

# Decarbonisation Pathway towards

## *Net Zero by 2040*

Solar panels at IOI Oleochemical, Prai.

IOI's journey to net zero began in 2019 with the launch of the Climate Change Action initiative. By 2021, we had adopted the TCFD recommendations, weaving them into a robust framework of Governance, Strategy, and Risk Management. We are currently ahead by a year of meeting our short-term target of 40% reduction by 2025 in Scopes 1 and 2 for the Group. Our next mid-term goal is to achieve carbon neutrality by 2030 in Scopes 1 and 2. Ultimately, we hope to reach our challenging and ambitious long-term goal of Net Zero carbon intensity by 2040 in Scopes 1, 2 and 3.

In this, our strategy is a blend of innovation, precision agriculture, and resilient practices. With expert guidance and strong collaboration, we have conducted comprehensive assessments to tackle GHG emissions within our operation and our supply chain, supporting these efforts with capacity building and awareness, cutting-edge technologies, and green procurement standards, ensuring a future that's as sustainable as it is strategic.



Drone view of IOI's methane capture facility.

## Governance - TCFD



### MANAGEMENT APPROACH

With our CCAi firmly established since 2019, IOI continued its journey of identifying climate risks and business opportunities in alignment with the TCFD across their four thematic areas: Governance, Strategy, Risk Management, and Metrics and Targets. We identified early on that poor execution of projects related to our CCAi is a major sustainability issue and have classified this issue as high risk under our ERM framework. The significance of this assessment was further strengthened through the double materiality assessment, also based on our ERM framework, which showed significant financial impacts on the group's operations if the CCAi were not implemented. It became clear that we had to have a detailed implementation strategy with clear lines of accountability to ensure the success of our CCAi. Additionally, to better understand the financial impacts of climate change and to align with climate-related disclosure requirements like the IFRS S2, IOI established a working committee referred to as the CFDC. (Refer to the section on CFDC in page 19 for further details)

### GOVERNANCE

IOI upholds strong corporate governance, maintaining high standards in Environmental, Social, and Governance commitments and accountability. At the same time, the group continues to implement the ERM framework to address climate-related risks identified through its risk management process. Additionally, IOI has adopted the UN SDG 13 Climate Action, which focuses on strengthening resilience and adaptive capacity, integrating climate measures into policies and strategies, and more.

In our corporate governance structure, the GMD holds a seat on the Board, as well as serving on the BSC. The BSC is accountable for overseeing the performance of the

GSSC in managing greenhouse gas emission across all its business and operations. Additionally, the BSC holds delegated authority to oversee the CFDC in delivering climate-related financial disclosures.

Meanwhile, the GSSC reports to BSC and will hold responsibilities to ensure the Group's sustainability agenda, commitments, and issues are effectively discussed, approved, and implemented. This includes implementing the CCAi and its strategies, KPIs, and incentives to achieve net zero target by 2040.

Since 2019, the incentives and remuneration of the GMD together with the management team are directly linked to the climate change metrics and targets. Specifically, this meant systematically reducing GHG emissions intensity by 4% each year with the objective to achieve a cumulative 40% reduction by 2025, using 2015 as the baseline, and to attain carbon neutrality by 2030, eventually achieving net zero by 2040.

### IOI CFDC

Under the IOI Group Sustainability Governance Structure (page 18), the IOI CFDC is responsible for financial disclosures related to the CCAi. At the beginning of FY2024, the CFDC committee was tasked with translating the climate-related physical risks identified from the TCFD exercises into quantifiable financial values. Leveraging the support of an external climate expert team, the CFDC has successfully introduced a financial disclosure module at the close of FY2024. This information is reported in the AR2024, page 168.

## Strategy - TCFD

The strategies for IOI Group's CCAi, based on the climate assessments that we conducted in 2020, were developed around the following commitments:

**Reducing our climate impacts by committing to achieve net zero for carbon intensity by 2040**

IOI aims to achieve net zero by 2040, addressing our Scope 1, 2, and 3 emissions through a well-defined roadmap with clear short-term, mid-term, and long-term pathways. For our Scopes 1 and 2, these meant enhancing existing carbon reduction and removal initiatives, while actively exploring new opportunities to minimise carbon emissions through operational efficiency and the utilisation of renewable energy. For our Scope 3, currently the highest contribution is attributed from our supply chain. So, efforts have been made to engage with our suppliers regarding our CCAi and to create awareness and capacity building regarding climate change as well as to effectively help our suppliers to embark in reducing their GHG emission (refer to the section on supply chain management for specific details, page 49).

**Promoting climate change action plan and practices through innovation, improved efficiency, and support actions throughout the operations**

IOI has adopted nature-based solutions to manage, rehabilitate, and even reforest areas such as our buffer areas, to increase carbon sequestration and increase the resilience of the rehabilitated areas (refer to the section on nature-based solution for specific details, page 47). At the same time, engineered solutions are also being introduced in plantation and resource-based manufacturing by incorporating the concept of 7Rs of Circularity, through best management practices, technologies, and innovations. (Refer to the section on engineered solution for specific details, page 48).

**Increasing the resilience of our business by managing risk and opportunities, forecasting climate impact valuation, incorporating our 7Rs of Circularity & practising precision & regenerative agriculture**

To ascertain IOI's risks related to climate change, the company has conducted both qualitative and quantitative, group-wide climate change assessment of transition and physical risks. IOI's strategies will prioritise mitigation over adaptation when addressing the identified risks while also exploring and managing new opportunities and pathways. For example, IOI has diversified its investments by embracing circularity. The most recent one is to repurpose biomass as raw materials for sustainable products such as paper and packaging. (refer to the section on engineered solution for more details, page 48).

