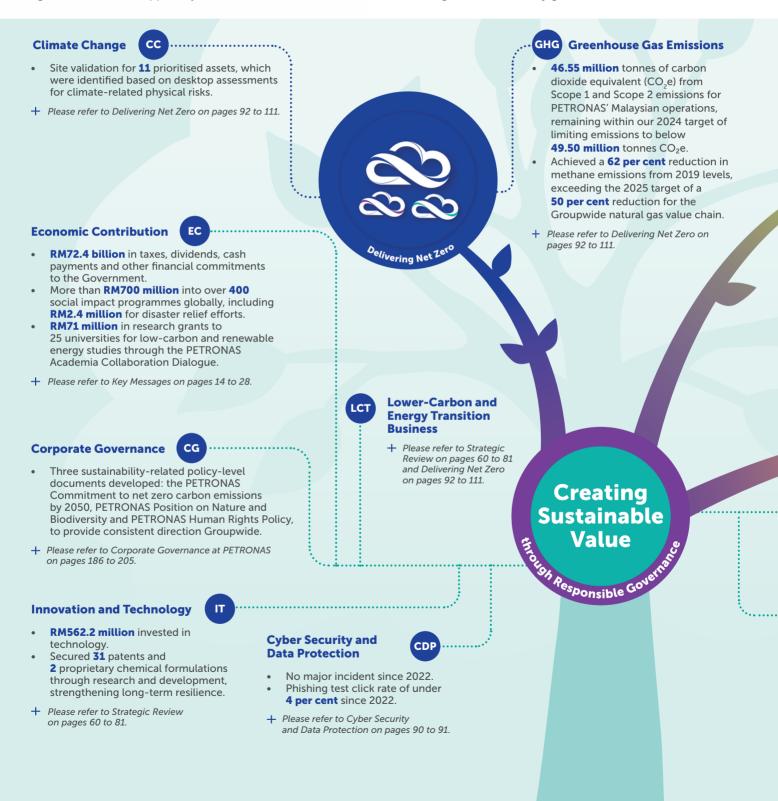
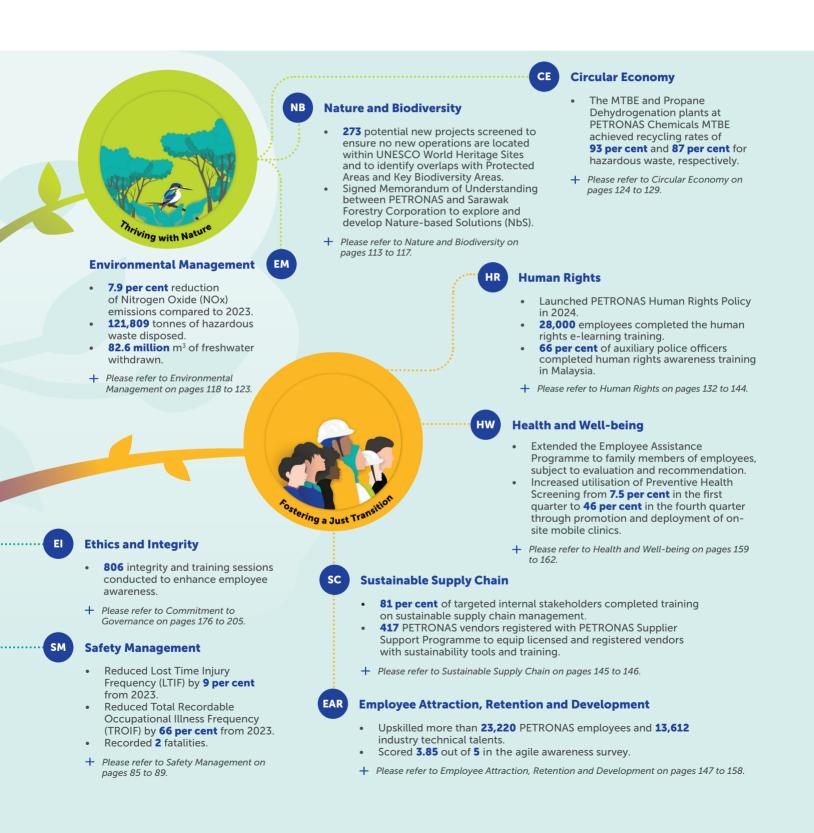
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Sustainability Performance Review

PETRONAS takes an integrated approach to sustainability, embedding responsible practices across our operations, decision-making and value creation processes. We focus on balancing energy security with climate ambitions, while ensuring accountability in how we manage environmental and social impacts. By aligning with global standards and stakeholder expectations, we aim to build long-term resilience, support a just transition, and contribute to national and global sustainability goals.





Creating Sustainable Value through Responsible Governance

Creating Sustainable Value

The global energy transition is an urgent and complex challenge that requires business, government and society to work together to achieve a lower-carbon future. This transition calls for a transformation in how we produce, transport and consume energy, along with investments in infrastructure on a scale not seen for several decades. With significant changes on the horizon, it is essential to ensure that the energy transition strengthens society and creates better prospects for more people, thereby uplifting communities. A just transition considers the social and economic impact of shifting to cleaner energy, particularly on the workforce, the supply chain and the communities who are directly impacted.

For PETRONAS, a just transition means upholding human rights, safeguarding the well-being of employees, equipping our people with the necessary skills for the future and ensuring that our supply chain evolves responsibly, while maintaining a strong commitment to safety and ethical business practices.



Our Material Topics





Why This Is Important to Us

We operate in the energy industry, where exposure to hazardous conditions poses significant risks. We strive to embed a strong safety mindset across our operations to create a workplace where everyone returns home safely each day. By upholding the highest safety standards and strengthening our safety culture, we minimise risks, enhance operational reliability and safeguard lives. This commitment reinforces trust among our stakeholders and supports the long-term sustainability of our business.

Our Approach

PETRONAS is committed to Health, Safety and Environment (HSE) excellence in all our activities, wherever we operate, as outlined in our HSE Policy. We align our HSE Management System and HSE Mandatory Control Framework with the International Organisation of Standardisation's (ISO) 14001:2015 and ISO 45001:2018. This system and framework applies to all operations under our operational control.

Our Safety Management Approach				
Compliance	Culture	Competency		
Drive compliance and operating discipline to manage risks and safeguard our licence to operate. Leverage self-regulation to reinforce safety compliance.	 Strengthen implementation of the Generative HSE Culture programme at all levels. Instil leadership and accountability through the HSE Accountability and Behaviour Reinforcement programme. 	 Intensify human, asset and system capabilities, and HSE competency in delivering sustainable HSE performance. Use of technology and digital tools to drive HSE excellence, derive performance insights, trends and emerging risks to enable proactive interventions. 		
Performance in 2024		Reduced Total Recordable Cases (TRC by 6 per cent in 2024 vs 2023		
Lost Time Injury (LTI)	Lost Time Injury Frequency (LTIF)			
13% 2024: 27 2023: 3	9% 2024: 0.10 <i>2023: 0.11</i>	Recorded Zero Major Fires and a reduction in Minor Fires		
Total Recordable Occupational Illness (TROI) - Employees	Total Recordable Occupational Illness Frequency (TROIF) - Employees	Increase in Major Loss of Primary Containment (LOPC) cases to 6 in 2024 from 4 in 2023		
64% 2024: 31 <i>2023: 8</i>	6 66% 2024: 0.22 2 <i>023</i> : 0.66	Recorded 2 fatalities		

Our continuous efforts to cultivate a Generative HSE Culture, enhance contractor management and leverage digital solutions have contributed to key improvements across our operations. We acknowledge that safety is a journey, and while we have seen progress, we also recognise the areas where we must do better.

We deeply regret the loss of two lives in our operations in 2024. Every life matters and we remain steadfast in our commitment to strengthening our safety culture, learning from these incidents and ensuring that safety remains our top priority. Every incident is one too many and we will continue strengthening our safety systems, processes and mindset to ensure that every worker goes home safely. We extend our heartfelt condolences to the families, colleagues and communities affected.

We also observed an increase in Major Loss of Primary Containment (LOPC) cases from four in 2023 to six in 2024, despite our ongoing efforts to enhance process safety and risk management. This rise underscores the need for continued focus on vigilance, stricter controls and strengthened safety protocols.

Creating Sustainable Value through Responsible Governance

Compliance

We remain steadfast in our commitment to maintain the highest standards of safety compliance across PETRONAS operations, ensuring full adherence to both national and international safety regulations. We continue to drive improvements in operational safety and governance by implementing strategic initiatives across the organisation.

Operational Safety

Ensuring safety in daily operations is critical to maintaining compliance, mitigating risks and enhancing workforce capability. Through standard processes, digital solutions and strengthened contractor governance, we foster a safety-first culture across all activities.

The Digital Permit to Work system has been standardised to further eliminate risks associated with backdating, enhancing traceability and ensuring full compliance with joint site visit requirements. The system covers over 70 per cent of PETRONAS' target assets and maintains high customer satisfaction. It significantly contributes to safety and compliance while delivering substantial cost savings.

In line with Malaysia's Occupational Safety and Health (Amendment) Act 2022, we redefined our contractor management practices through a clearer demarcation of roles and responsibilities. We also conducted site verifications to identify potential risks early, ensuring compliance with safety protocols.

Process Safety

We continued our efforts in enhancing process safety by focusing on risk management, digital solutions, and interdepartmental collaboration and knowledge-sharing sessions for continuous improvement.

Integrated Process Safety System and HSE Integrated Risk Assessment Module on Process Safety have been enhanced, especially on Pre-Activity Safety Review for commissioning activities. The integrated Pre-Activity Safety Review system now connects with multiple enterprise systems, enabling fully traceable, evidence-based reviews at the source level.

We sustained our Process Safety performance via the Brilliant at Basics Programme to strengthen compliance with Bolted Flange and Joint Integrity, alarm management, operational integrity and corrosion management to complement Process Safety LOPC Reduction, and Fire Prevention and Mitigation Framework implementation. Key outcomes include:

- Trained Joint Integrity Team assessors and verifiers, strengthening on-site Bolted Flange and Joint Integrity implementation.
- Fully deployed Digital Flange Integrity Tools to prevent joint leaks and improve process compliance.

Self-Regulation

We continue to strengthen self-regulation by enhancing governance, ensuring the readiness of occupiers, which are PETRONAS-owned assets, for Special Scheme of Inspection Class B certification and implementing structured assurance activities. Through the development of supplementary documentation, readiness assessments and comprehensive audits, we reinforced compliance and operational excellence across all our operations.

Through our efforts, eight occupiers achieved readiness for the Special Scheme of Inspection Class B certification, ensuring compliance with regulatory requirements. We also completed planned assurance activities in nine occupiers, encompassing Adequacy Audit, Document Review Audit and Readiness Audit, ensuring compliance and operational readiness.

HSE Digital and Technology

PETRONAS is advancing HSE digital and technology by leveraging data-driven solutions, automation and predictive analytics to enhance safety, improve efficiency and strengthen risk management across operations.

Since 2018, our in-house Artificial Intelligence Incident and Risk Analytics (AIIRA) has been fully operationalised into Project Delivery and Technology division-managed projects and facilities, enhancing data-driven HSE risk management. This division applies a risk-based approach to balance corporate and operational risks, ensuring safety and compliance. AIIRA's predictive analytics enables prioritisation of critical activities and high-risk projects, aligning assurance efforts with actual risk landscapes.

The implementation of risk-based assurance intervention by the Project Delivery and Technology division reduced assurance fatigue and improved focus and effectiveness. As a result, our first line assurance achieved more than 90 per cent schedule compliance with no overdue actions and observed a 38 per cent reduction in planned assurance by eliminating redundant activities.

In 2024, AIIRA was extended to the Downstream and Upstream businesses, further reinforcing enterprise-wide HSE risk management. We also introduced Smart Risk Analytics, which automates and enhances proactive risk management by delivering near real-time insights on HSE risks, critical activities, hazards and peak incident periods. Smart Risk Analytics marks a major advancement in proactive HSE risk management across PETRONAS. More operations are expected to onboard AIIRA, accelerating the uptake of artificial intelligence in the organisation.

Culture

Since 2017, PETRONAS has adopted a Generative HSE Culture, where safety is embedded in the organisation's mindset, shaping behaviours and decision-making at all levels. Rooted in the principle of care, PETRONAS defines Generative HSE Culture as 'Doing the right things right, even when no one is watching'. This culture is built on five core Generative HSE Culture Behaviours that guide actions and decision-making across all levels.



I Role model HSE: is good business and good for me

Treat HSE as a core value by role modelling HSE as an integral component of business operations, strategic decisions and personal well-being.

I Engage Authentically

Show genuine care in co-workers' safety, role model safe behaviours and find solutions to problems.

The Generative HSE Culture Model, Generative HSE Culture Behaviours, and Generative HSE Culture Leadership Programmes are intellectual properties of PETRONAS.

I Feedback Truthfully

Speak up when something does not seem right and pay attention to others who raise concerns.

I Act Interdependently

Work collaboratively with others to achieve consistent HSE and business goals.

I Empower through Capability

Build capability to ensure everyone can perform tasks safely and effectively.

HSE Leadership is the key lever in driving this culture, supported by our proprietary suite of targeted Generative HSE Culture leadership programmes. Since 2017, we have trained 2,927 leaders and 3,820 frontliners to demonstrate the five Generative HSE Culture Behaviours and reinforce consistent safety messaging through daily actions and moments of influence. By doing so, we create an immersive experience that shapes Generative HSE Culture, supported by ongoing communication, targeted engagement programmes, roadshows and business-led initiatives.

Creating Sustainable Value through Responsible Governance



Strengthening Generative HSE Culture through HSE Accountability and Behaviour Reinforcement Programme

The HSE Accountability and Behaviour Reinforcement framework strengthens our Generative HSE Culture by fostering accountability and reinforcing safety behaviours at all levels. It outlines principles for Positive Reinforcement to recognise and reward employees who comply with HSE requirements. Our investigation teams review major incidents and non-compliance cases and identify behavioural factors with structured reinforcement measures determined by each business' HSE Accountability and Behaviour Reinforcement Committee. Integrated into our Generative HSE Culture Leadership Programme and various HSE campaigns, the framework ensures continuous reinforcement of accountability and proactive safety behaviours across the organisation.

Competency

We place strong emphasis on developing and enhancing the competency of our workforce in safety leadership and technical expertise. Through targeted training and development programmes, we ensure that our leaders and frontline personnel possess the necessary skills and knowledge to uphold safety standards and drive operational excellence.

Operational Safety

We strengthened site leadership by standardising the selection and assessment process for our supervisors. Competency and selection criteria were established to ensure merit-based hiring, outlining minimum experience requirements and relevant technical trade expertise needed for effective supervision.

In 2024, more than 1,000 supervisors were assessed for competency, ensuring that only qualified and capable individuals oversee critical operations. Training sessions were conducted using standardised training and assessment modules, enabling all operations to follow a standard framework and maintain consistent site compliance.

Crisis Management

Effective crisis management is crucial for a rapid, coordinated and resilient emergency response, protecting people, assets and operations. We adopt a structured and proactive approach to enhance preparedness and response effectiveness.

We enhanced crisis management efficiency and capability by incorporating technology solutions into our in-house developed Crisis Management Information System. Key outcomes include:

- Completed proof-of-concept in the integration of identified technologies such as drones, Internet Protocol cameras and wearables, with the Crisis Management Information System.
- Mandatory implementation of the Crisis Management Information System across all our operations beginning 2025.

To strengthen disaster preparedness and response in our operations, we enhanced the capabilities of the Natural Disaster Management Committee by conducting engagement sessions, workshops and tabletop exercises across six regions in Malaysia - Central, Northern, East Coast, Southern, Sabah and Sarawak.

Incident Management

As part of our efforts to strengthen safety via continuous learning, we established a structured, closed-loop process and governance to institutionalise Organisational Learning From Incidents that includes incident investigation, analysis, sharing of incident learnings, as well as conducting Site Verification and Attestation exercises.

Our centralised Organisational Learning From Incidents portal achieved a 29 per cent increase in engagement compared to 2023, reflecting strengthened organisational emphasis on HSE-related learning. We also conducted 12 Site Verification and Attestation exercises ensuring accountability and driving continuous improvement in HSE practices.

Health, Safety and Environmental Capability

We continue to strengthen our HSE capabilities by equipping our workforce with the right skills and structured development programmes, utilising digital solutions and emerging technologies to drive HSE Operational Excellence.

Our portfolio of Technology Inventories and Rulers was updated to align with evolving priorities in HSE technology, sustainability and digitalisation. Additionally, we established three new HSE sub-disciplines to respond to the shift in global demands. To strengthen governance, we also implemented a structured talent management approach to ensure strategic oversight of HSE talents through the execution of the HSE Staff Development Committee.

