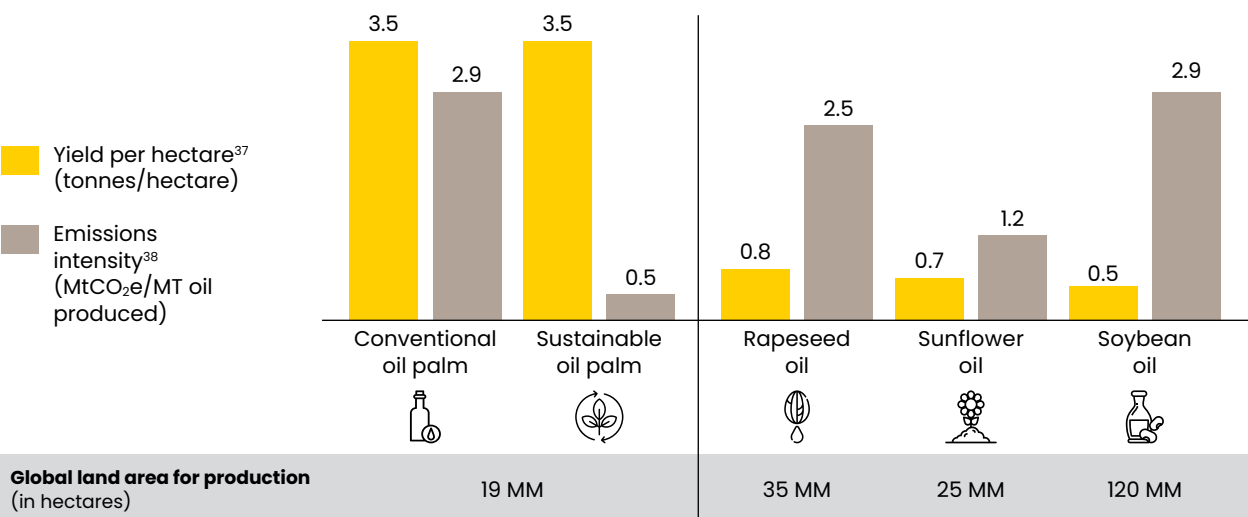


Exhibit 10: A comparison of palm oil vs substitutes, on land use productivity and emissions intensity

Palm oil is also an important element of the regional economy. Several million people across Malaysia and Indonesia earn their livelihoods from palm oil production,³⁹ and in Indonesia alone, the industry has lifted 10 million people out of poverty since 2000.⁴⁰

With global population expected to reach 9 to 10 billion by 2050, demand for food and vegetable oil is expected to increase significantly. Projections show that feeding a world population of 9.1 billion people in 2050 would require raising overall food production by some 70% between 2005/07 and 2050.⁴¹ In addition to having to increase overall food production, demand for vegetable oil for the production of consumer goods will also increase. Producing the required additional oil from alternatives to palm oil such as sunflower or rapeseed oil will come at the cost of additional land clearing given the lower yield productivity of these crops. When viewed as a whole, therefore, palm oil emerges as the front-running solution. For these reasons, discussions and focus should be redirected from arguing against banning palm oil to advocating for financing sustainable palm oil initiatives.

Maybank will support our palm oil clients in increasing their sustainability of palm oil in three main ways. Firstly, through our commitment to reducing the aggregate emissions intensity of our palm oil sector portfolio, a commitment that we are making today and explore in the rest of this section. Secondly, through our existing NDPE policy, which prevents us from financing continued deforestation that has historically caused much of the emissions from the palm oil sector. Thirdly, by taking concerted steps to help our clients to transition to more sustainable production practices.

Our ESG Position

The Group has identified and established our position in six industries – palm oil, forestry & logging, construction & real estate, power, oil & gas and mining & quarrying. We also have a NDPE stance for the Group which applies to all relevant sectors, including but not limited to palm oil, forestry and logging industries. On deforestation, this includes forest reserves, primary forests and environmentally sensitive areas, whilst for exploitation, this covers forced labour, child labour as well as minimal wage requirements. NDPE is viewed as a fundamental component for sustainable practices, given the adverse impact such activities have on our customers, the community and the environment. As such, the Group will not extend new financing facilities to customers that are not aligned to this stance.

Palm Oil

We recognise that food security and safety are crucial elements in addressing our sustainability agenda. An important contributor to this is the palm oil industry which is widely used throughout the global food supply chain. In view of this, we need to ensure that the industry is managed responsibly and this is reflected as part of our NDPE stance of which we will not finance activities where we believe are or could lead to a significantly adverse impact on the environment, surrounding communities and labour. This applies to all business segments within the Group that extend any form of financing to the palm oil supply chain. Over and above this, clients are subject to or at minimum required to have a time-bound commitment to meet requirements such as local or international sustainable palm oil certification, zero burning practices, best practices on existing peat, climate change, biodiversity and Free, Prior and Informed Consent (FPIC), amongst others.

³⁷ Malaysia Palm Oil Factsheet, Malaysian Palm Oil Council, 2020.
³⁸ Impacts on Agriculture, Forests and Ecosystem Services (IAFES) – Maria Vincenza Chiriaco (2021).
³⁹ Michael Taylor, “This Borneo state is bringing about a green palm oil revolution, here’s how”, World Economic Forum, February 2022.
⁴⁰ “Gov’t Ensures Sustainability of Palm Oil Industry”, Cabinet Secretariat of the Republic of Indonesia, July 2019.
⁴¹ “Global agriculture towards 2050”, High-Level Expert Forum, Food and Agriculture Organization (FAO), October 2009.



4. The Agriculture Sector



4.2 Summary of our targets for the agriculture (palm oil) sector

Emissions scopes

- Focus on **Scope 1 and 2** as they relate to primary production
- **Scope 3 upstream** emissions included for palm oil mills that procure FFB from 3rd party growers

Value chain

- Focus on **primary Palm Oil production** – i.e. growing and milling

Metric

- Emissions intensity measured in **tonnes CO₂e / tonnes crude palm oil produced (CPO)**

Reference scenario

- Augmented global pathway – a combination of **SBTi FLAG** (provides commodity specific pathway for palm oil) + **NGFS REMIND** (to account for methane from palm oil milling)

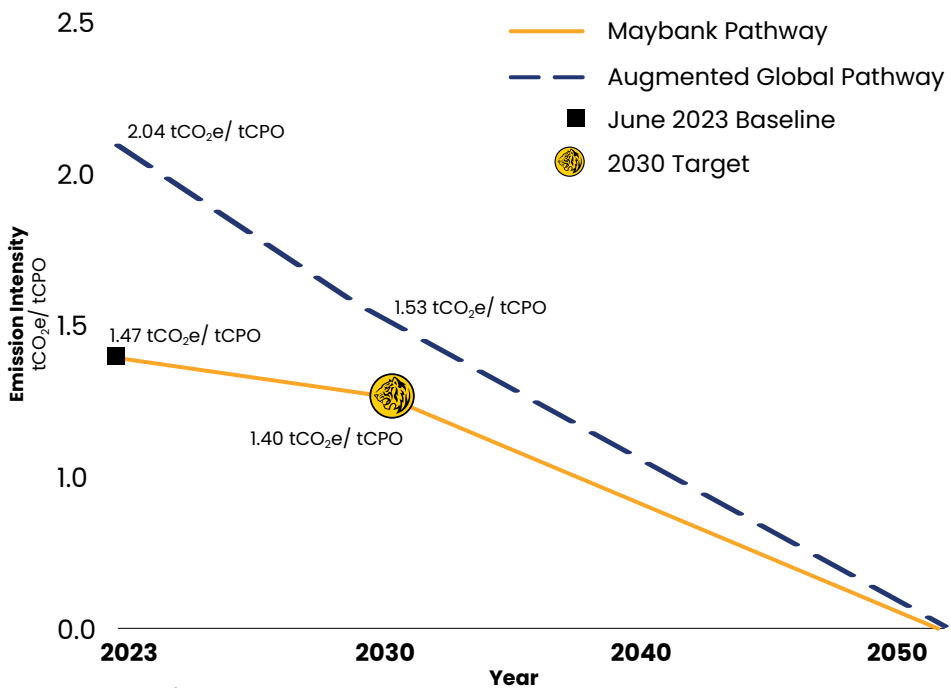


Exhibit 11: Decarbonisation glidepath to 2030 and associated design decisions tCO₂e/tCPO, 2022–2030⁴²

⁴² At the time of this exercise, we used the latest available snapshot of our portfolio (as at June 2023) for the most accurate weighting of our lending and financing activities. However, clients’ latest reported emissions data was dated as at December 2022. For comparability against our baseline emissions profile in 2022, we have used reference pathways starting 2022 to inform our target-setting.



BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

4. The Agriculture Sector

4.3 Our approach to net zero target-setting for the palm oil sector

4.3.1 Aligning on design decisions

A. Selecting in-scope value chain segments

The palm oil value chain can be broken down into the following key player types:

Primary Producers: Plantations and Mills

Primary producers are companies that farm oil palms to produce fresh fruit bunches (FFB), including large oil palm plantation companies, both specialists and integrated players, as well as over three million smallholders in Malaysia and Indonesia whose combined annual production constitutes over 40% of the region’s total. After FFB are harvested, they are delivered to nearby mills that process the FFB to produce crude palm oil (CPO), along with other by-products and waste streams such as palm kernel (PK) and palm oil mill effluent (POME). PK is crushed at secondary kernel mills to produce crude palm kernel oil (CPKO).

Primary Processors: Refineries and downstream plants

CPO and CPKO are transported to refineries in the region and beyond for further treatment. The end product – refined, bleached and deodorised palm oil (RBD PO) – is then rendered suitable for incorporation in a variety of end uses.

Traders & Distributors

Firms that store, transport or distribute the various interim and finished products between players in the palm oil value chain, or to end-consumers.

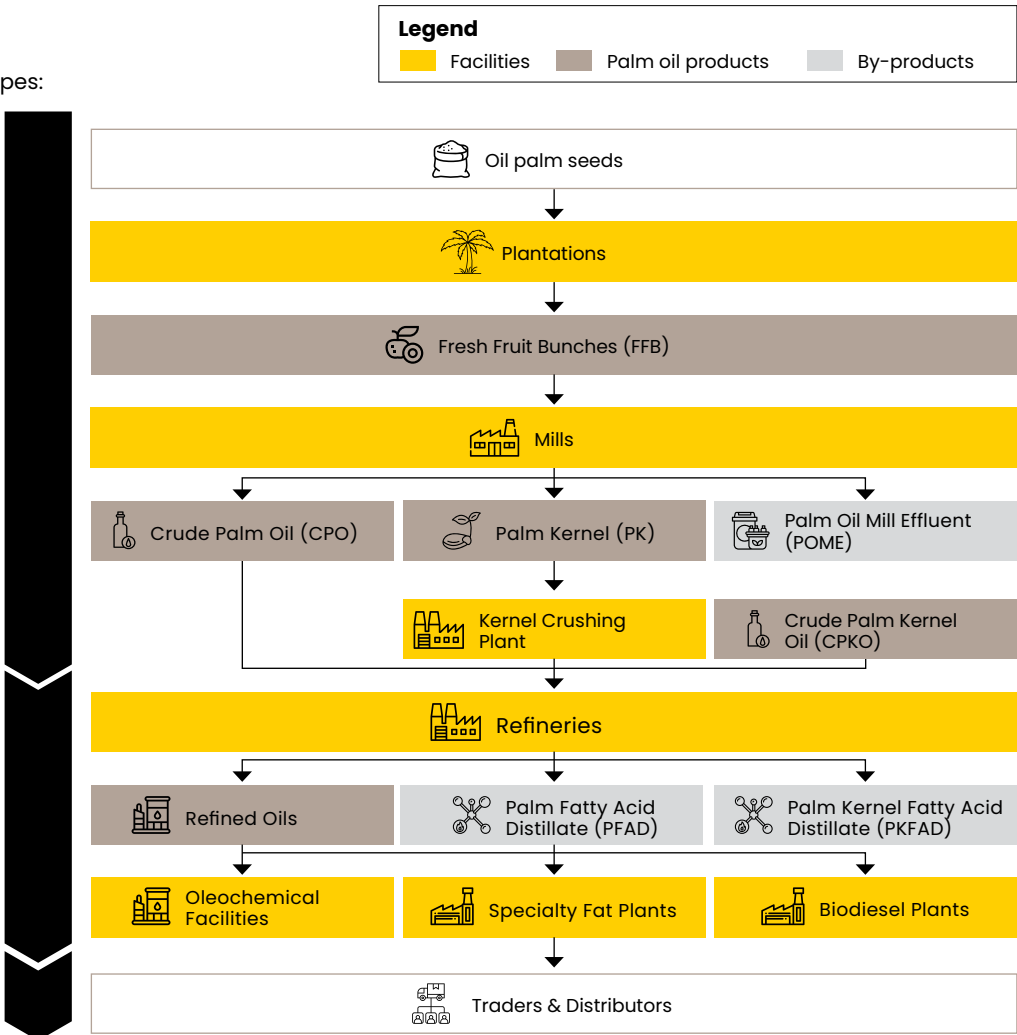


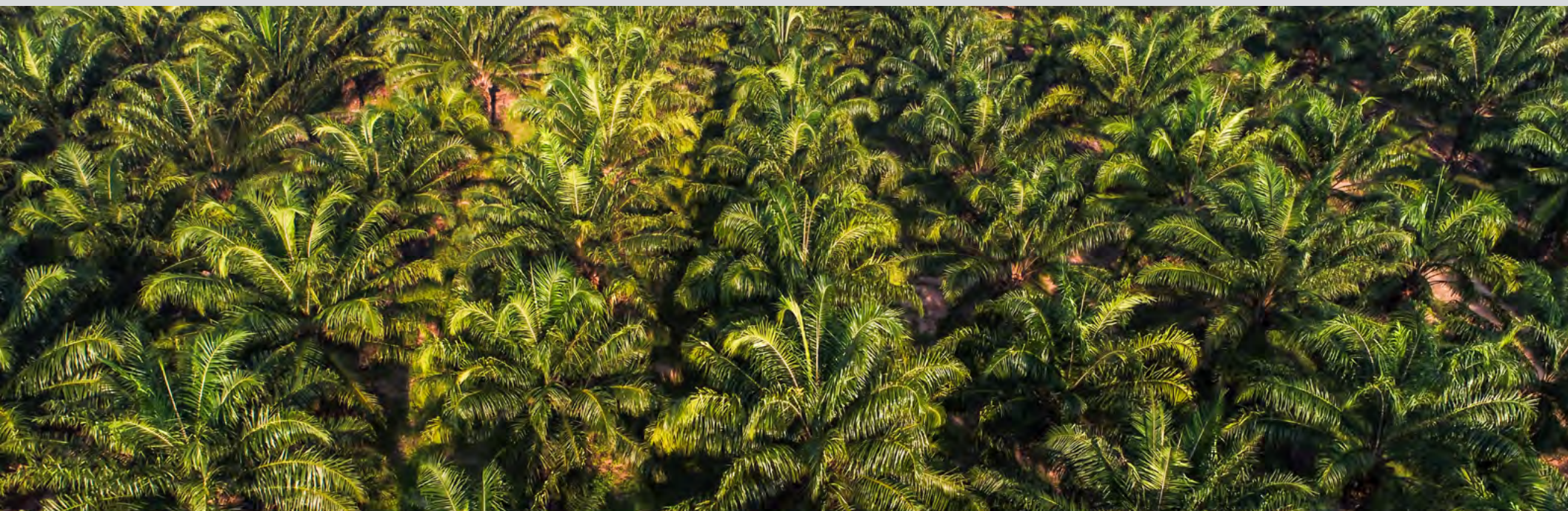
Exhibit 12: Key activities and sources of emissions across the palm oil value chain⁴³

Palm oil plantations and mills are associated with the most material emissions and have the greatest sphere of influence on emissions from activities undertaken in the rest of the value chain – traders and distributors, much less so. Hence, we focused on this segment of the value chain in our targets.

⁴³ Based on Oliver Wyman’s in-house research (2024).



4. The Agriculture Sector



B. Defining in-scope emissions scopes

Primary producers generate emissions across all three scopes:

- **Scope 1:** Direct GHG emissions from primary producers' own operations in planting and milling, e.g. fertiliser application, plantation machinery diesel, etc. These also include emissions associated with peatland oxidation and land use change from historical deforestation over the 20 years following the deforestation, and methane released by POME during the extraction of CPO at palm oil mills.
- **Scope 2:** Indirect GHG emissions from purchased electricity, heat or steam used to power planting and milling activities.
- **Scope 3:** All other indirect GHG emissions that occur in the value chain of the primary producer. Scope 3 upstream includes emissions from fertiliser manufacturing, and from producers' purchase of CPO from third-party growers/ independent suppliers, as is typically done by large integrated palm oil producers. Scope 3 downstream includes emissions from distributors' transportation of the palm oil end-product.

Scope 1 emissions are by far the largest in the palm oil sector, and it is important for growers to reduce these, while companies can also control how much electricity they consume. Therefore, we focused our targets on the Scopes 1 and 2 emissions of primary producers.

Many large palm oil companies also operate mills that process FFB grown by other smallholders in the palm oil ecosystem. Therefore, we have also included Scope 3 upstream emissions, specifically where these arise from the growing of FFB that a company procures from third-party growers. These emissions are equivalent to the company's own Scope 1 emissions from its own plantations, and we include them to equate between companies that produce CPO only from their own FFB and those that produce CPO from a mix of their own FFB and FFB grown by other parties.

Including these emissions signals our expectation that large palm oil companies should engage with their upstream suppliers to also increase their own sustainability, as well as our willingness to work with our clients to achieve this.

**MAYBANK**

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

4. The Agriculture Sector

C. Choosing an appropriate emissions metric

The palm oil sector is expected to continue growing. We are committed to helping palm oil producers realise this growth but want to help them do so more sustainably. We will measure our success in reducing the emissions impact of our portfolio using a “physical emissions intensity (PEI)” metric, measured as emissions (in tonnes CO₂e) per unit of physical output (in tonnes of CPO, i.e. tCPO). This metric is aligned with our immediate goal of helping clients to produce more sustainably, as it allows them to continue production while requiring that they do so with greater emissions efficiency.

D. Selecting a reference scenario

We have used a 1.5°C-aligned augmented global pathway that combines the palm oil-specific pathway from SBTi FLAG (Science Based Targets initiative, Forestry, Land Use and Agriculture Group), capturing plantation-related emissions, and the NGFS-REMIND scenario, capturing emissions from milling (mainly methane from POME). Below, we lay out the key considerations we used to arrive at this pathway of choice, in line with the broad principles for reference scenario selection that were outlined in Section 2.3.4:

- A. Widely accepted and aligned with the science:** The SBTi FLAG reference pathway and the NGFS scenario are both well accepted and highly credible options grounded in the latest climate science.
- B. Purpose-driven:** While the NGFS has both 1.5°C- and 2°C-aligned pathways, given our overall approach, we have used the 1.5°C-aligned pathway.
- C. Offering the right level of granularity:** It is crucial for the chosen reference pathway benchmark to allow for a like-for-like comparison with the in-scope portfolio for which we are setting targets. This means ensuring that the reference pathway captures emissions across the in-scope sectors and value chain, with cuts capturing regional nuances to the extent available.

The level of granularity differs across the SBTi and NGFS models, each of which represents different degrees of emissions reduction from now until 2050. The SBTi FLAG scenario is deemed the industry gold standard, as it is the only scenario that offers commodity-specific pathways suitable to capture emissions relating to just palm oil rather than broader agriculture. The SBTi FLAG scenario focuses only on emissions from palm oil plantations — including peat oxidation, fertilisers, field fuel use and sequestration in palm biomass and conservation areas. However, it does not capture emissions from the treatment and discharge of POME, which constitutes a significant proportion of emissions in the sector and should be actively accounted for. To this end, we augmented the SBTi FLAG scenario (plantations-only) with the NGFS-REMIND scenario (mills-only) to develop a pathway that captures emissions figures for the entire palm oil value chain in-scope, weighting the scenarios by the proportion of upstream emissions from palm oil plantations vs from palm oil mills.

4.3.2 Baseline emissions

Data sources used

To calculate the emissions intensity baseline for our palm oil portfolio, we prioritised data sources in the following order, in order of preference:

1. Directly reported data from our clients' sustainability reports.
2. In the absence of (1), data reported as part of the “Annual Communication of Progress” (ACOP) effort undertaken by palm oil clients that are members of the Roundtable on Sustainable Palm Oil (RSPO) production, with the objective of tracking their progress towards 100% certified sustainable palm oil (CSPO).
3. In the absence of both (1) and (2), we applied emissions intensity proxies derived from recent scientific literature and sustainability certification schemes including the RSPO, the Malaysian Sustainable Palm Oil (MSPO) certification scheme, and the Indonesia Sustainable Palm Oil (ISPO) certification scheme.

Data for 82% of our palm oil portfolio exposure was obtained using approaches (1) and (2). We assessed the emissions of our clients on a parent company basis, as data is typically only reported at this level rather than for each subsidiary separately. Moving forward, we will continue to advocate for stronger disclosures among our clients, to the advantage of the whole industry and our own internal data quality.



4. The Agriculture Sector

Baseline results

Our 2023 baseline financed emissions intensity in our palm oil portfolio was 1.47 tCO₂e/tCPO. This was well below the benchmark of 2.04 tCO₂e/tCPO in our reference scenario. Maybank's starting point below industry average and below the benchmark can be attributed to a number of factors:

- Our portfolio is currently heavily weighted towards large palm oil companies that have taken steps to increase their sustainability, leading to lower emissions. Beyond these clients, the majority of our smaller clients, whose practices may not be as cutting-edge, are based in Malaysia. Deforestation for agricultural land has slowed across the region, but has occurred earlier in Malaysia than in Indonesia thanks to strong government policy intervention. Combined with a greater level of sustainability certification, this tends to lead to Malaysian palm oil growers having lower-than-regional average emissions intensities.
- Our strict compliance with our NDPE policy, resulting in zero tolerance for clients engaging in deforestation. As a result, land use change emissions are already lower in the Bank's portfolio than in the sector as a whole.
- Our pre-requisite "Risk Acceptance Criteria", which must be met before financing palm oil clients.