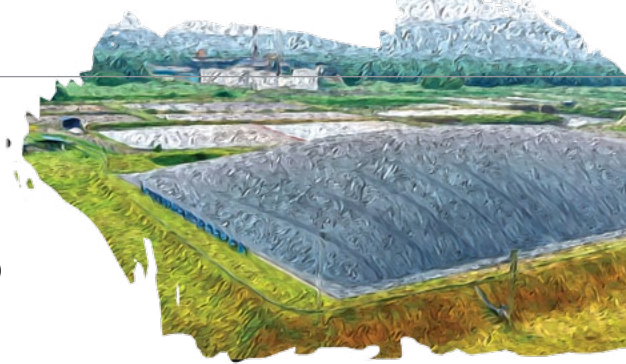
IOI, as a sustainable agriculture-based company, will continue to focus heavily on precision agriculture and regenerative agriculture. Particularly, soil health is of utmost importance in agriculture and having practices that restore and maintain healthy, nutrient-rich soil is crucial to our ability to address risks posed by climate change such as prolonged drought. As a result, we have expanded our agricultural footprint to include organic oil palm farming. (refer to the section on regenerative and precision agriculture for more details, page 47).

As mentioned earlier, climate assessment considerations including integrated climate risks and opportunities had been incorporated into our decision-making process since IOI first formulated our 2020 - 2024 Strategic Priorities. Understanding the critical impact climate change will have to our business and operations, IOI will further integrate firmly these consideration for IOI's upcoming 5-year Strategic Priorities (2025 - 2029).



# Risk Management

## MITIGATION AND ADAPTATION - TCFD



Methane capture facility of our plantation in Sabah

Limiting global emissions to well below 2°C and preferably under 1.5°C requires significant changes to conventional business models. IOI is contributing towards these efforts through a series of mitigation and adaptation efforts. To understand IOI's alignment to the global temperature goal and TCFD recommendations, in 2020, we

engaged an expert to conduct climate-related scenario analysis. The outputs of these analysis enabled us to better prioritise necessary measures to be implemented, based on the magnitude of the risk, geographical location and time scale of impact. As a whole, our approach to the climate change crisis is to undertake mitigation measures where possible, rather than adaptation to address the climate risks that we are facing.

### TRANSITION RISKS

For transition risks, through our ERM framework, the climate-related risks, impacts and opportunities were identified:

Transition Risk	Timeframe	Impact	Opportunities
<b>Policy and Legal</b>			
International environmental related regulations and compliance costs such as imposition of carbon tax or pricing	Short to medium-term	<ul style="list-style-type: none"> <li>Potential trade restrictions, penalties, or fines</li> <li>Increased cost of doing business from GHG emissions due to higher compliance cost</li> </ul>	<ul style="list-style-type: none"> <li>Reduce fossil fuel dependency through use of renewables while also utilising energy efficient processes to move towards a low carbon economy</li> <li>Continued implementation of best practices and emission reduction technologies to reduce likelihood of incurring fines/penalties</li> </ul>
<b>Technology</b>			
Alternative products from innovation that are deemed more climate-friendly Increasing costs associated with outdated energy intensive systems	Medium to long-term	<ul style="list-style-type: none"> <li>Products that are not climate friendly may not be competitive</li> <li>Higher capital expenditure required for investments into decarbonisation</li> </ul>	<ul style="list-style-type: none"> <li>Innovating our products to be climate-friendly by adopting circular economy practices</li> <li>Upgrading outdated processes and machinery may lower operating costs and increasing profit margins</li> </ul>
<b>Market</b>			
Growing demand of low-carbon products	Short to medium-term	<ul style="list-style-type: none"> <li>Loss of market share and impacting bottom line</li> </ul>	<ul style="list-style-type: none"> <li>Increasing production of low-carbon products may increase profit and the company's competitive advantage and brand recognition</li> </ul>
<b>Reputation</b>			
Increased scrutiny on sustainability performance of palm oil industry players	Short to medium-term	<ul style="list-style-type: none"> <li>Increased negative perceptions of the company, impacting shareholder and consumer confidence</li> </ul>	<ul style="list-style-type: none"> <li>Transparent strategy, risk identification and management reduces the risk of climate litigation and increases shareholder, consumer confidence</li> <li>Brand recognition as a climate-friendly business</li> </ul>

### PHYSICAL RISKS

Physical risks resulting from climate change to the operating units were quantitatively and qualitatively assessed using climate modelling datasets and relevant hazard models based on different climate change scenario projections, as mentioned in our Strategy section, up to 2050. These physical risks can be classified into acute (risk primarily from short-term, extreme weather events) and chronic (risk primarily from long-term, gradual change in climate) physical risks.

Type of physical risk	Risk	Opportunities
Acute	<ul style="list-style-type: none"> <li>IOI facilities and landholdings are located at areas that have low or stable acute risks so that operational disruption due to extreme weather event is low</li> </ul>	<ul style="list-style-type: none"> <li>Exploration in technology and innovation to prevent facility inundation, diversification of products and climate-resistant materials</li> </ul>
Chronic	<ul style="list-style-type: none"> <li>A number of facilities and landholdings are expected to be exposed to heatwave and water stress</li> <li>Few of the facilities and landholdings that are located close to the coast are expected to have risk of sea level rise</li> </ul>	<ul style="list-style-type: none"> <li>To explore alternative water source and water retention facilities which will increase operational resilience as well as reduce operational costs in long run. For example, rain water harvesting, recycling of effluent or waste water</li> <li>Mitigation plan to address the risk of sea level rise can be put in place. For example, building embankments</li> </ul>

### SCENARIO ANALYSIS

To better understand our climate-related risks, IOI has conducted a climate-related scenario analysis. The analysis relies on company-specific data with references to established databases from international organisations. Several scenarios were considered during the modelling process:

Scenarios	Description
<b>Transition risk</b>	
Low carbon pricing	Climate policies are unlikely to limit climate change to 2°C
Moderate carbon pricing	Climate policies are sufficient to limit climate change to 2°C but with delayed action
High carbon pricing	Climate policies are sufficient to limit climate change to under 2°C
<b>Physical risk</b>	
Low Climate Change Scenario (RCP 2.6)	Aggressive mitigation actions to halve emissions by 2050. This scenario is likely to result in warming of less than 2°C by 2100
Moderate Climate Change Scenario (RCP 4.5)	Strong mitigation actions to reduce emissions to half of current levels by 2080. This scenario is more likely than not to result in warming in excess of 2°C by 2100
High Climate Change Scenario (RCP 8.5)	Continuation of business as usual with emissions at current rates

The IOI's scenario analysis projects risks and opportunities over the short-term (up to 2025), medium-term (up to 2030), and long-term (up to 2050), in line with our commitment to achieving net zero by 2040. The analysis was conducted based on information from IOI's financial year 2020 as a baseline, with the assumption that carbon prices will gradually increase to accelerate decarbonisation. The scenario calculations were also done based on two assumptions: carbon pricing risk when crop sequestration for oil palms up to 25 years of age were accounted for; carbon pricing risk when crop sequestration for oil palms beyond 25 years of age were unaccounted.