We enhanced our HSE learning and talent databases by incorporating immersive virtual reality experiences, HSE e-Learning modules and digital dashboards. A key highlight was the development of the 'Working at Height– Scaffolding' virtual reality module, uniquely designed using actual PETRONAS assets. Unlike generic off-the-shelf modules, this approach offers greater realism and reinforces safer, site-specific work practices.



Contractor capability was strengthened through collaboration with industry stakeholders and regulators, including the Malaysian Oil, Gas & Energy Services Council and the National Institute of Occupational Safety and Health by advocating safety practices and providing a platform for the exchange of HSE knowledge and ideas.

Moving forward, safety management will continue to evolve with a stronger emphasis on proactive risk mitigation, digital integration and industry collaboration. Embedding a Generative HSE Culture remains our priority. We will focus on enhancing HSE capability development through structured training, leadership engagements and upskilling programmes to build a highly competent workforce with a safety-first mindset. Strengthening partnerships with regulatory bodies, contractors and business stakeholders will drive higher safety standards across the industry. By advancing innovation, refining governance frameworks and reinforcing accountability, we will ensure safety excellence remains our key priority to ensure a resilient and secure operating environment for all.

Creating Sustainable Value through Responsible Governance

Cyber Security and Data Protection

Why This Is Important to Us

We integrate digital solutions across our operations to enable smarter systems and interconnected networks. However, this rapid digital adoption also heightens cyber security risks, making robust cyber resilience critical to safeguarding operations, protecting sensitive data and ensuring business continuity.

PETRONAS' risk-based Enterprise Cyber Security Governance Framework is designed to drive robust risk management processes and protect sensitive information. This approach helps us safeguard the resilience of both our physical and digital assets, and maintain international standards for cyber security and data privacy in a constantly evolving threat environment.

Our Approach

As cyber threats become increasingly sophisticated, PETRONAS recognises the need for a holistic approach in strengthening cyber resilience. Our strategy centres on a risk-based approach and is supported by robust governance, which ensures compliance with laws and directives. Governance plays a critical role in protecting our assets, managing risks and staying compliant with regulations.

functions of Identify, Protect, Detect, Respond and Recover. respond to, and monitor these risks across PETRONAS. Compliance with Regulations We continuously monitor and adapt to evolving regulatory requirements to ensure compliance with cyber security laws and directives across our operations. Regulatory Compliance Updates in 2024 • Reviewed the Network and Information Systems Directive 2's requirements to ensure our cyber security controls meet regulatory requirements for our European operations. • Assessing local regulations, including the Malaysia Cyber Security Act 2024 and updates to the Personal Data Protection Act 2010, with enhancements to be implemented to strengthen compliance.	Frameworks and Standards	The Enterprise Cyber Security Governance Framework ensures that the right people and processes are in place to safeguard our systems, assets, data and operations. This framework includes:						
National Institute of Standards and Technology (NIST) Framework for cyber security. Management Framework. Provides clear guidelines for managing cyber security through the five core functions of Identify, Protect, Detect, Respond and Recover. Integrates PETRONAS' Risk Policy. Compliance with Regulations We continuously monitor and adapt to evolving regulatory requirements to ensure compliance with cyber security laws and directives across our operations. PETRONAS. Compliance with Regulations We continuously monitor and adapt to evolving regulatory requirements to ensure compliance with cyber security laws and directives across our operations. Assessing local regulations, including the Malaysia Cyber Security Act 2024 and updates to the Personal Data Protection Act 2010, with enhancements to be implemented to strengthen compliance. Measuring Assurance We adhere to the PETRONAS Integrated Assurance framework to ensure Groupwide cyber security compliance. A centralised assurance platform monitors Information Technology and Operational Technology functional checklists across PETRONAS' businesses. Measuring Cyber Resilience in 2024 We continue efforts to establish methods to measure cyber security resilience. Having established strong fundamentals across key cyber security precommendations on effective metrics from								
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		established strong fundamentals across key cyber security functions, our focus now is on sustaining and enhancing resilience guided by recommendations on effective metrics from the sustaining and enhancing resilience guided by recommendations on effective metrics.						



Data Privacy and Protection	We integrate data privacy requirements into our Cyber Security Control Standards and conduct Data Protection Impact Assessments on our systems handling personal data to ensure compliance with digital data processing laws.
	 Enhanced Data Protection Measures in 2024 Strengthened controls by incorporating a General Data Protection Regulation aligned breach notification process into the Crisis and Incident Response Plan, ensuring consistency with Malaysia's Personal Data Protection Act.

Our Action Plan

PETRONAS' expanding digital presence, driven by advancements in information and operational technology, increases our vulnerability to sophisticated cyber threats. These threats exploit not only vulnerabilities in the internal digital infrastructure but also in the broader business value chain.

To mitigate these risks, we adhere to the PETRONAS Enterprise Cyber Security Governance Framework and prioritise employee education, as they often form the first line of defence. By raising cyber awareness and fostering a cyber-safe culture, we aim to protect our systems, data and intellectual property from malicious attacks.

Focus Areas	Initiatives in 2024
Strengthening Core Capability	We strengthened core cyber capabilities by reinforcing controls at application and device levels, and participated in a government cyber drill on critical infrastructure at the national level in Malaysia. We developed an internal Cyber Security Academy, designed to centralise general training for our employees, as well as role-based training for topics ranging from cyber governance, third-party risk management to cyber security for operational technology.
Optimisation and Efficiency	We continued to optimise our cyber security performance by maximising the value of existing tools, processes and capabilities. Through strategic cyber security portfolio streamlining, we improved operational efficiency, strengthened continuous monitoring and enhanced our ability to manage growing threat volumes effectively.
Enabling Capable Personnel	We strengthened our cyber resilience by empowering our people to become active defenders in the digital space. The 2024 Global Cyber Security Month, themed Cyber Defenders Carnival, engaged employees through interactive events and learning opportunities designed to deepen awareness and promote behavioural change. Ongoing initiatives such as monthly tips, video series, virtual forums and targeted sessions kept cyber security front-of-mind throughout the year. Our annual 'Cyber Security & You' assessment recorded a 92 per cent completion rate, reflecting strong engagement and commitment to strengthening our cyber security posture across the organisation.
Driving Strategic Growth through Partnerships	We enhanced our security response capabilities through close collaborations with enforcement agencies and business partners. During the year, we participated in industry forums and cyber security crisis management exercises to share insights on safeguarding critical infrastructure. We also engaged third- party vendors and partners to raise awareness, assess their cyber readiness, address gaps and improve overall supply chain security.

As cyber threats grow more sophisticated, PETRONAS remains committed to safeguarding business integrity and continuity through a robust, risk-based approach to cyber security. As an appointed Sector Lead for Malaysia's National Critical Information Infrastructure, we take our responsibility to establish and uphold robust security standards across our operations and value chain with a deep sense of duty. In 2025 and beyond, we will continue strengthening internal defences, enhancing third-party readiness, and promoting a culture of cyber awareness to ensure a secure and resilient digital environment for Malaysia's energy future.



PETRONAS Leadership Centre incorporates green building principles.

Our Material Topics

The escalating risks of climate change demand a structured and urgent response. We are committed to reducing greenhouse gas (GHG) emissions across our core operations while strengthening our resilience towards climaterelated physical risks, in an evolving regulatory and market landscape.

Climate Change Greenhouse Gas (GHG) Emissions

Why This Is Important to Us

The urgency of climate change and the shifting energy landscape demand decisive action. As the world moves towards a lower-carbon future, PETRONAS is committed to delivering net zero, ensuring that sustainability and business growth go hand-in-hand.

The PETRONAS Net Zero Carbon Emissions by 2050 Pathway reflects this commitment and guides our efforts to reduce emissions across our operations while investing in new lower-carbon business opportunities.

Through our Net Zero Carbon Emissions by 2050 Pathway, we are taking proactive steps to cut emissions, collaborate with partners across the value chain, and invest in solutions that support a more sustainable energy mix. Achieving this ambition strengthens PETRONAS' resilience, mitigates environmental risks, and positions us to thrive in a low carbon economy.

Our Approach

PETRONAS is committed to achieving net zero carbon emissions by 2050, guided by our PETRONAS Energy Transition Strategy and driven by our Statement of Purpose: *A progressive energy and solutions partner, enriching lives for a sustainable future.* In support of climate goals, there is an increasing demand from stakeholders for enhanced transparency around economywide emissions. Businesses are expected to advance corporate GHG emissions disclosures to encompass Scope 1, Scope 2 and Scope 3.

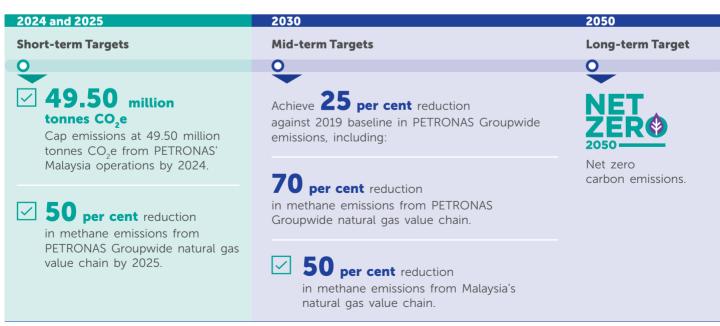
- Scope 1: Direct emissions from company-owned or controlled facilities and operations.
- Scope 2: Indirect emissions from energy we purchase.
- Scope 3: Other indirect emissions that are a consequence of our activities but occur from sources not owned or controlled by PETRONAS.

PETRONAS quantifies emissions based on both Operational Control and Equity Share approaches. This includes material Scope 3 categories' emissions. The Equity Share approach reflects the company's economic interest, which is defined as the extent of rights the company has to the risks and rewards associated with an operation.

Equity Share emissions are now incorporated into PETRONAS' reporting for both core and non-core businesses.

In 2024, we achieved our short-term target of limiting Scope 1 and Scope 2 emissions from Malaysia operations below 49.50 million tonnes of carbon dioxide equivalent (CO_2e). Furthermore, we are making good progress in achieving our medium- and long-term targets. Our approach is shaped by our business context, national policies, international frameworks and the scientific consensus on climate change.

Our Net Zero Carbon Emissions by 2050 Pathway Targets (Scope 1 and Scope 2)



Guided by International Principles, Frameworks and Standards

PETRONAS' net zero efforts are guided by internationally recognised principles, frameworks and standards to ensure transparency, consistency and alignment with global best practices. These references shape our approach to greenhouse gas (GHG) quantification, reporting and emissions reduction, strengthening the accuracy and comparability of our climate-related disclosures. This practice also supports progress towards key United Nations Sustainable Development Goals (SDGs), particularly those related to climate action, clean energy, and responsible consumption and production.



Scan the QR code to view the full list of references and guidelines we adhere to.



Transparency in Climate Action

We adhere to international standards in assessing and quantifying our GHG emissions by integrating them into operational practices, which are guided by internal governance frameworks and the PETRONAS Carbon Commitments that ensure accountability in delivering our Net Zero Carbon Emissions by 2050 Pathway across the Group. We continuously refine our reporting practices to enhance transparency, aligning with internationally recognised frameworks. Since 2022, we have reported publicly through the CDP (formerly the Carbon Disclosure Project) disclosure platform.

IFRS Sustainability Disclosure Standards

Our strategic approach to climate risk management aligns with internationally recognised disclosure frameworks, including the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD). This enables us to effectively manage climate-related risks and opportunities as we work towards delivering our Net Zero Carbon Emissions by 2050 Pathway. As global reporting standards evolve, we are progressing towards adopting the International Financial Reporting Standards (IFRS) Sustainability Disclosure Standards S1: General Requirements for Disclosure of Sustainability-related Financial Information and S2: Climate-related Disclosure Standards, collectively known as the International Sustainability Standards Board (ISSB) Standards, which fully incorporate TCFD recommendations, ensuring enhanced transparency and accountability in climate-related disclosures.

Governance

The PETRONAS Board actively shapes and oversees the Group's strategy on climate-related risks and opportunities, ensuring consistent implementation across the organisation. Recognising climate change as a material business issue, the Board integrates climate considerations into decision-making to guide PETRONAS' long-term strategic direction. As the Group accelerates efforts to reduce GHG emissions and pursue lower-carbon business opportunities, the Board remains central in steering the direction that enhances resilience and sustainability.

+ Please refer to Corporate Governance at PETRONAS for the role of the Board in climate-related matters on page 186.

Strategy

The PETRONAS Energy Transition Strategy focuses on strengthening our Core Business, capturing new growth opportunities for New Business and responsibly managing carbon emissions to accomplish the goals of our Net Zero Carbon Emissions by 2050 Pathway. At its core, the Pathway guides the realisation of our strategy. It outlines our aspirations for strategic growth areas and defines key emissions reduction targets, supported by four main abatement levers which are Zero Routine Flaring and Venting, Energy Efficiency, Electrification, and Carbon Capture and Storage (CCS).

+ Please refer to PETRONAS Energy Transition Strategy on page 29.

Quantification of Climate-related Risks and Opportunities

We continue to utilise previously established quantification methods for assessing the risks and opportunities impacting our business. We employ three distinct scenarios from the International Energy Agency (IEA): the Stated Policies Scenario (STEPS), the Announced Pledges Scenario (APS) and the Net Zero Emissions by 2050 Scenario (NZE). These scenarios were chosen for their thorough consideration of global energy compositions and carbon dioxide emissions levels. They offer three unique climate pathways, with projections of temperature increases ranging from below 2°C to 2.7°C by 2100, alongside detailed regional data analyses.

The time horizons considered include short-, medium- and long-term. Among other opportunities, we have identified renewable energy, hydrogen and green mobility based on their impact on our Earnings Before Interest, Taxes, Depreciation and Amortisation (EBITDA) for PETRONAS' New Business by 2030.

Risks

We apply a Groupwide approach to risk management through the PETRONAS Risk Policy, described on page 35, complemented by the PETRONAS Resiliency Model, which is part of our Enterprise Risk Management Framework, described on pages 35 to 36. The Policy and Framework provide an integrated and holistic view of the overall system for effective risk management. Our Enterprise Risk Management Framework includes the tools and processes involved in systematically assessing, managing and monitoring various types of risks, including climate-related risks.

Climate-related Transition Risk

a) Climate-related Market Risk

> What This Means

Our asset portfolio is exposed to volatile commodity prices and fluctuations in demand, driven by an accelerated energy transition towards a lower-carbon future. Key drivers for price and demand fluctuations are regulatory changes, shifts in customer preferences, availability of alternative energy sources and technological advancements that directly influence market and operating conditions as well as investor sentiment.

> Potential Material Impact

Diminished revenue, cash generation and return realisation

Accelerated energy transition spurred by concerns over climate change will impact oil and gas margins as consumer preferences shift and renewable energy sources gain more prominence. Furthermore, the energy transition may drive market sentiments against oil and gas, which may, in the long term, impact the future prices of these commodities. This would, in turn, affect the value of our property, plant and equipment.

b) Climate-related Compliance Risk

> What This Means

As the energy transition evolves, PETRONAS is exposed to various challenges and scrutiny, including adapting and complying with emerging regulations and policies.

> Potential Material Impact

Impact on business/strategy/financial planning

Climate-related regulatory requirements, such as carbon pricing through taxes or emissions trading schemes, emissions caps and targets, combined with incentives for research and development, and the application of alternative energy sources and technological solutions, will serve as additional factors in strategy development, investment evaluations and operations planning. These factors will impact cost allocation and risk-reward trade-off considerations.

Compliance complexity

Operating in diverse and constantly evolving regulatory environments may lead to compliance gaps, fines and litigation.

Cost Increase

Government policies introducing limits or costs to fossil fuel extraction, production and consumption, as well as emissions of such activities, may increase operational and capital costs and establish additional needs for capital expenditure. These impacts may be further amplified by changes in financiers appetite for providing funding and terms to fund oil and gas activities.



c) Climate-related Reputational Risk

What This Means

The PETRONAS Net Zero Carbon Emissions by 2050 Pathway demonstrates our commitment to sustainability. It directs the organisation towards the necessary shifts and changes that are needed for the long term. The Pathway, performance and associated disclosures are subject to scrutiny by stakeholders.

Potential Material Impact

Damage in Reputation

Inadequacy of efforts to communicate and educate stakeholders on the Group's strategy and investment plans may negatively impact reputation and erode trust among stakeholders.

Erosion of Trust in Delivery Capability

Inability to undertake necessary investments and execute project delivery to meet stated targets may affect overall confidence in our capability to deliver on the PETRONAS Energy Transition Strategy.

Resilience to Transition Risk

We continuously monitor the risks inherent to our business, and adapt progressively to the evolving changes in energy demand and requirements to maintain resilience.