Maybank's Palm Oil Sector Risk Acceptance Criteria (RAC)

- Zero or no burning policy/practice/commitment and fire preventive measures (with questionnaires on the details of the fire incidents to gauge the severity and recurrence). This policy is crucial, particularly in preventing the release of harmful pollutants and greenhouse gases from burning agricultural residue and waste into the atmosphere, contributing to air pollution and climate change.
- For clients with higher levels of sustainability certification, it is an expectation that they demonstrate their efforts and state their current and targeted levels of GHG emissions, including their reduction plans.
- Apart from Best Management Practices on existing peat plantations, we finance existing (used) peat/replanting on peat on selective basis.

4.3.3 Projecting emissions

In projecting our portfolio's emissions intensity forward to 2030, we considered the impact of various passive levers.⁴⁴ Key projection drivers included:

- Natural and technological developments,
- Governments' NDCs and implementation plans in palm oil-producing markets, and
- Clients' actions in fulfilling their declared commitments, particularly around gaining sustainable palm oil certifications.

Emissions from plantations were estimated based on palm oil demand growth projected by the United Nations Food and Agriculture Organization (FAO) demand outlook and a combination of science-based studies, as well as the impact of land use change. The impact of land use change is amortised over 20 years from the time of deforestation under carbon accounting,⁴⁵ while plantations become carbon sinks to capture carbon dioxide when left to grow. As such, sector emissions are expected to reduce substantially, provided no further deforestation and new planting on peatland occurs.

Country NDCs play a crucial role in pushing companies to adopt practices that support this natural emissions reduction. Indonesia and Malaysia have both declared moratoriums on the use of primary forest and peatland for oil palm cultivation, a step in the right direction to reduce the significant emissions associated with land use change. Over time, this will then make emissions from palm oil directly comparable with crops grown elsewhere in the world on land where forests were cleared centuries ago.

Emissions from mills were projected based on biogas capture emissions factors in line with the latest scientific studies, and countries' progress on installation rates as reported by local ministries and domestic palm oil boards.

⁴⁴ Actions taken by external parties that could lower the emissions intensity of the Bank's sectoral portfolio.

⁴⁵ Carol Barford, Navin Ramankutty, et al., *Producer and consumer responsibility for greenhouse gas emissions from agricultural production—a perspective from the Brazilian Amazon*, *Environmental Research Letters*, 4. 44010-12 (December 2009).



BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

4. The Agriculture Sector

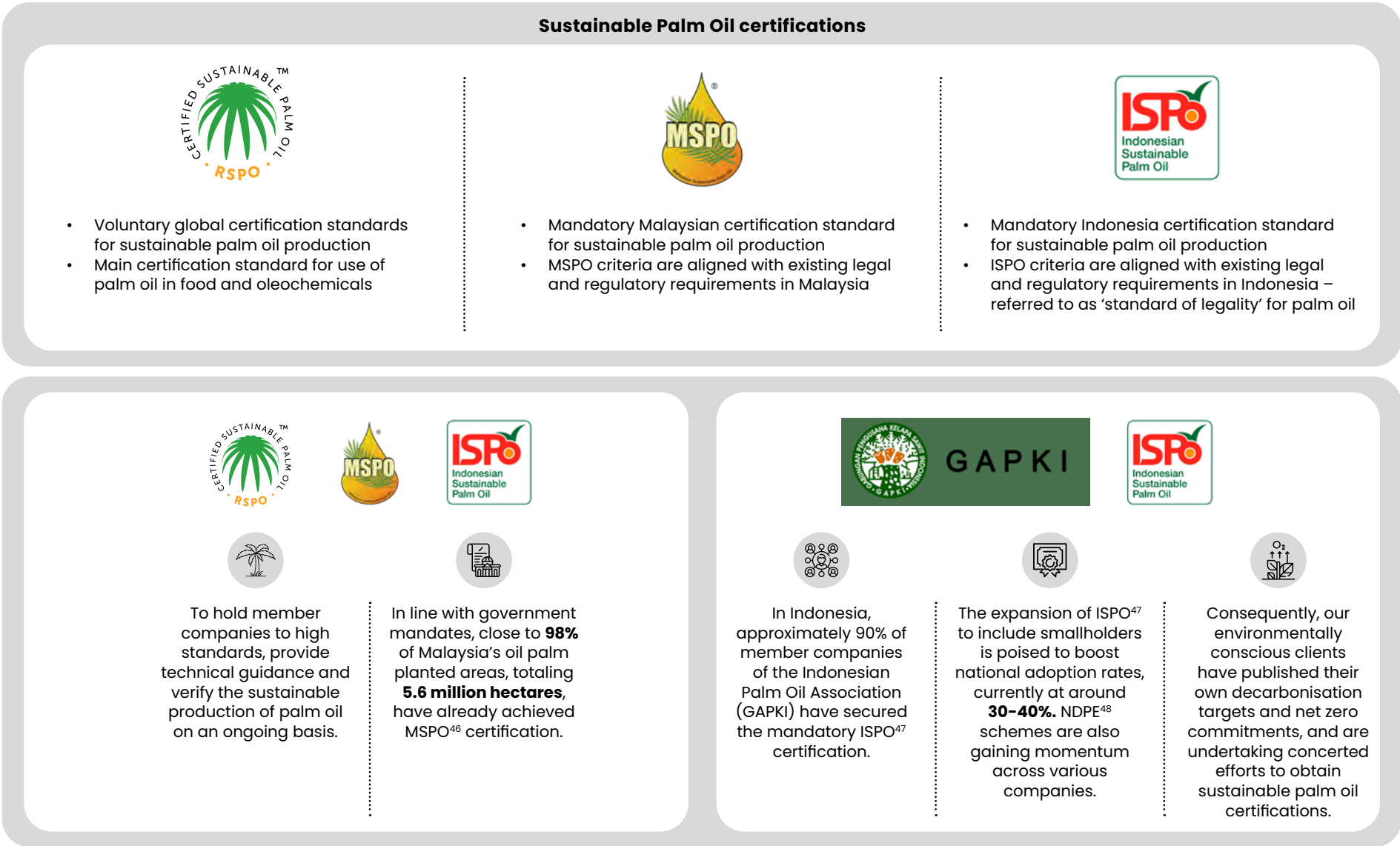


Exhibit 13: Overview of sustainable palm oil certifications: RSPO, MSPO and ISPO

⁴⁶ MSPO: Malaysian Sustainable Palm Oil.
⁴⁷ ISPO: Indonesia Sustainable Palm Oil.
⁴⁸ NDPE: No Deforestation, No New Peat, No Exploitation.



4. The Agriculture Sector

To reflect the degree of uncertainty associated with NDCs and growing palm oil certifications, particularly as such aspirations are often non-binding and come with implementation challenges, we estimated the above drivers under various scenarios to establish a range of climate outcomes. We accounted for the range of possible outcomes that could materialise when setting our targets, following ambitious but not unachievable assumptions.

4.4 Enablers to meet our net zero glidepath

As one of the leading capital provider in ASEAN with a mission to humanise financial services, we have set our targets within the context of a broader strategy to support both meaningful portfolio emissions reduction and the just transition of our clients that primarily operate in developing markets.

While our strong starting point below the reference pathway is largely positive, we also want to ensure that we are genuinely financing decarbonisation (by supporting clients in their transition) and not only decarbonising finance (by dropping high-emitting clients to be financed by less scrupulous lenders). In particular, we remain committed to growing our business in Indonesia. We will do this through financing palm oil producers that can demonstrate strong environmental and social practices and a commitment to decarbonise.

However, the more recent deforestation in Indonesia, which still causes residual land use change emissions for growers even if they have since focused on increasing their sustainability, may mean our baseline goes up before it goes down.

With this in mind, we take a cautious view of our 2030 target. We are targeting a reduction to 1.40 PEI by 2030 and expect our portfolio emissions intensity to be consistently below the reference pathway during this period. To this end, we will undertake several measures to actively steer our portfolio. We will:

A. Continue to enforce strict adherence to our NDPE policy

As deforestation mandates are more strictly enforced, and land use change impact amortises down, there will be substantial reduction in sector emissions, but this is contingent upon Maybank continuing to apply our NDPE policy in a robust manner, and our client companies fulfilling their no-deforestation commitments in a manner that is credible and traceable. We will engage with clients with past deforestation histories to undertake remediation efforts and adopt more sustainable practices.

B. Channel portfolio financing growth towards more efficient clientele, supporting them in new initiatives that will further accelerate emissions reduction

We will support clients' investments in the use of precision geographic information systems (GIS) and autonomous machinery to optimise resources; for instance, for targeted application of pesticides and fertilisers that are high-emitting. We will also support clients engaging in regenerative agriculture and innovative growing and milling practices that will improve yields, and in turn, emissions intensity. For our clients operating mills, we will support them in installing biogas capture technology to reduce methane emissions from POME. This can be economically positive for our clients as well as environmentally positive, as the captured gas can be used for power generation onsite, or sold as an additional product.

C. Offer decarbonisation solutions for mid-cap players and smallholders

Some of our clientele may currently be at higher-than-average emissions intensity but has the potential to adopt better practices and obtain CSPO certifications with the right capital and technical support. CSPO certifications addresses several key aspects, including environmental management (such as sustainable land management practices), social responsibility (fair treatment of workers and local communities), traceability and supply chain management (establishing systems to trace origin of palm oil and ensure transparency throughout the supply chain).

Many smaller players in the region face several key barriers to obtaining CSPO certifications as significant resources and investments are required to make up for the lack of technical support. Moreover, the initial costs to verify and monitor CSPO compliance by suppliers can be high and uncertain, reducing the ability and incentive to trace the supply chain. We intend to support clients in overcoming these barriers through advisory and tooling on measuring and reporting emissions. We are also prepared to provide financing to cover initial certification cost for uncertified clientele or for clientele expanding certification coverage.

**MAYBANK**

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

4. The Agriculture Sector

Our Commitment In Supporting Smallholders

Smallholders play a critical role in the palm oil production supply chain – over three million smallholders in Malaysia and Indonesia supply FFB and CPO to larger integrated producers or to independent mills. Including and engaging smallholders in this decarbonisation journey is crucial to protecting their livelihoods and ensuring a just transition.

Smallholders are faced with a unique set of challenges and are particularly vulnerable to being left behind. They may lack financing and technical expertise required to undertake more comprehensive and consistent emissions reporting, obtain certifications, switch to more sustainable practices, or scale up the production of CSPO. Integrated players, on the other hand, have made great strides in increasing the traceability of outputs procured from smallholders and their associated emissions profile.

For instance, by partnering with integrated producers in the region that work closely in supporting smallholders, we can facilitate the latter's transition towards more sustainable and low-carbon practices. These producers have extensive reach and influence over smallholders, making them ideal partners in this endeavour. Opportunities that could be explored includes training programs for smallholders, which could be facilitated by these integrated producers. These programs could focus on educating smallholders about sustainable farming practices and the benefits of certification, thereby empowering them to contribute to the decarbonisation journey. Through these strategic partnerships and initiatives, Maybank could play its part to influence the decarbonisation of the palm oil industry. Our support extends not just to large corporations, but also to smallholders who are an integral part of this industry. This will help us collectively deliver on the dual objectives of decarbonisation and improved socio-economic benefits of inclusion.

Maybank is committed to supporting the smallholders segment by:

- Providing required tooling support and advisory to encourage smallholder traceability
- Supporting clients' investments into technologies that help improve emissions measurement and reporting across the end-to-end value chain
- Encouraging our integrated clients' training efforts and engagement with upstream smallholders to improve visibility on farming practices
- Increasing financing and other support to clients to encourage upskilling, increase yields, invest into innovative lower emissions technology and switch to more sustainable practices (including 'zero waste' practices such as use of empty fruit bunches (EFB) as fertilisers)

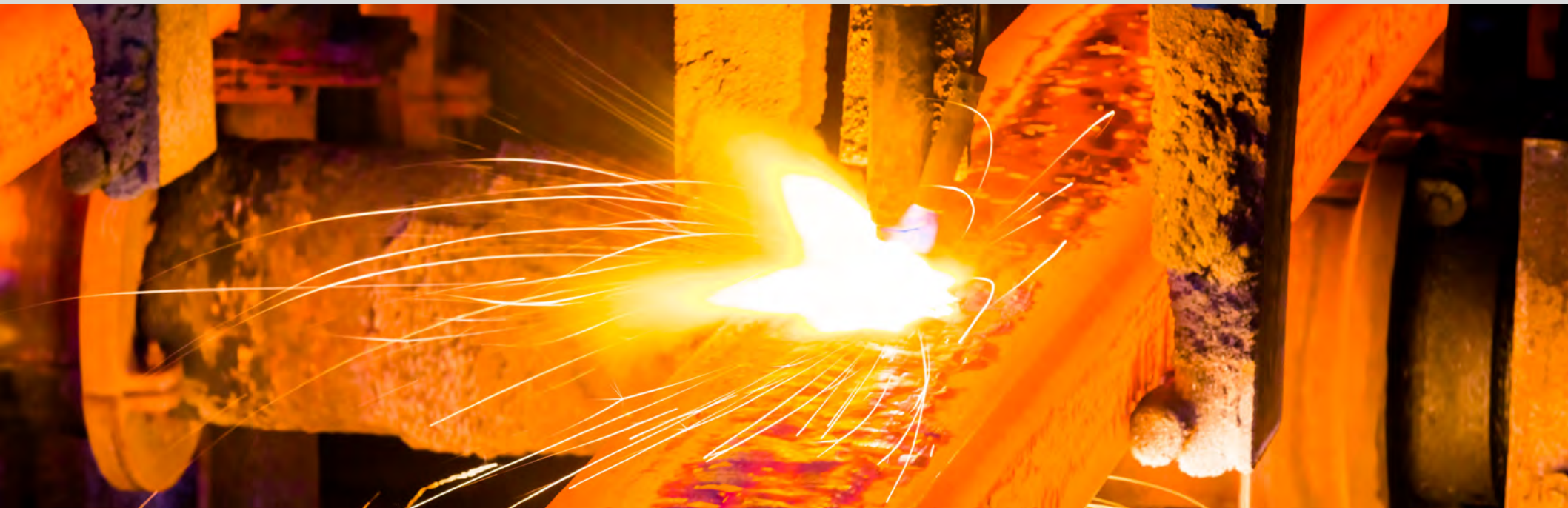
D. Finance investments in greener practices and technologies

Maybank is proactively looking to support clients by offering ringfenced financing for innovative projects where emissions reduction transcends the boundaries of the palm oil sector. Examples include:

- The usage of Bio-CNG, a form of purified biogas of greater methane content, as a fuel substitute at plantations and mills to further support their transition to renewable energy.
- The conversion of degraded farmland into solar farms.
- The protection/conservation of high conservation value (HCV) and high carbon stock (HCS) areas in existing and new oil palm plantations.



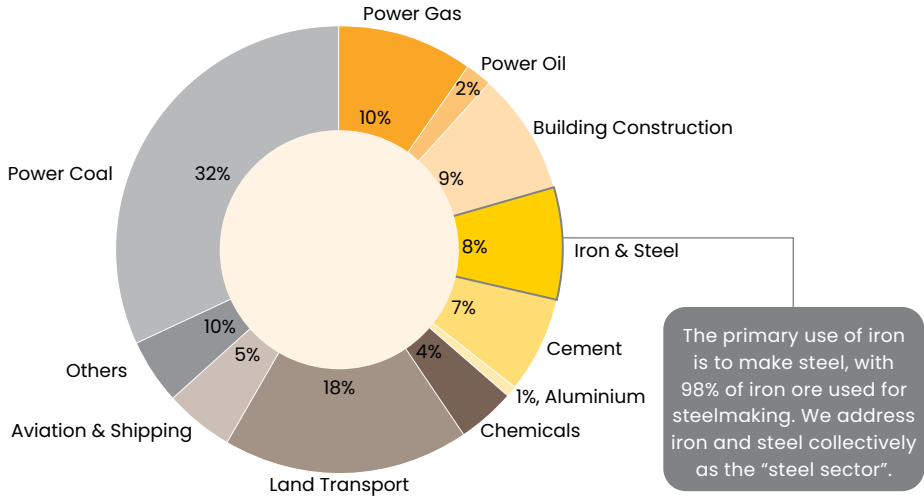
5. The Steel Sector



Steel is widely used in various industries today, most extensively in the construction sector. It is also used for manufacturing cars, ships and planes, and in other industries.

The construction sector accounts for over 52% of global steel demand, partly due to the widespread use of steel in buildings, bridges and other infrastructure.⁴⁹ About 12% of the world’s steel demand originates from the automotive industry to produce vehicles, while shipbuilding, aviation and other transport account for 5% of global demand.⁵⁰ Decarbonising steel production is thus crucial not only for the steel sector but also for the wider economy, particularly in the real estate sector, as the direct (Scope 1) emissions from steel manufacturing contribute significantly to Scope 3 emissions in those other sectors. Steel production involves significant emissions, accounting for roughly 8% of global energy-related carbon emissions, as shown in Exhibit 14. Within our steel portfolio, steel production activities contribute 60% to our financed emissions concentrated within Malaysia.

Exhibit 14: Global energy-related carbon emissions from final consumption in 2022, by percentage of GtCO₂⁵¹



⁴⁹ & ⁵⁰ World Steel Association. Steel use by sector. World Steel Association.
⁵¹ International Energy Agency. (2024). The role of CCUS in low-carbon economy.



MAYBANK

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

5. The Steel Sector

5.1 Industry overview

As of 2023, the largest global steel producers include China, India, Japan, the United States, Russia and South Korea.⁵² With an output exceeding 1 billion metric tonnes annually, China dominates the steel industry, accounting for more than 50% of global steel production, which reached 1.89 billion metric tons in 2023. Reflecting its massive scale, the steel industry contributes approximately 4% to China's economy. India produced over 140 million metric tonnes, ranking as the second-largest producer, while Japan, the United States, Russia and South Korea produced between 60 and 90 million metric tonnes each. In comparison, our domestic steel industry was ranked 21st globally, achieving 7.5 million metric tons (Mmt) of crude steel production in 2023, a 4% increase from the previous year.⁵³ Despite the positive growth, Malaysia's capacity utilisation rate is about 39%, even as exports of iron and steel products grew by 14.5%.⁵⁴ Meanwhile, our regional peer Indonesia ranked 14th, with 16.8 Mmt steel produced, an increase of 7% from 2022, and Vietnam was ranked 12th globally at 19.2 Mmt, a 4% decrease from 2022.⁵⁵ Expanding Malaysia's presence in the global steel market proved challenging, mainly due to fierce competition from established producers in China, Japan, South Korea, Vietnam and Indonesia, which benefit from larger scales of production and strong export networks.

Steel demand in ASEAN countries has generally grown in line with economic development. While 2023 saw a 1.9% decline in steel consumption in the region's six major countries (ASEAN-6) falling to 73.5 million tons,⁵⁶ the demand for steel in Southeast Asia is projected to grow by 3.7% in 2024, reaching 76.5 million tons, spurred by ongoing construction projects. The Malaysian Iron and Steel Industry Federation (MISIF) anticipates that domestic steel consumption will grow to between 8.3 million and 9 million tonnes in 2024 with growth mainly fuelled by data centre construction and the semiconductor industry's expansion.⁵⁷ However, the rapid growth of the iron and steel industry has also made it the fastest-growing source of emissions within Malaysia's industrial processes and product uses (IPPU) sector since 2014, currently contributing 26% of all IPPU emissions and 4% of the country's total emissions.⁵⁸ In essence, the steel industry accounts for more than a quarter of the manufacturing sector's emissions.



⁵² & ⁵³ World Steel Association. (2024). *World Steel in Figures 2024 – Major steel-producing countries 2022 and 2023*.

⁵⁴ Malaysian Investment Development Authority. (2024, July). *Mapping Malaysia's steel sector journey*.

⁵⁵ World Steel Association. (2024). *World steel in figures 2024. Major steel-producing countries 2022 and 2023*.

⁵⁶ South East Asia Iron and Steel Institute. (2024, May). *Steel demand in Southeast Asia to grow by 3.7% y/y in 2024*.

⁵⁷ The Edge Markets. (2023). *Navigating global market dynamics for a sustainable future in the iron and steel industry*.

⁵⁸ The Edge Markets. (2023). *Malaysia's steel industry faces overcapacity challenges amid slowing construction demand*.



5. The Steel Sector

In today’s steel industry, the typical method for creating new (or primary) steel is through reducing iron ore in a blast furnace and subsequently refining it in a basic oxygen furnace (BF-BOF). Both involve very high temperatures, achieved through the burning of coal. Alternative approaches involve the use of electricity to melt scrap (secondary) steel using an electric arc furnace (EAF), which has considerably lower emissions but does not produce primary steel. Newer technologies utilise hydrogen and other gases (especially natural gas) for direct reduction of the iron ore before using EAFs to convert it to steel (DRI-EAF), which can, in the cleanest approaches, produce near-zero emissions steel.

Production Method	Process	Emissions Factor ⁵⁹ (tCO ₂ /tSteel)	Global Production Share ⁶⁰	Southeast Asia Adoption
Blast furnace – basic oxygen furnace (BF-BOF)	Involves reducing iron ore into molten iron in a blast furnace, which is then converted into steel in a basic oxygen furnace (BOF). This method heavily relies on fossil fuels, making it energy-intensive and carbon-emissions-heavy.	2.2	~73%, primarily due to its well-established infrastructure and the high-quality steel it produces	Higher reliance on BF-BOF, with significant investments in this technology due to the availability of raw materials and existing facilities.
Electric arc furnace (EAF) for scrap	The EAF process utilises electricity to melt scrap steel and produce new steel, resulting in lower energy consumption and a reduced environmental impact compared to BF-BOF. It is capable of processing up to 100% recycled materials.	0.3	~22% of global steel production, particularly in regions with abundant scrap steel	While adoption is currently limited, it is expanding, fuelled by the increasing demand for more sustainable steel production practices.
Direct reduction of iron via electric arc furnace (DRI-EAF)	Iron ore is reduced using natural gas or hydrogen to produce direct reduced iron (DRI), which is then refined in an EAF. It is considered a transitional step towards more sustainable steel production.	1.4	5% of global steel production, with potential for growth as green technologies evolve	The technology is still in its early stages, facing limited adoption because of high costs and infrastructure demands.

Consequently, the majority of emissions in steel production are direct, or Scope 1, emissions. Some emissions come from electricity use (especially in EAF), which are recognised as Scope 2, while Scope 3 emissions are emissions associated with the mining of iron ore and coal used in steel manufacturing.