IOI's operating units are spread across Malaysia, Indonesia and Germany. In total, 123 locations were assessed. The scenario analysis identified one major transition risk (carbon pricing) and three physical risks (heatwaves, water stress and sea level rise) which are material to our organisation. IOI then addresses the projected impacts through a series of mitigation and adaptation measures mentioned below.

### CLIMATE-RELATED SCENARIO ANALYSIS FOR TRANSITION RISK

Transition risk	Projected impacts
Carbon pricing	<ul style="list-style-type: none"> <li>IOI's carbon pricing risk exposure for financial year 2050 range from USD144 million to USD591 million under low to high carbon price scenarios</li> </ul>
<b>Mitigation</b>	
<ul style="list-style-type: none"> <li>Continual adoption and innovation in low carbon technologies to reduce emissions</li> <li>Enhance supply chain engagement for Scope 3 emission reductions</li> <li>Implementation of internal carbon pricing (IOI Plantation Division = RM60/ MT CO<sub>2</sub>e; Resource-based manufacturing divisions = RM80/ MT CO<sub>2</sub>e for Malaysian and EUR 30/ MT CO<sub>2</sub>e for Germany operations) to drive decarbonisation efforts</li> </ul>	



Buffer zone at PT SKS Estate, Indonesia

## RISK MANAGEMENT MITIGATION AND ADAPTATION - TCFD

### CLIMATE-RELATED SCENARIO ANALYSIS FOR PHYSICAL RISK

Physical Risk	Risk Trend	Impacted Regions	Mitigation	Adaption
Heatwave	Increasing	Malaysia, Indonesia	<ul style="list-style-type: none"> <li>Ensuring facilities were equipped with adequate ventilation equipment</li> <li>Ensuring proper water management of peatlands and planted areas</li> </ul>	<ul style="list-style-type: none"> <li>Monitoring worker productivity and considering adjustments to suitable working hours</li> </ul>
Water stress	Increasing	Peninsular Malaysia	<ul style="list-style-type: none"> <li>Increase the amount of water recycled and reused in manufacturing operations</li> <li>Implementing smart water management systems to better manage and control water consumption</li> </ul>	<ul style="list-style-type: none"> <li>Developing a water stress resistant oil palm variety through research</li> <li>Ensuring cover crops are maintained to keep soil moist</li> </ul>
Sea level rise	Stable	Peninsular Malaysia, Indonesia	<ul style="list-style-type: none"> <li>Installed water gates in estates to prevent flooding</li> <li>Ensuring proper installation and maintenance of drainage systems and canals for irrigation purposes</li> <li>Installing sea walls and storm surge barriers to protect key facilities from flood</li> </ul>	<ul style="list-style-type: none"> <li>Elevating the foundation or relocation of critical machinery</li> </ul>

Often, such measures serve dual purpose – as a measure to address climate-related physical risks; and to ensure our operational emissions align with the global 1.5°C pathway. Listed below are examples of emission reduction, removal and offsets that IOI practices:

Nature-based solutions		Technology-based solutions	
Carbon sequestration	<ul style="list-style-type: none"> <li>Reforestation and rehabilitation activities</li> <li>Crop sequestration</li> </ul>	Emissions removal	<ul style="list-style-type: none"> <li>Methane capture facilities</li> </ul>
Emissions reduction	<ul style="list-style-type: none"> <li>Reducing chemical-based fertiliser with organic fertiliser</li> <li>Reducing chemical pesticides with natural predators as alternatives</li> <li>Optimal peatland management</li> </ul>	Emissions reduction	<ul style="list-style-type: none"> <li>Cogeneration facilities</li> <li>Solar as source of renewable energy</li> <li>Increasing share of biodiesel use</li> <li>Heat recovery systems to increase efficiency</li> </ul>
		Emissions offsetting	<ul style="list-style-type: none"> <li>Selling biomass (PKS, EFB) to third-parties</li> <li>Reusing OPT as raw materials for IOI Palm Wood</li> </ul>

### CLIMATE-RELATED RISK FINANCIAL MODELLING

Based on the climate-related scenario analysis that we conducted, we expanded our understanding of climate-related risks by quantifying the financial impact of the risks to our operations. This initiative was spearheaded by the newly-formed CFDC, which has oversight of the Group’s capability and priority of addressing climate-related risks. To start the project, we are quantifying the financial impact of 3 physical risks (water stress, heatwave and sea level rise) to operations that will be most affected. The outputs of this project will improve IOI’s resource allocation and preparedness towards climate change and decarbonisation. As of this financial year, the anticipated financial impact of these climate-related risks for the medium term is minimal due to the climate change mitigation capital expenditure investment by the Group. More details can be obtained from the Group’s investment in page 168 of our AR2024. The bulk of the expenditure goes to investments in technology-based solutions like developing methane capture, co-generation and biomass facilities. More information about the breakdown of costs can be found within our Annual Financial Statement 2024. We expect this value to increase further as we increase our decarbonisation efforts in line with targets set in our Pathway to Net Zero.

### NATURE-BASED SOLUTION

IOI as an agribusiness organisation, harnesses nature to support its agricultural operations. We understand the importance of nature and how leveraging it can generate solutions to combat the issues arising from climate change.

#### No Deforestation, No New Planting on Peat, as part of NDPE

Since 2016, IOI had placed a moratorium on deforestation across all our operating units. As stated in the IOI SP, our commitment also extends beyond local legislation to include not only NDPE but also to no development of HCV and HCS areas, and other conservation areas such as forest buffer, riparian areas, peatland, etc. Our commitment to sustainable land use aims to maximise production from existing plantings through the introduction of regenerative and precision agriculture (refer to regenerative and precision agriculture, page 56).