Climate-related Physical Risk

Physical risks resulting from climate change can manifest in the form of acute or chronic risks due to climate events such as extreme precipitation, droughts, rising sea levels and increasing global temperature. With operations presence in more than 100 countries, our physical assets and ongoing projects are directly or indirectly exposed to the impact of these climate-related physical risks.

Past incidents across our global operations highlight the real impacts of climate-related physical risks, reinforcing the need for proactive risk management. These have included flooding affecting our asset in Miri, Malaysia; wildfires disrupting operations in Canada and heat waves exposure impacting personnel in Iraq. We continue to implement mitigation measures in response to such events.

We continue to enhance our understanding and efforts to manage the physical impact of climate change through dedicated climate-related physical risk assessments of our assets. The outcomes of these assessments inform our climate change mitigation efforts and support the resilience of our assets and value chains to climate-related physical risks, thereby helping us to remain adaptive and future-ready in a rapidly evolving risk landscape.

Impact Assessments

In 2023, we commenced risk assessments on the physical impacts of climate change on our global portfolio of assets. The Shared Socio-economic Pathway (SSP) 2-4.5 climate scenario, as defined in the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report, was chosen as the most plausible path as an intermediary GHG scenario.

Based on assessments conducted on 1,309 assets under operational control globally, seven key climate hazards were identified that may, by 2050, pose High, Very High and Extreme risk. These hazards include extreme precipitation, lightning, droughts, heat waves, storm surges and fluvial and pluvial floods. The results revealed that most of the high-risk sites are located in Malaysia. A prioritisation approach was established to identify critical assets, followed by site validation to confirm the hazards and conduct deeper vulnerability assessment to inform adaptation plans.

In 2024, we conducted site validation of 11 prioritised assets, confirming the outcomes of desktop risk assessments by evaluating the current and potential future impact of climate hazards. This process also included an assessment of the existing mitigation measures and asset design to ensure their adequacy in addressing climate-related physical risks. For instance, to mitigate lightning impact, assets have enhanced their lightning protection systems and installed dome roofs for hydrocarbon storage tanks as part of their existing mitigation measures. Where necessary, identified assets were recommended to adopt adaptation plans.

To further understand the impact of climate-related physical risks to our value chains, PETRONAS is developing a financial quantification methodology for business interruption. This methodology will assess the potential impact of such risks on our material value chains. We conducted a benchmarking exercise with industry peers, risk underwriters, consultants and regulators to establish materiality criteria aligned with industry best practices. This approach enables us to prioritise high-risk areas with most significant financial and operational impact to ensure targeted and effective climate adaptation plans.

Resilience to Physical Risk

Efforts are ongoing to enhance our capability to manage climate-related physical risks. This includes strengthening systems and processes, and developing human resource capability on climate-related physical risks to inform comprehensive assessments of the financial impact of these risks to our organisation.

In 2024, we developed a procedure to identify, assess and manage climate-related physical risk that impact our assets. This process is integrated with our Health, Safety and Environment Management System, under the Hazards and Effects Management Process and aligned with the Enterprise Risk Management Framework approach and processes, to ensure the risks are captured and managed effectively. Existing climate hazards such as flooding, lightning, droughts and storm surges are already being monitored in the affected areas.

We continue conducting capability development programmes at every level to create awareness on climate-related physical risks.

Metrics and Targets

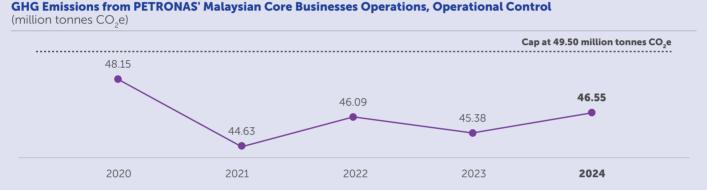
Overall Emissions Performance Against Net Zero Carbon Emissions by 2050 Pathway Targets

We track the performance of all assets under PETRONAS' control, with clear accountability and influence to manage short-term and mid-term emissions reduction. The PETRONAS Net Zero Carbon Emissions by 2050 Pathway's mid- and long-term targets are based on the Equity Share approach to reflect the portfolio view of the company. This approach supports our Energy Transition Strategy by enabling the monitoring of our long-term climate actions and portfolio shifts. It also ensures PETRONAS' future investments are in line with our Net Zero Carbon Emissions by 2050 Pathway.

To achieve our stated targets, we are allocating 20 per cent of our capital expenditure to emissions reduction initiatives and the development of cleaner energy solutions from 2022 to 2026. We are also expediting advancements in technology and innovation to balance growth in our Core Business and New Business, while striving to reduce GHG emissions.

GHG Emissions from PETRONAS' Malaysian Core Business Operations, Operational Control

In 2024, we successfully achieved our short-term GHG target by limiting emissions below 49.50 million tonnes CO_2e for our Malaysian operations, excluding Maritime, Corporate and Others, recording 46.55 million tonnes CO_2e , which is 3 per cent higher than the previous year, and 6 per cent lower than the target announced in 2020. The higher emissions numbers were due to enhanced GHG accounting to improve accuracy. These enhancements provide PETRONAS with a better understanding to track and manage emissions more effectively. Achieving the short-term target reflects the ongoing emissions reduction efforts across PETRONAS' assets since the establishment of the PETRONAS Carbon Commitments in 2013 focusing, to date, mainly on vent-to-flare conversion, flare and vent reduction, as well as energy efficiency improvements.



Note:

GHG Protocol defines that a company has operational control over an operation if the company or one of its subsidiaries has the full authority to introduce and implement its operating policies at the operations.

Boundary: GHG Emissions from PETRONAS Malaysia Core Business Operations under Operational Control (excluding Maritime, Corporate and Others).

GHG Emissions from PETRONAS Groupwide, Equity Share

PETRONAS is progressively reducing equity share emissions by implementing comprehensive measures that align with our commitment to achieving net zero carbon emissions by 2050. This includes collaboration with partners to further reduce GHG emissions across all equity-held assets. In 2024, PETRONAS recorded 48.32 million tonnes CO_2e in Groupwide (Equity Share) emissions, which was 4 per cent higher than the previous year (2023: 46.41 million tonnes CO_2e) and lower by 8 per cent than the 2019 baseline, demonstrating progress towards 25 per cent emissions reduction by 2030. The annual increase in emissions was due to higher emissions from our Malaysian operations, while international operations recorded a 9 per cent reduction.



Note:

PETRONAS Groupwide GHG emissions based on Equity Share approach Scope 1 and Scope 2 for 2019 (baseline year) was readjusted post external verification from 54.25 million tonnes CO₃e to 52.67 million tonnes CO₃e.

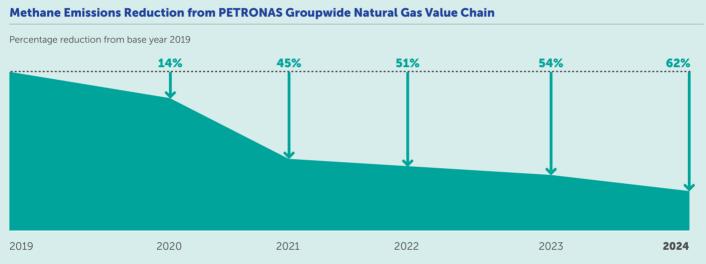
Boundary: GHG Emissions from PETRONAS Groupwide based on Equity Share approach. Reduction percentage is against baseline year of 2019.

Methane Emissions from PETRONAS Groupwide Natural Gas Value Chain

Methane emissions are a significant contributor to global warming. Since the extraction of hydrocarbons can be a source for methane emissions, reducing methane emissions remain a critical priority for the oil and gas sector, and a component of PETRONAS' Net Zero Carbon Emissions by 2050 Pathway.

Our efforts in methane emissions reduction have led to a 62 per cent reduction in methane emissions from the Groupwide natural gas value chain in 2024, surpassing our 2025 target of a 50 per cent reduction from 2019 levels. This progress was driven by the effective implementation of flaring and venting reduction projects across both Upstream and Gas businesses.

We are on track to achieve our mid-term target, which is 70 per cent methane emissions reduction from 2019 baseline by 2030.

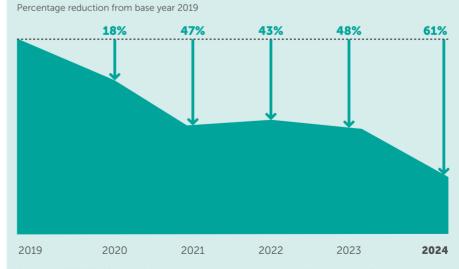


Boundary: PETRONAS Groupwide natural gas value chain, covering Upstream and Gas businesses. Reduction percentage is against baseline year 2019.

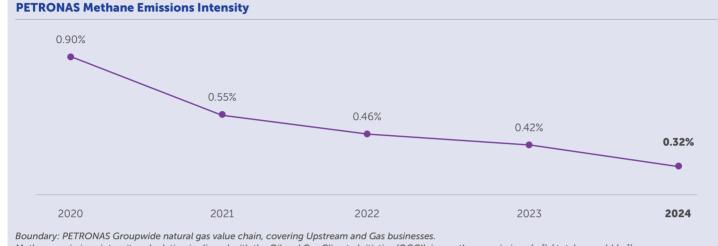
Methane Emissions from Malaysia's Natural Gas Value Chain

To support Malaysia's commitment to the Global Methane Pledge, PETRONAS has taken an active role through Malaysia Petroleum Management as the oil and gas regulator, in driving methane emissions reductions. In 2024, we recorded a 61 per cent reduction in methane emissions compared to the 2019 baseline, surpassing our target of 50 per cent reduction for Malaysia's natural gas value chain by 2030. This significant progress is largely due to the elimination of venting sources through vent-to-flare projects as well as vent reduction achieved through membrane improvements in acid gas removal units across Malaysia's Upstream operations, including assets operated by our joint-venture partners. Additionally, there were improvements in methane emissions quantification.

Methane Emissions from Malaysia's Natural Gas Value Chain



Boundary: PETRONAS Malaysia's natural gas value chain covering Upstream and Gas businesses. Reduction percentage is against baseline year 2019.



Methane Emissions Intensity from PETRONAS Groupwide Natural Gas Value Chain

Methane emissions intensity calculation is aligned with the Oil and Gas Climate Initiative (OGCI), i.e. methane emissions (m³) / total gas sold (m³).

Our undertaking to reducing methane emissions is also driven by our commitments to the Oil and Gas Decarbonisation Charter, which includes the goal of achieving near-zero methane emissions* by 2030. As of 2024, we remain on track to meet this target, having attained a methane emissions intensity of 0.32 per cent for PETRONAS-operated assets. We intend to further reduce methane emissions through the implementation of GHG abatement projects in both Upstream and Gas businesses.

Note:

* Near-zero methane emissions is defined as below 0.2 per cent methane emissions intensity, as per the formulation by the Oil and Gas Climate Initiative (OGCI).

Performance by Emissions Key Abatement Levers

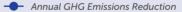
Our pledge to achieve net zero carbon emissions by 2050 involves a comprehensive strategy encompassing innovation, collaboration and responsible resource management. The Net Zero Carbon Emissions by 2050 Pathway addresses technological constraints and evolving policies while balancing commercial acumen.

PETRONAS is continuously finding opportunities to reduce GHG emissions to meet net zero carbon emissions by 2050 by deploying enhanced practices and adopting new technologies. In 2024, PETRONAS completed 41 projects and initiatives, including energy efficiency improvements, vent and flare reductions, vent-to-flare conversions and renewable energy adoption across Core Business operations in Malaysia. Together, these efforts delivered 1.3 million tonnes CO₂e per year operational improvement. Since 2013, PETRONAS has cumulatively reduced 21.2 million tonnes CO₂e of annual emissions from our operations.

GHG Emissions Reduction from Projects, Operational Control

(million tonnes CO₂e/year)

Cumulative GHG Emissions Reduction





Note:

GHG emissions reductions do not reflect the year-on-year GHG emissions differences.

Emissions Reduction Per Year by Key Abatement Levers

Flaring and Venting		Energy Efficiency	Electrification
	Flaring and venting reduction projects reduced emissions by 1.131 million tonnes CO ₂ e per year.	Energy efficiency projects reduced emissions by 0.165 million tonnes CO ₂ e per year.	Electrification projects reduced emissions by 0.001 million tonnes CO ₂ e per year.

Flaring and Venting

Addressing gas flaring and venting is a key priority in reducing emissions, while also ensuring valuable resources are used for energy and not wasted.

In 2024, PETRONAS implemented several flare gas recovery projects, improvements in compressor capacity, vent-to-flare conversions, and vent recovery projects.

We made significant strides in reducing routine flaring as part of our commitment to the World Bank's Zero Routine Flaring by 2030 initiative and Oil and Gas Decarbonisation Charter, pledging to avoid routine flaring in new oil field developments and phase out such practices at existing production sites by 2030. These commitments apply to PETRONAS Upstream operations Groupwide within operational control, and excludes safety and non-routine flaring.

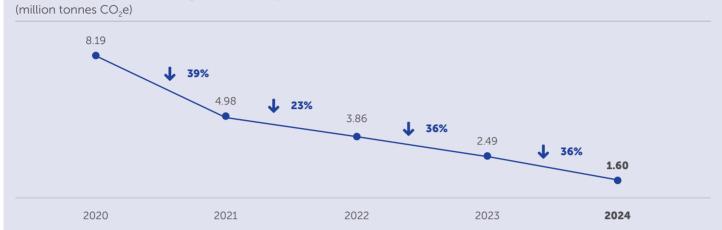
We began disclosing our flaring data to the World Bank for 2022 data (Operational Control). In 2023, we improved our flaring disclosure by distinguishing between total and routine flaring data, with total flaring volume recorded at 1,562 million standard cubic meter (sm³) and routine flaring volume at 898 million sm³, following the World Bank's Zero Routine Flaring initiative boundary. PETRONAS recorded a flaring intensity of 9.89 sm³/boe in 2023.

PETRONAS Upstream has planned to eliminate routine flaring for the remaining oil fields by 2030, while all new and existing oil field development projects must undergo PETRONAS Carbon Commitments assessments to ensure alignment with the PETRONAS Net Zero Carbon Emissions by 2050 Pathway.

Note:

A barrel of oil equivalent (boe) is a unit of energy measurement used to standardise and compare the energy content of different energy sources, such as oil, natural gas and coal, by equating them to the energy contained in one barrel of crude oil. The data above refer specifically to Upstream oil assets, in line with the World Bank's Zero Routine Flaring initiative boundary.





PETRONAS Groupwide Venting Reduction, Operational Control

Routine venting of gas remains a major source of PETRONAS Core Business GHG emissions. The embedment of zero routine flaring and venting requirements in PETRONAS Carbon Commitments has effectively delivered changes in operating procedures that have reduced routine venting, as shown above. In line with these commitments, emissions from venting of unwanted gases from hydrocarbon production have declined by 36 per cent, from 2.49 million tonnes CO_2e in 2023 to 1.60 million tonnes CO_2e in 2024. Additionally, Upstream had set a target for zero routine venting by 2024, a goal successfully achieved for all of its Malaysia-operated assets.

Energy Efficiency

Energy efficiency is a key abatement lever. According to the International Energy Agency, energy efficiency is called the 'first fuel' in clean energy transitions, as it provides some of the quickest and most cost-effective GHG mitigation options, while lowering energy costs and strengthening energy security.

The Malaysian Government has acknowledged the importance of energy efficiency by signing the Global Renewables and Energy Efficiency Pledge at COP28 in 2023, identifying energy efficiency as a key lever in the National Energy Transition Roadmap, and enacting the Energy Efficiency and Conservation Act (EECA) 2024.

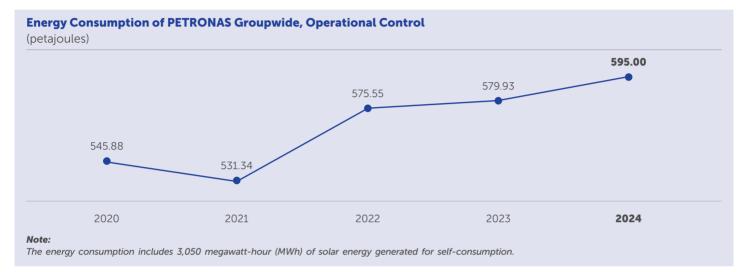
In 2024, recognising the opportunity to further strengthen Groupwide energy governance, the PETRONAS Energy and Loss Management System 3.0 was introduced to enable continuous improvement and align with industry best practices.