^{59 & 60} The Institute for Energy Economics and Financial Analysis. (2022, June). Fact Sheet: The facts about steelmaking – Steelmakers seeking Green steel.



MAYBANK

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

5. The Steel Sector

Exhibit 15: Steel sector emissions, by scope 2023, by percentage of GtCO₂⁶¹

Scope 1:  **67%**

Scope 1 emissions are direct emissions from steel production processes, including the combustion of fossil fuels in furnaces and the chemical reduction of iron ore in blast furnaces. These emissions constitute the bulk of the steel industry's carbon footprint.

Scope 2:  **6%**

Scope 2 emissions are indirect emissions from the consumption of purchased electricity. These emissions vary depending on the carbon intensity of the electricity grid. In Southeast Asia, where coal-fired power plants are prevalent, Scope 2 emissions can be substantial.

Scope 3:  **27%**

Scope 3 emissions encompass all other indirect emissions in the steel value chain, including the extraction and transportation of raw materials, supply chain activities, and the end-of-life disposal of steel products. These emissions are challenging to quantify but are crucial for a comprehensive decarbonisation strategy.

Southeast Asia is both a producer and consumer of steel. Steel production in Asia is largely driven by blast furnace technology. In 2023, the BF-BOF method made up 90% of China's steel production, 73% in Japan, 70% in South Korea and 43% in India, while Southeast Asia has seen an estimated 48.8% of BF-BOF and 51.2% of EAF.⁶² Indonesia, Vietnam and Malaysia have traditionally relied on BF-BOF due to the availability of raw materials and established infrastructure. However, there is a growing trend towards adopting EAFs, driven by environmental regulations and the increasing availability of scrap metal.

The steel industry, consequently, has multiple levers to pull in decarbonising the production of steel. These include:

A. Increased use of EAFs and DRI technology and renewable energy

Increased use of EAF, either with scrap or in combination with direct reduction for primary steel production, is a key lever. By increasing the share of production through EAFs, the steel industry can significantly lower its Scope 1 emissions, associated with on-site fuel combustion. Installing on-site renewable energy-based power plants (e.g. solar) to support power needs can further lower Scope 2 emissions, related to purchased electricity. The transition to EAFs and renewable energy significantly impacts the electricity demand within the steel sector. The steel sector has conventionally been fuelled by fossil energy sources: coal (75%), oil (1%), gas (8%) and purchased electricity (13%).⁶³ As the steel industry moves towards EAFs, the proportional rise in electricity demand calls for a parallel increase in clean energy production to maintain its environmental benefits. EAFs produce lower emissions steel regardless of the source of electricity, but this is maximised when clean energy is used.

B. Increasing the recycling of scrap steel

Production of primary steel using DRI-EAF is currently considerably more expensive than through the BF-BOF route. However, EAF production is economically competitive when used to recycle scrap steel – this can help reduce emissions, involves smaller and less capital-intensive facilities than BF-BOF, and is price competitive. As a near-term lever, the industry can thus reduce emissions through greater recycling of scrap and increase scrap ratios in steel production.

⁶¹ Carbon Disclosure Project. (2024, June). CDP Technical Note: Relevance of Scope 3 Categories by Sector. Page 48

⁶² World Steel Association. (2024). 2024 World Steel in Figures – Crude steel production by process 2023 .

⁶³ World Economic Forum. (2023). Steel industry: The net-zero industry tracker.



5. The Steel Sector

C. Advanced smelting methods

Smelting is a process where metal is extracted from ore by applying heat and melting the material, making it a carbon-intensive process when using a blast furnace. The steel sector is addressing environmental challenges by developing advanced smelting methods that significantly reduce carbon emissions, with hydrogen-based direct reduction (H2-DR) a particular avenue. The use of clean hydrogen in the steel production processes can reduce emissions by up to 97%, but this requires the production of green hydrogen (i.e. hydrogen produced via electrolysis that is entirely powered by renewable energy) and is currently materially more expensive than traditional methods of steel production. For these technologies to become a material part of the steel industry requires both technological development in the steel and hydrogen industries and an abundant supply of clean energy. This is why steel is often described as a hard-to-abate sector, and scientific paths to net zero show steel decarbonisation as happening later than other sectors.

D. Carbon capture, utilisation and storage

Through CCUS, large carbon emissions generated during steel production, particularly in blast furnaces, are captured, and then utilised in various ways such as the production of chemicals, enhanced oil recovery where the captured carbon is injected into oil reservoirs to boost oil extraction, the production of synthetic fuel where carbon emissions can be combined with hydrogen from renewable sources, or stored underground to prevent its atmospheric release.⁶⁴ CCUS can capture up to 90% of carbon emissions from industrial sources, making it one of the most efficient technologies for emission reduction in the steel industry. CCUS technology is still in the early stages of development. Due to nascent technology and high capital cost, widespread adoption in the steel industry is expected to occur post-2030 with broader integration by 2050.

Impact of Carbon Border Adjustment Mechanism on energy-intensive commodities⁶⁵

The European Union (EU) introduced the Carbon Border Adjustment Mechanism (CBAM) to prevent carbon leakage by imposing a carbon price on certain imports from non-EU countries, including steel, aluminium, cement, fertilisers and electricity. This first stage of the policy, set to be implemented over three years, took effect in October 2023 and will be expanded to cover more sectors in January 2026. It aims to ensure that imported goods face the same carbon costs as those produced within the EU under its Emissions Trading System from being undermined by less environmentally regulated competitors.

CBAM pressures exporters in regions with weaker climate regulations to adopt greener practices, even if local policies are less stringent. Given the importance of the EU market, companies are compelled to reduce their footprints to avoid paying additional costs under CBAM. This requires companies exporting goods to the EU to collaborate with their suppliers to collect the required carbon emissions data for each product or material. Conversely, companies importing goods into the EU will need to assess the financial risk posed by CBAM and the impact of importation, while also evaluating the advantages and disadvantages of production locations.

⁶⁴ International Energy Agency. (2020). CCUS in clean energy transitions.

⁶⁵ Carbon Trust. (2023, October 13). What is CBAM and how it will impact your business?



5. The Steel Sector



5.2 Summary of our targets for the steel sector

Emissions scopes

- Focus on **Scope 1 and 2** emissions from the crude steel production process

Value chain

- Crude steel production** in steel plants via BF-BOF, EAF (Scrap) and/or DRI-EAF methods

Metric

- Emissions intensity measured in **tonnes CO₂e / tonnes Steel**

Reference scenario

- Mission Possible Partnership **(MPP) Tech Moratorium (TM), SEA** – 1.5°C

2030 target

- To **maintain below the reference pathway** and align with MPP TM SEA towards net zero emissions

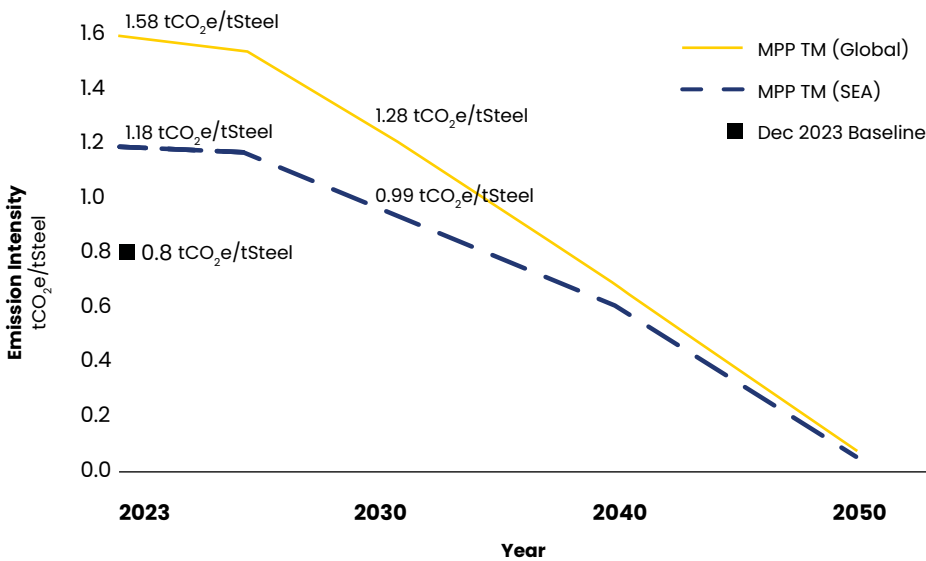


Exhibit 16: Decarbonisation glidepath to 2030, target and associated design decisions (tCO₂e/tSteel), 2023–2030⁶⁶

⁶⁶ At the time of this exercise, we used the latest available snapshot of our portfolio, clients’ reported emissions data and reference pathways as at December 2023 to inform our target.



5. The Steel Sector

5.3 Our approach to net zero target-setting for the steel sector

5.3.1 Aligning on design decisions

A. Selecting in-scope value chain segments

The high-level value chain within the steel sector is illustrated in the table below. We focus primarily on steel production when designing our pathway, given its materiality in our portfolio, and where we can exert the most influence to drive significant changes. It also aligns well with the scope covered in the reference scenario we looked at. This means we do not include the mining (of iron ore and coking coal) or the eventual downstream use of steel products.

Value Chain	Description	Carbon Emissions		
		Minimal	Moderate	Significant
Mines: Raw Materials Extraction 	Companies that are involved in the extraction of raw materials for steel production (e.g. iron ore, coal)	Scope 1 Scope 2	-	Scope 3
Steel Plants: Crude Steel Production 	Companies that are involved in the production of crude steel via BF-BOF, EAF (Scrap) and/or DRI-EAF methods	-	Scope 2 Scope 3	Scope 1
Factories: Manufacturing of Finished Goods 	Companies engaged in the manufacturing of finished goods involving steel (large range of processing – e.g. rolled steel, rebar, hardware, cutlery)	Scope 1 Scope 2	-	Scope 3

B. Defining in-scope emissions scopes

Our target focuses on Scope 1 and 2 emissions from upstream steel production where the majority of the emissions are concentrated. In Scope 1, significant emissions are released by BF-BOF, and while the DRI-EAF method is slightly less carbon intensive, it still produces significant emissions. In Scope 2, the EAF (Scrap) method releases moderate levels of emissions, with the extent varying based on the market's electricity mix.



5. The Steel Sector

C. Choosing an appropriate emissions metric

The steel industry is poised for an increase in market demand, driven by growing infrastructure development and construction projects, especially in emerging economies.⁶⁷ Steel will remain essential to the global economy for the foreseeable future including for the energy transition, with solar panels, wind turbines, dams and EVs all depending on it to varying degrees.⁶⁸ As such, we believe our focus should be on producing steel with lower emissions, not reducing the production of steel. Hence, we have adopted an emissions intensity metric as our target. As the emissions are linked to production output, we will use a physical emissions intensity metric, measured as tonnes of CO₂e per tonnes of steel (tCO₂e/tSteel), which will allow our clients to grow sustainably by improving their processes and reducing emissions intensity.

D. Selecting a reference scenario

Given our portfolio concentration within the Southeast Asia region, we have used the Mission Possible Partnership (MPP) Tech Moratorium (TM), with the SEA - 1.5°C reference pathway. Under the Technology Moratorium scenario, limited advancements are expected this decade, after which investments will be focused towards near-zero-emissions technologies starting in 2030. We do this for three principal reasons, in line with the overall approach laid out in section 2.3.4:

- a. **Widely accepted and science-based:** The MPP TM SEA is scientifically grounded, and uses a comprehensive bottom-up methodology for the pathway with clear and quantifiable targets for emissions reductions. The pathway is widely adopted among financial institutions, demonstrating its effectiveness and industry acceptance.
- b. **Purpose driven:** The MPP TM SEA-1.5°C pathway is aligned with the Paris Agreement’s objective to limit global warming at 1.5 degrees Celsius above pre-industrial levels, consistent with global climate targets and commitments.
- c. **Level of granularity:** The selected reference pathway has a geographical granularity that ensures Southeast Asia regional differences are taken into account.

5.3.2 Baseline emissions

A. Data sources used

To calculate our December 2023 emissions intensity baseline for our steel portfolio, we prioritised the following data sources:

1. Directly reported emissions data from clients’ annual reports or sustainability reports.
2. In the absence of (1), plant-level estimation using the Global Energy Monitor (GEM) database was applied. The emissions intensity for each steel processing method was aggregated up to the steel plant, and then to the client level.
3. In the absence of (1) and (2), we applied a country-level average proxy using the GEM database.

We attained 74% of our baseline using approaches (1) and (2), providing high confidence in our baseline estimate.

B. Baseline results

Maybank’s steel sector emissions intensity baseline as of December 2023 was at 0.80 tCO₂e/tSteel, 32% lower than MPP TM (SEA), which is at 1.18 tCO₂e/tSteel, and substantially lower than the global average of 1.58 tCO₂e/tSteel. The steel players in Malaysia generally exhibit lower emission intensities compared to the global average (and especially China, which is by far the world’s largest source of steel). We are also well-positioned below the reference pathway due to our portfolio coverage of cleaner players utilising electric arc furnace technology and the high scrap usage of our clients. Over time, we expect our clients to further benefit from increased use of renewable energy, which will help reduce their Scope 2 emissions.

⁶⁷ Federal Steel Supply. (2024). *Emerging Trends in the Steel Industry for 2024*.
⁶⁸ International Energy Agency. (2023). *Iron and steel technology roadmap*.



5. The Steel Sector

5.3.3 Projecting emissions

In projecting our portfolio's emissions intensity forward to 2030, we considered the impact of various passive levers. Key projection drivers included:

- A. Plant type mix – When older, inefficient plants reach the end of their intended lifespans and are decommissioned, they can be replaced with more sustainable technologies with lower emission intensities, such as EAF or DRI facilities. Furthermore, once hydrogen-based or CCUS technologies are economically feasible, they can be implemented.
- B. Power grid decarbonisation – The EAF (Scrap) and DRI-EAF plants rely largely on electricity. The steel industry will be able to use cleaner energy to lower its carbon footprint through the decarbonisation of the power grid by increasing the share of renewable energy sources, thus acting as a significant passive lever in its decarbonisation pathway.

5.3.4 Our target

Our steel sector baseline is well below the MPP TM SEA reference pathway starting point, and we are projected to maintain this position through 2030 and 2050. We will continue to offer financial support to steel players in their transition journey, which might result in a fluctuation in our emissions intensity over the next few years. However, our primary goal is to remain below the reference pathway and align with the MPP TM SEA towards net zero emissions. Supporting our existing clients to grow their production with the same methods would help the global steel industry to decarbonise, as our clients are already among the most carbon-efficient in the industry. This strategy balances short-term support for industry transition with our long-term commitment to sustainability and global decarbonisation efforts.

5.4 Enablers to meet our target

To achieve our decarbonisation goal and ensure we continue staying below the reference pathway, we intend to leverage a few enablers, where we will:

A. Continue supporting our clients who have embraced sustainable technologies and have chartered their decarbonisation commitments

Our role as a financial institution is integral to the economy as financial backing is crucial in accelerating the transition to a sustainable economy. Our goal extends beyond supporting individual companies to transition and strengthen their net zero commitments, to setting a benchmark for other players in the steel industry to follow and encouraging wider adoption of greener technologies. We seek to support these pioneering clients as benchmarks for the steel industry in Southeast Asia, be it through their short-term strategy via EAF integration/renewable energy source or long-term with CCUS/hydrogen, which will drive a broader industry shift towards decarbonisation.

B. Foster cross-industry collaboration

Similar to other industries, the steel sector also stands to benefit from investment deals across sectors such as renewable energy. We will continue to explore investment deals with providers of renewable energy that have applicability for steel producers, thus indirectly creating demand for steel players to adopt greener energy such as solar that can be used to power EAFs. This will be especially important in the lowest emissions novel technologies – to make these investments viable will require bringing together renewable energy producers, hydrogen producers, steel manufacturers and end users so that all parties can be confident of demand/supply.



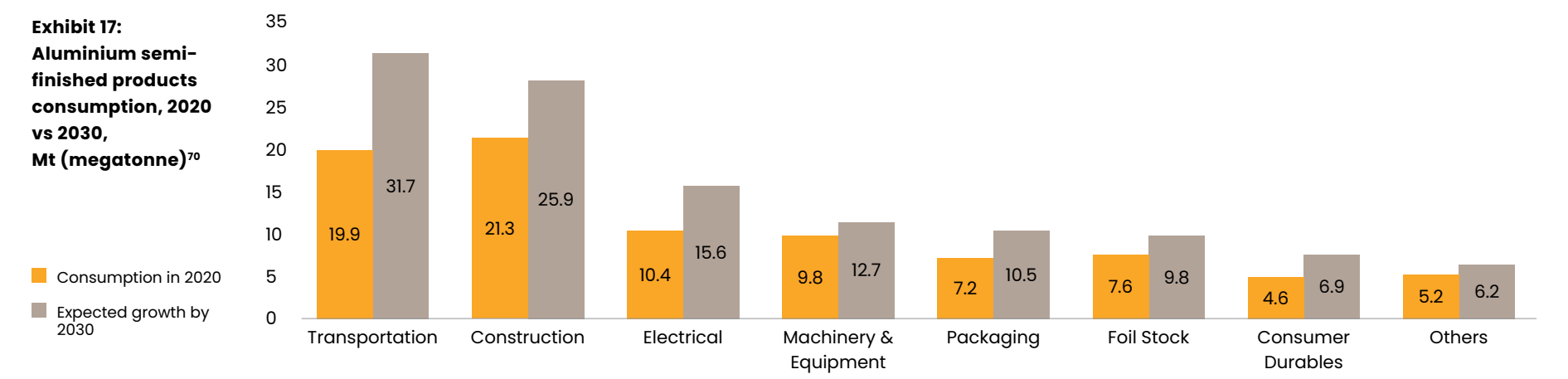
MAYBANK

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

6. The Aluminium Sector



The aluminium sector is a critical component of the global economy, with aluminium being the second most widely used metal after steel.⁶⁹ Its unique properties render it essential across a range of industries, including transportation and construction. As shown in Exhibit 17, approximately 75% of the aluminium sector’s projected demand growth by 2030 is expected to come from the transportation (35%), electrical (16%), construction (14%) and packaging (10%) sectors collectively. Aluminium plays a strategic role in the development of modern infrastructure and technology, such as renewable energy systems like wind turbines and solar panels, sustainable building materials for green building infrastructures and lightweight components for EVs. This highlights the critical need to accelerate the decarbonisation of this sector to meet broader climate objectives.



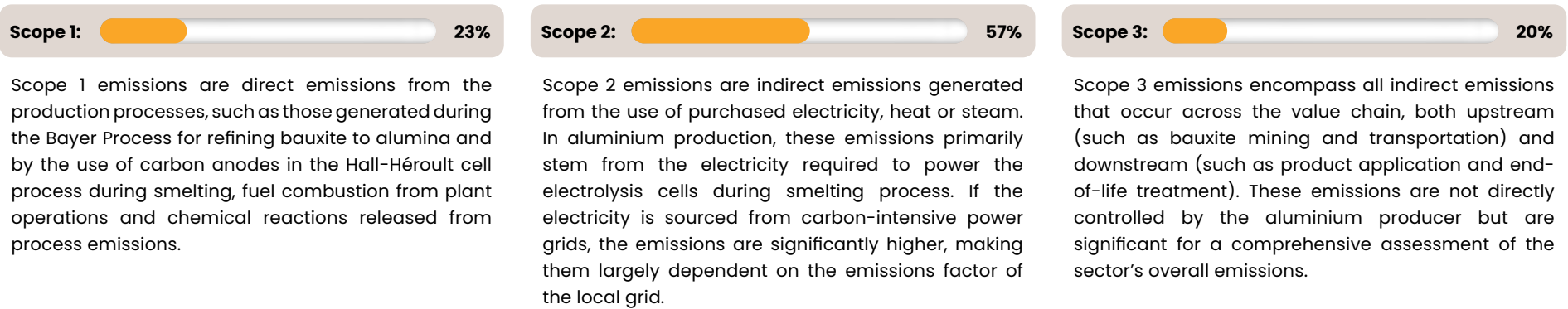
⁶⁹ World Economic Forum. (2023). Aluminium for climate: Exploring pathways to decarbonize the aluminium industry. Page 4
⁷⁰ CRU International Limited, International Aluminium Institute. (2022, January 28). Opportunities for aluminium in a post-Covid economy.



6. The Aluminium Sector

Despite aluminium being highly valued for its attributes and recyclability, its production has significant environmental impacts arising from the energy-intensive smelting process generated by fossil fuels and the associated greenhouse gas emissions. Approximately 70% of the aluminium produced globally is primary aluminium, with the remainder recycled.⁷¹ The aluminium sector emissions account for around 1%⁷² of global energy-related emissions from final consumption in 2022, with the majority of these emissions stemming from Scope 2, while Scope 1 and Scope 3 emissions were more evenly distributed.

Exhibit 18: Aluminium sector emissions^{73,74} by scope 2023, by percentage of GtCO₂



Maybank’s financed emissions in the aluminium sector are contributed by clients engaged in the manufacturing of aluminium within the Southeast Asia market, representing 98% of our exposure in this sector. Upholding our commitment to decarbonise high-emitting, hard-to-abate sectors, we place strong emphasis on setting robust emissions reduction targets for this industry. Aluminium is also recognised as one of the nine priority sectors identified by the NZBA for targeted decarbonisation efforts.

⁷¹ World Economic Forum. (2023, Nov 28). Aluminium demand will rise 40% by 2030. Here's how to make it sustainable.

⁷² International Energy Agency. (2023). World Energy Outlook 2023.

⁷³ CRU Group, International Aluminium Institute. (2023).

⁷⁴ Scope 3 emissions for aluminium sector include purchased goods and services, fuel- and energy-related activities and transportation.



MAYBANK

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

6. The Aluminium Sector



6.1 Industry overview

Global demand for aluminium is anticipated to grow 40% by 2030,⁷⁵ with projections indicating it will double by 2050.⁷⁶ This substantial growth is not just a matter of overall economic growth but also reflects aluminium’s expanding importance in various critical sectors and their decarbonisation efforts. A report by the International Aluminium Institute (IAI)⁷⁷ concluded that the surge in demand over the next three decades will be primarily driven by its use in green building projects, renewable energy technologies and the shift towards energy-efficient transportation systems.