The well-maintained peatlands and existing forest cover plays a crucial role in mitigating climate change by acting as carbon sinks, absorbing carbon dioxide from the atmosphere and helping to reduce greenhouse gas emissions. Additionally, the existing forest landscape also help maintain soil health and stabilises the natural ecosystem. An estimated 29,227 tCO<sub>2</sub>e was sequestered in the forested areas within IOI’s concession, excluding peatlands and conservation areas with shrublands, which have yet to be assigned a value.

However, we also recognise that success in conserving the forest landscape cannot be achieved by a single player alone. It requires the shared responsibility and concerted efforts across the supply chain, with support from multiple stakeholders, including local authorities and communities, to achieve true success in conservation.

Thus, IOI has extended and shared our commitment to NDPE and believes in a nature-based solutions approach. We engage with our suppliers and other players in the palm oil supply chain through various platforms, including the IOI Sustainability Consultation Forum and supplier engagement initiatives. (Refer to supply chain management, page 49).

#### Reforestation, Rehabilitation and Protection of Conservation Areas

Going beyond just commitment to NDPE, IOI has taken a bold step by applying nature-based solutions to plan for large-scale forest tree planting with careful consideration to the ecosystem in existing conservation areas, which are primarily shrublands. Eventually, with careful monitoring and care, a resilient forest that can act as a carbon sink with enhanced biological diversity can flourish.

In approaching this, we have used science-based methodologies in the reforestation program. We started with the measurement and assessment of carbon sequestration across more than 12,000 hectares of conservation areas within our concession using high resolution satellite screening. This exercise will establish a scientific baseline for sequestration and serve as a foundation for measuring carbon sequestration going forward. With proper planning and continuous monitoring and measurement of tree planting, the reforestation program will take place in phases over time.

#### Enhancing Biodiversity and Ecosystem

Another significant approach is enhancing biodiversity and ecosystems where at IOI, they extend beyond protecting large mammals to include soil biodiversity and all natural ecosystems within our concessions. Projects initiated include Achieving Coexistence with Elephants, the Laran Tree Planting Project, and more. (Refer to enhancing biodiversity and ecosystem, page 66)

All these activities are guided by our revised Biodiversity and Ecosystem Enhancement Guidelines. The approach follows a step-wise process, beginning with the identification of biodiversity and conservation value areas through science-based assessments. This is followed by Step 2: execution and management of the plan, which involves setting targets and developing a strategic monitoring and management plan.

Subsequently, Step 3 involves threat and crisis monitoring, including specific crisis mapping and management. Step 4 covers impact evaluation, mitigation, and enhancement, which includes value generation by assessing the performance of the activities. Our approaches and management guidelines are also aligned with Science-based Targets (“SBTs”) for Nature, which is a framework and process to align sustainability actions with agreed environmental goals.

Overall, safeguarding and enhancing natural ecosystems within and around our plantation concessions is a critical factor in the fight against climate change. This approach enhances carbon storage, maintains environmental balance, and supports overall ecosystem health.

## RISK MANAGEMENT MITIGATION AND ADAPTATION - TCFD

### ENGINEERED SOLUTION

#### Innovation of Planting Materials Through Research

Our Pathway to Net Zero involves the use of innovative planting materials that are more resilient to acute climate events like droughts or flash floods. IOI Tissue Culture and IOI Palm Biotech are leading the way through their research on increasing oil yield and improving crop tolerance to drought, water stress, and pests. Such research is vital, enabling IOI to meet growing market demand while minimising LUC emissions associated with agricultural expansion. For more information, please refer to page 56.

#### Expanding the Use of Renewable Energy in IOI Plantations

Aside from LUC, methane released from POME is one of the biggest contributors to GHG emissions in our plantation operations. Installations of methane captures have lowered this impact as the captured methane gas is used as a renewable source of energy. This biogas is burned directly in the boiler as a renewable source to generate power and heat required for the operation. Otherwise, the estate and mill operations would have to rely on fossil fuels to generate heat and electricity. As of FY2024, we have 10 methane capture facilities operating while 4 more are in development. At the same time, we aim to further expand renewable energy use by developing solar farms, especially in remote estates with limited access to the national grid or methane capture facilities.

#### Emissions and Energy Management in IOI Oleochemicals

Facilities at IOI Oleochemicals have installed solar panels, cogeneration facilities, and solar thermal systems to reduce energy usage and their Scope 2 GHG emissions. This is accomplished through both Feed-in-Tariff and self-consumption systems. The solar power capacities generated are as follows: IOI Acidchem Sdn Bhd has achieved 625 kWp from the Feed-in-Tariff system and 272 kWp from the self-consumption system, while IOI Esterchem has generated 353.16 kWp.

To complement these efforts, they have implemented energy-efficient systems like the Real-time Production Organiser-Operation Management and Visual MESA Energy Management Systems to synchronize communication between facilities for better power optimisation. The sustainability team at IOI Oleochemicals further leverage on this through their centralised environmental database, enabling users to monitor environmental KPIs and identify areas for improvement. Moving forward, IOI Oleochemicals is exploring the potential of green electricity subscriptions for its sites in Germany and the installation of additional solar panels for its sites in Malaysia.

#### Reducing Resource Use and Engaging Suppliers in IOI Refineries

Throughout the year, IOI Refineries (IOI Edible Oils, "IOIEO", and IOI Pan-Century Edible Oils, "IOIPCEO") have engaged multiple suppliers to discuss requirements regarding IOI's sustainability policies, including opportunities to reduce Scope 3 emissions. Starting the journey to reduce operational Scope 1 and 2 emissions, steam and heat consumption represent the bulk of IOI Refineries' GHG emissions. To address this, our refineries have updated existing systems to reduce steam and heat loss. The replacement of old steam traps at IOIEO has led to a 22.76% decrease

in steam consumption, resulting in savings of over RM218,000. Smart energy systems were also installed at IOIEO, reducing the energy required for renewable energy generation by 19-80 kW, which translates to annual savings of RM49,000 to RM225,000. To date, IOIEO has achieved a 77% reduction in absolute emissions compared to the base year, surpassing its FY2024 target. IOIPCEO, on the other hand, shares its building footprint with the IOI Pan-Century Oleochemical plant in Pasir Gudang. Consequently, it is also equipped with similar energy management systems as our IOI Oleochemical counterparts. Additionally, IOIPCEO has a 6.5 MW co-generation facility, which further reduces energy intensity by an estimated 70%.