2024 Progress

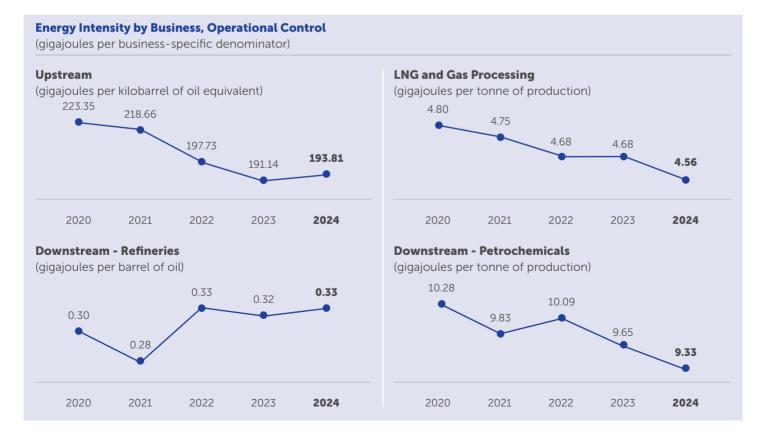
- Established PETRONAS Groupwide energy management system aligned with ISO 50001.
- Reported 2023 Groupwide energy consumption through the CDP Climate Change 2024 survey.
- Quantified Groupwide total energy consumption and business-specific energy intensity.
- Enhanced human resources capability through Decarbonisation Programme and embedded energy-related competencies into internal capability evaluation standards.

Energy Consumption of PETRONAS Groupwide, Operational Control

In 2024, PETRONAS' energy consumption was 595 petajoules, which is 3 per cent higher than the previous year. The increase in the annual energy consumption was the result of the increasing trend in production in each business.



Despite an increase in total energy consumption, there is a decreasing long-term trend in energy intensity across most of the businesses. Groupwide, energy efficiency has been strengthened through enhancements in operating modes, utilisations of process automation and improvements in equipment efficiency.





There is a general downward trend in energy intensity between 2020 and 2024, showcasing improvement in energy efficiency. The increase in energy intensity in refineries, including a sudden spike from 2021 to 2022, due to the upgrade of the Melaka refinery to meet EURO V Diesel product specifications, in compliance with the Environmental Quality (Control of Petrol and Diesel Content) (Amendment) Regulations 2015.

In 2024, energy efficiency was enhanced in multiple ways, including through optimisation of operating modes. In gas processing plants, scenario modelling allows switching between sales gas and liquid hydrocarbon maximisation based on the prevailing operating environment. In the Pengerang Integrated Complex, the optimisation of the steam spinning reserve at the co-generation facility has led to energy consumption reduction of more than 664,000 gigajoules, equivalent to a reduction of around 37,000 tonnes of CO_2e per year. In the Upstream business, the optimisation of power generation has led to approximately 29,000 gigajoules of energy reduction, equivalent to around 1,700 tonnes CO_2e reduction per year.

Energy efficiency was also enhanced through equipment improvements, such as primary reformer tube upgrades, steam trap upgrades and rejuvenations in PETRONAS Chemicals Group Berhad assets, in 2024. In Downstream Refineries, the implementation of innovative maintenance practices, for example dry ice cleaning, and heat integration to further enhance heat recovery, has resulted in a reduction of approximately 65,400 gigajoules of energy consumed, equivalent to 3,700 tonnes CO_2e reduction per year. In Upstream business, machine efficiency revival has resulted in approximately 503,200 gigajoules of energy reduction, equivalent to 31,100 tonnes CO_2e reduction per year.

The use of real-time optimisers and advanced process control was expanded to further drive energy efficiency. In 2024, Utilities Gebeng successfully commissioned Utility Real-Time Optimiser, an automated model that optimises energy consumption during normal plant operations. This resulted in an energy reduction of approximately 51,600 gigajoules, equivalent to about 2,600 tonnes CO₂e with potential to achieve up to 3,800 tonnes CO₂e reduction per year.

Energy efficiency initiatives are supported by consistent monitoring of energy performance and timely interventions. This includes the use of in-house tools and methodologies, as well as enhancements of the energy management systems that provide a structured framework for systematically driving improvements.

Electrification

PETRONAS continued to advance emissions reduction across our assets by progressing electrification initiatives across our operations. This included installation of rooftop solar panels at our facilities throughout 2024.

+ Please refer to Strategic Review on page 79.

Carbon Capture and Storage

PETRONAS, through Malaysia Petroleum Management, is spearheading Carbon Capture and Storage (CCS) projects in Malaysia's Upstream sector to enable the monetisation of high carbon dioxide fields while mitigating greenhouse gas emissions.

Once operational, the Kasawari Gas Development project, coupled with CCS, is expected to sequester 3.3 million tonnes CO_2e annually. It will be a stepping-stone for future gas exploration in high carbon dioxide fields, providing a pathway for sustainable resource development.

Strengthening GHG Emissions Management

Improving the accuracy and reliability of GHG emissions data is critical to ensuring credible reporting and enabling emissions reduction efforts to be based on accurate information.

Our emissions accounting adheres to recognised international standards and frameworks, including the Greenhouse Gas Protocol : A Corporate Accounting and Reporting Standard, API Compendium of Greenhouse Gas Emissions Methodologies for the Natural Gas and Oil Industry, Intergovernmental Panel on Climate Change (IPCC) Guidelines for National GHG Inventories. These international standards and frameworks inform our internal governance and the PETRONAS Carbon Commitments guideline, which was strengthened in 2024 to support implementation of emissions reduction efforts. We also apply international best practices to improve emissions tracking, verification and disclosure in line with evolving regulatory and stakeholder expectations.

To enhance data integrity, we established PETRONAS Enterprise GHG Analytics and Solutioning User System (PEGASUS), a centralised hub for enterprise GHG data for Scope 1 and Scope 2 emissions under Operational Control. The implementation of this dashboard has facilitated efficient data monitoring and analytics, providing timely management of GHG data and enabling interventions.

We continue our efforts to upskill employees in GHG management to strengthen expertise. The GHG Community of Practice, launched in August 2024, fosters knowledge-sharing and capability-building across the organisation. As part of the Decarbonisation Programme training, the Basic GHG Accounting module was introduced to institutionalise key competencies across operating units, and their technical, operational, and strategic domains.



Independent GHG Emissions Data Verification

The GHG emissions verification process was conducted independently by LRQA Inspection Malaysia Sdn Bhd. This data verification provides assurance on PETRONAS' emissions data, enhancing reporting reliability and transparency.

PETRONAS has set 2019 as the base year for tracking the progress towards achieving the Net Zero Carbon Emissions by 2050 Pathway targets. As part of our efforts to enhance the reliability of disclosed GHG emissions data, PETRONAS has embarked on a three-year external verification exercise from 2023 to 2025, based on ISO 14064-3:2018. Independent assurance has been obtained as follows:

GHG Accounting Approach	Level of Assurance	Data in Years	Boundary	GHG Scope
Operational Control	Limited	2023	PETRONAS Core Business Operations (Upstream, Gas and Downstream)	Scope 1 and 2
Operational Control	Reasonable	2024	PETRONAS Core Business Operations (Upstream, Gas and Downstream)	Scope 1 and 2
Equity Share	Limited	2019 - 2023	PETRONAS Groupwide Operations	Scope 1 and 2
Operational Control and Equity Share	Limited	2019 - 2023	PETRONAS Core Business and Groupwide Operations	Scope 3 (Category 11: Use of Sold Products)

As a result of the independent assurance exercise, some historical GHG data have been restated.

Strengthening Methane Emissions Management

We are committed to enhancing transparency, strengthening methane emissions management and building stakeholder trust in support of our emissions reduction efforts. To align with industry standards, we are a signatory to the following initiatives:

- Methane Guiding Principles (2020)
- World Bank Zero Routine Flaring by 2030 Initiative (2021)
- Oil and Gas Methane Partnership 2.0 (2022)
- Oil and Gas Decarbonisation Charter (2023)
- Joint Statement on Decarbonisation and Methane Emissions Reduction from Organisations in the Southeast Asian Energy Sector (2024)

Malaysia Petroleum Management plays a crucial role as the host authority in advocating and regulating methane emissions in Malaysia's Upstream sector, supporting to achieve Malaysia's natural gas value chain methane emissions target.





Scan the QR code to read more about the PETRONAS Oil and Gas Methane Partnership 2.0 Report related to the Signatory Commitments.



E

Scan the QR code to read more about the PETRONAS Methane Guiding Principles Report related to the Signatory Commitments.





Scan the QR code to read more about the PETRONAS Zero Routine Flaring Report related to the Signatory Commitments.

Oil and Gas Methane Partnership 2.0

By implementing standardised methodologies and tools under the Oil and Gas Methane Partnership 2.0 framework, we have improved the accuracy and consistency of methane emissions reporting across different regions and operations.

Understanding the Oil and Gas Methane Partnership 2.0 Reporting Levels

The Oil and Gas Methane Partnership 2.0 framework for methane emissions reporting consists of five levels, each offering increasing detail and accuracy. This tiered approach helps companies progressively improve their methane emissions monitoring and reporting practices.

- Level 1 involves high-level estimation using generic emissions factors.
- Level 2 and 3 apply mass balance methods and specific component factors, respectively.
- Level 4 uses source-level measurements.
- Level 5 is referred to as the Gold Standard, requires reconciling source-level measurements with site-level data to ensure comprehensive and accurate reporting.

In 2024, PETRONAS completed the Oil and Gas Methane Partnership 2.0 Level 3 methane emissions quantification across all assets and began phased quantification of Level 4 and Level 5 at identified material assets. To enhance accuracy, we applied direct measurements for the following sources, where deemed material:

Flare	۲	Measure flare volume using flowmeter readings to calculate flare efficiency based on actual site data and gas composition determined through gas sampling.
Vent	۲	Measure vent volume using flowmeter readings and gas composition determined through gas sampling.
Pneumatic devices	۲	Measure emissions from all pneumatic devices in the process line using clamp-on flowmeter, measured at the header.
Compressor seal	۲	Measure emissions at compressor seals using a Quantitative Optical Gas Imaging camera, which is capable of detecting, measuring and quantifying methane emissions from fugitive sources, local vents and compressor seals.

We also conducted site-level measurements and Level 5 reconciliation at selected assets, one year ahead of schedule. The reconciliation exercise provided valuable insights to further improve our measurement and reporting practices of methane emissions.

In 2024, we achieved the Oil and Gas Methane Partnership 2.0 Gold Standard Pathway for the second consecutive year, reinforcing our commitment to achieve Level 4 and Level 5 reporting for operated assets by 2025 and non-operated assets by 2027.

We attained our methane emissions targets of a 50 per cent reduction by 2025 for the Groupwide Natural Gas Value Chain and a 50 per cent reduction by 2030 for Malaysia's Natural Gas Value Chain, ahead of schedule. One of the key drivers of this progress is our commitment to the World Bank's Zero Routine Flaring by 2030 Initiative, which has been incorporated into our internal guideline, the PETRONAS Carbon Commitments. This has contributed significantly to reducing methane emissions from our operations and has strengthened our readiness to meet future regulatory requirements.

Deployment of Technologies for Enhancement of Methane Emissions Measurements and Reporting

We continue to enhance methane emissions management by exploring and piloting innovative measurement technologies across our operations. To complement source-level measurements, we have been testing site level measurements using drones, unmanned aerial vehicles, aircrafts and satellite technology to identify the most reliable, cost-effective site level methane emissions measurement methods.

Through PETRONAS Research Sdn Bhd, we are collaborating with Universiti Teknologi PETRONAS to develop video image methane emissions quantification technology for flare emissions. This artificial intelligence and machine learning-driven technology, combined with computational fluid dynamics analysis, will enable methane emissions quantification based on video imaging from flare monitoring cameras. PETRONAS engaged drone measurement service providers to conduct site-level methane emissions measurements at selected material sites. These efforts represent a significant step forward in advancing methane emissions measurement technologies, though challenges remain in measurement accuracy, data collection methodologies and ensuring continuous improvement. The maturity and suitability of these technologies across PETRONAS' global operations continue to be key areas of focus, particularly in challenging geographical locations as some countries have limitations on utilisation of drones or unmanned aerial vehicles.

Methane Emissions Reduction Advocacy and Collaboration

We continue to play a key advocacy role in accelerating global progress towards reducing methane emissions through collaborative efforts. PETRONAS is championing methane emissions management beyond our own operations, as the original convenor of the ASEAN Energy Sector Methane Roundtable, and by driving capacity building across Southeast Asia in support of the Methane Guiding Principle's Advancing Global Methane Reductions initiative. This commitment is implemented through the ASEAN Energy Sector Methane Leadership Programme, which was first launched in June 2023. The second phase, announced in October 2024, is a joint effort between 18 partners representing oil and gas producers, technology providers, industry associations, international organisations, government agencies and non-governmental organisations. The Methane Leadership Programme promotes collaboration in the oil and gas sector among stakeholders through masterclasses and workshops focused on methane emissions reduction plans, targets and financing options.

Initiative	2024 Progress Update
ASEAN Energy Sector Methane Roundtable	 The 6th ASEAN Energy Sector Methane Roundtable was held in Indonesia. The Roundtable gathered government representatives and programme members from the Philippines, Thailand, Indonesia, Laos and Cambodia to engage on how to translate methane emissions reduction pledges into action. A Methane Leadership Programme masterclass was held in conjunction with the Roundtable. The 7th Roundtable was organised in conjunction with the 49th ASEAN Council on Petroleum (ASCOPE) Council meeting, hosted by PETRONAS in Malaysia. The discussions explored specific strategies for accelerating methane emissions reduction. During the COP29 climate summit held in Baku, Azerbaijan, eight of the roundtable organisations issued the 'Joint Statement on Decarbonisation and Methane Emissions Reduction from Organisations in the Southeast Asian Energy Sector'. This statement outlines their ambition and commitment to support global priorities on climate change and establish a regional methane emissions baseline.
Upstream Asset Management Summit 2024	Organised by PETRONAS through Malaysia Petroleum Management, a dedicated dialogue brought together 20 leaders from 16 Petroleum Arrangement Contractors and service providers across Malaysia, to discuss and identify tangible opportunities for methane emissions reduction efforts across the oil and gas value chain.
Global Advocacy on Methane Emissions Management	PETRONAS prominently promoted collaboration for methane emissions reduction through multiple international events, including the Advancing Global Methane Reductions Impact Conference at Baku Climate Action Week, the Oil and Gas Methane Partnership 2.0 Forum, and the Oil and Gas Decarbonisation Charter CEO gathering, held during the Abu Dhabi International Petroleum Exhibition and Conference (ADIPEC), as well as at Malaysian events and dialogue forums.
Methane Leadership Programme	The first iteration of the Methane Leadership Programme concluded successfully, leading to the launch of Methane Leadership Programme 2.0, in October 2024, that focuses on strengthening emissions reduction targets and enhancing coordination between business and government. The programme has expanded its membership from 13 to 18, with PETRONAS obtaining Oil and Gas Methane Partnership 2.0 Gold Standard Pathway for two consecutive years, while PTT Exploration and Production (PTTEP) and Pertamina have also become signatories to Oil and Gas Methane Partnership 2.0, reflecting significant progress in regional methane emissions management collaboration.
Southeast Asia Methane Emissions Technology Evaluation Centre	Under the Methane Leadership Programme 2.0, PETRONAS is collaborating with the Japan Organization for Metals and Energy Security (JOGMEC) to establish the first Southeast Asia Methane Emissions Technology Evaluation Centre (METEC). The centre will support regional methane emissions measurement, monitoring, reporting and verification efforts while driving research and development initiatives. It will be located at Institut Teknologi Petroleum PETRONAS (INSTEP) in Terengganu and Universiti Teknologi PETRONAS in Perak, Malaysia.

Maturing Scope 3 Emissions Quantification

PETRONAS recognises the importance of measuring and reporting Scope 3 emissions in the oil and gas industry, as well as in other businesses we operate in, to inform emissions reduction efforts across value chains. According to the GHG Protocol. Scope 3 emissions are indirect emissions that are emitted as a consequence of our activities, but occur from sources that are not owned or controlled by PETRONAS.

Guided by the document 'Estimating Petroleum Industry Value Chain (Scope 3) Greenhouse Gas Emissions' by Ipieca, a global oil and gas association for advancing environmental and social performance across the energy transition, the use of sold products is typically the most significant contributor to emissions for fuel-producing companies and accounts for more than 80 per cent of total Scope 3 emissions.

To strengthen our understanding of PETRONAS' Scope 3 emissions, we conducted a quantification study across all 15 Scope 3 categories to assess their materiality within our value chain in accordance with the GHG Protocol, Ipieca and peer benchmarking. Through the materiality assessment, PETRONAS identified two material Scope 3 categories: Category 11 (Use of Sold Products) and Category 1 (Purchased Goods and Services). In 2024, PETRONAS Groupwide quantified emissions from Category 11 was 298.16 million tonnes CO₂e (Operational Control approach) and 292 million tonnes CO₂e (Equity Share approach). Meanwhile, Category 1 was 23.88 million tonnes CO₂e (Operational Control approach).