China, the world’s leading producer and consumer of aluminium, accounted for nearly 60%⁷⁸ of the world’s aluminium production. That said, Chinese aluminium producers are facing challenges due to national capacity restrictions⁷⁹ (which are expected to tighten further with the implementation of China’s National

Emission Trading Scheme in 2024), along with power supply shortages in the country’s south-western region. These pressures are leading Chinese producers to explore relocating some of their production capacity abroad, particularly to Indonesia – a move that coincides with Indonesia’s ban on bauxite exports since June 2023 (the key ore used in aluminium production).

Malaysia’s aluminium production surged by over 200% between 2013 and 2021,⁸⁰ and this growth is expected to continue, fueled by increasing global demand for renewable energy source, boosting the need for aluminium. Additionally, Malaysia’s government initiatives such as the Low Carbon Mobility Blueprint 2021–2030 (which aims to reduce carbon emissions in the transportation sector and promote sustainable mobility) will further fuel the demand for non-ferrous metals, with aluminium being among the most widely used.⁸¹

⁷⁵ World Economic Forum. (2023, November 28). Aluminium demand will rise 40% by 2030. Here’s how to make it sustainable.

⁷⁶ Mission Possible Partnership. (2024). Aluminium.

⁷⁷ International Aluminium Institute. (2020, February). CM Group: Global Megatrends and Regional and Market Sector Growth Outlook for Aluminium Demand.

⁷⁸ International Aluminium Institute. (2024). Primary Aluminium Production Data, June 2024.

⁷⁹ China’s National Emission Trading Scheme 2021.

⁸⁰ S&P Global. (2023, March, 17). Southeast Asia may hold the key to Chinese aluminium smelter’s production woes.

⁸¹ Malaysian Investment Development Authority. (2024). Non-ferrous metals: Commodities of the future and its potential for Malaysia.

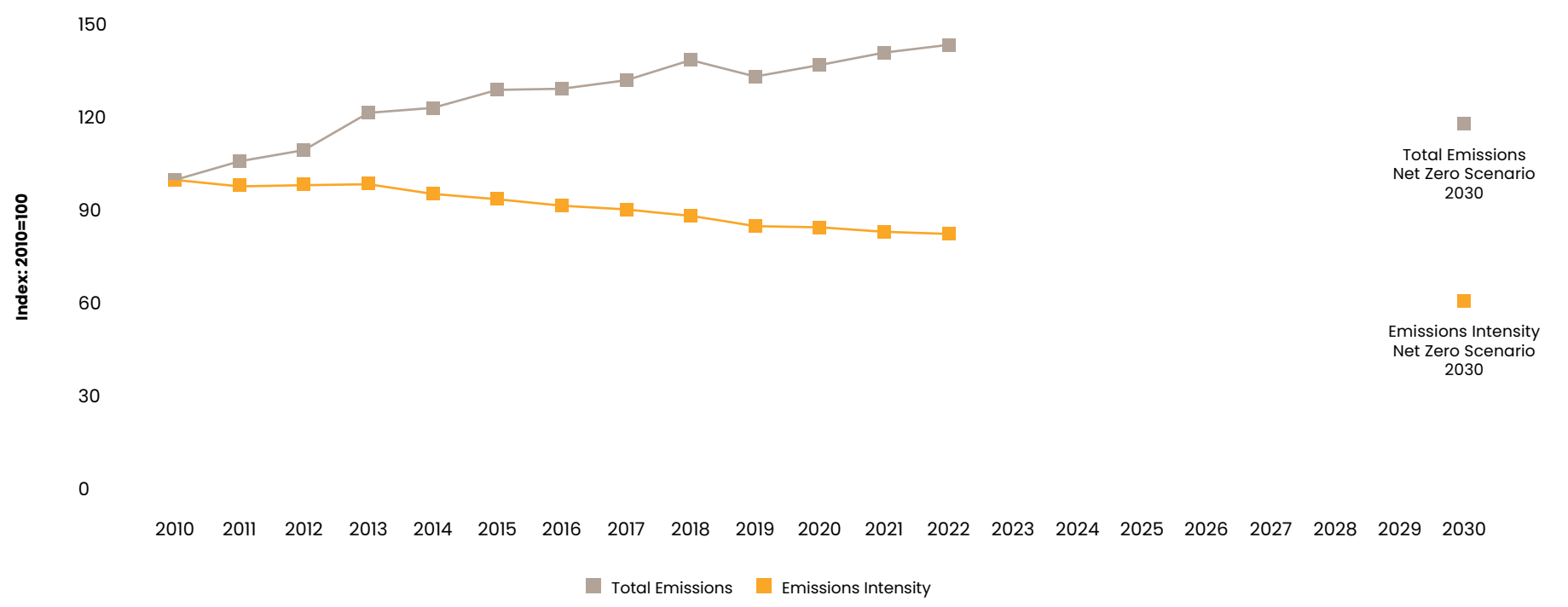


6. The Aluminium Sector

Singapore’s Green Building Masterplan, with its “80-80-80 in 2030”⁸² targets – (i) 80% of buildings by gross floor area (GFA) are green (ii) 80% improvement in energy efficiency for best-in-class buildings by 2030, and (iii) 80% of new developments to be Super Low Energy (SLE) buildings from 2030, is a comprehensive strategy aimed at enhancing the sustainability of buildings in Singapore. Aluminium is highly valued in green construction for its durability, lightweight nature and recyclability, making it a preferred material for energy-efficient buildings. This increasing focus on sustainable construction materials is anticipated to drive up aluminium consumption.

According to the IEA, direct⁸³ emissions from the global aluminium sector have steadily increased over the past decade, primarily driven by rising production levels. As illustrated in Exhibit 19, the direct emissions intensity of aluminium production has been decreasing at an average rate of 1.7% per year. The contrasting trends between total emissions and emissions intensity are mainly attributed to improvements in energy efficiency during alumina production, with the most significant reductions occurring between 2014 and 2019. However, the pace of decline has slowed considerably in recent years. To meet the IEA’s Tracking Clean Energy Progress goals, the aluminium sector must accelerate its decarbonisation efforts, with total direct emissions needing to decrease by approximately 18% by 2030 compared to current levels. As production continues to grow, emissions intensity must drop by an average of nearly 4% per year to stay on track.

Exhibit 19: Total direct carbon emissions and direct carbon emissions intensity in aluminium production in the IEA Net Zero Scenario, 2010–2030⁸⁴



⁸² Singapore Green Building Masterplan. (2022, July). Build Our Green Future Together 4th edition.
⁸³ Direct emissions refer to Scope 1 emissions that come directly from owned or controlled sources.
⁸⁴ International Energy Agency. (2024, August). Total direct CO₂ emissions and direct CO₂ emissions intensity in aluminium production in the Net Zero Scenario, 2010–2030.



6. The Aluminium Sector

To achieve the goal of reaching net zero, it is essential to address emissions throughout the aluminium sector value chain:

A. Greening the power supply and production plants

Aluminium is produced primarily through the chemical process of electrolysis known as the Hall-Héroult process. This involves passing an electric current through molten alumina dissolved in cryolite, which breaks it down into pure aluminium and oxygen gas, and requires large amounts of electricity. Substituting fossil fuels with low-carbon energy (most commonly hydropower) in the aluminium smelting process is thus the most material contribution to the aluminium sector’s decarbonisation. Since the carbon footprint of primary aluminium producers heavily depends on their energy sources, the location and methods of primary aluminium production are critically important. Stable access to renewable energy sources can provide a significant advantage in reducing emissions.

B. Carbon capture, utilisation and storage

CCUS offers one of the most credible pathways for the decarbonisation of high-emitting sectors. These technologies capture carbon emissions from aluminium plants, either storing them underground or repurposing them for other uses, thus reducing the overall carbon footprint. Although CCUS technology is still evolving and involves high implementation costs, overcoming these challenges is crucial for achieving net zero. At this juncture, it is viewed as a more viable mid-to-long-term solution rather than a short-term fix, with widespread adoption anticipated from 2030 onwards.

C. Reducing carbon output from the production process

Aluminium smelting uses carbon anodes in the electrolysis process, which is responsible for 71%⁸⁵ of the sector’s emissions. To reduce these emissions, lower carbon sources of electricity are the primary solution. However, technological advancements can help further reduce or accelerate the reduction of emissions through reducing energy usage.

One notable advancement is the adoption of energy-efficient smelting techniques such as inert anode technology, which can significantly reduce carbon emissions compared to traditional carbon anodes. Inert anodes are expected to have capital costs that are 10 to 30% lower than carbon-based anodes.⁸⁶ Given the financial and environmental advantages of anode innovation and its global applicability in aluminium smelting, anode technology is expected to be commercialised by 2030. Although this technology is still in its early stages, several aluminium producers are already working on replacing carbon anodes with inert anodes.

While inert anodes are among the most advanced methods for decarbonising electrolysis, other infant technologies, such as carbothermic reduction and multipolar electrolytic cells, also hold the potential for further reducing energy consumption and associated emissions.⁸⁷

D. Enhancing aluminium recycling and boosting recycled scrap usage

Recycling aluminium consumes 95%⁸⁸ less energy and has a significantly lower carbon footprint compared to producing aluminium from raw materials. With 42% to 70% of aluminium being recycled at the end of its life, using recycled aluminium can reduce the material’s carbon footprint by up to 20 times.⁸⁹ By boosting the efficiency of recycling processes and encouraging greater use of recycled aluminium, the environmental impact of aluminium production can be greatly minimised. This approach promotes sustainability and supports a circular economy by ensuring that aluminium is reused and repurposed rather than discarded.

⁸⁵ International Aluminium Institute (2023, January 25). *Statistics 2022: Greenhouse Gas Emissions – Aluminium Sector*.

⁸⁶ & ⁸⁷ World Economic Forum. (2020, November). *Aluminium for Climate: Exploring Pathways to Decarbonize the Aluminium Industry*. Page 15

⁸⁸ ASM Metal Recycling (2022, January 27). *The Economic Effects of Reduced Aluminium Can Use*.

⁸⁹ World Bank Group (2023, March 13). *Competitiveness of Global Aluminium Supply Chains Under Carbon Pricing Scenarios for Solar PV*.



6. The Aluminium Sector



6.2 Summary of our targets for the aluminium sector

Exhibit 20: Decarbonisation glidepath to 2030, target and associated design decisions (tCO₂e/tAluminium), 2023–2030⁹⁰

Emissions scopes

- **Scope 1 and 2** as they relate to primary aluminium production

Value chain

- Focus on upstream activities – **alumina refining and primary aluminium production**

Metric

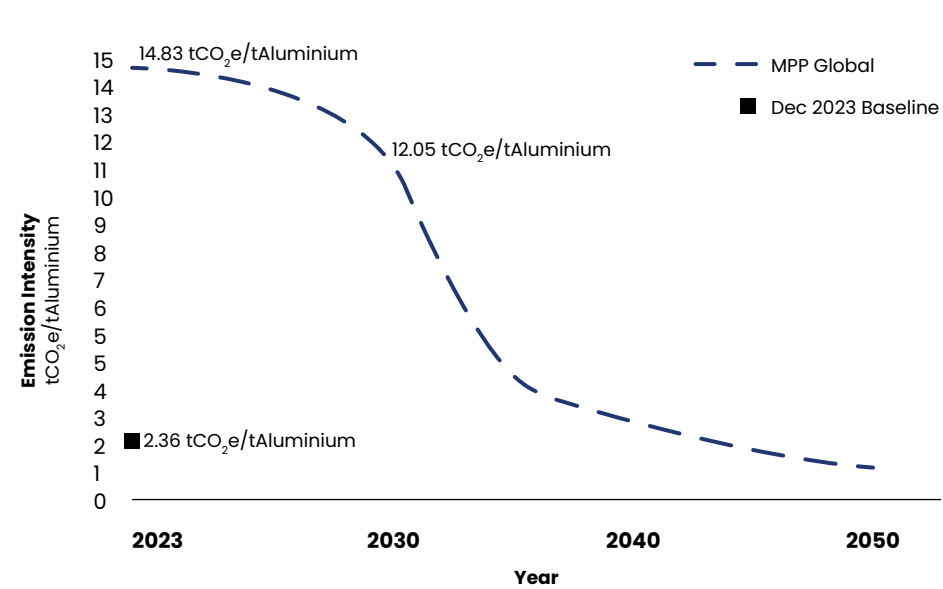
- Emissions Intensity measured in **tonnes CO₂e / tonnes Aluminium**

Reference scenario

- Mission Possible Partnership (**MPP**) **Global**, which is net zero aligned to 1.5°C

2030 target

- To **maintain below the reference pathway** and align with MPP Global towards net zero emissions



⁹⁰ At the time of this exercise, we used the latest available snapshot of our portfolio, clients’ reported emissions data and reference pathways as at December 2023 to inform our target.



6. The Aluminium Sector

6.3 Our approach to net zero target-setting for the aluminium sector

6.3.1 Aligning on design decisions

A. Selecting in-scope value chain segments

The aluminium production value chain can be broadly divided into key player types, as outlined in the table below. We have identified upstream activities of alumina refining and primary aluminium production as the focus segments within this value chain, as these processes are the largest emitters in the sector and are most significant to our portfolio. This also reflects the data available – for example, it is not currently possible to track where bauxite mined by mining companies is ultimately sent, and thus it is not currently possible to accurately estimate the Scope 3 emissions of these companies.

Exhibit 21: Aluminium production value chain and associated carbon emissions

Value Chain	Description	Carbon Emissions		
		Minimal	Moderate	Significant
Mines: Bauxite Mining 	Companies involved in the extraction of raw material (bauxite ore)	Scope 1 Scope 2	-	Scope 3
Plants: Alumina Refining 	Companies engaged in the refining process which involves separating alumina from waste products in bauxite emissions via the Bayer process	-	Scope 3	Scope 1 Scope 2
Plants: Primary Aluminium Production 	Companies engaged in turning alumina into aluminium through anode production and the Hall-Héroult smelting process via electrolysis	-	Scope 3	Scope 1 Scope 2
Plants: Secondary Aluminium Production 	Companies involved in the process of shaping aluminium such as extrusion and rolling.	Scope 2	Scope 1	Scope 3



6. The Aluminium Sector

B. Defining in-scope emissions scopes

We focus on Scope 1 and 2 emissions from alumina refiners and primary aluminium producers. These two economic activities collectively represent 94% of the sector's overall emissions. This approach is consistent with industry practices among peer banks.

- Scope 1 emissions for alumina refiners arise from the substantial heat and electricity usage during the refining process. For primary aluminium producers, emissions are primarily from the smelting process via electrolysis, which constitutes the majority of emissions in the sector.
- Scope 2 includes emissions generated from the electricity used in both the refining and electrolysis processes. These emissions vary based on the energy mix utilised for electricity generation.

C. Choosing an appropriate emissions metric

In line with our strategies for the power, palm oil and steel sectors, we have adopted a physical emissions intensity metric, which measures emissions in tonnes of CO₂e per tonnes of aluminium (tCO₂e/tAluminium). This approach recognises the expected steady growth in global aluminium demand through 2050 and the important role that aluminium plays in the global economy (especially as it decarbonises). Rather than reducing output to meet climate goals, we believe that the aluminium sector need to continue its growth trajectory. However, this growth must be coupled with rapid reductions in emissions per unit of output, ensuring that while aluminium production increases, its environmental impact decreases substantially over time.

D. Selecting a reference scenario

We have used a 1.5°C-aligned scenario from Mission Possible Partnership (MPP), which employs a detailed bottom-up methodology with geographical granularity and provides comprehensive emissions intensity data for each year. This reference scenario also outlines transition strategies for decarbonising the aluminium sector, as detailed below:

- Aluminium smelters need to shift to low-carbon power sources by 2035, and new technologies such as inert anodes should be commercialised by 2030.
- The proportion of recycled aluminium needs to rise from 33% of the supply in 2020 to 50% by 2050.

The key considerations that guided our selection of this pathway are presented below, in accordance with the broad principles for reference scenario selection outlined in section 2.3.4.

- Widely accepted and science-based:** The MPP Global reference pathway is a widely accepted and highly credible option, based on the latest climate science.
- Purpose-driven:** While MPP Global has both 1.5°C- and 2°C-aligned pathways, we have opted to use the 1.5°C-aligned pathway in line with our overall approach.
- Offering the right level of granularity:** The selected reference scenario encompasses all components of the value chain and emissions scopes included in the targets set.

**MAYBANK**

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

6. The Aluminium Sector

6.3.2 Baseline emissions

A. Data sources used

To establish the emissions intensity baseline for our aluminium portfolio, we have used data sources in the following order of preference:

1. Directly reported data from our client's annual or sustainability reports – this approach provided data for 98% of our exposure.
2. In the absence of (1), a proxy was assigned based on the weighted average emissions intensity of clients who directly reported their emissions data.

B. Baseline results

As of December 2023, Maybank's aluminium sector baseline was 2.36 tCO₂e/tAluminium, which is 84% lower than MPP Global's benchmark of 14.83 tCO₂e/tAluminium, and well below the 2030 target level. This substantial difference, with our starting point being significantly below the reference scenario benchmark, is due to the efforts of our existing client mix. Many of our clients already use hydropower as their primary source of energy, thereby significantly reducing their carbon footprint. To ensure both efficiency and environmental sustainability, these clients have invested in advanced infrastructure and technology.

6.3.3 Projecting emissions

Despite already low levels of emissions intensity, our existing clients have plans to reduce it further. While these additional reductions are not necessary for us to meet our targets, we are committed to supporting their decarbonisation efforts, reinforcing our role as carbon leaders in the industry.

6.3.4 Our target

As our starting position is well below the MPP Global pathway, which reflects that our portfolio currently consists of some of the world's most efficient aluminium producers, our strategy will be to remain below the scientific threshold through 2030 and 2050. This approach will enable us to provide financial support to both our current and prospective clients as they work towards net zero, helping them achieve their decarbonisation goals, which are either underway or part of their future plans.

In line with this, we will continue to offer financial support to aluminium producers in their transition journey. However, we recognise that as we assist these players in adopting lower-carbon solutions, there may be fluctuations in our overall emissions intensity in the coming years. Despite this, our long-term commitment to driving down emissions and achieving net zero is unwavering, and we will actively manage these fluctuations as we move towards 2030 and 2050 targets.

6.4 Enablers to meet our target

We acknowledge that more effort is required to accomplish our goal of supporting a just transition in the region. We will persistently advance our decarbonisation initiatives to reach net zero by 2030, adhering to the MPP Global pathway and aligning with our environmental objectives. In light of this, we will:

- **Assist existing clients in strengthening or initiating their own net zero commitments**

We will actively collaborate with our clients to support their transition to net zero. This includes offering financial solutions to help aluminium production plants switch to renewable energy sources, and supporting projects that reduce carbon footprints, such as the adoption of CCUS. By providing tailored financing options, we will be able to support these clients to kick-start or enhance their sustainability efforts, ensuring they have the necessary resources to achieve their environmental goals.



6. The Aluminium Sector

- **Continue to support our greener clients and lend to new clients with strong sustainability commitments**

We will prioritise lending to companies that demonstrate a strong commitment to sustainability and have emissions intensities that align with our environmental goals. By focusing on greener clients, we can ensure that our financial resources are directed towards activities that contribute positively to our net zero targets. This approach will involve assessments of potential new clients to confirm their sustainability credentials and emissions performance before entering into lending agreements.

- **Provide transition financing to retrofit existing facilities with cutting-edge technologies**

Our commitment to decarbonisation extends to helping clients upgrade their existing infrastructure, especially the aluminium production machinery. Leveraging the MGTF, we stand ready to offer transition financing to enable retrofitting of facilities with advanced anode technologies and thermal efficiency improvements. These innovations will significantly reduce emissions and enhance operational efficiency. By investing in these upgrades, we support our clients in making substantial progress towards their sustainability targets.

- **Explore investment opportunities with renewable energy providers applicable to aluminium producers, thus indirectly encouraging aluminium players to adopt greener energy sources**

We will actively seek out and channel financing in renewable energy projects that have direct applications to our in-scope segments. This potentially includes partnerships with hydropower facilities, among others, that can power aluminium plants. By creating investment deals with these providers, we aim to foster a market environment that encourages primary aluminium producers to transition to greener energy sources.





7. The Automotive Sector



The automotive sector is responsible for approximately 10% of global carbon emissions.⁹¹ This figure has been increasing, driven by the strong growth in vehicle demand in rapidly urbanising regions, particularly in Southeast Asia.⁹² The automotive industry’s carbon footprint is primarily due to tailpipe emissions,⁹³ which account for about 75% of the sector’s total emissions.⁹⁴

Within Maybank, the automotive sector accounts for over 17% of our total financed emissions, with the largest concentrations spread across our key markets, including Malaysia and Singapore. With more than 95% of this exposure concentrated on retail clients, we implement decarbonisation strategies across both the commercial and retail segments.

This approach positions Maybank as the first bank outside the European Union (EU) region to implement both commercial and retail targets for the automotive sector. Our commitment to reducing carbon emissions from the automotive sector strengthens Maybank’s leadership in sustainability and reinforces the sector’s key role in achieving net zero targets and supporting global decarbonisation efforts.

7.1 Industry Overview

The global automotive industry is at a critical juncture. Responsible for emitting 8 metric gigatons (Gt) of GHG annually,⁹¹ the land transport sector contributes up to 18% of global carbon emissions (Exhibit 22). Passenger transport vehicles account for a significant portion, with light-duty vehicles — including cars and caravans — responsible for over half of the wider sector’s emissions⁹⁵ (Exhibit 23). This intensifies scrutiny over the sector’s impact on planetary health.

⁹¹ The World Economic Forum, (2023). Unlocking Large-Scale, Long-Term Capital for Sustainable Mobility: Introducing Key Mobility Investment Archetypes.
⁹² ASEAN Secretariat (2023) Automotives Accelerating Towards Success.
⁹³ Emissions referring to the combustion of fuels from vehicle use.
⁹⁴ McKinsey & Company, (2022). Transition to Net Zero — Road Mobility.
⁹⁵ As computed using the PCAF approach to allow for sector aggregation.