#### Avoiding Methane Emission From Field Decomposition

Our decarbonisation strategy aligns closely with the concept of the 7Rs of Circularity that we implement throughout the Group. As mentioned, POME is redirected to our methane capture plant to generate and trap biogas for electricity, thereby avoiding methane emissions from POME. The decomposition of field biomass (e.g., OPT, EFB, etc.) in estates also produces significant methane emissions if not properly managed. To address this, we established IOI Palm Wood to repurpose OPT. More information regarding IOI Palm Wood can be found in page 60. Additionally, a portion of the biomass, specifically the EFB produced in our Sabah estates, is channelled to IOI Bio-Energy, a facility that generates electricity from biomass waste. In April 2024, we began another new innovative joint venture to utilise our EFB as a raw material for a paper pulp plant. The joint venture involves partnership with Nextgreen Global Berhad to develop Malaysia's first large-scale, zero-waste paper pulp plant with a production capacity of 150,000 metric tonnes per annum. The project aims to bring another sustainable alternative to conventional timber-based paper products while preventing emissions from decomposition. More details of the project can be found in page 60.

### SUPPLY CHAIN MANAGEMENT

As part of our Pathway to Net Zero and top 10 our material matters, addressing supply chain management together with responsible sourcing are vital in reducing IOI's Scope 3 emissions.

#### Supplier Awareness, Capacity Building and Supply Chain Emission Management

The effort to create awareness and build capacity for suppliers regarding the impacts of climate change began the last financial year through our webinar where we shared our Pathway to Net Zero. This financial year, at the 3<sup>rd</sup> IOI Sustainability Consultative Forum, IOI invited several suppliers to share their challenges regarding climate change and took the opportunity to further share with them our initiatives to decarbonise and potential contributions in combating climate change.

IOI's strategies for managing supply chain emissions are categorised into a three-step approach:

Supply Chain Mapping	Mapping the supply chain involves identifying every stage, process, and supplier involved in the production and distribution of FFB and CPO. This comprehensive exercise covers everything from sourcing to delivery for processing and involved every supplier. By mapping these elements, we can implement targeted mitigation actions by collaborating with and educating suppliers in reducing their emissions. Ultimately, supply chain mapping fosters a more strategic and focused approach to reducing Scope 3 emissions, contributing to our broader decarbonisation efforts.
GHG Assessment	Conducting a comprehensive GHG assessment involves quantifying emissions at each stage of the supply chain, from raw material sourcing to final delivery. This detailed assessment provides valuable insights into major emission sources, such as fossil fuel use in transportation and waste management. By identifying where the highest levels of emissions occur, our team can prioritise these areas for intervention. This approach establishes the foundation for targeted, data-driven strategies, helping companies prioritise and formulate focused action plans to address suppliers' emissions.
Stakeholder Engagement	Engaging and educating stakeholders, including employees, suppliers, and the local community about the importance of GHG emissions reductions as a vital component of any comprehensive climate change strategy.

For employees, this involves providing training and resources to help them understand the impact of their actions on greenhouse gas emissions so that they can contribute to the conversation with suppliers on climate change. This includes workshops on energy efficiency, waste management, and sustainable practices.

Suppliers benefit from increased awareness of how their choices can affect GHG emissions. This includes selecting their own low-carbon-footprint suppliers and prioritising sustainable sourcing options.

Inside IOI's co-generations facility



Engaging the local community involves outreach and collaboration to raise awareness about the broader impacts of GHG emissions and the benefits of collective action.

Overall, engaging and educating all stakeholders ensures a unified approach to addressing GHG emissions, enhances the effectiveness of reduction strategies, and drives positive change at multiple levels of society.

#### Climate-related Procurement Strategies

Efficient green supplier selection involves identifying and choosing suppliers who demonstrate better environmental performance and sustainability practices, particularly in managing their GHG emissions. This process ensures that procurement activities support the organisation's overall climate change action initiative. Efficient green supplier selection encompasses several key practices:

**Criteria Development:** Establishing clear, measurable criteria for evaluating the environmental performance of potential suppliers.

**Sustainability Certifications:** Prioritising suppliers with recognised sustainability certifications, such as RSPO and MSPO, as they measure their emissions using the PalmGHG.

**Supplier Engagement:** Engaging with suppliers to share our environmental practices and encourage continuous improvement. IOI has a routine supplier engagement and onsite assessment program. Examples of recent engagement and socialisation include Kluang Oil Palm Processing, Veetar, Berkat Setia, Lembing, Melangking, LCH, Rimba Nilai & Global Enterprise.

**Performance Monitoring:** Implementing systems to monitor and conduct performance reviews

## RISK MANAGEMENT MITIGATION AND ADAPTATION - TCFD

By adopting efficient green supplier selection practices, we aim to significantly reduce our emission footprint and foster a supply chain that aligns with our policy requirements.

### Responsible Sourcing

Along with our IOISP, we have an established the IOI Responsible Sourcing Guideline. The focus area for our responsible sourcing includes both sustainability and traceability aspects. In general, traceability systems can enable companies to track their suppliers' commitments towards complying with laws and regulations as well as sustainability requirements. However, traceability in the palm oil industry can be challenging due to the involvement of several layers of stakeholders such as smallholders, traders, and other industry players.

Despite these challenges, IOI has managed to achieve good traceability results for this FY, as outlined below:

- **For own plantations**  
**100%** traceable to own plantation
- **For 3<sup>rd</sup> party suppliers**  
CPO category:  
**100%** traceable to mill for 3<sup>rd</sup> party suppliers  
**97.87%** traceable to plantation for 3<sup>rd</sup> party suppliers  
PKO category:  
**99.34%** traceable to mill  
**86.54%** traceable to plantation

Furthermore, to ensure that suppliers comply with NDPE requirements, robust deforestation monitoring is essential. IOI has implemented advanced satellite technology to continuously monitor deforestation risks across its entire supply chain. This technology provides near-real-time alerts about potential deforestation activities, enabling us to respond quickly

and effectively. By acting promptly on these alerts, we can take immediate measures to address any deforestation activities and help mitigate any associated environmental impacts.