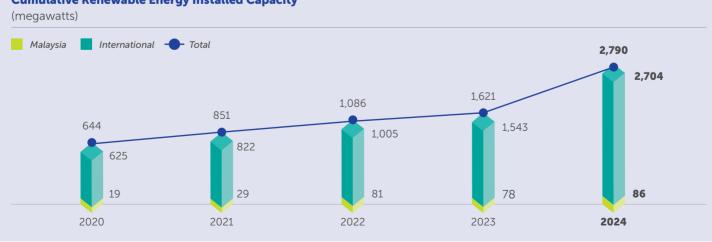
Addressing Scope 3 emissions is a complex and challenging task. It involves emissions that are not within the direct control of the energy producer, originating from various sources, including suppliers and consumers. These emissions can be difficult to quantify due to limited data availability and lack of transparency across value chains.

PETRONAS is taking progressive steps to further our understanding of value chain emissions and their quantification. We are identifying areas for improvement and engaging with our stakeholders in the value chain to foster transparency and develop effective strategies to reduce our Scope 3 emissions.

In 2024, we launched the PETRONAS Supplier Support Programme to improve suppliers' maturity in sustainability, including emissions disclosure. We support value chain emissions reporting through the Bursa Malaysia Centralised Sustainability Intelligence (CSI) Solution, which promotes the disclosure of carbon emissions and other indicators across the Malaysian industry. Additionally, we continue to explore targeted emissions reduction opportunities, where possible. Current efforts include battery swap services for two-wheelers in India and electric vehicle charging services across Southeast Asia. We are also undertaking a co-combustion ammonia test with Tenaga Nasional Berhad, a leading Malaysian utility company with international operations, and examining Carbon Capture and Storage (CCS) with third-party customer organisations.

Growing Lower-Carbon Energy Solutions

PETRONAS is advancing lower-carbon energy solutions through a diverse portfolio. We are leveraging strategic partnerships, technological innovation and large-scale projects to deliver on our Energy Transition Strategy. Currently, six New Business growth areas are being pursued to strengthen and diversify the portfolio, which include renewable energy, hydrogen, green mobility, CCS, biofuels and specialty chemicals. Through disciplined investments and effective project management, both internally and through new partnerships, we aim to strategically scale our presence in these areas to meet the evolving demands of the energy landscape.





+ Please refer to Strategic Review: New Business on pages 70 to 77.

Thriving with Nature



Nature and biodiversity are fundamental to sustaining life and ensuring the resilience of ecosystems that support communities, economies and industries, including the energy sector. As a responsible energy business, PETRONAS recognises that our operations depend and have an impact on natural ecosystems, and we are committed to addressing our environmental footprint.

Through sound environmental management practices, we strive to use natural resources responsibly, integrate biodiversity considerations into our operations, and promote circular economy principles to reduce waste and maximise resource efficiency. Imbak Canyon Conservation Area in the heart of Sabah, Malaysia is home to a variety of flora, fauna and unique landscapes.

Our Material Topics

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NB Nature and Biodiversity

Why This Is Important to Us

Biodiversity is essential for sustaining ecosystems that provide fresh water, food, medicine and climate regulation. The balance of life on land and in the ocean supports livelihoods, human well-being and economic stability. The loss of biodiversity threatens these vital services. Furthermore, forests and wetlands absorb carbon, protect coastlines and provide habitats for species. Without them, the effects of climate change worsen, putting communities, economies and industries at risk.

PETRONAS operates in diverse and ecologically sensitive environments. Our ability to responsibly manage our operations in relation to nature is essential to maintaining our social licence to operate, mitigating environmental risks, and ensuring long-term business resilience.

Biodiversity loss and ecosystem degradation can directly impact our operations, supply chains and surrounding communities, as a healthy, natural environment is essential not only for sustaining ecosystems but also for supporting economic development.

Our Approach

We aim to make a positive impact on nature and biodiversity by engaging in practices that restore, protect and conserve nature and biodiversity in Malaysia and the countries in which we operate. PETRONAS recognises that climate and nature are interconnected. Evidence shows that robust and healthy ecosystems can aid in combating climate change while also building resilience and enabling us to adapt to climate impacts.

The PETRONAS Position on Nature and Biodiversity addresses environmental concerns and expresses our intent to integrate biodiversity considerations into our business practices. This policy document aims to strengthen oversight of our nature and biodiversity footprint, and support the delivery of our Net Zero Carbon Emissions by 2050 Pathway. Our approach is informed by international agreements, global frameworks and national policies, and is delivered through five key areas of action. We are also scaling up our participation in the voluntary carbon markets.



Thriving with Nature

Our Action Plan

In 2024, guided by the PETRONAS Position on Nature and Biodiversity, we strengthened our commitment by enhancing risk assessments, embedding governance processes, integrating nature considerations into Groupwide decision-making and deepening partnerships to support conservation.

PETRONAS	PETRONAS Position on Nature and Biodiversity - Five Areas of Action					
1 Establish voluntary exclusion	y	As of 2024, we have committed to not starting any new operations or projects within UNESCO World Heritage Sites. During the year, we screened 273 potential new projects to ensure none were located in or overlapped with these sites, Protected Areas or Key Biodiversity Areas. This safeguards globally significant ecosystems and cultural heritage. The effort reflects our implementation of Areas of Action 1 and 2 outlined in our Position.				
2 Managing and biodi risks	-	 We recognise the importance of conserving nature and biodiversity, and strive to ensure no or minimal impact from our existing operations and projects. Starting in 2024, we aim to achieve net positive impact on biodiversity for new projects in Protected Areas and Key Biodiversity Areas. We will establish a site-specific inventory of important biodiversity features at our existing locations and consider additional conservation measures using a risk-based approach. In 2024, we completed a Biodiversity and Ecosystem Services Risk Profiling exercise for our existing international assets by analysing the 'Likelihood' and 'Severity' of operational impacts on surrounding nature and biodiversity. This exercise identified one asset categorised as 'Very High' risk and one as 'High' risk. We will evaluate the effectiveness of existing mitigation measures at these sites through the Biodiversity and Ecosystem Services Risk Assessment. A Biodiversity Action Plan will be developed for assets requiring further improvements in risk mitigation, while best practices will be documented for assets with adequate risk mitigation already in place. 				
3 Promotin nature an biodivers through partnersh and collabora	nd iity nips	 PETRONAS promotes nature and biodiversity through partnerships and collaborations, working with the Malaysian Government, global organisations, industry associations, the private sector and communities to drive action in addressing biodiversity loss in countries where we operate. Exercise Stagements in 2024 PETRONAS co-led the oil and gas industry discussions, through the Ipieca Nature Positive Taskforce, on developing industry-specific metrics and targets for nature and biodiversity. These discussions are pivotal in strengthening collective industry actions and refining approaches to integrating Nature Positive principles into business strategies. WECSD Nature Action PETRONAS actively supported and engaged in the World Business Council for Sustainable Development (WBCSD) Nature Action working group, by contributing insights and collaborating with industry peers. 				



Supporting public policy that aims to protect nature and biodiversity We support the Kunming-Montreal Global Biodiversity Framework and Malaysia's National Policy on Biological Diversity. We also recognise the nature and biodiversity policies and ambitions of the countries in which we operate.

Key Engagements in 2024

Nature and Biodiversity Dialogue for Business

PETRONAS organised, in collaboration with the Malaysian Ministry of Natural Resources and Environmental Sustainability, a Malaysian private-sector dialogue session to gather input ahead of the 16th meeting of the Conference of Parties (COP16) to the Convention on Biological Diversity, held in Colombia. The discussion provided valuable insights on adopting a naturepositive approach to business development.

ASEAN Business and Biodiversity Forum

PETRONAS hosted the ASEAN Business and Biodiversity Forum, organised in partnership with the ASEAN Centre for Biodiversity and the Malaysian Ministry of Natural Resources and Environmental Sustainability. The forum brought together governments, private sectors, non-governmental organisations and the academia to share their experiences in addressing climate change, biodiversity loss and pollution, through proactive investments and activities.

Malaysia Platform for Business and Biodiversity

PETRONAS provided key inputs on opportunities for the private sector in addressing biodiversity loss, as part of our contribution to the Business and Biodiversity Strategic Roadmap and Action Plan for Malaysia. This Roadmap aims to establish a coherent policy direction, enabling businesses across Malaysia to take a unified and collective approach to nature and biodiversity. It also seeks to mainstream biodiversity by translating global ambitions into national policies.

As part of our aspiration to achieve our Net Zero Carbon Emissions by 2050 Pathway, protecting nature and biodiversity is an integral part of supporting nature-based solutions. We actively explore opportunities to invest in high-quality nature-based solutions that apply internationally recognised certification standards.

PETRONAS signed a Memorandum of Understanding with the Sarawak Forestry Corporation to explore and develop Nature-based Solutions (NbS).

Promoting high-quality nature-based climate solutions

Thriving with Nature

PETRONAS Canada Leading Sustainable Operations in Biodiversity and Resource Management



Since adopting the PETRONAS Position on Nature and Biodiversity in 2022, we have worked actively to integrate biodiversity protection into our operations, acknowledging that nature-related issues are location-specific, and require localised assessments and responses.

In 2024, a Biodiversity and Ecosystem Services Risk Profiling exercise was carried out for PETRONAS' operations in Canada to evaluate potential inherent nature and biodiversity risks. As the assessment did not factor in existing mitigation measures, the Group's Upstream asset in Canada was initially categorised as 'Very High' risk, primarily due to the biodiversity sensitivities around the asset, including the presence of the woodland caribou, a species at risk.

Following a review of PETRONAS Energy Canada Ltd. (PETRONAS Canada) internal frameworks, management plans, processes and partnerships with competent advisors and First Nations communities to incorporate nature and biodiversity considerations into daily operations, the risk rating was lowered to 'Medium'.

Best practices implemented at the site include improving water use efficiency in response to historical water stress in the operating area. PETRONAS Canada also developed a system capable of achieving a 99 per cent recycling rate of produced water. The recycled water not only meets operational needs but is also shared with other producers, at no cost.

PETRONAS Canada's approach to biodiversity restoration goes beyond compliance, guided by a 'construct with the end in mind' philosophy. PETRONAS Canada aims to restore the land by prioritising ecosystem function and cultural priorities, rather than just vegetation regrowth. Old sumps are used as experimental plots to determine the most effective restoration methods, including seeding, mounding and varying degrees of coarse woody debris. Monitoring plays a key role in evaluating the effectiveness of these restoration initiatives.

To further strengthen land stewardship efforts, PETRONAS Canada is also developing a mechanism to establish an environmental offset bank, supporting broader conservation goals and long-term ecological resilience.

PETRONAS and Sarawak Forestry Corporation collaborate on Nature-based Solutions



PETRONAS and the Sarawak Forestry Corporation signed a Memorandum of Understanding to identify potential sites in Sarawak for developing Naturebased Solutions (NbS) projects aimed at conserving and restoring natural ecosystems to remove greenhouse gas emissions, and providing benefits for local communities and biodiversity. These projects must also meet highquality, internationally recognised certification standards to ensure integrity and effectiveness.

The effort reflects the importance of collaboration on NbS to sequester carbon emissions and support forest conservation. The partnership with Sarawak Forestry Corporation will allow PETRONAS to unlock the potential of NbS while benefiting the environment and local communities.

Carbon credits generated through NbS play a vital role in PETRONAS' strategy to offset residual and hard-to-abate emissions, supporting our Net Zero Carbon Emissions by 2050 Pathway. PETRONAS follows a carbon mitigation hierarchy that prioritises avoiding and reducing emissions before offsetting them.

PETRONAS Planting Tomorrow

Nurturing Ecosystems and Empowering Communities

The Planting Tomorrow programme integrates biodiversity conservation, community resilience and sustainable development.

Through collaboration with government agencies, local communities and non-governmental organisations, we strive to target initiatives on waste management, terrestrial ecosystem restoration and disaster preparedness. These efforts are designed to address environmental challenges on the ground while delivering measurable outcomes.

One example is the nature-based climate adaptation framework funded by Yayasan PETRONAS to empower local authorities and communities in Batu Pahat, Johor, Malaysia. The initiative not only offers insights into the development of future climate adaptation strategies, but also improves community preparedness for extreme weather events and long-term climate risks.

In China, we engaged around 945 students in environmental awareness through a speech competition on sustainability solutions.

In support of reforestation, we planted more than 10,000 trees at the Sabah Kungkular Forest Reserve and more than 980 mangroves at the Selangor Banjar Forest Reserve, both in Malaysia, and an additional 10,000 mangroves in Gresik, Indonesia.

We also deployed 50 cheeseblock artificial reef structures in collaboration with the Malaysian Department of Fisheries at the Redang Island Marine Park, Terengganu, Malaysia, to enhance marine biodiversity, boost ecotourism and drive economic growth for coastal communities.

Yayasan PETRONAS' strategic partnerships with the Department of Fisheries and Sabah Biodiversity Centre promote and advance seagrass mapping and conservation in Peninsular Malaysia and Sabah. Through these partnerships, we engage in educational and awareness initiatives for local communities, highlighting the significance of seagrass ecosystems and strengthening community resilience against future climate challenges.

PETRONAS will continue to strengthen our commitment to environmental stewardship and aim to make a positive impact by restoring, protecting and conserving nature and biodiversity, where possible. This includes enhancing risk assessment practices, integrating biodiversity considerations into decision-making and embedding them into our business strategies. We will also expand our efforts in NbS to help unlock Malaysia's potential in carbon markets.

Thriving with Nature

ENVIRONMENTAL Management

Why This Is Important to Us

Environmental management is critical to PETRONAS because it directly impacts our ability to operate responsibly, safeguard ecosystems and maintain long-term business resilience.

We focus on resource use and management of waste, air emissions, water and oil spill prevention to reduce the environmental impacts across our operations and support long-term ecological balance. We are committed to ensuring that our products comply with all relevant regulations and are developed, transported, used and disposed of safely and responsibly.

Our Approach

PETRONAS applies a structured approach to environmental management, ensuring our assets adhere to relevant regulatory and industry standards for air emissions, wastewater, waste, water use and spill prevention. We integrate pollution prevention and resource conservation measures into our facility design, reinforcing our commitment to minimising environmental impact from the outset.

Advancements in sensor technology and process controls enhance our ability to monitor pollution, comply with regulations and improve efficiency. We leverage online sensors that provide real-time data on air emissions and wastewater discharges to enable proactive intervention. We also track key environmental performance indicators and leverage digital tools to monitor hazardous waste generation, treatment and disposal. Our site-specific environmental management plans ensure that our operations and projects prioritise environmental safeguards.

We work closely with authorities, suppliers and other stakeholders to drive responsible practices across our value chains. By fostering a strong culture of compliance and sustainability, we encourage the adoption of practices that reduce environmental impact while strengthening long-term operational resilience.

Guided by International Principles, Guidelines and Standards

Our environmental management approach aligns with internationally recognised principles, guidelines and standards to ensure best practices across our operations, as follows:

Guidelines from Ipieca and International Association of Oil & Gas Producers World Bank/ International Finance Corporation Group Environmental, Health and Safety Guidelines Host Country Standards for the Design and Operation of Pollution Prevention and Control Equipment

Global Reporting Initiative 2021 Standards

Maximising Waste Value through Circular Economy

PETRONAS integrates circular economy principles to minimise waste, extend material life cycles and optimise resource use. We actively support efforts to reduce, reuse and recycle plastics while applying the same approach to industrial waste and decommissioned assets to reduce landfill disposal and maximise resource recovery. Through waste valorisation and waste-toproducts initiatives, we convert by-products into valuable raw materials, reducing pollution at the source. By closing resource loops within our operations and supply chain, we lower our overall environmental impact.

+ Please refer to Circular Economy on pages 124 to 129.

Our Performance

Waste Management

Our waste management strategies are structured based on the specific type, volume and frequency of generation to ensure its proper handling, treatment and disposal are in line with country requirements and industry best practices.

Waste	2022	2023	2024	
Total Hazardous Waste Generated (tonnes)				
Malaysia	82,051	66,444	80,116	
International	62,569	85,593	107,178	
Total	144,620	152,037	187,294	
Total Hazardous Waste Reused, Recycled and Recovered (3R) (tonnes)				
Malaysia	63,133	52,147	55,707	
International	10,510	5,277	2,876	
Total	73,643	57,424	58,583	
Total Hazardous Waste Disposed (tonnes)				
Malaysia	24,449	20,023	17,562	
International	52,036	76,287	104,247	
Total	76,485	96,310	121,809	

A total of 121,809 tonnes of hazardous waste was disposed in 2024 compared with 96,310 tonnes in 2023. The increase in waste disposal is mainly attributed to limited waste recycling options.