7. The Automotive Sector

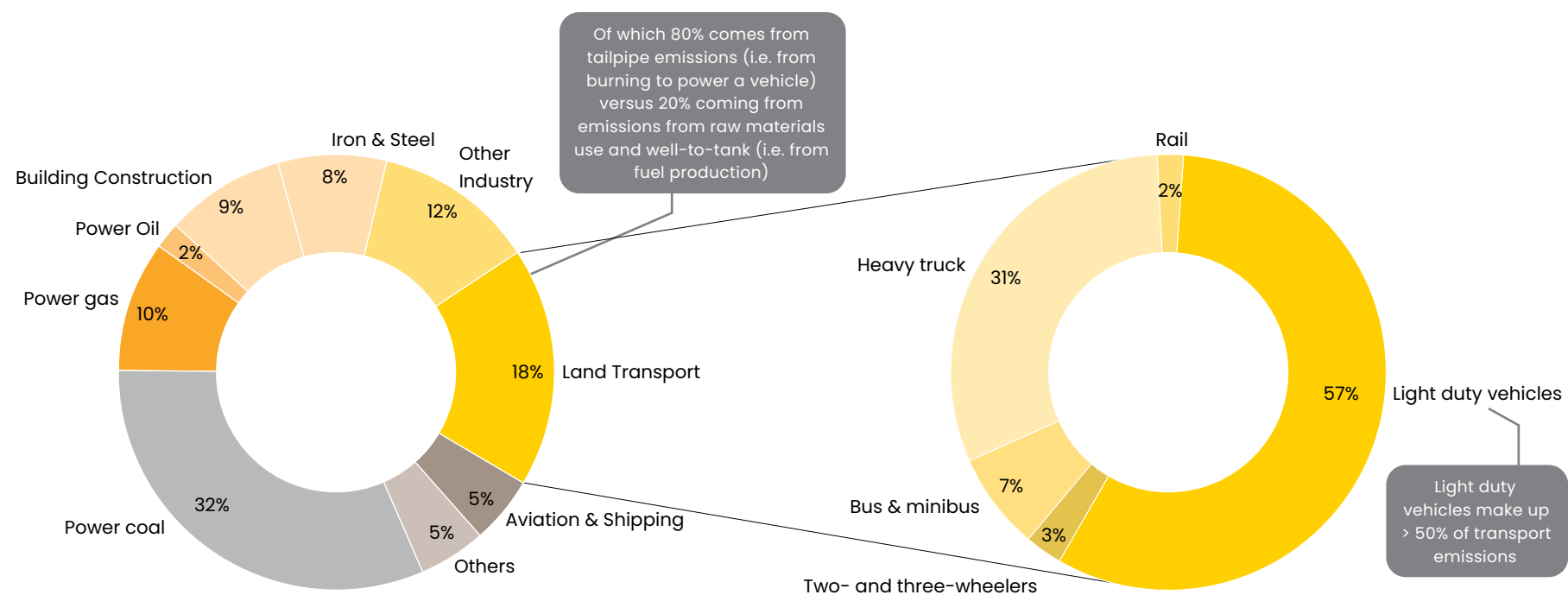


Exhibit 22: Global energy-related carbon emissions from final consumption in 2022, by percentage of Gt CO₂⁹⁶

Currently, the sector’s emissions level is still consistent with a scenario limiting global warming to 2–3°C.⁹⁸

The ongoing geopolitical conflict between Russia and Ukraine has caused shortages in the supply chains of vital raw materials necessary for producing electric vehicles (EVs). Over 70% of the world’s neon gas is currently supplied by Ukraine, while Russia is the world’s top producer of palladium and the third-largest supplier of nickel. These are essential components of catalytic converters, EV batteries and semiconductor chips. Consequently, this will result in lengthier wait periods, production delays and potentially higher EV costs, which may lead to lower sales and adoption rates.⁹⁹

Exhibit 23: Breakdown of emissions across transportation modes in 2020, by % of Gt CO₂ released by the transportation sector⁹⁷

Rising oil prices have also hit the sector, increasing the running costs for ICEVs as well as the cost of automotive parts like tyres. While this change favours the economics of EV ownership, global fears surrounding energy security, which favour tried-and-tested energy sources, are creating uncertainty around the pace and scale of the automotive sector’s green transition, which may slow decarbonisation efforts.¹⁰⁰

In Southeast Asia, the situation mirrors these global trends. According to the IEA, transportation accounted for half of Southeast Asia’s total oil demand in 2015, and this is projected to rise to 53% by 2040, highlighting the urgency to address automotive emissions as the region follows a similarly unsustainable trajectory.¹⁰¹

⁹⁶ International Energy Agency, 2024. *The role of CCUS in low-carbon economy*.
⁹⁷ International Energy Agency (IEA), 2020. *Energy Technology Perspectives 2020*.
⁹⁸ United Nations Environment Programme (UNEP), 2023. *Emissions Gap Report 2023*.
⁹⁹ Frost & Sullivan, (2022). *Global Automotive Industry Faces New Battles in Wake of Russo-Ukrainian War*.
¹⁰⁰ KPMG, 2023. *The impact of the Ukraine conflict on the automotive industry*.
¹⁰¹ International Energy Agency (IEA), 2015. *Southeast Asia Energy Outlook 2015*.



7. The Automotive Sector

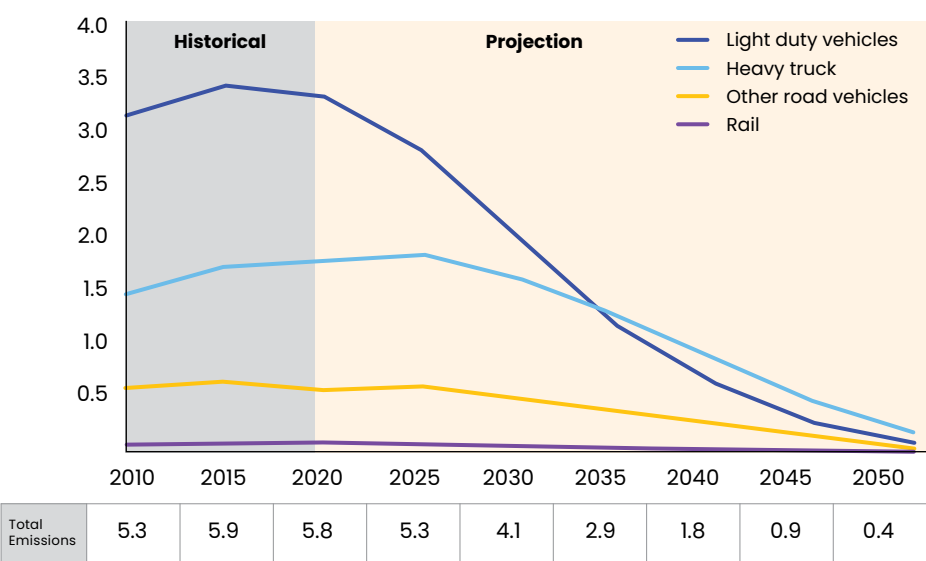


Exhibit 24: IEA Global Net Zero Pathway for absolute emissions from the automotive sector, 2010-2050, Gt CO₂¹⁰²

Globally, achieving the net zero scenario requires a 93% reduction in absolute emissions from the automotive sector, from 5.8 Gt CO₂ in 2020 to 0.4 Gt CO₂ by 2050 (Exhibit 24). Within Maybank’s key markets in Southeast Asia, the 4th ASEAN Energy Outlook (2013–2035) stated that the transportation sector accounts for the second-largest share of energy consumption in the region. With ongoing economic growth, rising urbanisation and limited public transport infrastructure, energy demand in transportation is expected to rise sharply, from 118 million tonnes of oil equivalent (Mtoe) in 2013 to 309 Mtoe by 2025. This rising demand in energy consumption has complicated efforts to align regional growth with global decarbonisation objectives. Furthermore, reducing emissions is contingent upon key trends such as the anticipated doubling of passenger travel due to population growth and an increase of over 800 million vehicles in the global passenger fleet, which could further escalate carbon emissions.¹⁰⁰

Therefore, a rapid and large-scale transition to greener automotive practices is essential to reduce carbon emissions and limit global warming to 1.5°C by the end of the century, as outlined in the Paris Agreement.

Addressing the primary source of emissions in the automotive sector, namely tailpipe emissions, is essential for meeting net zero targets. For instance, automotive OEMs influence vehicle manufacturing and design, both of which can be optimised to reduce carbon emissions, including those generated during a vehicle’s use phase. However, emissions produced during the use phase, primarily from fuel combustion, far exceed those from manufacturing, accounting for nearly six times the emissions from assembly operations.¹⁰⁵ Hence, reducing tailpipe emissions is critical.

Vehicle electrification provides a viable solution. This is because electrification of vehicles is a critical component in reducing well-to-wheel¹⁰⁶ emissions by 65–90%. The adoption of EVs is expected to increase rapidly and reach full adoption by 2050 in the Net Zero Emissions (NZE) scenario. This transition will be enabled by supportive regulatory frameworks, improved battery technology and production capacity, and supporting infrastructure like charging facilities. In light of these factors, global players within the sector and the governments in our key markets are making significant strides in accelerating the production and adoption of low-carbon vehicles, as explored in the latter sections.

¹⁰² International Energy Agency (IEA), 2021. Net Zero by 2050, A Roadmap for the Global Energy Sector.
¹⁰³ The ASEAN Secretariat, 2021. Sustainable Land Transport Indicators on Energy Efficiency and Greenhouse Gas Emissions in ASEAN.
¹⁰⁴ International Energy Agency (IEA), 2023. World Energy Outlook 2023.
¹⁰⁵ International Energy Agency (IEA), 2023. Comparative life-cycle greenhouse gas emissions of a mid-size BEV and ICE vehicle.
¹⁰⁶ Emissions referring to the complete lifecycle of fuel, from its production to its use.



7. The Automotive Sector

A. Electric vehicle trends and outlook

Building on the recognition of the automotive sector’s significant contribution to global carbon emissions, ongoing global efforts are increasingly focused on accelerating the transition to more sustainable practices. A key area of progress is the rapid expansion of the EV market, where globally there is a growing penetration of EVs in place of ICEVs.

Know your light-duty vehicles:

- **Internal Combustion Engine Vehicles (ICEVs)** – vehicles solely powered by traditional combustible fuels, typically petrol or diesel.
- **Hybrid Electric Vehicles (HEVs)** – vehicles solely powered by traditional combustible fuels, typically petrol or diesel, which contain an energy recovery system to capture wasted energy as electricity, which can be reused to provide power to the vehicle’s engine, enabling more efficient use of the energy provided by the fuel.
- **Plug-in Hybrid Electric Vehicles (PHEVs)** – vehicles that can be powered by both traditional combustible fuels, typically petrol or diesel, and externally supplied electricity. Like HEVs, these vehicles also contain an energy recovery system.
- **Battery Electric Vehicles (BEVs)** – vehicles solely powered by externally supplied electricity, which is stored in batteries in the vehicle
- **Fuel Cell Electric Vehicles (FCEVs)** – vehicles powered by hydrogen gas which reacts to oxygen in a fuel cell to generate electricity, which powers an electric motor.

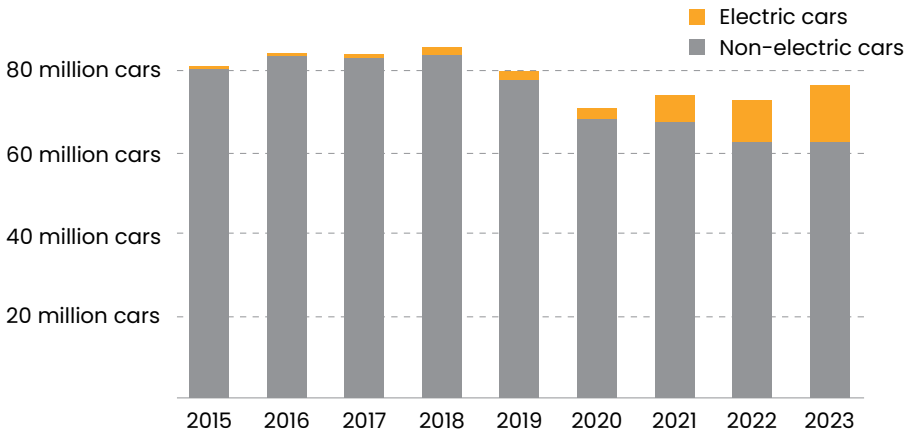


Exhibit 25: Number of new non-electric and electric cars sold between 2015–2023, by type, globally¹⁰⁷

As shown in Exhibit 25, global sales of EVs surged by over 2400% between 2015 and 2023, while ICEV sales declined by 22% during the same period. Among the various types of EVs, BEVs have gained the most popularity, with sales doubling and showing a 12% growth compared to a 6% growth for PHEVs since 2015. The McKinsey Consumer Pulse Mobility Survey supports this trend, with 42% of respondents expressing a desire for their next vehicle to be an EV.¹⁰⁸ This steep rise in EV adoption signals a promising shift towards a more sustainable future, positioning the global automotive industry on a positive trajectory toward achieving ambitious climate goals.

With the steep rise in EV adoption globally, it is important to note that the positive trend towards EV adoption is not evenly distributed across markets. EV sales remain heavily concentrated in a few key markets. In 2023, approximately 60% of new electric car registrations were recorded in China. This dominance stems from a decade of national subsidies for EV purchases, which, despite being phased out, are currently supplemented by tax exemptions and other non-financial support.¹⁰⁹

¹⁰⁷ International Energy Agency (IEA), 2023. *Global EV Outlook 2023*.
¹⁰⁸ McKinsey & Company, 2024. *Spotlight on Mobility Trends*.
¹⁰⁹ International Energy Agency, 2024. *Global EV Outlook 2024*.



7. The Automotive Sector

This highlights the critical role of national policies and incentives, and the widespread accessibility of affordable EV models that cater to a broad consumer base, resulting in more competitive pricing and reaching the market tipping point for retail EV adoption. The combination of these factors has significantly contributed to the growth of the EV market.¹¹⁰

B. Regional nationally determined contributions

As the global shift in adopting EVs is gaining momentum, Maybank’s key markets within Southeast Asia are also witnessing notable growth in EV adoption. This underscores some of the key challenges in accelerating EV adoption among the broader population.

In Malaysia, where the transportation sector accounts for 25% to 30% of the nation’s carbon emissions, the government is addressing this challenge through the Low Carbon Mobility Blueprint (LCMB)¹¹¹ and the National Energy Transition Roadmap (NETR). These policies aim for EVs to constitute 20% of the industry volume by 2030 and 80% by 2050, alongside plans for 10,000 public charging stations by 2025 and achieving 90% local EV production by 2050.¹¹² Although EVs currently make up only about 2% of vehicles in Malaysia, the Malaysian Automotive Association (MAA) reported a 286% increase in EV sales in 2023 compared to 2022, driven by government incentives such as import duty exemptions, road tax waivers and financial support through the Green Technology Financing Scheme (GTFS).¹¹³

In Singapore, EVs made up 1.8% of the car population in 2023, but adoption is accelerating. About one-third of new car registrations in the first five months of 2024 were EVs, compared to one-fifth in 2023.¹¹⁴ This fast growth supports the Singapore Green Plan 2030 and the EV Roadmap, which aim to phase out ICEVs by 2040 and install 60,000 EV charging points by 2030. The government is also promoting EV adoption through incentives like the EV Early Adoption Incentive (EEAI), the enhanced Vehicular Emissions Scheme (VES) and reduced Additional Registration Fees (ARF). Additionally, from January 2021, road tax for electric cars has been reduced to further promote EV adoption.¹¹⁵

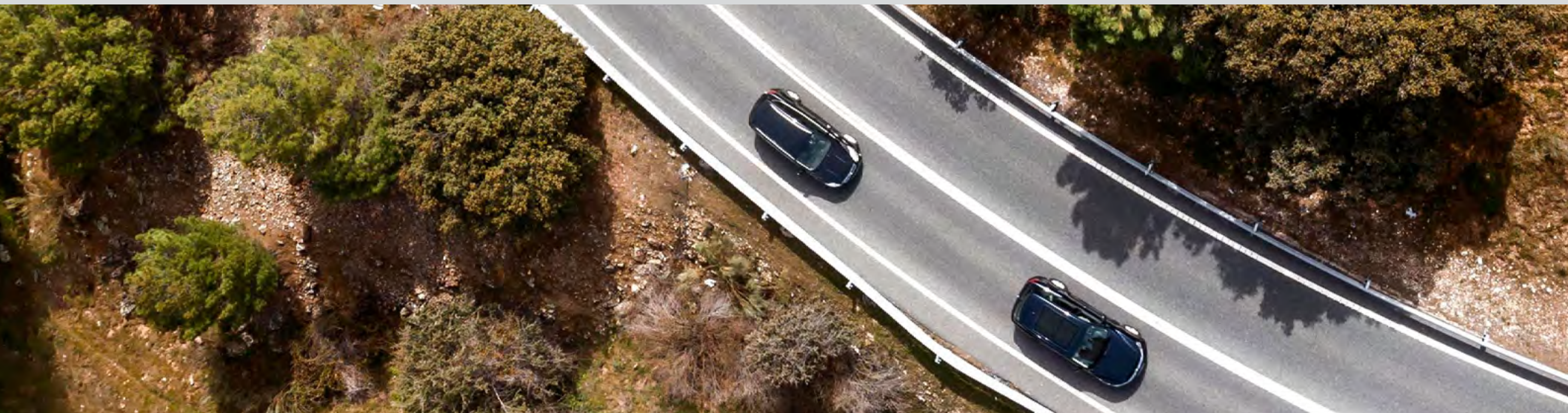
Indonesia’s EV market has experienced gradual growth over the past decade, where EVs accounted for about 1% of total passenger car sales by the end of 2022.¹¹⁶ This aligns with the National Grand Energy Strategy (GSEN), which aims for 2 million electric passenger cars by 2030.¹¹⁷ To support this, over 31,000 charging stations are projected to be needed by 2030, up from the current 1,000, with 80% concentrated in just three provinces.¹¹⁸

The significant global growth in EV sales gives reason for optimism that emissions can be reduced from the automotive sector. The growth stories across China and Southeast Asia also highlight how government incentives are crucial in driving widespread EV adoption and advancing the global shift towards cleaner transportation solutions. This highlights the important role these supports play in shaping a sustainable automotive future.

¹¹⁰ International Energy Agency (IEA), 2024. Global EV Outlook 2024, <https://www.iea.org/reports/global-ev-outlook-2024>.
¹¹¹ Malaysian Green Technology and Climate Change Centre (MGTC), 2024. Low Carbon Mobility Footprint.
¹¹² National Energy Transition Roadmap (NETR), 2024.
¹¹³ Malaysian Green Technology and Climate Change Centre (MGTC), 2024. Malaysia on Track for EV Revolution.
¹¹⁴ Channel News Asia (CNA), 2024. The Big Read: More Drivers Jumping on the EV Bandwagon, but Obstacles Remain as Infrastructure Tries to Keep Pace.
¹¹⁵ Land Transport Authority (LTA), 2024. Our EV Vision.
¹¹⁶ International Council on Clean Transportation (ICCT), 2024. Charging Indonesia’s Vehicle Transition.
¹¹⁷ Ministry of Energy and Mineral Resources (MEMR), 2024. Tren Kendaraan Listrik ke Depan, Telah Disiapkan Sejak Dini.
¹¹⁸ Ministry of Energy and Mineral Resources (MEMR), 2024. Percepatan Pembangunan Infrastruktur SPKLU, Pemerintah Bakal Beri Insentif dan Kemudahan Perizinan.



7. The Automotive Sector



7.2 Summary of targets for the automotive sector

Emissions scopes

- **Tailpipe emissions** for both Commercial and Retail segments

Value chain
Commercial

- Midstream and downstream players, encompassing car manufacturers, retailers, dealers, and distributors
- Vehicle type : Passenger cars

Retail

- Auto vehicle loans
- Vehicle type : Passenger cars and light commercial trucks

Metric

- Emissions Intensity measured in **gCO₂ / vehicle-km (gCO₂ / vkm)**

Reference scenario

- **IEA NZE passenger cars pathway** - 1.5°C

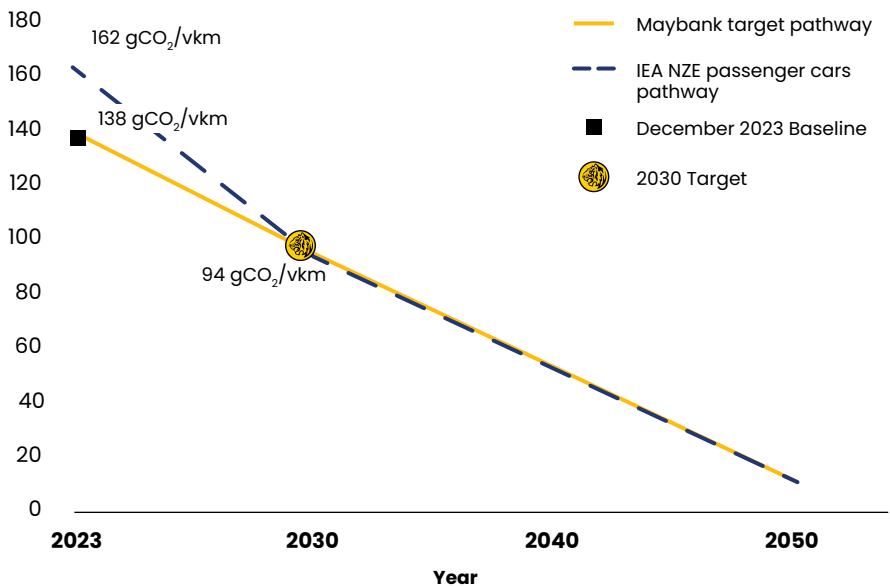


Exhibit 26: Decarbonisation glidepath to 2050 and associated design decisions (gCO₂/vehicle-km), 2023–2050¹¹⁹

¹¹⁹ At the time of this exercise, we used the latest available snapshot of our portfolio, clients’ reported emissions data and reference pathways as at December 2023 to inform our target.



7. The Automotive Sector

7.3 Our approach to net zero target-setting for the automotive sector

7.3.1 Aligning on design decisions

Given the significant contribution of tailpipe emissions to the automotive sector’s overall carbon footprint, our decarbonisation targets are primarily focused on reducing these emissions. We centred our baselining to include manufacturers, dealers and distributors, as well as our retail auto vehicle financing, as shown in Exhibit 27. As these segments are closely interconnected, we will ensure a more comprehensive and effective approach to reducing emissions. Parts manufacturers were excluded from our in-scope review due to the diversity of components and complexity of scope emissions across the value chain.