In addition to addressing immediate threats, the near-real-time alerts system also plays a crucial role in maintaining open communication with suppliers. These alerts serve as a proactive tool to notify suppliers of any deforestation risks within their areas of operation, thus ensuring that all parties are aware of any potential issues. This collaborative approach helps to uphold a deforestation-free supply chain and reinforces IOI's commitment to sustainable sourcing practices. The near-real-time satellite services include using Starling for Sabah plantations, Palmoil.io, and GFW Pro services for Peninsular Malaysia concessions. All these are important components to ensuring readiness to comply with stringent requirements such as the EUDR.

This year, the IOI Responsible Sourcing team is continuing its valuable collaboration with the Earthworm Foundation. Together, they are utilising T4T to enhance supplier self-assessment processes. These tools were designed to help suppliers conduct thorough evaluations of their practices, ensuring they are aligned with IOI's NDPE requirements.

The initiative focuses on identifying and addressing potential non-compliance risks within the supply chain. By providing suppliers with comprehensive self-assessment tools, IOI and the Earthworm Foundation aim to proactively detect areas of concern and implement corrective measures before they escalate. This approach not only supports transparency and accountability but also encourage continuous improvement in sustainable sourcing practices.

Additionally, the IOI Responsible Sourcing team has conducted several onsite supplier engagement programs, including:

- Decent Labour Practice Training - Suppliers in Rompin & Kluang region
- Participating in supplier stakeholder meeting - Dominion Square, Ladang Rompin, Rimba Nilai & PH Palm Express
- Labour Transformation Program - *Rakyat Ketengah Perwira*
- Traceability to Plantation Pilot Engagement and NDPE Socialisation - Kluang Oil Palm Processing, Veetar, Berkat Setia, Lembing, Melanking, LCH, Rimba Nilai & Global Enterprise

Demand for palm oil derivatives that comply with sustainability/ NDPE requirements has increased due to heightened awareness of the environmental and social issues associated with palm oil production. With our emphasis in responsible sourcing practices, this presents an opportunity for us to meet this demand from markets that prioritise sustainability. We further actively participated in the POCG, a collaborative initiative involving industry peers across the supply chain with aim of enhancing transparency and compliance with NDPE requirements. As a result, we have completed the external verification of the Implementation Reporting Framework, which assists in monitoring and understanding the progress of NDPE policy commitments across the entire production base connected to their supply chain. This verification was conducted by an independent assessor and is part of IOI's commitment to good practices in transparency reporting.

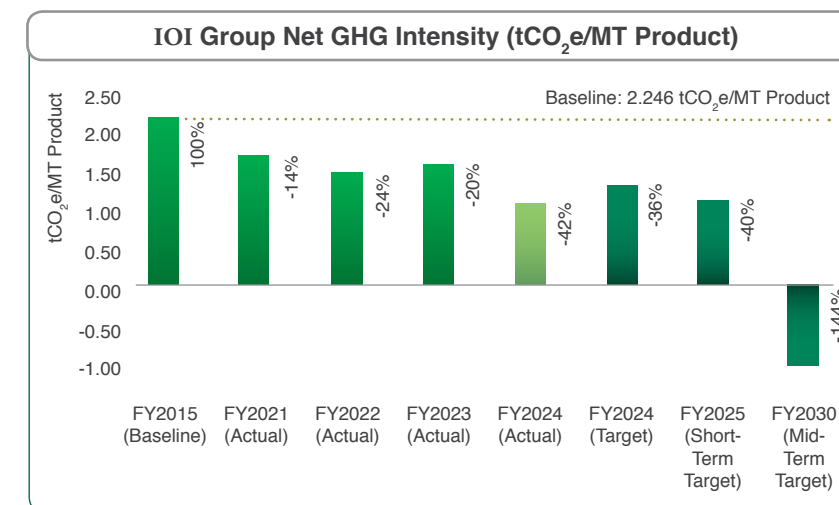
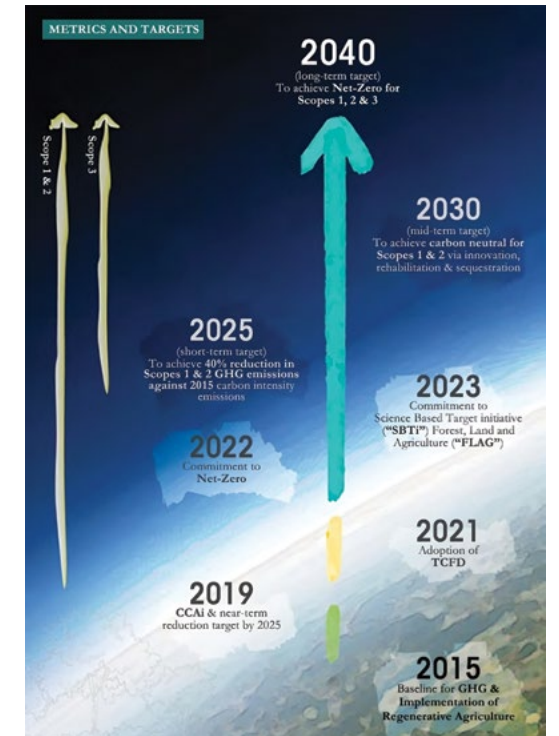
## Metrics AND TARGETS - TCFD

As part of our ERM framework, we have monitored our emissions since 2020 with a target to achieve 40% reduction by 2025 against a baseline of 2015. All our GHG calculations are aligned to the GHG Protocol methodology via RSPO PalmGHG for IOI Plantation and ISO14064 for IOI Refinery and Oleochemical.