Air Emissions

PETRONAS strives to reduce air emissions across our operations, where possible, through monitoring, control measures and technological advancements. We ensure compliance with regulatory requirements while continuously improving our approach to emissions management.

We use an online monitoring platform to track air emissions 24/7, assess risks and detect rising emissions trends early. Our approach includes periodic sampling of Sulphur Oxides (SOx) and Nitrogen Oxides (NOx) to ensure compliance with regulatory requirements and minimise environmental impact.

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Beyond monitoring, we implement emissions reduction strategies such as optimising combustion efficiency, adopting new technologies and reducing gas flaring and venting activities.



Nitrogen Oxides emissions decreased to 92,017 tonnes in 2024 from 101,695 tonnes in 2023 mainly due to lower fuel gas consumption from our maritime operations.

Water Management

We prioritise water accounting, availability assessment and efficient utilisation to ensure responsible freshwater management. Our policies, standards and practices are designed to optimise freshwater use while promoting water circularity. All of the freshwater utilised in our operations is sourced from rivers, where 77 per cent is withdrawn from non-water stressed regions.

Phosphate Elimination for Enhanced Water Efficiency

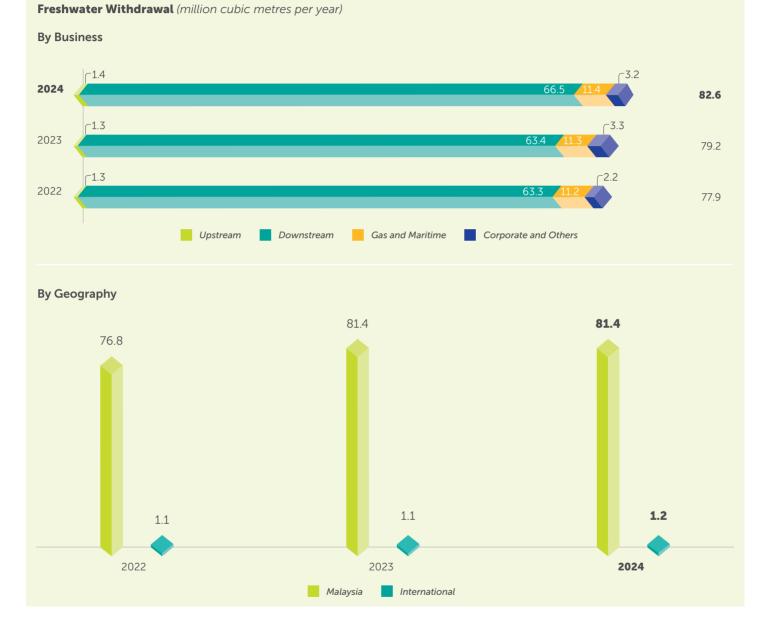
In 2024, we improved our water management by implementing a non-phosphate programme under the Phosphate Elimination at Cooling Water Environment initiative, which was piloted at a refinery in Malaysia. This initiative removes phosphate from the cooling water, reducing the risk of calcium phosphate deposition and optimising the reusability of water with lower scaling or chemical deposition. This minimises the need for turnaround cleaning. As a result, we achieved freshwater savings of up to 3,000 cubic metres per month in 2024. Moving forward, we plan to expand this programme to all cooling water systems, ensuring continuous improvements in water efficiency.

Enhancing Air Emissions Management through Secure and Efficient Monitoring

In 2024, we enhanced the PETRONAS Continuous Emissions Monitoring System, a centralised platform that connects all continuous emissions units across our operations. This live dashboard displays the status of air emissions by equipment, allowing for remote monitoring and early intervention. Several measures have been incorporated in the system including access control, authentication, encryption, authorisation and surveillance to avoid cyber security breaches and strengthen security measures across all operations, helping to reduce the risk of operational disruptions.

+ Please refer to our efforts on reducing flaring and venting, and methane emissions reduction activities on pages 102 to 103.

Water

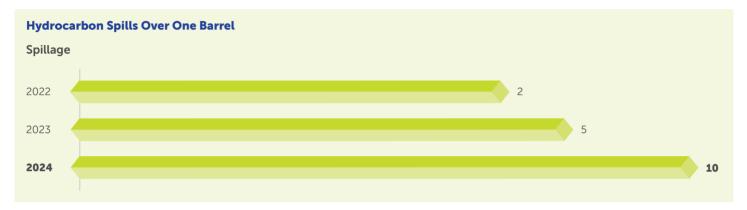


Our freshwater withdrawal increased by 4 per cent to 82.6 million m³ due to additional requirements from the start-up operations.

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Oil Spill Prevention

Our oil spill response management, including the Oil Spill Response Capability Assessment, Spill Impact Mitigation Assessment, Oil Spill Response Plan and Oiled Wildlife Response, strengthens our preparedness and response capabilities. We prioritise prevention and effective recovery by maintaining asset integrity, adherence to the PETRONAS Technical Guideline for Standard Operating Procedure, and equipping our personnel with technical capabilities as per international standards, such as those issued by the International Maritime Organization.



In 2024, we recorded an increase in the number of hydrocarbon spills over one barrel due to factors such as operational handling, connection failures and breaches in secondary containment. To prevent recurrence, we have intensified site supervision, introduced upskilling programmes for frontliners, and undertaken more rigorous inspections of secondary containment systems to strengthen spill prevention.

PETRONAS will continue to enhance environmental management, particularly in hazardous waste reduction, freshwater withdrawal optimisation and air emissions control.

Our PETRONAS Continuous Emissions Monitoring System will also undergo further improvements to ensure seamless compliance reporting and enhanced air emissions monitoring. To further strengthen oil spill response preparedness, we will continue to enhance capability-building programmes, industry benchmarking, and structured assessments to improve response capabilities and operational readiness.

Product Stewardship

We reinforce product stewardship practices that align with global industry benchmarks and embed such principles aimed at meeting, and where feasible, exceeding, regulatory and industry expectations. This includes integrating safety, environmental responsibility and ethical governance into our product life cycle management. For instance, PETRONAS' fertiliser product was certified under the International Fertilizer Association's Protect & Sustain programme, scoring above 95 per cent and exceeding the Product Stewardship Excellence rating requirement of 80 per cent. This certification involves comprehensive assessments that encompass management system, product development and planning, sourcing and contractor management, manufacturing techniques, supply chain, marketing, sales and application. Our approach aims to ensure that every product we develop, manufacture and distribute adheres to stringent safety protocols, environmental standards and responsible business practices.

PETRONAS MG3DF

We prioritise product safety and regulatory compliance to ensure our solutions meet the highest environmental and health standards. In 2024, we conducted ecotoxicity tests on our products, including MG3DF, a synthetic drilling base fluid derived from Low Sulphur Waxy Residue feedstock.

The results of the ecotoxicity testing confirmed that MG3DF exhibits low toxicity to both aquatic and sedimentdwelling organisms. The product also demonstrated ready biodegradability in marine environments, advancing our responsible environmental stewardship in product use. In 2025, we aim to register MG3DF under the Offshore Chemical Notification Scheme, which is a key step in ensuring international regulatory compliance and maintaining market competitiveness.

Toxicology

PETRONAS regularly conducts product data reviews to ensure all product hazards are accurately profiled in accordance with relevant regulations in markets where our products are sold. Toxicological and eco toxicological tests are performed to close data gaps. The newly-established PETRONAS Toxicology Laboratory facilitates toxicity and ecotoxicity assessments at the early stages of research and development to identify potential human health and ecological hazards of candidate chemicals. In 2024, the PETRONAS Toxicology Laboratory achieved a major milestone by establishing five non-animal test methods, validated by the Organisation for Economic Co-operation and Development's (OECD) Guidelines for the Testing of Chemicals, covering toxicity endpoints for chromosomal damage, eye damage, skin sensitisation and ecotoxicity endpoint for Daphnia immobilisation. With this addition, the laboratory now offers a total of 12 non-animal OECD-validated test methods for assessing human health and ecological hazards of products under research and development, strengthening its capabilities in advancing safer, more sustainable innovation.



Product Sustainability

Product sustainability addresses the environmental and social impacts of products throughout their life cycle, ensuring they are more sustainable, circular and resource efficient. It is operationalised through five key focus areas comprising environmental footprint, circular economy, sustainable supply chain, product disclosure, and declaration and carbon tax regulation.

Life Cycle Assessment is a science-based approach used to assess the environmental impacts of a product throughout its life cycle, guided by ISO 14040/44 and ISO 14067. PETRONAS is establishing a life cycle assessment baseline of its product portfolio to systematically assess its environmental performance. In 2024, we completed life cycle assessment baseline for 47 products and finalised the life cycle assessment baseline for our gas processing plants in Malaysia and a series of base oils. Notably, PETRONAS piloted the life cycle assessment for Sustainable Aviation Fuel and introduced governance structures within the New Product Development framework to ensure that sustainability principles are embedded into every stage of our product innovation.

Thriving with Nature

CI Circular Economy

Why This Is Important to Us

PETRONAS recognises the need to move away from the linear 'take-make-waste' model and adopt a more sustainable approach to resource stewardship. We aim to mitigate our environmental impact while safeguarding natural resources by promoting the sustainable use of finite materials through bio-based chemicals, low-carbon and carbon dioxide utilisation, and circular economy solutions. Circular economy practices, such as repurposing, repairing, reusing and recycling, extend material life cycles, minimises waste and reduces dependency on raw materials.

Our commitment to circularity also supports carbon footprint reduction through circular carbon systems that prioritise reducing, reusing, recycling as well as removing GHG emissions. These efforts contribute to our sustainability objectives by promoting cleaner and more efficient operations. In addition to environmental benefits, circularity stimulates innovation and business opportunities by fostering new technologies, business models and circular supply chains. Converting waste into valuable products presents an opportunity to create new revenue streams for the Group while conserving resources and reducing costs. Collaborations and partnerships can further optimise resource use by distributing risks and pooling investments.

Our Approach

A holistic approach to the circular economy is applied through the PETRONAS Five Approaches to Circular Economy, which are bio solutions, waste to products, circular carbon, repurpose and reuse, and the sharing model. Circular economy projects across PETRONAS vary in scale and maturity. We also focus on addressing single-use plastics and championing a New Plastics Economy to minimise environmental impact and unlock new value streams.

According to the Ellen MacArthur Foundation, the New Plastics Economy applies the principles of circular economy and brings together key stakeholders to rethink and redesign the future of plastics, with a vision that plastics never become waste.



Our Action Plan

Bio Solutions

PETRONAS is broadening the biofuels value chain beyond trading to establish a comprehensive bio-based ecosystem in Malaysia. This initiative aims to enhance sustainable practices, optimise resource utilisation, reduce carbon emissions and promote circular carbon systems. Some examples include:

i) Biorefinery at the Pengerang Integrated Complex

A new biorefinery at the Pengerang Integrated Complex in Johor, Malaysia, developed in collaboration with Enilive S.p.A, and Euglena Sustainable Investment Limited, is expected to be operational by the second half of 2028. The biorefinery is targeting a production of 650,000 tonnes per year of biofuel products, such as Sustainable Aviation Fuel, Hydrogenated Vegetable Oil and bio-naphtha from waste and residue feedstocks, including used vegetable oils, animal fats, waste from vegetable oil processing and other biomass. Additionally, we will explore the use of microalgae in the medium term.

The biorefinery will enable PETRONAS to respond to growing biofuel demand and strengthen Malaysia's role in the global biofuels market by providing a reliable supply of Sustainable Aviation Fuel and Hydrogenated Vegetable Oil, driving innovation and economic growth.

ii) Emfinity® CGSA 200B

PETRONAS Chemicals Group Berhad introduced Emfinity[®] CGSA 200B, a bio-based emollient designed for skincare and cosmetics applications. This marks our first entry into the bio-based personal care sector.

iii) Used Cooking Oil Collection

Following the successful pilot project on recycling used cooking oil by PETRONAS' Refining, Marketing and Trading business, PETRONAS Dagangan Berhad has since expanded the initiative into its Social Impact Flagship Programme, growing from three to 54 stations nationwide as of December 2024.

In collaboration with the Ministry of Plantation and Commodities, PETRONAS Dagangan Berhad aims to increase the volume of used cooking oil collected while promoting circular economy practices. Communication, education and public awareness activities were implemented in collaboration with municipal councils and institutions to drive public participation. These included the *Ikhlas Ramadan Bersama Gas PETRONAS 2024* events at five Ramadan bazaars with the Subang Jaya City Council and Kuala Lumpur City Hall, recycling competitions organised with the Penang Island City Council and awareness programmes with Universiti Teknologi MARA.

Since its inception, the programme has collected more than 700,000 kilograms of used cooking oil and benefitted over 190,000 individuals across Malaysia.

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🖄 Waste to Products

We view waste as a potential resource that can be transformed into new value streams. By converting waste into base materials or new products, we reduce reliance on raw materials, enhance operational efficiency and create sustainable revenue opportunities. Some examples of these products include:

i) Used Lead-Acid Batteries to New Automotive Batteries

PETRONAS Chemicals Olefins, Glycols and Derivatives recycles used lead-acid batteries to produce new automotive batteries. Besides recovering precious metals from used lead-acid batteries for recycling, the initiative has also contributed to profit generation and cost avoidance related to disposal.

ii) New Plastics Economy

PETRONAS is committed to transitioning to a New Plastics Economy by addressing challenges posed by single-use plastics. This approach focuses on minimising waste, promoting responsible waste management and reducing reliance on raw materials. By supporting a circular supply chain, we extend material life cycles through recycling, reuse and recovery mechanisms.

The New Plastics Economy fosters innovation in waste reduction, recovery and recycling technologies, promoting sustainable practices that minimise waste and address plastic pollution. We continue to actively assess novel recycling methods to further support our ambitions.

Our efforts in plastic circularity and waste management include eliminating unnecessary single-use plastics in company operations, developing systemic collection and recycling mechanisms, and participating in global initiatives such as Operation Clean Sweep® to prevent plastic resin loss.





PETRONAS Planting Tomorrow

Advancing Circular Solutions for Sustainable Communities

In supporting the circular economy, one of our priority areas is to cultivate sustainable waste management practices in the communities where we operate. Led by our subsidiary PETRONAS Chemicals Group Berhad, the programme involves clean-up initiatives and aims to educate local communities on the importance of environmental preservation through proper waste and plastic management. The programme fosters responsible waste management behaviour and helps reduce plastic leakage into the environment. In 2024, PETRONAS Chemicals Group Berhad expanded its reach by doubling the number of schools engaged from 50 in 2023 to 100. Additionally, river and beach clean-up initiatives in Thailand and Indonesia promoted collaborative sustainability efforts between neighbouring countries, diverting more than 20,000 kilograms of plastics from entering the oceans.

We also launched a signature programme on sustainable waste management in Terengganu, Sabah and Sarawak, Malaysia, focusing on three key activities, which are clean-up drives, upskilling workshops and sustainability education at schools. The clean-up activities collected a total of 1,657.65 kilograms of waste and we provided upskilling workshops for 280 participants on managing plastics, textiles and used cooking oil. Of these, 211 participants attended a sustainability awareness workshop, while 191 joined a business and marketing workshop aimed at helping them explore ways to convert waste into useful products such as coasters, beads, soaps and bags. We also introduced proper waste management practices in 14 *Duta Guru* schools, engaging students through hands-on activities using the Plastic, Sustainability and You Education module published by PETRONAS Chemicals Group Berhad and made publicly accessible on its website.

In another effort, QuinTerra, a social enterprise nurtured through SEEd.Lab, addresses food waste by converting discarded food into resources for a closed-loop sustainable farming system. Organic waste is repurposed to cultivate fish and vegetables, creating a sustainable source of fresh produce. In recognition of its impact, QuinTerra was selected to represent Malaysia at the ASEAN Circular Economy Forum 2024 in Thailand. As of December 2024, the enterprise has benefitted 319 lives and processed 3,092 kilograms of waste, which helped cultivate 874 kilograms of fish and water spinach.

😡 Circular Carbon

PETRONAS has been practising circularity initiatives for over a decade. Boil-off Gas from Liquefied Natural Gas (LNG), which is generated from LNG tanks and during the loading of LNG ships, is reliquefied at the Boil-off Gas Reliquefication Unit and converted back into LNG. This method offers not only a more sustainable alternative to gas flaring, it also provides a higher product value for Boil-off Gas in its liquefied form, as compared to consumption in fuel gas form.

In addition, flaring and venting reduction efforts are helping to lower emissions, with Upstream business advancing towards zero routine flaring and continuing work on methane emissions management. Flare and vent gas recovery projects at our Upstream facilities leverage cost effective and operational excellence approaches that maximise gas utilisation in terms of gas export for sales, and gas reinjection into wells for reservoir pressure maintenance.

+ Please refer to Delivering Net Zero on pages 92 to 111.