A. Selecting in-scope value chain segments

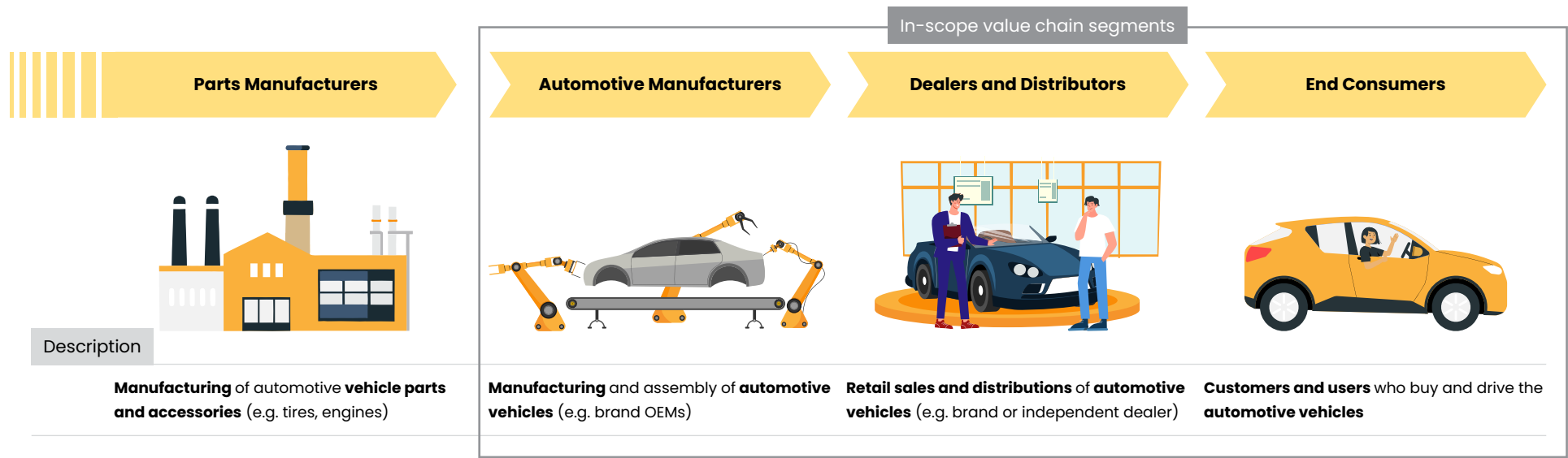


Exhibit 27: In-scope value-chain segments in our commercial and retail design decisions coverage



7. The Automotive Sector

1. Automotive manufacturers

Automotive manufacturers make emissions from the manufacturing and assembly of automotive vehicles; scope 1 emissions directly from their operations, such as the use of machinery and equipment in assembly lines, and scope 2 emissions from the electricity that powers the operations. Automotive manufacturers also control vehicle design and production decisions, which leads to material scope 3 emissions from vehicle end-use. Most of these scope 3 emissions arise from so-called “tailpipe emissions” that are made from the burning of petroleum in internal combustion engines, though there are others such emissions made during the scrapping of vehicles at the end of their working lives.

2. Dealers and distributors of automotive vehicles

Dealers and distributors make some scope 1 emissions from their operations, notably from any fuel used in delivery trucks they own. They also make scope 2 emissions from their electricity consumption in showrooms and administrative offices. As dealers and distributors have control over the types of vehicles they promote, they can influence the level of tailpipe emissions of the vehicles they sell, leading to scope 3 emissions.

3. End consumers

Alongside its owner’s driving style, a vehicle’s type and model play a crucial role in determining its direct tailpipe emissions. BEVs produce zero tailpipe emissions, whereas ICEVs generate significant tailpipe emissions during driving. From the perspective of end consumers, tailpipe emissions are scope 1 emissions as they directly result from the use of the vehicle. Tailpipe emissions include carbon dioxide and other greenhouse gases, significantly contributing to air pollution and exacerbating climate change. The environmental impact of these carbon emissions highlights the importance of consumer choices. End consumers’ choices of which vehicle to drive make a substantial difference in reducing the carbon footprint of vehicles and mitigating the adverse effects of vehicle emissions on the environment.

Excluded from the in-scope value chain:

Parts manufacturers

Scope 1 emissions, measured from the manufacturing of automotive vehicle parts and accessories, are direct emissions resulting from the combustion of fossil fuels in manufacturing processes. Additionally, Scope 2 emissions are indirect emissions from the generation of purchased electricity, steam, heating and cooling consumed by the manufacturing facilities. Scope 3 emissions refer to the emissions created from the production of materials and parts used, such as steel and aluminium. However, this part of the value chain is not in scope due to the number of different parts involved and their complexity, making it challenging to accurately measure and attribute the emissions.

B. Defining in-scope emissions scopes

In our financed emissions calculation, only tailpipe emissions are included, given that they are the most significant contributor to the overall carbon footprint of automotive vehicles, and are applicable to all our customer types. They occur during the operational phase when the vehicle is being driven by the end consumer, arising from the combustion of fuels in the vehicles’ engines.

Including only tailpipe emissions in our targets focuses our efforts towards supporting the sector to reduce emissions from the ultimate use of vehicles, which contributes the bulk of the sector’s emissions. It also allows us to set a target that captures both our commercial and retail automotive sectors within the scope of the target.

C. Choosing an appropriate emissions metric

In selecting the emissions metric for our net zero pathway, we prioritise carbon dioxide as the primary gas due to its prominence as a by-product of the combustion process. To balance sectoral growth, which will occur as the population in our markets grows and travels more, with effective decarbonisation, we have adopted the physical emissions intensity metric $\text{gCO}_2/\text{vehicle-km}$ (gCO_2/vkm). This metric measures vehicles’ tailpipe emissions normalised against the distance they are able to travel while making those emissions. This metric applies across both commercial and retail automotive segments.

**MAYBANK**

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

7. The Automotive Sector

D. Selecting a reference scenario

We selected the IEA NZE passenger cars pathway to set our 2030 target across our commercial and retail automotive segments, aligned with the 1.5°C pathway. This pathway measures the emissions intensity of the stock of vehicles on the road, which comprises a range of vehicles from brand new to decades old, large to small, and with differing engine types. This reflects our combined portfolio across commercial and retail automotive segments. We selected this pathway for the following reasons:

- A. Widely accepted and science-based:** We selected the IEA NZE passenger cars pathway for our reference scenario, which is globally recognised and aligned with net zero targets. We have adopted this pathway for Maybank because our retail portfolio, which comprises more than 90% of our automotive sector, contains a stock of passenger cars spanning similar ranges to the full fleet of passenger cars on the road.
- B. Purpose-driven:** Decarbonisation based on the IEA NZE passenger cars pathway is largely driven by a swift transition from ICEVs to EVs, especially BEVs. This aligns with governments' plans for the transportation sector in the markets we cover, and the transition can already be observed in the automotive sector.
- C. Augmentation and regionalisation:** We have directly used the IEA NZE passenger cars pathway, which is a global pathway, without adjustments. Our starting point is below the current global emissions in the IEA NZE passenger cars pathway. This reflects positive steps that our clients have already taken and efforts that we have made, though it is also a consequence of passenger cars in our portfolio being on average newer than the global stock average, and hence having more efficient engines. However, our automotive exposure is largely in Southeast Asian markets, which are expected to transition more slowly than the global average. In selecting the IEA NZE passenger cars pathway, we balanced our favourable starting point with the greater ambition of the global reference pathway of our target, concluding that no adjustments were required to the reference pathway.

- D. Level of granularity:** The IEA NZE passenger cars pathway only provides one emissions pathway that is not split by region, type of car engine, etc. While more granularity in the pathway might be appreciated, given that our portfolio contains a wide range of passenger cars, we do not view this lack of granularity as a major issue.

7.3.2 Baseline emissions

A. Data source used

For calculating the December 2023 emissions intensity baseline for our automotive portfolio, we utilised the following data sources:

1. Directly reported emissions data from company reports, where production and sales mix are calculated by mapping it to specific car brands.
2. In the absence of (1), national car registration data from transport databases was used to proxy the production and sales mix, and then this was looked up in tailpipe emissions testing databases. This method included aggregating emissions intensity from various processing methods up to the client level.
3. In the absence of (1) and (2), national car sales data from open sources were used and looked up in tailpipe emissions testing databases.

We successfully mapped 60% of our clients to their OEM brands and applied national proxies for the remaining clients.



7. The Automotive Sector

B. Baseline calculation approach

We followed a bottom-up approach to aggregate emissions across different vehicle types and brands, ensuring an accurate measure of emissions intensity across our commercial and retail portfolio.

For our commercial portfolio, this approach involved mapping Maybank’s clients to their respective OEM brands and vehicle types, using annual production figures and vehicle emissions factors. For car distributors and dealers, we also included country-level sales data by vehicle type. When specific emissions intensities were not available, we used fallback methods, applying average emissions intensities for OEMs. For manufacturers, we used the average emissions intensity across all OEMs, while for distributors and dealers, we employed country-level averages, accounting for vehicle size and engine type.

For our retail portfolio, we captured data on the vehicles our customers purchase, and then applied the specific vehicle emissions factors, drawing data from tailpipe emissions testing databases. Where specific vehicles cannot be matched in these databases, we applied the most accurate possible proxy for vehicle emissions, based factors such as the OEM producing the vehicle, the size of the vehicle or the engine type of the vehicle.

Emissions intensity is calculated as follows:

Emissions Intensity = Σ(Production Or Sales Percentage × Emissions Factor)

Where:

- Production Or Sales Percentage = the proportion of each vehicle type within the overall mix, estimated from company reports or national car registration and sales data
- Emissions Factor = the emissions associated with each car brand, fuel type and vehicle size

C. Baseline results

Our net zero interim target has been set across our commercial and retail automotive segments. This will require us to focus on decarbonising both of the segments and encourage us to look for, and leverage, synergies from managing upstream business lending to downstream car user emissions. This approach not only enhances our operational efficiency but also significantly contributes to our commitment towards a sustainable future, aligning with Maybank’s strategic objectives in the journey towards achieving net zero emissions.

Based on data from December 2023, Maybank’s financed emissions intensity for our automotive sector was established at 138 gCO₂/vkm, positioning us 15% lower than the IEA NZE passenger cars pathway of 162 gCO₂/vkm. This reflects the positive steps that our clients have already taken and the efforts that we have made. It is also a consequence of passenger cars in our portfolio being on average newer than the global passenger car average, with more efficient engines.



**MAYBANK**

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

7. The Automotive Sector

7.3.3 Projecting emissions

In projecting our 2030 baseline, we considered the impact of various passive levers and the feasibility of our targets. Key projection of passive levers included:

- A. **Commitments to decarbonise by automotive manufacturers:** These are the commitments made by individual OEM brands with respect to the assortment of car engine types that they produce, which includes ICEVs, HEVs and BEVs. The action of these commitments is crucial in determining the future course of the automotive industry and is central to our strategic planning and financing decisions as we support our clients' investments. It is important to note that these commitments are also contingent on the market readiness of our key markets.
- B. **Nationally Determined Contributions (NDC):** Government policies, including the implementation of these commitments, will drive and provide a clear trajectory for EV adoption in these markets. For instance, Malaysia has set a target for EVs to make up 20% of new car sales by 2030. Similarly, Singapore has committed to stop the sale of new ICEV cars by 2030.





7. The Automotive Sector

7.3.4 Prospective growth and dependency

	 Fuel Subsidies	 Charging Infrastructures	 Affordable EV Models
Description	Fuel subsidies in key markets like Malaysia, make the Total Cost of Ownership (TCO) for ICEVs cheaper than for EVs as compared to other markets in the region	The lack of adequate charging infrastructure may raise concerns among potential buyers about the availability and accessibility of charging stations	The limited availability of affordable EV models in countries like Malaysia and Indonesia makes them inaccessible to average consumers, as most models are currently targeted at premium customer segments
Market Impact	These subsidies reduce the cost of fuel, making ICEV's more financially attractive in the short term and slowing the transition to EVs	Inadequate convenient and reliable access to charging facilities may lead to hesitancy in transitioning to EVs compared to ICEVs	This lack of affordable options deters a significant portion of the market, slowing the mass transition to EV adoption

Exhibit 28: Prospective dependencies affecting EV retail market adoption

The glidepath set by the IEA NZE passenger cars pathway requires a reduction to 94 gCO₂/vkm by 2030 which is a stretch and demands substantial effort. This is contingent upon government policy support and changes in consumer preferences—factors that are largely beyond our direct control. Nonetheless, this reduction from our baseline portfolio emissions necessitates a significant increase in the adoption of EVs by our retail customers and the broader population, as well as growth in the production and sales of EVs by our corporate clients. The impact on the retail market is a crucial aspect of our strategic considerations. While there are uncertainties ahead, we remain focused on advancing these outcomes through the initiatives outlined in the ‘Enablers to Meet Our Glidepath’ section of this paper.

For instance, existing fuel subsidies in Malaysia can make ICE vehicles appear more financially attractive in the short term. This could potentially deter prospective EV buyers. While fuel subsidies continue to be enacted, the cost benefits of EVs, particularly in terms of fuel savings, cannot be fully realised. This situation creates a financial disincentive for consumers to switch from ICEVs to EVs, thereby slowing down the transition towards more sustainable modes of transport.

Furthermore, the lack of comprehensive charging infrastructure can pose a significant obstacle to the adoption of EVs. Potential EV owners may have concerns about the availability and accessibility of charging stations, leading to what is commonly referred to as ‘range anxiety’.

This term refers to the fear that a vehicle cannot reach its destination without refuelling or recharging, potentially leaving the vehicle’s occupants stranded. This fear is immaterial for ICEVs due to the ubiquity of petrol stations. However, it is currently real for EVs, and without convenient and reliable access to charging facilities, consumers may be hesitant to switch to EVs, despite their environmental benefits.

Lastly, in the markets we cover, the limited availability of affordable EV models that appeal to the mass market is a barrier to their adoption. Especially in Malaysia and Indonesia, most EVs currently on the market are in the premium segment, making them inaccessible to average consumers. This lack of affordable options deters a significant portion of the market. Until more affordable models are introduced that cater to a wider range of consumer preferences and budgets, EV adoption may remain limited.

At Maybank, we understand these challenges and are committed to working with various stakeholders, including policymakers, OEMs and consumers, to address these issues and accelerate the transition towards a more sustainable and low-carbon future for the automotive sector. If the trend towards EV adoption does not progress as anticipated, it will pose a significant challenge for us in meeting our objectives. However, we remain steadfast in our commitment to navigate these challenges and drive the transition towards a sustainable future.

**MAYBANK**

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

7. The Automotive Sector



7.4 Enablers to meet our glidepath

We have a strong starting point of being 15% below the reference pathway, and target steadfast support to hit global decarbonisation targets through enablers to meet our 2030 interim target.

We set our net zero pathway for both the commercial and retail segments to provide us control over broader decarbonising strategies. This not only supports meaningful portfolio carbon emissions reduction but ensures that clients within our developing home markets are able to ensure a just transition in the automotive sector.

A. Portfolio steering

As a financial institution, we have an important role to play in steering the automotive industry towards a more sustainable future. We will actively steer our portfolio to provide financing to companies and projects that are aligned with the net zero target. This could involve prioritising financing for companies that provide broad selections for EV models, investing in EV technology or infrastructure, offering preferential loan rates for customers purchasing EVs, or developing new financial products and services that incentivise sustainable behaviour.

However, the success of our portfolio steering efforts is highly dependent on market demand and readiness. We note that EV demand will be influenced by consumer preferences, conducive government and regulatory policy frameworks, and the availability of supporting EV infrastructure. Nevertheless, Maybank remains committed to promoting and financing our automotive clients in switching from ICEV to EV segments.

B. Partnering with EV brands and distributors on exclusive financing agreements and ICEV trade-in programmes

We believe in the power of partnerships. We will seek to establish strategic alliances with EV brands and distributors to accelerate the transition to EVs in our markets. These partnerships could involve exclusive financing agreements to make it more affordable for end consumers to switch to EVs. For instance, we could offer low-interest loans or flexible payment plans for customers purchasing EVs from our partner brands. Furthermore, we could facilitate ICEV trade-in programmes, providing an additional incentive for customers to make the switch to an EV. These partnerships will not only help us achieve our net zero target but also create new business opportunities and strengthen our market position.



7. The Automotive Sector

C. Incentive programmes

Incentives can play a crucial role in accelerating the adoption of EVs. We plan to introduce a range of incentive programmes tailored to our diverse customer base. This could include cash rebates for EV purchases to make the upfront cost of EVs more affordable. We could also offer discounted interest rates for EV loans, reducing the financial burden of owning an EV. Additionally, we aim to introduce a loyalty initiative where customers could earn points for every kilometre driven in an EV. These points could be redeemed for a variety of rewards, such as discounts on electricity bills, free charging at partner stations, or even exclusive experiences. By aligning our incentives with our customers' needs and preferences, we can make the transition to EVs more appealing and financially rewarding.

D. Investment in charging infrastructure

One of the main barriers to EV adoption is the lack of a widespread charging infrastructure. To address this, we could invest in the development of charging stations, either directly financing charging infrastructure projects or through partnerships with infrastructure providers and installation companies. This would make it more convenient for our retail customers to own and use EVs and indirectly encourage our commercial clients to manufacture and sell more EVs. This would also signal our commitment to the transition towards a more sustainable automotive industry.

A robust and accessible charging infrastructure is essential for the widespread adoption of EVs. Recognising this, we plan to invest in the development of charging stations across key locations. This could involve direct investment or partnerships with infrastructure providers. We could also explore innovative solutions such as mobile charging units or to cater to different customer needs. Furthermore, we could leverage digital technologies to provide real-time information on the availability and location of charging stations, making it easier for EV owners to plan their journeys. By investing in charging infrastructure, we can address one of the main barriers to EV adoption and demonstrate our commitment to supporting a sustainable automotive industry.

These enablers are not just strategies for reducing emissions; they are also opportunities for us to create value, drive growth and demonstrate our commitment to the automotive sector. By aligning our business strategy with our net zero target, we can attract environmentally conscious customers and investors, and contribute to the broader societal goal of mitigating climate change. It's a win-win situation for us, our stakeholders and the planet. We are excited about this journey and are committed to making a positive impact on the automotive industry and the environment.





8. The Commercial Real Estate Sector



As of 2022, approximately 40% of global carbon emissions stem from the built environment with 27% of the emissions contributed by operating buildings. The remaining 13% is from the emissions associated with constructing buildings, including those embodied in the raw materials used in buildings – a topic explored further in a later section. Building operations, which include lighting, heating, cooling and powering of appliances, account for most of the sector’s significant carbon footprint. Consequently, reducing these “operational emissions” is a primary focus in the commercial real estate sector’s pathway, as achieving significant emissions reductions here can directly lower the commercial real estate sector’s overall impact. Within our commercial real estate portfolio, operational emissions contribute up to 80% of the total emissions, concentrated in Malaysia, Singapore, Indonesia and Hong Kong. In contrast, embodied emissions – emissions arising from construction processes and embedded in building materials such as steel, aluminium and cement – are typically addressed through other sector pathways.

In Southeast Asia, demand for commercial real estate is driven by the region’s rapid economic growth and increasing urbanisation, making the sector more carbon-intensive and one of the most important targets for decarbonisation initiatives. The real estate sector is currently not decarbonising at the pace required to meet its 2050 goal. In fact, since 2015, total emissions from the sector have increased at an average rate of 1% annually,¹²¹ as illustrated by Exhibit 30.

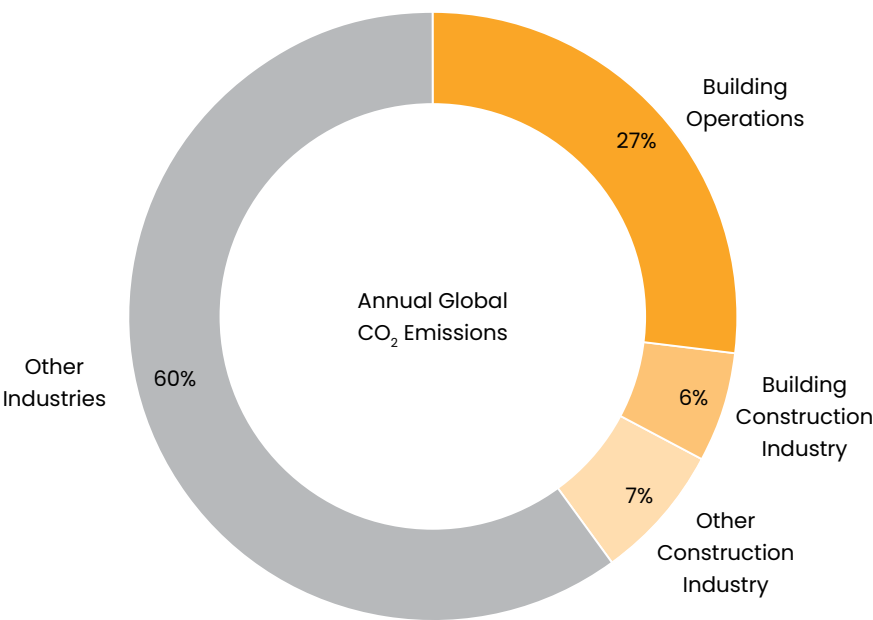
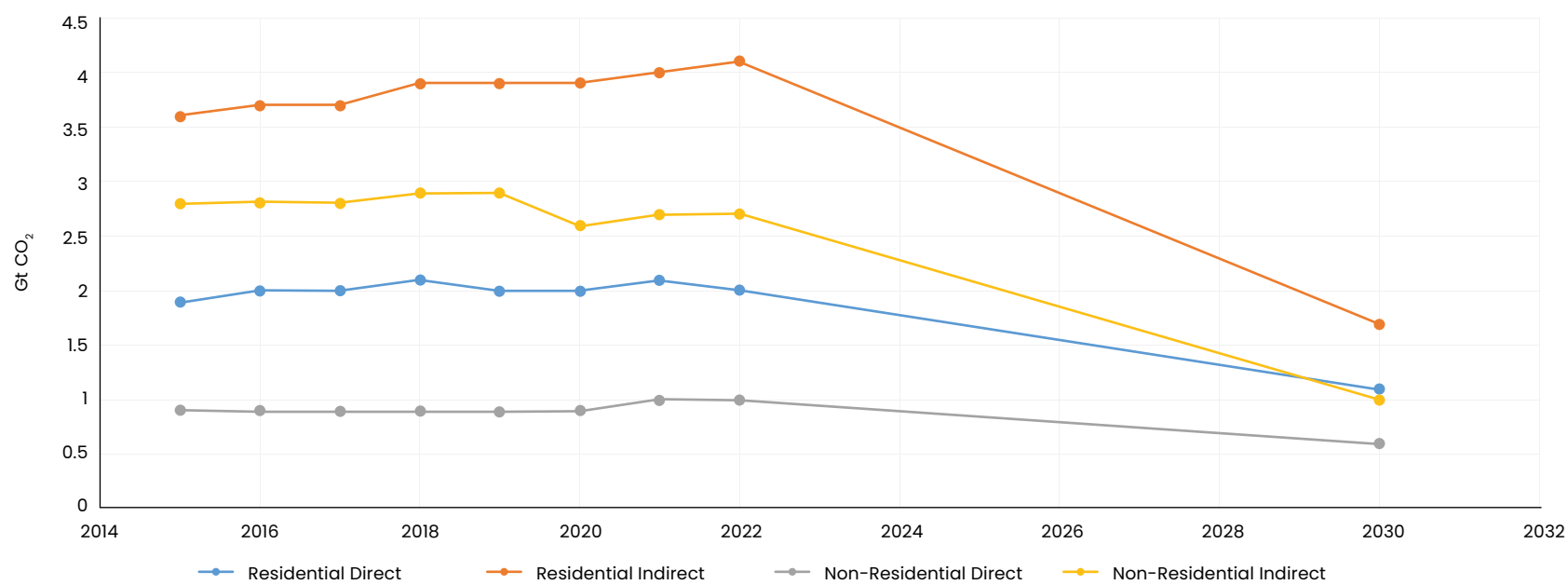


Exhibit 29: Annual global carbon emissions from the built environment as of 2022¹²⁰

¹²⁰ Architecture 2030. (2022). Why the built environment?
¹²¹ International Energy Agency. (2023). The Breakthrough Agenda Report 2023.