In 2023, we took our commitment a step further by committing to the Science-Based Target initiative ("SBTi") for both the Forest, Land and Agriculture ("SBTi-FLAG") and Non-FLAG sectors, as well as SBTi net zero target. As of this financial year, IOI is in the progress of submitting our FLAG, Non-FLAG and net zero targets to SBTi for validation.

### IOI GROUP'S PERFORMANCE - SHORT (2025) TO MID-TERM (2030) TARGET

Based on current emission reduction achievements, IOI is on track to meet our mid-term target in 2030. IOI will continue our efforts to reduce GHG emissions by further leveraging our nature-based and engineered solutions. This includes enhancing rehabilitation and tree planting efforts in our conservation areas and installing more methane capture facilities. These will play a crucial role in achieving carbon neutral by 2030 and net zero by 2040. More information on our nature-based and engineered solutions can be found in pages 47-48.



Graph 1

IOI has adjusted our GHG reporting period to reflect the Financial Year instead of Calendar Year. The percentage of emissions for previous years remain unchanged.

### IOI GROUP'S PERFORMANCE – SHORT TERM TARGET (2025)

IOI Group has more than achieved our annual target of 36% for this year and even exceeded our short-term target a year earlier than predicted, i.e. 42% (actual for 2024) vs 40% (target for 2025). This is in part due to the inclusion of 26,297 ha of palm trees over 25 years, that was

previously excluded in the RSPO Palm GHG calculator, which amounts to 246,139.9 tCO<sub>2</sub>e of sequestration. This brings our total crop sequestration to 1.7 million tCO<sub>2</sub>e, which is sufficient to completely neutralise our emissions from land conversion. Apart from crop sequestration, sequestration from conservation areas and mill credits mainly from sale of PKS, EFB and excess electricity the grid also contributed to reducing IOI's overall emissions. Removals from sequestration together with the mill credits have reduced our emissions this year to 0.78 million tCO<sub>2</sub>e. Furthermore, we have repaired the two methane capture facilities that malfunctioned in FY2023. In addition, we have installed a new system to utilise biogas for boiler burners to generate power at two of our mills thereby reducing our fuel consumption from fossil fuel for power generation. The boiler feed system has also enabled us to optimise our biogas utilisation and reduced flaring from unutilised biogas.

## METRICS AND TARGETS - TCFD

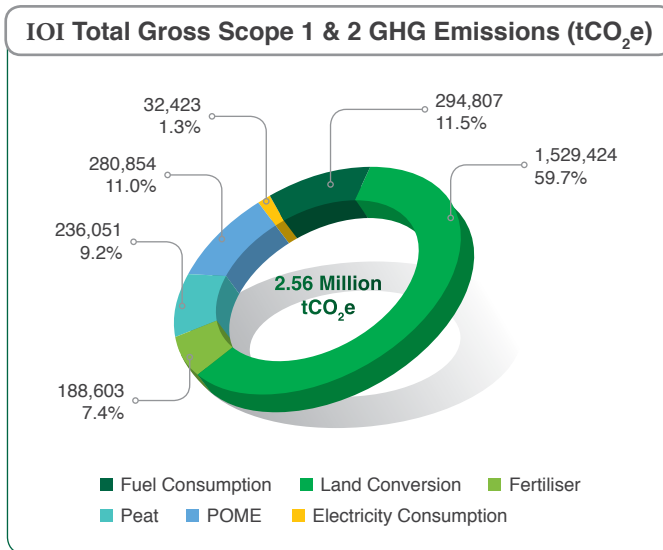


Chart 1

Chart 1 depicts IOI's gross Scope 1 and Scope 2 GHG emissions, which includes emissions from our Plantations, Refinery and Oleochemical divisions. The most prominent emissions contribution is from Land Conversion in our Plantations. The LUC in IOI can be completely neutralised by our crop sequestration as our land use primarily involves brownfield sites, therefore our crop sequestration is higher than the emissions resulting from LUC.

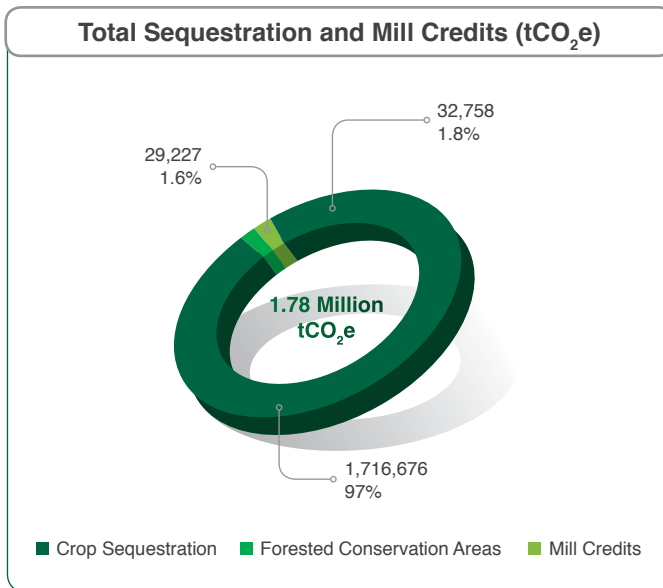


Chart 2

Sequestration from our crops and forested conservation areas, together with mill credits are depicted in Chart 2.

Our Group Total Net Emissions are calculated using the formula:

### Total Net Emissions

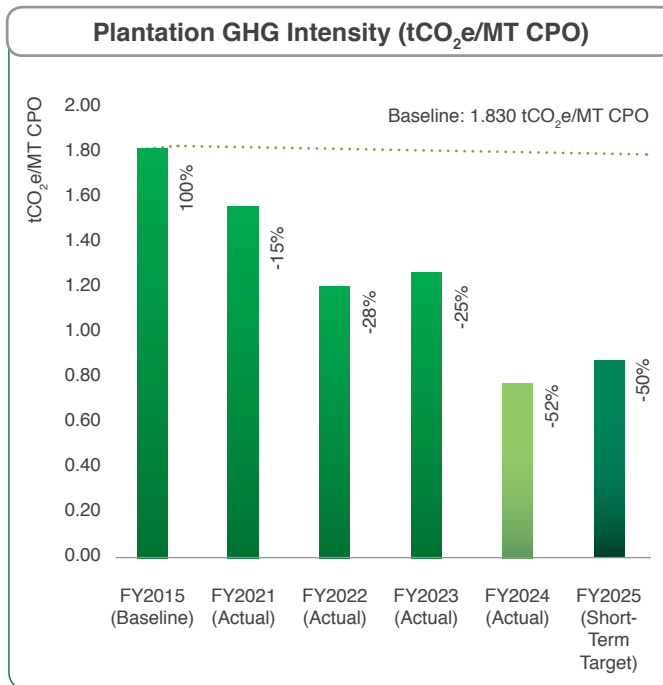
**Total Gross Emissions – Total Sequestration & Mill Credits**

The Group Net Intensity emissions can be referred to in Graph 1.