Thriving with Nature

Repurpose and Reuse

PETRONAS embraces repurposing and reusing by extending the life of materials and facilities, whether through continued use, new applications or responsible decommissioning.

Decommissioning

Decommissioning is a critical phase in the life cycle of industrial structures, which requires careful planning to minimise environmental impact and ensure safety. PETRONAS, through Malaysia Petroleum Management, applies a Decommissioning Options Assessment^{*} for each project to ensure that decommissioning activities are environmentally sound and align with best practices.

Note:

* Decommissioning Option Assessment is a process used to evaluate and compare different methods for decommissioning facilities, such as full removal and onshore disposal, reefing at the current offshore location or at an alternative site, or repurposing for other uses. It involves analysing the options identified for the facilities based on various factors including cost, environmental impact, safety and regulatory requirements to determine the most feasible and efficient approach for decommissioning.

Rigs-to-Reef

One of the key approaches we have implemented is the Rigs-to-Reef initiative in Malaysia, where decommissioned offshore structures are repurposed as artificial reefs. This approach not only reduces waste but also supports marine biodiversity by restoring and enhancing underwater habitats. Scientifically proven to benefit marine ecosystems, the initiative helps sustain fish populations while contributing to the circular economy.

The Rigs-to-Reef programme began in 2004 with the successful reefing of the storm-damaged Baram-8 platform near the Miri-Sibuti area in Sarawak. The site has evolved into a haven of biodiversity and as a destination for recreational diving and tourism. This area has since been gazetted as a Marine National Park in 2007. In 2017, the Kapal platform near Pulau Kapas, Terengganu, along with D30 and Dana structures off the coast of Sarawak, were also converted into reef habitats.

To date, PETRONAS has successfully completed five Rigs-to-Reef projects and one Tubular-to-Reef project.

The latest Rigs-to-Reef deployment, completed in September 2024, involved the South Angsi-A appurtenances (structural equipment components) at Pulau Tenggol, Terengganu. Based on monitoring activities in 2021, conducted in collaboration with the Malaysia Department of Fisheries, fish species at designated reefing areas increased by over 30 per cent. This contributed to a rise in commercial fish yield by approximately 2,500 kilograms per harvest, boosting fishermen's income and improving livelihoods, with an estimated 5 per cent annual growth in the local fisheries economy.

Beyond ecological benefits, the Rigs-to-Reef initiative creates new opportunities for ecotourism and recreational activities, establishing scuba diving sites and fishing zones. It also aligns with the National Food Security Policy Action Plan, supporting efforts by the Ministry of Agriculture and Food Security to enhance fishery resources and food security.

To ensure long-term impact, PETRONAS is collaborating with the Department of Fisheries on a 10-year Malaysia Master Reefing Plan, starting in 2024. This initiative aims to establish multiple reefing villages across Malaysia, enhancing marine conservation while creating sustainable opportunities for coastal communities.

Tanjong Baram Field

PETRONAS successfully decommissioned the Tanjong Baram field in April 2023, with the objective of repurposing offshore infrastructure. Approximately 40 per cent of the original Tanjong Baram structure, mainly the topside, which is the upper structure above sea level, was modified, integrated and safely reinstalled in June 2024 at the South Furious-30 field, located off the coast of Sabah, avoiding 126 metric tonnes of steel waste. The substructure, or the 'legs' of the platform, was transferred to an onshore yard for reuse, where possible, ensuring materials remain in circulation.

Extending Asset Life Cycles and Repurposing Industrial Waste

PETRONAS applies, where possible, circular economy principles by extending asset life cycles and repurposing industrial waste. We strive to minimise our environmental impact, reduce landfill dependency and optimise resource efficiency through initiatives such as decommissioning of offshore facilities, waste-to-resource conversion and others.

i) Recycle, Repurpose and Reuse Hazardous Waste

PETRONAS Chemicals Group Berhad identified several types of hazardous waste which could be recycled, repurposed and reused. In 2024, the Methyl Tertiary Butyl Ether and Propane Dehydrogenation plants at PETRONAS Chemicals MTBE Sdn Bhd achieved recycling rates of 93 per cent and 87 per cent for identified hazardous waste, respectively.

Key waste streams include spent catalyst electrical waste, which is processed to recover precious metals; solvent waste oilwater mixtures, which are reprocessed into higher-grade oil; and spent lube oil, which is converted and reused as lubricant for heavy machinery. Additionally, spent activated carbon and spent adsorbent are repurposed as raw materials for cement production, while contaminated containers are cleaned and reused.

Sharing Model

We employ a sharing model that allows multiple users to access common resources to optimise resource use, extend product life cycles and minimise waste.

i) Resource Efficiency with VISMA

VISMA, or Virtual Integrated Solution for Material, is a cloud-based application that provides visibility of available materials to enable efficient sharing across the business. It shows near real-time data of project leftover items and spare parts across PETRONAS' value chain, supporting smarter and more efficient resource use. By enabling seamless material sharing between operations, VISMA helps to reduce generated waste, limit unnecessary material purchase and improve business operation cash flow. Through VISMA, we aim to achieve RM200 million in savings over the next five years.

ii) Vessel Sharing through 'Uberisation' of the Logistics Control Tower

We optimise offshore logistics through the Uberisation of the Logistics Control Tower System by promoting vessel resource sharing across our Upstream operations. In 2024, this initiative enabled us to eliminate the need to secure 95 additional common offshore support vessels, from the initial requirement of 325 vessels, therefore improving efficiency and minimising redundancy.

Through focused fuel management efforts, we also achieved a 35 per cent reduction in vessel fuel consumption, saving 53 million litres of fuel. These results establish a precedence for further infrastructure and resource sharing.

PETRONAS embeds circular economy principles across its operations by improving resource efficiency, minimising waste and fostering innovation in resource use. We continue to actively advocate circularity by engaging with industrial partners and the Malaysian Government to strengthen related policies and practices.

The energy transition represents a transformative shift towards cleaner energy systems on a global scale. This transition will impact all aspects of society, including the ways we produce, distribute and consume energy.

As technology becomes more accessible and new measures are implemented, the transition towards a lower-carbon economy will create new jobs and business opportunities, reduce pollution and atmospheric emissions. However, it also has the potential to disrupt existing labour markets across the entire energy value chain.

Respecting human rights throughout the energy transition fosters inclusive societies, promotes equitable social and economic growth, and prevents exploitation and discrimination. Since our inception, we have steadfastly delivered on our mandate for nation-building and broader industrial ecosystem development, contributing to economic growth and societal progress. We strive to advance a just transition that ensures our stakeholders have access to equitable opportunities.

Our Material Topics

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We understand that the energy transition will vary from country to country, but parallel efforts must prevail to support inclusive societal progress.

We are dedicated to implementing our Energy Transition Strategy in a manner that promotes a just transition that respects human rights and considers the needs of energy sector employees, suppliers and communities. By doing so, we aim to ensure that new investments lead to enhanced opportunities and improved prospects for stakeholders.

Future-proofing the Workforce

The energy transition is reshaping industries, demanding both technological advancements and a capable, agile workforce to drive progress. Innovation alone is not enough. Technology and talent must work hand-in-hand. We are committed to building a future-ready workforce by continuously investing in education, reskilling and upskilling, and industry collaboration while reshaping the organisation to better respond to evolving technologies and market dynamics.

For several decades, we have steadily invested in nurturing talent, ensuring that our employees are equipped to leverage new technologies. To stay ahead, we are enhancing workforce planning, strengthening skills and capacity in emerging energy fields and fostering agility through lifelong learning and technical training.

We assure that the well-being of the workforce continues to be our priority and all matters relating to workforce are handled responsibly, in accordance with our policies and prevailing employment laws. We uphold employee rights and engage constructively through dialogue with employees and their representative bodies through dedicated programmes and strategic efforts.

Strengthening the Supply Chain

The energy transition can only succeed with the support of an evolving and thriving supply chain ecosystem. We recognise that small and medium-sized enterprises, which make up

a significant portion of our Malaysian energy supply chain, may lack the necessary awareness and knowledge to address emissions, strengthen environmental performance and integrate human rights principles into their operations.

To support our vendors, suppliers and partners in remaining competitive and resilient in the energy transition, the PETRONAS Supplier Support Programme, launched in 2024, provides assistance to PETRONAS suppliers in adopting and disclosing sustainability practices. This support includes tools, capacity-building training and access to sustainable financing facilities.

Supporting Community Resilience

We uphold our commitment to respecting human rights. We aim to foster inclusive community engagement, consult and collaborate with community stakeholders to gain new perspectives, and understand the aspirations of those who may be affected by our decisions. Our goal is to contribute positively towards societal and economic development in the areas where we operate. In doing so, we support communities to be more resilient and better able to respond to and benefit from the changes brought about by the energy transition.

PETRONAS' social impact investment programmes are designed with this in mind and prioritises three areas of action:

Powering Knowledge: We provide access to education and capability building through sponsorships and upskilling and reskilling programmes.

Uplifting Lives: We promote sustainable livelihoods by providing access to basic needs and fostering social entrepreneurship.

Planting Tomorrow: We support nature and biodiversity conservation and provide training for communities to increase their capacity and capability in mitigating potential risks.

🗷 Human Rights

Why This Is Important to Us

We strive to advance a just transition that respects human rights and ensures that stakeholders, especially our employees, suppliers and communities, have access to equitable opportunities for socio-economic growth. PETRONAS is committed to upholding internationally recognised human rights to ensure fair treatment, prevent exploitation and foster inclusivity. Failing to uphold human rights can have far-reaching consequences, including labour rights violations, unsafe working conditions and unethical supply chain practices, which can undermine the well-being of workers and communities. These risks can also erode trust, damage stakeholder relationships and jeopardise our social licence to operate. As we make progress on realising our Energy Transition Strategy, we aim to support development where workers, suppliers and communities benefit from sustainable growth.

Our Approach

PETRONAS takes a structured and principle-based approach to human rights. This approach is built on three core pillars:



These principles are embedded into our business practices. Our responsibility extends beyond employees to the communities and individuals connected to our operations and value chains.

We prioritise four key areas, which are labour and working conditions, supply chain practices, responsible security, and community well-being. These areas represent PETRONAS' salient human rights issues, identified through internal assessments and stakeholder engagements. Climate change, environmental pressures and the ongoing energy transition, influence human rights risks and responses across our operations and value chain.

Policy

PETRONAS Human Rights Policy

In 2024, the PETRONAS Human Rights Commitment was elevated to a Human Rights Policy, which reinforces what we stand for in respecting and promoting human rights across our operations and supply chains. This Policy provides a clear steer for ethical and responsible practices, embedding human rights principles into our business. It also establishes a structured approach to addressing human rights risks and ensuring accountability across operations and the value chain.



PETRONAS is committed to respecting all internationally recognised human rights as outlined in the International Bill of Human Rights and the International Labour Organization's Declaration on Fundamental Principles and Rights at Work. Our approach is guided by the United Nations Guiding Principles on Business and Human Rights, and the Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises on Responsible Business Conduct. The PETRONAS Human Rights Policy applies to all employees and directors of PETRONAS. Third parties performing work or services on our behalf, joint ventures where PETRONAS does not hold a controlling stake and associate companies are encouraged to adopt this Policy or implement similar principles and standards to safeguard rights holders.

PETRONAS requires contractors and suppliers to adhere to the PETRONAS Contractors Code of Conduct on Human Rights, which sets clear expectations for ethical and responsible business conduct. This includes addressing critical labour rights issues and risks such as forced labour, child labour, discrimination, inhumane treatment, restrictions on freedom of association and violations of labour rights. These principles are fundamental to ensuring fair, safe and inclusive working conditions across our supply chain.

Please refer to PETRONAS Contractors Code of Conduct Governance and Ethics | PETRONAS Global.

The Human Rights Policy was approved by the Board of Directors while the Executive Leadership Team oversees its implementation and governance. This structure holds PETRONAS accountable for embedding human rights considerations into our business practices and decision-making. PETRONAS ensures that its Human Rights Policy is not a standalone commitment but is embedded within its broader governance structure, with existing policies and efforts aligned with its intent.

Our Human Rights Policy is anchored on five key principles that guide our commitment to ethical conduct, accountability and responsible business practices across our operations:



Internal and external stakeholders, including employee representatives, national and regional human rights organisations, and industry peers, were engaged in the development of the PETRONAS Human Rights Policy to help ensure that perspectives and evolving expectations were considered. Going forward, we will periodically review the Policy to strengthen its alignment with evolving international standards and responsible business practices.

PETRONAS is committed to avoid causing or contributing to adverse human rights impacts across our operations. We embed human rights requirements into our processes to help identify actual and potential human rights risks, mitigate them, and strengthen our human rights implementation and decision-making. In addition to our direct activities, we also collaborate with partners from various stakeholder groups to prevent or mitigate adverse impacts linked to our operations, products or services. These efforts are supported by remediation processes that prioritise transparency and accountability.

Raising the Bar: PETRONAS Canada Achieves Higher Rating in ESG Certification

PETRONAS Energy Canada Ltd. (PETRONAS Canada) operates in North America's highly competitive natural gas market, with significant resources in the Montney shale basin. Since 2023, PETRONAS Canada has certified its natural gas production under the Equitable Origin (EO100) Standard for Responsible Energy Development, an internationally recognised Environmental, Social and Governance (ESG) performance standard for energy companies.

PETRONAS Canada's inaugural EO100 Responsibly Sourced Gas certification assessment in 2023 acknowledged the strong operational practices and its respect for human rights. However, the absence of a specific, comprehensive human rights policy was identified as a key area for improvement.

In 2024, PETRONAS Canada addressed this gap by formally adopting the PETRONAS Human Rights Policy. The updated verification score acknowledged this progress, raising its EO100 rating from B– to B+. The Policy affirms PETRONAS Canada's commitment to respect all internationally recognised human rights, comply with applicable laws and be guided by the United Nations Guiding Principles on Business and Human Rights. The Policy clearly states its applicability to every employee, director and officer of PETRONAS Canada. In addition, human rights principles are now further embedded through integration into core policies such as the Security Policy and the Contractors Code of Conduct on Human Rights.

The adoption of the Human Rights Policy signals a clear step forward in how PETRONAS Canada integrates respect for people and the environment across its operations. This progress is reinforced by enhancements to existing policies on Indigenous relations, reclamation and biodiversity, as well as increased corporate disclosures.

PETRONAS Canada continues to embed human rights as a business priority through strengthened governance, integration into core policies and clearer internal accountability. This commitment is reflected in how the organisation deepens community partnerships, raises expectations across the supply chain, and aligns operational decisions with responsible and sustainable practices.

Aligning PETRONAS Policies and Guidelines with Our Human Rights Policy

The PETRONAS Code of Conduct and Business Ethics serves as the foundation for ethical behaviour and decision-making across the organisation, including business partners and suppliers. It reinforces our commitment to integrity, accountability and respect for human rights by integrating human rights principles, including:

Embedding key human rights considerations, such as the prohibition of modern slavery and child labour.

Preventing unlawful discrimination, upholding fair labour practices and respecting diversity as core elements of our organisational culture.

Embedding Human Rights Principles in Core Business Processes

In 2024, the implementation of the PETRONAS Human Rights Policy included the enhancement of human rights requirements in core business processes, as described below:

Salient Human Rights Issues

Labour and Working Conditions

We embed human rights principles into our workforce practices by aligning with international standards and frameworks. PETRONAS promotes diversity, inclusion and respect for freedom of association as integral parts of our workplace culture. We also provide ongoing human rights training to employees to foster a culture of accountability and strengthen awareness of labour rights.

Supply Chain Management

Human rights issues in the supply chain may stem from limited supplier awareness, insufficient capacity to implement responsible practices and a lack of embedded human rights due diligence processes. These conditions heighten the risk of forced labour, poor working conditions and discrimination. PETRONAS addresses these challenges by raising awareness, improving supplier compliance and strengthening human rights due diligence throughout the supply chain.

We require our contractors and suppliers to respect human rights, including labour rights, workplace safety and nondiscrimination, as guided by the PETRONAS Contractors Code of Conduct on Human Rights. PETRONAS leverages the Licensing Management System to identify and mitigate risks related to forced labour, child labour and unethical practices. To further strengthen supplier performance, we offer capacity-building programmes to enhance understanding of human rights and compliance with legislation and PETRONAS standards. Periodic assessments help monitor adherence to human rights-related laws and identify areas for improvement.

Responsible Security

Security practices, if not properly managed, can lead to human rights violations, particularly in high-risk environments or when involving third-party security providers. To mitigate these risks, PETRONAS promotes responsible security by aligning operational practices with international human rights standards, and embedding these principles across relevant functions and contracts.