8. The Commercial Real Estate Sector



Note:

- Direct CO₂ emissions** from buildings are those released on-site from fossil fuel such as for heating, cooking and hot water.
- Indirect CO₂ emissions** are emissions from electricity generated off-site but used in buildings for lighting, heating, cooling and powering appliances.

Exhibit 30: Global carbon emissions from the operation of buildings in the Net Zero Scenario, 2015–2030¹²²

Decarbonisation of the real estate sector is needed in two areas. Firstly, the current stock of buildings needs to be decarbonised. Two-thirds of the expected building stock in 2040 already exists today.¹²³ Without widespread existing building decarbonisation across the globe, these buildings will continue to emit high levels of carbon emissions. It is therefore critical that the emissions intensity of the existing building stock is reduced through the adoption of energy-saving measures and decarbonising the electricity that powers buildings, while simultaneously strengthening buildings’ climate adaptation and resilience.

Secondly, new buildings must be built to higher standards to ensure that they have lower operational carbon emissions from the outset. It is critical, therefore, that all new buildings built/financed make consideration of their energy efficiencies and the sources of energy that they consume, preferably in line with the requirements of green building certification schemes.

¹²² International Energy Agency. Global CO₂ emissions from the operation of buildings in the net zero scenario, 2010–2030.
¹²³ World Green Building Council. Embodied carbon.

**MAYBANK**

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

8. The Commercial Real Estate Sector

8.1 Industry Overview

We define the commercial real estate sector (hereafter the real estate sector) to include the development and operation of buildings for commercial gains across building types. This includes all real estate developers, as well as companies that own buildings that they let to tenants for commercial gain.

As defined, real estate has been a fundamental component of economic development throughout history, providing the groundwork for urban infrastructure, housing development, retail spaces and business operations. The real estate sector, both residential and non-residential, has experienced consistent development on a global scale, growing 7.6% from 2022 to 2023 and it is expected to continue expanding at a CAGR of 7% by 2027.¹²⁴ In nations like Singapore, Malaysia, Vietnam and Indonesia, where the demand for real estate has been fuelled by rising middle-class populations, foreign direct investments (FDI) and infrastructure development, the rise in this sector has been especially robust. In 2021, the real estate sector in Southeast Asia contributed approximately 6.9% to the region's GDP.¹²⁵

Real estate is also a critical sector for carbon emissions and highlights the interdependencies between sectors that are at the heart of the transition to a net zero economy. The primary sources of emissions from buildings arise from the buildings' "operational" emissions. These are primarily the Scope 2 emissions that come from the use of electricity for power and to light, heat and cool the building. They may also be the direct Scope 1 emissions associated with heating, on-site power generators and other gas emissions. Power usage for air conditioning increased by 7.5 times between 1990 and 2017, given the warm and steady climate of much of Southeast Asia and the primary reliance on electricity by buildings in the region for cooling.¹²⁶ These emissions then are reduced by real estate operators through improving energy efficiency and installing on-site renewable energy generation (most commonly rooftop solar), or indirectly through the decarbonisation of electricity provided by the grid.

Real estate also generates emissions through the construction process. Again, this happens both directly – predominantly through the use of on-site generators and diesel trucks; and indirectly through the use of materials such as steel and cement that themselves required material emissions to produce. Real estate companies can contribute to lowering emissions both by improving the efficiency of their construction processes and through their buying power by procuring greener materials for use in construction. They can also be passive beneficiaries of decarbonisation if materials producers decarbonise their production processes over time, though this is relatively immaterial to date.

National policies reflect this materiality and the relationship of the real estate sector with sources of carbon emissions. Southeast Asia countries have set targets primarily focused on improving the energy efficiency of buildings (which helps to reduce emissions regardless of grid improvements), and implement these policies through increasing the stringency of building standards. Green building certification schemes, such as those developed by the Green Building Index (GBI),¹²⁷ GreenRE,¹²⁸ or Leadership in Energy and Environmental Design (LEED),¹²⁹ have been developed to recognise the energy efficiency and other sustainability credentials of buildings. This allows for market transparency as to which are the "greenest" buildings, based on certification schemes that typically have several tiers. As tenants in malls, offices and logistics centres focus on their carbon emissions, the ratings from these schemes allow tenants to choose real estate space that will reduce their emissions from building operations. Over time, this market pressure creates an additional economic incentive for building operators to improve the energy efficiency of their buildings, as tenants will pay a higher premium to rent greener real estate and less-green real estate may face a higher risk of remaining vacant.

¹²⁴ Yahoo! Finance. (2023, May 8). *Global Real Estate Market Report 2023: Recovering Commodity Prices Bolsters Growth*.

¹²⁵ ASEAN. (2024, January). *ASEAN Statistical Brief – Vol 4*.

¹²⁶ International Energy Agency (IEA), (2021) *ASEAN roadmaps towards sustainable and energy efficient buildings and cooling in Southeast Asia*.

¹²⁷ <https://www.greenbuildingindex.org/>

¹²⁸ <https://www.greenre.org/index>

¹²⁹ <https://www.usgbc.org/leed>



8. The Commercial Real Estate Sector

The real estate sector has already started its decarbonisation journey. For instance, increasing focus on emissions means that periodic retrofits now often include a higher degree of focus on improving energy efficiency in addition to decisions taken based on cost. That makes good environmental and economic sense through the reduced cost of energy that efficiency gains can make and the improved rental yield available from cost- and emissions-sensitive clients.

To accelerate the decarbonisation process and ensure sector alignment with global net zero targets, the IEA has proposed three primary strategies based on its IEA Net Zero by 2050 report. These strategies are essential for addressing carbon emissions during construction and a building’s operating lifespan:

A. Zero-carbon-ready (ZCR) standards

A ZCR building is highly energy efficient and either directly uses renewable energy or uses an energy supply that will fully decarbonise by 2050.¹³⁰ ZCR standards provide a proactive approach towards decarbonisation by ensuring that buildings are designed or retrofitted to operate efficiently using renewable energy with minimal additional modifications. These standards prioritise essential energy-saving methods such as insulation, high-efficiency windows and smart energy management systems, thereby minimising a building’s carbon footprint from the moment it is constructed. Essentially, these buildings are future-proof and will need minimal adjustments to meet net zero criteria as renewable energy sources become more widely available.

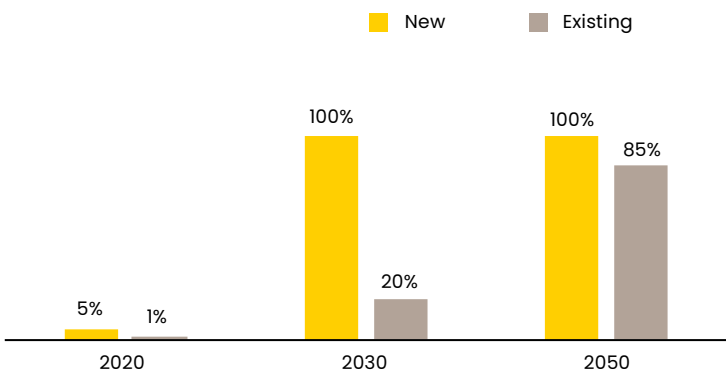


Exhibit 31: Share of ZCR buildings between 2020 to 2050¹³¹

The IEA report indicates that ZCR standards need to be adopted for all new buildings by 2030, with currently existing buildings gradually retrofitted to ZCR standards, as illustrated in Exhibit 31 above.

Countries are making efforts to improve their energy-related building codes, including setting energy performance standards and introducing replacement schemes for low-efficiency appliances, which we expect will be further strengthened in the coming years. Exhibit 32 illustrates some of the policies in place by governments in selected countries that are relevant to our real estate portfolio, demonstrating these countries’ commitments to decarbonise their real estate sectors. It should be noted that this list is non-exhaustive and represents just a portion of the broader efforts being made in the region.



¹³⁰ International Energy Agency. (2021). Net zero by 2050: A roadmap for the global energy sector (pg. 144).
¹³¹ International Energy Agency. (2021). Net zero by 2050: A roadmap for the global energy sector (pg. 147).



8. The Commercial Real Estate Sector

	 Low Carbon Nation Aspiration 2040	 Green Building Masterplan 80-80-80 in 2030	 Jakarta 30:30 Commitment	 Hong Kong Climate Action Plan 2050
Focus area	• Energy efficiency in buildings • Retrofitting existing buildings • Green building certifications	• Green Mark certification • Energy efficiency in new and existing buildings • Smart energy management	• Green Building Code • Energy efficiency retrofits • Urban greening in buildings	• Energy efficiency in commercial buildings • Retrofitting older buildings • Smart grid and energy management
Key targets	• 10% energy efficiency savings for residential buildings • 11% energy efficiency savings for industrial and commercial buildings	• Ensure 80% of buildings by gross floor area (GFA) are green • Ensure 80% of new developments are Super Low Energy buildings • Achieve 80% improvement in energy efficiency for best-in-class green buildings	• Reduce emissions from buildings by 30%, notably through: • 100% green new buildings • 60% green existing buildings	• Reduce electricity consumption of commercial buildings by 30% to 40% and that of residential buildings by 20% to 30%
Policies in place to meet carbon target (Non-exhaustive)	• National Energy Efficiency Action Plan (NEEAP): Promotes energy efficiency in buildings by means of enhanced regulations and retrofitting initiatives • Green Building Index (GBI): A nationwide rating system encouraging environmentally friendly construction methods and providing incentives for developers to use renewable energy sources and energy-efficient designs • Low Carbon Cities Framework (LCCF): Encourages sustainable development and urban planning strategies used by local governments to cut carbon emissions	• Green Mark Scheme: Financial incentives are offered to projects that attain higher certification levels under a green building grading system that encourages sustainable design and construction • Energy Conservation Act: Encourages the real estate industry to adopt more energy-efficient practices by requiring energy audits and energy efficiency improvement plans for major buildings • Super Low Energy (SLE) Buildings Programme: A component of Singapore's Green Building Masterplan, encourages the use of cutting-edge energy-efficient technology and design principles in both new and existing structures	• Green Building Code: Requires new construction to meet energy efficiency and environmental sustainability criteria, with an emphasis on cutting down on carbon emissions, water usage and energy use • Building Energy Efficiency and Labelling (BEE): Requires energy disclosure from building owners, raising awareness and promoting energy-saving measures • Jakarta City Climate Action Plan: An extensive approach that incorporates the real estate industry and places a strong emphasis on how urban development projects may include green building standards and renewable energy	• Building Energy Efficiency Ordinance (BEEO): Mandates that commercial buildings adhere to energy efficiency requirements, which include performing required energy audits and implementing energy-saving measures • BEAM Plus Certification: By offering incentives and certification for high-performance structures, Hong Kong's green building grading system encourages developers to embrace sustainable construction methods • Green Building Council's Initiatives: Aids in the city's efforts to become carbon neutral by promoting the use of green construction techniques via lobbying, research and education

Exhibit 32: Governments’ energy efficiency plans and policies for buildings in selected markets



8. The Commercial Real Estate Sector

B. Improved building designs

Optimising building design is essential for lowering energy consumption and improving occupant comfort. Improved designs focus on energy-efficient architectural elements, such as orientation to maximise natural light and heat, high-performance insulation and advanced ventilation systems. In Southeast Asia, space cooling would be more relevant in reducing energy demand. In 2020, space cooling accounted for under 5% of all building energy use globally, but as wages rise and the environment warms, there will likely be a significant increase in demand for cooling in the ensuing decades.¹³² The IEA Net Zero by 2050 report highlights the adoption of advanced building envelope designs that prioritise bioclimatic principles and high-performance insulation, allowing buildings to naturally regulate temperature and minimise external heat gain. Given the Southeast Asia region’s warm and tropical climate, bioclimatic designs can use features like shading, ventilation systems and reflective materials to reduce the demand for space cooling by 30% to 50%, while providing greater resilience during extreme heat events.¹³³ Proper insulation and window treatments also help maintain internal temperatures, reducing the demand for air conditioning. Additionally, developers and building owners can use renewable energy sources like solar photovoltaics (PV) and battery storage systems to power their buildings. Solar PV installations on rooftops and facades allow buildings to generate their own renewable electricity while battery storage systems enable them to store excess for use during periods of low sunshine or high demand. Exhibit 33 shows the increase in energy generation from solar PV and the projected growth by the IEA as part of the energy infrastructure of buildings between 2020 and 2050 globally.

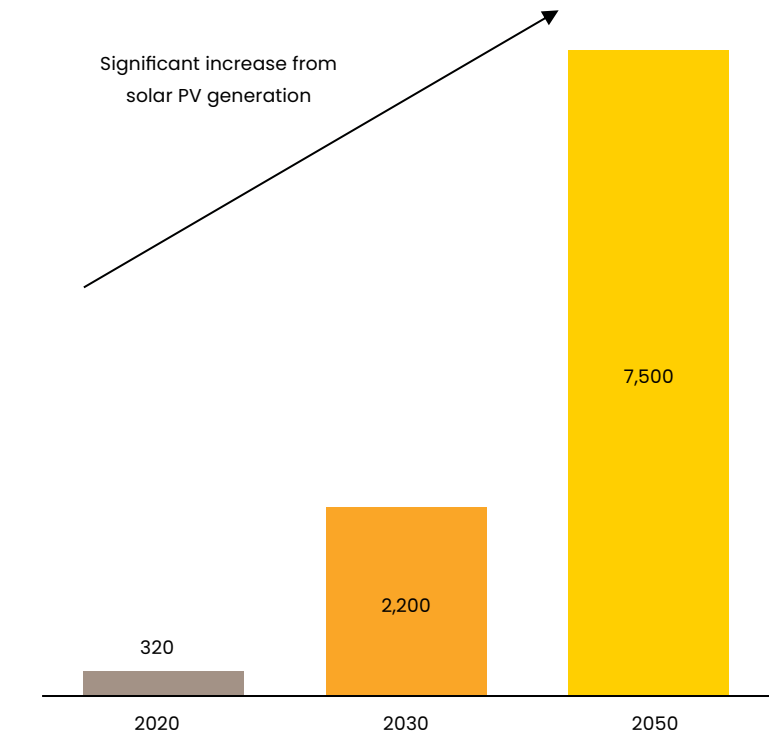


Exhibit 33: Energy from solar PV generation (TWh) ¹³⁴

¹³² & ¹³³ International Energy Agency. (2021). Net zero by 2050: A roadmap for the global energy sector (p. 146).

¹³⁴ International Energy Agency. (2021). Net zero by 2050: A roadmap for the global energy sector (p. 147).



8. The Commercial Real Estate Sector

C. Electrified appliances

The IEA recommends electrifying end-uses currently powered by fossil fuels, stressing the importance of electrification as part of the transition to reach net zero. By replacing gas stoves with electric induction cooktops and gas heaters with electric heat pumps, buildings can significantly cut their carbon footprint.

Using the most up-to-date energy-efficient appliances and adhering to minimum energy performance standards further enhances energy savings. The IEA Net Zero by 2050 report indicates that by 2025, more than 80% of all appliances and air conditioners sold in advanced economies need to have the energy efficiency of the greatest currently available technologies. This needs to rise to 100% by the mid-2030s. Meanwhile, for emerging and developing markets, which the IEA Net Zero by 2050 report projects will account for more than half of all appliances and air conditioners by 2050, a wave of policy changes is needed to make 80% of the equipment sold in these markets as efficient as the best technologies currently available in advanced economies by 2030, rising to nearly 100% by 2050.¹³⁵ Exhibit 34 illustrates the projected reduction of energy consumption of appliances between 2020 and 2050 by the IEA, as part of the milestones in transforming the global buildings sector.

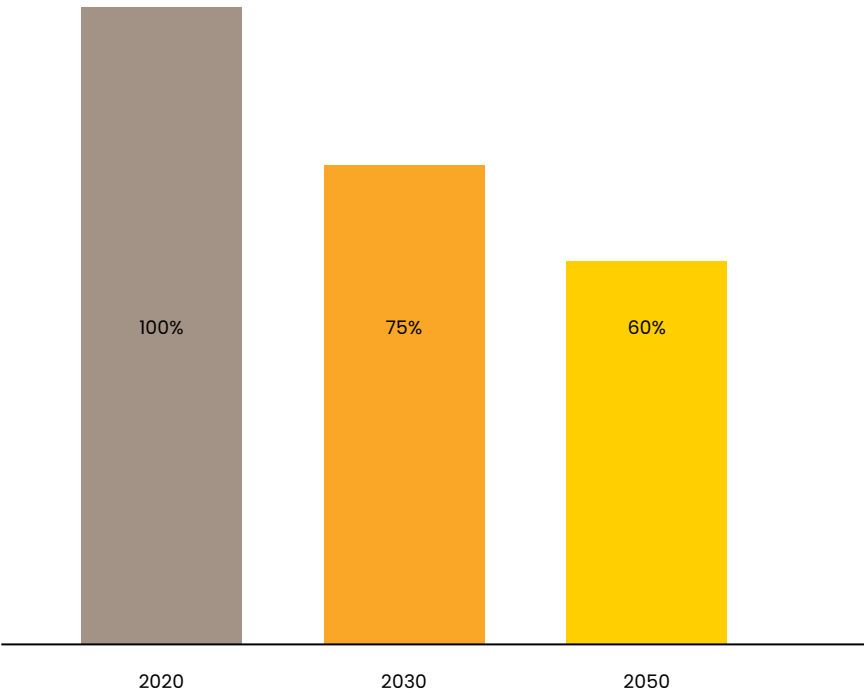


Exhibit 34: Energy consumption of appliances (Indexed to 2020 = 100%)¹³⁶



¹³⁵ International Energy Agency. (2021). Net zero by 2050: A roadmap for the global energy sector (p. 146).
¹³⁶ International Energy Agency. (2021). Net zero by 2050: A roadmap for the global energy sector (p. 147).



8. The Commercial Real Estate Sector



8.2 Summary of targets for the commercial real estate sector

Emissions scopes

- **Whole-building operational emissions**
- From the perspective of a building operator:
 - * **Scope 1 & 2**
 - * **Scope 3 from lessees/tenants’ Scope 1 & 2** emissions attributable to the landlord’s property (e.g. electricity use in retail units within malls owned by a building operator/REIT)

Value chain

- Focus on **operational emissions**: Emissions produced to operate an entire building, across tenanted & landlord operated spaces, including both onsite emissions (e.g. from combustion of fossil fuels) and off-site energy sources (e.g. electricity)
- **Building development, operators & REITs**

Metric

- Physical emission intensity, measured in **kgCO₂e/m²**

Reference scenario

- **Regionalised Hybrid** – Carbon Risk Real Estate Monitor (CRREM) V2-1.5°C scenario (Net Zero Aligned) and IEA Announced Pledges Scenario (APS)

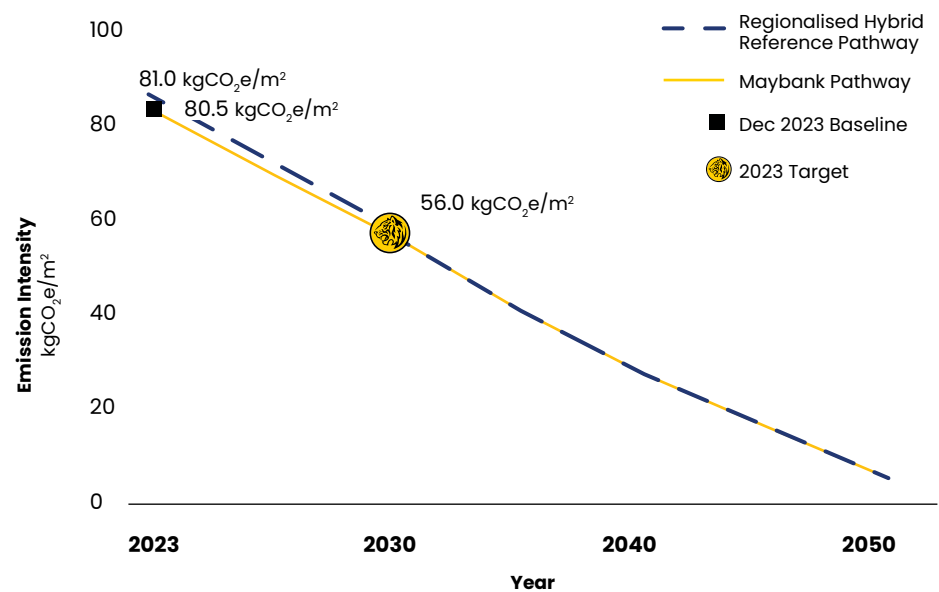


Exhibit 35: Decarbonisation glidepath to 2030, target and associated design decisions (kgCO₂e/m²), 2023–2030¹³⁷

¹³⁷ At the time of this exercise, we used the latest available snapshot of our portfolio, clients’ reported emissions data and reference pathways as at December 2023 to inform our target.