### DIVISIONS' PERFORMANCE - SHORT-TERM TARGET

#### IOI Plantation

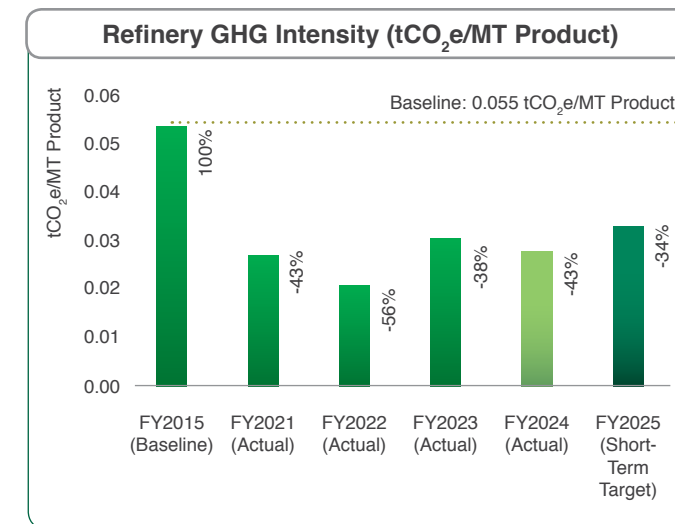
The GHG intensity for IOI Plantation has reduced significantly compared to previous years due to the inclusion sequestration for 26,297 ha of palm trees over 25 years and repair of the two methane capture facilities. Additionally, our upcoming solar farm projects at our division as a renewable and alternative source of energy from fossil fuel, will also support further reduction in emissions.



Graph 2

#### IOI Refinery

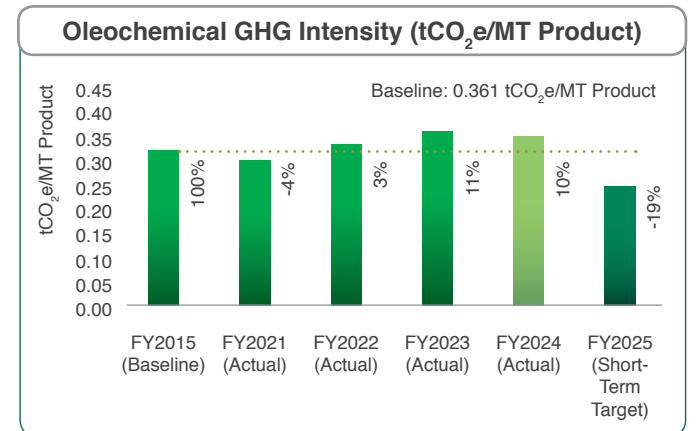
The Refinery division consisting of IOI Edible Oils and IOI Pan-Century Edible Oils has been consistently exceeding the target of achieving 34% GHG reductions by 2025. This year, the division continues to reduce its emissions through automation, reducing power consumption and improving efficiency. For instance, IOI Edible Oils have achieved significant reductions in their emissions this year by reducing power consumption through implementing low-carbon initiatives and innovative solutions. These include upgrading infrastructure and equipment for higher efficiency, adopting process modifications and innovations, enhancing energy efficiency, embracing digitalisation and automation, reducing waste through the 7Rs concept, and utilising renewable biomass energy.



Graph 3

#### IOI Oleochemical

Oleochemical emissions have increased 10% from our baseline this financial year due to higher volumes of value-add oleochemical derivatives as oppose to basic oleochemicals. The commissioning of the new and higher efficiency production plant at IOI Acidchem has however slightly mitigated emission intensity over the last financial year. Scope 1 emissions contribute 90% of our Oleochemical's total direct emissions and mitigation remain a challenge due to limited supply and high cost of green fuel alternatives. Nonetheless, we are still actively seeking ways to reduce our emissions by increasing efficiency, such as plans for another co-generation plant set up at our IOI Oleochemical Prai site and future solar panel projects.



Graph 4

#### Scope 3 Emissions

Overall, IOI's Scope 3 emissions from our Resource-Based Manufacturing makes up 61% of our total emissions, of which 94% comes from purchased goods and services (category 1). This signifies the importance of supply chain management and engagement with our suppliers. At the refinery-level, IOI has initiated requests to our CPO and PK suppliers to provide us with their GHG data. Our IOI Oleochemical division has also initiated plans to engage with their relevant stakeholders with regards to addressing their upstream and downstream transportation and distribution (category 4 and category 9).

Business Division (tCO <sub>2</sub> e/MT Product)	FY2022	FY2023	FY2024
Plantation	0.20	0.20	0.21
Refinery	3.13	3.36	3.14
Oleochemical	5.54	4.41	0.88
Group	8.87	7.97	4.23

Calculations for our Resource-Based Manufacturing Scope 3 emissions are based mainly on the GHG Protocol methodology. Our Plantation Scope 3 emissions have remained consistent as there were no significant changes to our supply base. The GHG Protocol Scope 3 Evaluator (Quantis) which uses spend-based methodology was the main calculation tool for our Plantation Scope 3 emissions. As the Quantis tool has discontinued their services, we will continue to survey alternative options for future calculations.

Our Scope 3 emissions for IOI Oleochemical and IOI Pan-Century Edible Oils have reduced significantly this year due to updates in calculation methods following their ISO14064 verification this year, including some changes in emission factors due to the discontinuation of Quantis.