**MAYBANK**

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

8. The Commercial Real Estate Sector

8.3 Our approach to net zero target-setting for the commercial real estate sector

8.3.1 Aligning on design decisions

A. Selecting in-scope value chain segments

We have attempted to capture as much of our commercial real estate portfolio as possible within the scope of our sector target. Nonetheless, we have excluded two groups of clients from the target: data centres and commercial real estate clients that do not actually operate any buildings.

Our target covers the majority of building types across offices, residential, commercial, industrial, etc., with the exclusion of data centres. Unlike other building types, data centres do not yet have a detailed decarbonisation pathways defined by parties like the Carbon Risk Real Estate Monitor (CRREM), making target setting challenging as the level of reduction required is unclear. Additionally, data centres have very high energy consumption from a small footprint. Therefore, their emissions intensities would skew our view of our commercial real estate portfolio's carbon emissions. Given this, we have excluded them from our commercial real estate portfolio target at this time.

Our commercial real estate portfolio targets apply to our clients in the building development, building operator and REITs segments. For the building development clients, our targets focus on build-and-operate developers who run the buildings they construct and therefore control the operational emissions from the buildings. We exclude the majority of trading-focused ("build and flip") players who have less direct control over the operational emissions of the buildings they construct once they have sold the assets.

B. Defining in-scope emissions scopes

As mentioned above, buildings contribute two major sources of emissions – the operational emissions of running an existing building and the embodied emissions arising from the materials and construction that go into a building. Our sector targets are focused on operational emissions, which contribute the majority of emissions from the real estate sector. Including embodied emissions into our targets would be challenging for two reasons. Firstly, embodied emissions are currently not measured consistently in the real estate sector, limiting our ability to estimate how much they contribute to our portfolio emissions. This is exacerbated as there is also no consensus on how to treat embodied emissions for buildings of different ages. Historical embodied emissions have already been made and cannot be lowered, whereas for future buildings measures can be taken to reduce embodied emissions. There is no consensus on answers to questions such as whether historical embodied emissions should be ignored or amortised to zero. Secondly, publishers of scientific reference decarbonisation scenarios for the real estate sector have only released pathways for operational emissions. There is no embodied emissions pathway against which to set a target for our real estate portfolio. For these reasons, we decided to exclude embodied emissions from our targets at this time.



8. The Commercial Real Estate Sector

Operational emissions in our targets are focused on the full building, where possible. This includes all the operational emissions from communal spaces and tenanted units. From the perspective of companies that operate properties, these are typically Scope 1 and Scope 2 emissions, as well as Scope 3 emissions arising from tenant activities such as energy use. Exhibit 36 illustrates a high-level comparison between operational and embodied emissions for better clarity.

	Operational Emissions	Embodied Emissions
Definition	Emissions related to the energy required to run the building or its infrastructure ¹³⁸	Residual emissions linked to the materials and construction procedures across the whole lifespan of a building or infrastructure ¹³⁹
Source	Energy consumption during building operations Examples: Lighting, air conditioning, electrical equipment, heating	The carbon footprint of building materials and the energy used in construction processes Examples: Material production (e.g. steel, concrete), construction activities (e.g. transport, machinery)
Occurrence	Continuous and accumulates throughout the building’s lifespan	Mostly incurred during the building phase, but also during refurbishments and demolitions
Emissions Type	From the perspective of companies that operate properties, these are typically Scope 1 and Scope 2 emissions, as well as Scope 3 emissions arising from tenant activities such as energy use	Generally, these are Scope 3 emissions from the perspective of companies that develop or operate properties



Exhibit 36: Comparison of operational and embodied emissions

¹³⁸ & ¹³⁹ UK Green Building Council. (2023). Operational and embodied carbon.



MAYBANK

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

8. The Commercial Real Estate Sector

C. Choosing an appropriate emissions metric

We have measured all greenhouse gas emissions where possible, expressed in terms of carbon dioxide equivalent (CO₂e). In the real estate sector, carbon dioxide contributes the majority of emissions, being created both on-site as natural gas is burnt for heating, cooking and other purposes, and off-site by power plants which generate a large quantity of electricity consumed by the real estate sector. However, there are other greenhouse gases emitted by the sector, such as fugitive emissions released through the leakage of fluorinated gases (F-gases) from air-conditioning systems. We have measured the emissions intensity of our real estate portfolio, normalising the amount of CO₂e emitted by our clients against the square metres of floor space they operate (i.e. kgCO₂e/m²). An emissions intensity metric allows us to grow our portfolio in line with expected growth in the real estate sector to meet demands from the growing population, while also requiring us to focus on improving the energy efficiency and sustainability of our portfolio. In the long term, this will lead to an absolute contraction in the emissions from our portfolio. However, in the short term, an emissions intensity metric allows an absolute increase in the carbon emissions from our portfolio if sector growth outstrips the sector's decarbonisation efforts in the near term.

D. Selecting a reference scenario

We have based our target on the 1.5°C-aligned reference scenario provided by the Carbon Risk Real Estate Monitor (CRREM), making necessary adjustments as outlined below.

- A. Widely accepted and science-based:** We selected the 1.5°C-aligned CRREM pathway for our reference scenario. This measures the annual emissions intensity of real estate and it is globally recognised and aligned with net zero targets. It was adjusted with data from the IEA Announced Pledges Scenario (APS) pathway, which is also widely recognised.

- B. Level of granularity:** The CRREM reference scenario projects the annual emissions intensity of real estate at a very granular level, containing information at a building type and geography level. For instance, CRREM publishes different pathways for offices versus residential multi-family buildings versus hotels, and different pathways across countries. This allows us to blend a bespoke reference pathway for our portfolio based on its mix of assets across building types and geographies, weight-averaging across the relevant reference pathways according to exposure in our portfolio. In the case of our portfolio, our reference pathway takes a higher percentage of Southeast Asia averages, given our portfolio concentration within the region, accounting for up to 81%, and the remaining is a blend of China, Hong Kong and developed Western markets.

- C. Purpose-driven:** The CRREM pathway measures the reduction in emissions intensity required from real estate, which will occur due to two main factors that align with our view on the commercial real estate sector:

Firstly, buildings need to become more energy efficient, emitting fewer greenhouse gases by requiring less energy to be created to operate them. Energy usage is directly controllable by our commercial real estate clients, who can take a range of approaches to become more energy efficient and remove energy wastage from their operations.

Secondly, the energy used by our real estate clients ultimately needs to be generated from zero-emissions sources. It is possible for our clients to install onsite renewables to meet some of their needs, but the bulk of the electricity used by buildings will remain generated by the power generation sector, which needs to reduce its emissions by increasing the amount of renewable energy that is generated. Our real estate clients can influence this by signalling to power generation companies that there is demand for renewable power, for instance by entering into power purchase agreements (PPAs) for green electricity or by purchasing Renewable Energy Certificates (RECs) in the jurisdictions in which such instruments exist, thereby changing the economics of generating renewable power. However, ultimately decarbonisation of the power grid is not controllable by our real estate clients.



8. The Commercial Real Estate Sector

D. Augmentation and regionalisation: The CRREM reference pathway accounts for measures that buildings can take to improve their energy efficiency and the decarbonisation of the power grid. This causes an issue for our sector target as, based on national power plans and NDCs, power grids in the regions we serve are not currently expected to decarbonise fast enough versus the 1.5°C-aligned pathways. We will play our part to help the power sector decarbonise faster through our power sector targets, which are set against 1.5°C-aligned pathways. However, we believe our real estate target should focus on achieving levels of decarbonisation that our clients can directly affect through actions to improve their energy efficiency. We have therefore adjusted the CRREM reference pathways to account for expected levels of power grid decarbonisation in our markets. We have taken from the CRREM reference pathway the reduction required in energy usage intensity (EUI) to align with 1.5°C outcomes. We have then combined this with a view of expected power grid decarbonisation taken from the IEA Announced Pledges Scenario (APS) pathway, which projects levels of decarbonisation expected if governments' announced decarbonisation pledges and plans are followed.

8.3.2 Baseline emissions

A. Data sources used

For calculating the December 2023 emissions intensity baseline for our commercial real estate portfolio, we utilised two separate approaches depending on whether our financing is directed to specific properties or the broader commercial real estate clients that operate multiple properties.¹⁴⁰

For our financing to specific properties, we used the following data sources, preferring those higher in the list where possible:

1. Directly reported emissions data from national databases.
2. In the absence of (1), emissions estimated based on buildings' sustainability certificates, such as those from the Green Building Index (GBI) or the Green Mark certification scheme.

3. In the absence of (1) and (2), we developed a series of proxies for different types of buildings in different geographies to apply to relevant properties.

For our financing to broader commercial real estate clients that operate multiple properties, we used the following data sources, preferring those higher in the list where possible:

1. Directly reported emissions data from company reports.
2. In the absence of (1), we developed a series of proxies for different types of buildings in different geographies and applied the most relevant proxy to the client based on its mix of property types operated in different geographies.
3. In the absence of (1) and (2), where it is not possible to understand the types of properties a client operates, we apply geography-wide proxies.

Robust data in the commercial real estate sector is not yet widely available. We were able to map 26% of our portfolio to either data sources (1) and (2) for financing to specific properties, or data source (1) for broader commercial real estate clients that operate multiple properties. The rest of the portfolio is estimated based on data proxies (i.e. data source (3) for specific properties and (2)/ (3) for clients that operate multiple properties respectively). We will work with our clients to improve data availability in the coming years.

B. Baseline results

We calculated our baseline by first estimating emissions intensities for each of our clients using the best available data. Having done so, we aggregated emissions intensities to a portfolio level, taking an average emissions intensity for the sector, weighted based on exposure to each client.

Based on December 2023, our financed emissions intensity for our commercial real estate sector was 80.5 kgCO₂e/m². We are pleased to report that this is in line with the December 2023 point on our reference pathway for the sector, which was 81 kgCO₂e/m².

**MAYBANK**

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

8. The Commercial Real Estate Sector

8.3.3 Projecting emissions

In projecting our 2030 baseline, we considered the impact of various passive levers and the feasibility of our targets. Key projection of passive levers included:

- A. Commitments to decarbonisation by commercial real estate companies:**
Some of our clients have made their own decarbonisation commitments. These are typically expressed in terms of an emissions intensity reduction versus a baseline, or as a targeted emissions intensity figure by a certain date. In addition, some clients have alternately set a target to achieve carbon neutrality by a given year. Where our clients have set their own targets, these are central to our strategic planning and financing decisions as we support their investments.
- B. Government nationally determined contributions (NDCs):** Governments (and other national building regulators or councils) have set two separate sets of policies that will push the decarbonisation of commercial real estate. The first are plans to decarbonise their national power grids. The second are plans to decrease the energy usage intensity of the national stock of buildings. These plans are often expressed either as a direct commitment to a certain amount of energy efficiency improvement (or decrease in energy use) or as a commitment to reach certain amounts of buildings with green certification.

Upon the realisation of these levers, our projections indicate that the emissions intensity of commercial real estate in our portfolio could reach 56 kgCO₂e/m² by 2030.

8.3.4 Prospective growth and dependency

Reducing emissions intensity to 56kgCO₂e/m² by 2030 is possible and are significantly influenced by supportive government policy decisions, decarbonisation plans of power generation companies in our key markets and plans from our real estate clients themselves. It is promising to note that the ambition of such plans continues to rise and the stock of buildings with green certification is growing year on year. Nonetheless, there is a chance that governments and companies may not follow through on their plans at sufficient speed to allow us to meet our 2030 baseline emission reduction across our portfolio.

At Maybank, we understand the challenges that may stop the rapid decarbonisation of commercial real estate (and of the power sector that will enable it) and are committed to working with various stakeholders, including policymakers, power companies and grid operators, as well as our commercial real estate clients, to address these issues and accelerate the transition towards a more sustainable and low-carbon future for the commercial real estate sector.

8.4 Enablers to meet our glidepath

A. Building a greener portfolio

As a financial institution, we play an important role in steering the commercial real estate sector towards a more sustainable future. We will build our portfolio to provide increasing levels of financing to companies operating increasingly green buildings and towards specific green properties that align with our net zero target. This could involve prioritising financing to companies with robust plans to reduce their energy usage, supporting projects to retrofit existing buildings with more energy-efficient or low-carbon equipment, financing the construction and operation of green buildings, or developing new financial products and services that incentivise sustainable behaviour. At the same time, we will continue to engage with our clients and support them in transitioning their businesses through financing options, such as sustainable finance and transition finance, including green loans and sustainability-linked loans. We will also work towards providing advisory services to help them formulate and achieve net zero plans through our ESG assessments and calls to action.

Our success will be dependent on market demand and readiness, as we can only provide financing where it is wanted by companies and projects.



8. The Commercial Real Estate Sector

B. Renewable power

While we support the decarbonisation of national power grids, our clients can accelerate the decarbonisation of the electricity they consume in two ways.

Firstly, they could decarbonise their buildings by adopting off-grid renewable power sources. In our markets, rooftop solar solutions are especially promising due to the high degree of sunshine we receive each year. We will support our clients in investing in the installation of captive renewable energy systems through financing and advisory services.

Secondly, our real estate clients could use a variety of schemes which would allow them to acknowledge that the energy they use from the power grid is green, even if the specific electrons they receive are generated through conventional methods. For example, they could enter into power purchase agreements (PPAs) for renewably generated electricity, whereby they specifically buy and consume renewable energy, or they could purchase Renewable Energy Certificates (RECs) in which the actual energy dispatched to them could be generated by any means, but the power company uses the proceeds from the RECs to fund construction of renewable energy plants in another region.

C. Investment in energy-efficient and low-carbon equipment

There are a range of technologies that buildings can adopt to lower their energy consumption and/or greenhouse gas emissions. For instance, using air-conditioning systems with higher efficiency chiller units to consume less energy, replacing water heaters that burn natural gas with ones powered by electricity with low emissions as sources of electricity are decarbonised, and upgrading the building's insulation to lower the energy needed to heat or cool the air inside the building. We will support our clients in investing in these solutions through financing and advisory services.

These enablers are not just strategies for reducing emissions. They are also opportunities for us to create value, drive growth and demonstrate our commitment to the commercial real estate sector. By aligning our business strategy with our net zero target, we can attract environmentally conscious clients and investors, and contribute to the broader societal goal of mitigating climate change. It is a win-win situation for us, our stakeholders and the planet.

We are excited about this journey and are committed to making a positive impact on the commercial real estate industry and the environment.





MAYBANK

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

9. The Road Ahead



Achieving our 2030 targets will serve as a pivotal milestone propelling us towards the goal of Net Zero Emissions by 2050.

As we look ahead, our endeavours will be channelled into four paramount priorities:

1. **Guiding our clients through a just transition:** At the core of our aspirations lies the unwavering commitment to steering our clients of all sizes through the transition to sustainability. Acknowledging the intricate balance between economic growth and societal welfare, we are poised to engage in a collaborative journey with our clients. Through close collaboration and tailored financial support, we will expedite their sustainability endeavours, spanning diverse industries from conglomerates to SMEs, thereby ensuring equitable access to innovative financing solutions tailored to their unique requirements.
2. **Spearheading change in collaboration with real economy ecosystems:** Recognising that decarbonisation must permeate the real economy, we are steadfast in leveraging our influence and resources to drive the widespread adoption of sustainable practices and technologies. Our unwavering commitment to achieving net zero emissions in the palm oil sector serves as a testament to our dedication to fostering sustainable transformation. Through strategic partnerships with regulators, industry bodies and NGOs, we are resolute in fulfilling our commitments and facilitating a just transition across carbon-intensive sectors.

3. **Regular review and adaptation:** We are committed to conducting regular assessments of our progress towards meeting our targets, conducting annual analyses of financed emissions in priority sectors. This commitment to transparency is encapsulated in our annual sustainability disclosures. While maintaining the stability of our 2030 targets, we remain agile, incorporating advancements in climate science and adjusting our policies to align with evolving regulatory and technological landscapes.
4. **Charting the path to decarbonisation:** Our targets outlined in this White Paper encapsulate significant emissions contributors. Looking ahead, we aspire to broaden our target-setting framework to encompass additional sectors and value chains, ensuring comprehensive coverage of our portfolio. By articulating our strategic direction with precision and setting new targets at regular intervals, we aim to expedite our progress towards net zero emissions.

Furthermore, we are steadfast in our commitment to enhancing organisational capabilities and governance structures to effectively implement sustainability initiatives. Through continuous development and empowerment of our workforce, we endeavour to realise our targets and facilitate a just transition for all stakeholders.

In conclusion, our unwavering dedication to achieving net zero emissions underscores our commitment to fostering inclusive growth and resilience while combating climate change. We extend an invitation to our clients, investors and the wider community to collaborate with us in securing a sustainable future for the ASEAN region.



10. Glossary

Abbreviation/ term	Definition
ABM	Association of Banks in Malaysia
ACOP	Annual Communication of Progress
AFOLU	Agriculture, Forestry and Other Land Use
APS	Announced Pledges Scenario
ARF	Additional Registration Fees
ASEAN	Association of Southeast Asian Nations
BEV	Battery Electric Vehicles
BF-BOF	Blast Furnace – Basic Oxygen Furnace
BNM	Bank Negara Malaysia
CAGR	Compound Annual Growth Rate
CCS	Carbon Capture and Storage
CCUS	Carbon Capture, Usage and Storage
CFPP	Coal-Fired Power Plants
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
COP	Conference of the Parties – the supreme decision-making body of the United Nations Framework Convention on Climate Change
CPKO	Crude Palm Kernel Oil
CPO	Crude Palm Oil
CRREM	Carbon Risk Real Estate Monitor
CSO	Chief Sustainability Officer
CSPO	Certified Sustainable Palm Oil
CUS	Credit Underwriting Standards
DCM	Debt Capital Market
DRI-EAF	Direct Reduction of Iron via Electric Arc Furnace
EAF	Electric Arc Furnace
EEAI	EV Early Adoption Incentive
EFB	Empty Fruit Bunches
ESG	Environmental, Social, and Governance



MAYBANK

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

10. Glossary

Abbreviation/ term	Definition
EU	European Union
EUDR	European Union Regulation on Deforestation-free Products
EV	Electric Vehicle
EXCO	Executive Committee
FCEV	Fuel Cell Electric Vehicles
FFB	Fresh Fruit Bunches
FPIC	Free, Prior and Informed Consent
GAPKI	Indonesian Palm Oil Association
GDP	Gross Domestic Product
GEM	Global Energy Monitor
GFA	Gross Floor Area
GFANZ	Glasgow Financial Alliance for Net Zero
GHG	Greenhouse Gases
GSEN	National Grand Energy Strategy
GTFS	Green Technology Financing Scheme
HEV	Hybrid Electric Vehicles
HCS	High Carbon Stock
HCV	High Conservation Value
H-DR	Hydrogen-based Direct Reduction
IAI	International Aluminium Institute
IAM	Integrated Assessment Model
ICEV	Internal Combustion Engine Vehicles
IEA	International Energy Agency
IEA NZE	International Energy Agency’s Net-Zero Emissions by 2050 scenario
IEEFA	Institute for Energy Economics and Financial Analysis
IFRS S2	International Financial Reporting Standards Climate-related Disclosures (S2)
ILO	International Labour Organization
IPCC	Intergovernmental Panel on Climate Change



10. Glossary

Abbreviation/ term	Definition
IPP	Independent Power Producer
ISCC	International Sustainability and Carbon Certification
ISO	International Organization for Standardization
ISPO	Indonesia Sustainable Palm Oil certification scheme
ISSB	International Sustainability Standards Board
JETP	Just Energy Transition Partnership
LCA	Life Cycle Assessment
LCCP	Long-term Paris Compatible Scenario
LCMB	Low Carbon Mobility Blueprint
LUC	Land Use Change
MAA	Malaysian Automotive Association
MGTFF	Maybank Group Transition Finance Framework
MPO	Managed Phase-out
MPP	Mission Possible Partnership
MPP TM	Mission Possible Partnership Tech Moratorium
MSPO	Malaysian Sustainable Palm Oil certification scheme
MyRER	Malaysia Renewable Energy Roadmap
NEA	National Energy Administration
NETR	National Energy Transition Roadmap
NDC	Nationally Determined Contribution
NDPE	No Deforestation, No New Peat, No Exploitation
NGFS	Network for Greening the Financial System
NGO	Non-governmental Organisation
NZBA	Net-Zero Banking Alliance
NZE 2050	Net Zero Emissions by 2050
OEM	Original Equipment Manufacturer
PCAF	The Partnership for Carbon Accounting Financials
PK	Palm Kernel



MAYBANK

BANKING ON A BETTER TOMORROW: OUR COMMITMENT TO NET ZERO

10. Glossary

Abbreviation/ term	Definition
PEI	Physical Emissions Intensity
PHEV	Plug-in Hybrid Electric Vehicles
POME	Palm Oil Mill Effluent
PV	Photovoltaic
R&D	Research & development
RAC	Risk Acceptance Criteria
REC	Renewable Energy Credits
RFI	Request for Information
RM	Malaysian Ringgit
RSPO	The Roundtable on Sustainable Palm Oil
S&P WEPP	Standard & Poor’s World Electric Power Plants
SBTi	Science -Based Targets initiative
SBTi FLAG	Science -Based Targets initiative Forest, Land and Agriculture pathways
SDS	Sustainable Development Scenario
SEA	Southeast Asia
SLE	Super Low Energy
SME	Small & Medium Enterprises
S-REITS	Singapore-listed Real Estate Investment Trusts
T&D	Transmission & Distribution
TCFD	Taskforce on Climate-related Financial Disclosures
UNFCCC	United Nations Framework Convention on Climate Change
VES	Vehicular Emissions Scheme

www.maybank.com

Humanising
Financial Services