We conduct ongoing training to build awareness of human rights, ethical conduct and cultural sensitivity among our security personnel. PETRONAS monitors training compliance for contracted personnel and incorporates responsible security provisions into new contracts, while progressively updating existing agreements to meet evolving expectations. Human rights considerations are integrated into security risk assessments, and regular training is provided to support ethical and rights-respecting practices. These efforts include embedding the Voluntary Principles on Security and Human Rights into contractual arrangements, and strengthening trust with local communities and stakeholders, particularly in highrisk locations.

Community Well-being

We develop and refine technical standards and guidelines to strengthen due diligence processes, including those related to Indigenous Peoples, cultural heritage, land acquisition, involuntary resettlement and grievance mechanisms. Potential human rights risks across our operations and project life cycles are identified, mitigated, tracked and monitored through our Social Risk Assessment process, which takes into account potential impacts on communities. Proactive engagement with rights holders allows us to discuss matters related to land use, cultural heritage, Indigenous Peoples and community health and safety, ensuring their perspectives are considered in our activities. We also engage communities by providing information on hazards, safety and emergency protocols through public sessions, in line with the Control of Industrial Major Accident Hazards (CIMAH) regulations.

Due Diligence

We have established a due diligence process to identify, assess and address human rights risks across our operations and value chains. Our aim is to address potential and actual issues transparently and minimise risks by upholding our commitments. We continue to integrate key human rights findings into decision-making, monitor the effectiveness of our actions and communicate our progress openly.



Assessing Impacts

We have identified and assessed human rights risks across our human rights salient issues, as below.

Social Risk Assessment

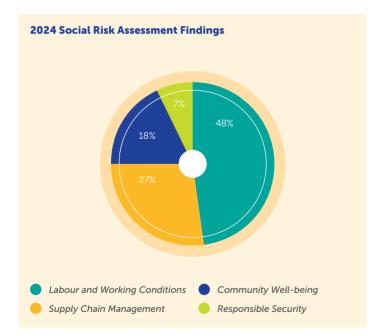
We evaluate potential human rights risks across key social dimensions to address salient issues that may impact workers, supply chain partners, security and communities.

Labour and Working Conditions	 Forced labour Child labour Discrimination Inhumane treatment Restrictions on freedom of association Violations of labour rights Ineffective grievance mechanisms
Supply Chain Management	 Supplier and contractor involvement in forced and child labour Failure to uphold labour rights, ensure non-discrimination, allow freedom of association and prohibit inhumane treatment of workers Corruption and bribery
Responsible Security	 Complicity to human rights violation by public security Misconduct by third-party security Inadequate human rights training
Community Well-being	 Poor land management, including issues with rights of way, compensation and access to natural resources Violation of Indigenous Peoples' rights Violation of cultural rights Unsafe community health and safety Exploitation and abuse of in-migration workers Ineffective grievance mechanisms

The Social Risk Assessment process takes into account the following considerations:

- Conduct due diligence to proactively identify, prevent and mitigate adverse human rights impacts where we operate, through Social Risk Assessments and Third-Party Risk Management practices to address potential and actual risks.
- Take into consideration geographic risk indices to identify areas and operations prone to human rights risks enabling targeted mitigation strategies.
- Engage relevant stakeholders through structured assessments, including interviews and consultations, to identify human rights risks.
- Conduct site visits to gather insights on human rights performance and potential risks.

In 2024, PETRONAS conducted 15 Social Risk Assessment exercises. All identified findings were addressed and mitigated in a timely manner, with no outstanding Social Risk Assessment actions recorded.



The majority of findings, 48 per cent, were related to Labour and Working Conditions. These primarily stemmed from inaccurate interpretations of labour rights among employees and contractors. To address this, PETRONAS initiated labour rights training and conducted engagement sessions with contract owners and contractors to reinforce compliance and promote best practices. Findings linked to Supply Chain Management accounted for 27 per cent of the total findings. These were largely associated with contractor performance in upholding labour rights and managing grievances effectively. PETRONAS responded by continuing its periodic assessments under the PETRONAS Code of Conduct on Human Rights to ensure compliance among contractors.

Community well-being findings made up 18 per cent of the total findings, with most issues revolving around limited awareness of grievance mechanisms. Mitigation actions focused on improving both the visibility and effectiveness of these mechanisms to ensure communities are informed and empowered to raise concerns.

The remaining 7 per cent of findings were related to Responsible Security. These findings highlighted opportunities to strengthen grievance management processes within security functions. PETRONAS continues to drive human rights awareness among security personnel to reinforce responsible conduct.

Contractor Due Diligence

PETRONAS implements a dedicated process to uphold Human Rights Due Diligence principles across both potential and existing contractors. These requirements are integrated into our procurement processes to safeguard human rights and ensure ethical business conduct across our supply chain.

The screening process begins with upfront due diligence as a prerequisite, which includes:

Completion of the Contractor Code of Conduct on Human Rights Self-Assessment, where contractors declare their human rights practices.

Attestation of full compliance with PETRONAS' Contractor Code of Conduct on Human Rights, including the prohibition of forced and child labour.

Data from these assessments are analysed to identify potential human rights risks. Contractors flagged for concerns are subject to further evaluation.

In addition, prospective suppliers undergo screening through the Know Your Counterparty process and complete questionnaires covering PETRONAS' key legal focus areas, including Ethics and Integrity, Data Privacy, Sanctions and Export Control. PETRONAS' licensed and registered vendors are required to comply with the PETRONAS Contractors Code of Conduct on Human Rights as part of the licensing and registration process. These obligations are embedded in contractual agreements. Ongoing monitoring ensures continued adherence to the PETRONAS Human Rights Policy.

Performance in 2024

- Enhanced the PETRONAS Contractors Code of Conduct on Human Rights to strengthen human rights due diligence across our supply chain, expanding the depth and coverage of assessments across all supplier tiers.
- Out of **5,456** companies registered in the PETRONAS Licence and Management System, **3,647** have completed the Contractor Code of Conduct on Human Rights Self-Assessment and attested to full compliance with the PETRONAS Code of Conduct on Human Rights.
- **63** Contractors Code of Conduct on Human Rights assessments conducted in 2023 which resulted in **135** Corrective Action Plans issued to address identified areas for improvement. Of these, **109** Corrective Action Plans have been successfully completed and closed in 2024.
- PETRONAS' Human Rights Due Diligence approach and Social Risk Assessments were assessed by an independent thirdparty and found to be partially aligned with the UN Guiding Principles on Business and Human Rights.
 - + Please refer to Tracking Effectiveness of Actions on page 138.

Security Due Diligence

PETRONAS conducts human rights due diligence on responsible security risks in countries where we operate. In the period under review, assessments have been completed in Iraq, India, Indonesia, Mexico and Thailand, to determine whether each is classified as a focus or non-focus country for responsible security.

To build awareness and ensure alignment between PETRONAS' human rights focus areas and the activities of its Business and Operating Units, communications on human rights governance, expectations, and compliance have been disseminated across international operations. In Upstream operations, briefing sessions were held with country offices to outline responsible security objectives. Businesses in Iraq, Turkmenistan, Brunei, Gabon, Suriname, Brazil, Vietnam, Abu Dhabi and Indonesia also conducted readiness mapping to support adoption of the Human Rights Policy.

Efforts are ongoing to integrate responsible security contractual provisions into new and existing agreements with third-party security providers.

While risk assessments remain complex due to differing socio-political contexts and perspectives on intervention, we continue to refine our methodology for more consistent and objective evaluations. Improved compliance is expected to support measurable improvements in security performance, driven by proactive risk identification and enhanced monitoring. We aim to align our practices with the Voluntary Principles Initiative, a globally recognised framework that guides companies in maintaining ethical conduct and upholding human rights in security operations.

Indigenous Peoples Assessment

We conduct the PETRONAS Indigenous Peoples Assessment to understand and address potential impacts on Indigenous Peoples in relation to new projects and ongoing operations, modifications or expansions of existing facilities, decommissioning or abandonment of current facilities, and acquisitions of businesses, facilities or equity interests in assets. These assessments are undertaken when potential risks or impacts to Indigenous Peoples are identified during the early stages of project planning or evaluation. Free, Prior and Informed Consent practices are required, with the decision to proceed with an assessment made by subject matter experts based on the nature, location and potential impact of the activity. This process recognises the rights of Indigenous Peoples to participate in decision-making on matters that affect them, including economic development, natural resource management and social development.

In 2024, no Indigenous Peoples Assessments were conducted, as no project activities triggered the requirement. Additionally, there were no reported violations involving Indigenous Peoples' rights or activities related to land acquisition or involuntary resettlement during the year.

Land Acquisition and Involuntary Resettlement Assessment

Acquiring land for projects and operations might lead to either voluntary or involuntary resettlement of communities or affect their livelihood. PETRONAS manages the human rights aspect of land acquisition and involuntary resettlement through a dedicated team that is responsible for overseeing the process which includes consultation with affected parties prior to the land purchase. In Malaysia, a Government-led process guides projects and operations to work closely with relevant authorities to minimise adverse impacts on affected communities and ensure necessary compensation. Stakeholder engagement and communication plans are developed to keep communities informed and to gather their feedback throughout the project. We are committed to respect the local and Indigenous Peoples' land, passage and usage rights on company-controlled land, and engage with local communities and Indigenous Peoples to understand how to best honour their traditional practices and cultural heritage. No Land Acquisition Assessments were conducted in 2024, as there were no projects requiring such assessments during the year.

Human Health Risk Assessment

We conduct Human Health Risk Assessments to safeguard the health of communities in areas where we operate. In 2024, we commissioned an independent verification on PETRONAS' internal standard for Environmental Health Risk Assessment and the associated Human Health Risk Assessment reports. The verification provided independent assurance that our internal standard and reporting practices comply with both Malaysian and international requirements, while also identifying opportunities for continuous improvement.

Integrating Human Rights Risks into Decision-Making

The PETRONAS Technical Standard on Social Risk Assessment requires that identified risks are prioritised based on 'severity' and 'likelihood'. Corresponding interventions must be designed and documented in the Social Performance Plan for leadership endorsement.

Project and operations teams are responsible for implementing mitigation measures, supported by business units, where needed. Appointed leaders track progress and report status updates to enable process improvement and targeted support.

+ Please refer to Monitoring and Accountability on page 141.

Tracking Effectiveness of Actions

PETRONAS continues to improve tracking efforts to prevent and address human rights risks across our operations and our supply chain. This enables us to assess effectiveness, identify areas for improvement and support more informed decision-making over time.

A third-party verification of PETRONAS' Human Rights Due Diligence process and implementation was conducted based on the United Nations Guiding Principles on Business and Human Rights. The assessment confirmed that PETRONAS' Human Rights Due Diligence policies and practices, specifically the Social Risk Assessment, partially aligned with the United Nations Guiding Principles on Business and Human Rights. PETRONAS received a rating of 6/10 for processes and 5/10 for implementation, indicating opportunities for further improvements. To further enhance our practices, efforts include the revision of human rights governance documents, upskilling of social performance practitioners in the implementation of assessments, and the enhancement of the social risk assessment digital tool in 2025.



Communicating Impacts

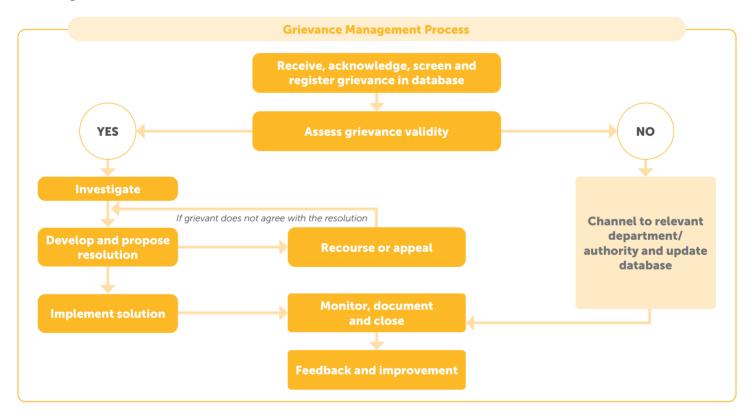
As part of our human rights due diligence process, we continue to strengthen communication on how human rights risks are identified and managed across our operations and value chain. We disclose our approach and progress through sustainability reporting and the PETRONAS corporate website.

Access to Remedy

PETRONAS recognises the importance of effective grievance mechanisms in addressing human rights concerns and supporting fair outcomes for all stakeholders. We aim to strengthen transparent and structured processes to address potential adverse human rights impacts, particularly in situations where PETRONAS may have caused or contributed to them. Our procedures are designed to enable rights holders, whether acting individually or collectively, to access grievance mechanisms that are impartial, confidential and free from retaliation.

Grievance Mechanism

PETRONAS aims to maintain a robust grievance management process that ensures fairness and transparency. Governed by internal procedures, the process involves receiving and acknowledging grievances through designated channels, conducting thorough assessments and investigations, developing and monitoring corrective actions, and communicating findings and resolutions to relevant stakeholders. This systematic approach helps ensure accountability and supports continuous improvement in addressing concerns.



Our grievance mechanisms are designed to meet the United Nations Guiding Principles on Business and Human Rights effectiveness criteria:

Legitimate	Predictable	Transparent	A Source of Continuous Learning
Accessible	Equitable	Rights-compatible	Based on Engagement and Dialogue

PETRONAS provides various grievance channels for rights holders, including employees, supply chain workers and affected community members. These mechanisms are designed with the aim to ensure grievances can be easily lodged, received, reviewed and addressed in a fair, transparent and timely manner.

Employees

We have established a grievance mechanism tailored for employees, ensuring it is accessible and maintains confidentiality. This provides a formal and safe channel for employees to raise concerns while protecting their privacy. Grievance mechanisms are aligned with the PETRONAS Code of Conduct and Business Ethics, ensuring that concerns are addressed through appropriate procedures.

We respect the right of employees to act individually or collectively, including through trade unions, without fear of prejudice or retaliation. To support this, we provide multiple reporting channels including a formal Grievance Form and confidential whistleblowing platforms to ensure employees have clear and accessible avenues to raise workplace-related concerns. Issues can also be addressed directly with immediate supervisors as a first course of action and unresolved matters may be escalated to Group Human Resources Management for further review and resolution. On average, grievances are resolved within seven days. In 2024, there were no records of violations to human rights reported through this mechanism.

Contractors' Grievance Management

PETRONAS upholds a robust grievance management process to ensure fairness and transparency. This process includes the receipt and acknowledgement of grievances through designated channels, thorough assessment and investigation, the development and monitoring of corrective actions, and the communication of findings and resolutions to relevant stakeholders.

This systematic approach ensures accountability and promotes continuous improvement in addressing concerns. Any unresolved grievances are escalated through appropriate avenues, while confirmed violations are addressed through internal disciplinary measures.

In alignment with the Contractors Code of Conduct on Human Rights requirements, contractors are required to establish grievance mechanisms that are accessible to their employees, workers, contract personnel and any party involved in delivering works or services to PETRONAS. These mechanisms must be clearly communicated in languages understood by the affected parties and must incorporate appropriate follow-up measures, while safeguarding the identity of the complainant.

Grievances are addressed with due process and prioritised based on their nature and potential impact. PETRONAS remains committed to a timely resolution of grievances and continuously monitors its processes to ensure their efficiency and effectiveness.

Communities and Rights Holders

The PETRONAS Technical Standard on Grievance Mechanism outlines the provision of operational-level grievance mechanisms to support external stakeholders, including communities affected by our operations, in raising concerns effectively. These mechanisms are designed to be culturally appropriate and accessible both online and in-person.

In 2024, several sites continued to operate communityfacing grievance channels, supported by over 120 Groupwide grievance focals and community liaison officers who facilitated communication and response on the ground. A total of 34 Health, Safety and Environment (HSE) Grievance Mechanism procedures have been established across PETRONAS' Operating Units.

A dedicated grievance channel is available to address concerns related to HSE, security and social impacts arising from our operational activities. Grievances may be raised by individuals, groups or authorised representatives through various channels, including direct engagement with Community Liaison Officers or designated grievance focals, as well as via telephone calls, text messages, complaint boxes or email.

Whistleblowing

The Whistleblowing channel is available for reporting misconduct and criminal offences, including those involving human rights-related grievance. Reports can be submitted via:

Email	3	whistle@petronas.com
Website	:	www.petronas.com/whistleblowing
P.O. Box	:	No. 11646, Pejabat Pos Besar Kuala Lumpur

+ Please refer to the whistleblowing section on page 205.

Protection from Retaliation for Raising Complaints

PETRONAS is committed to protecting individuals who raise concerns by ensuring non-retaliatory procedures are in place. It is essential that employees, contractors and external stakeholders can report grievances without fear of retaliation. Awareness campaigns and training sessions are conducted to ensure widespread understanding.

PETRONAS provides options for anonymous reporting, further safeguarding individuals who come forward.

Remedying Adverse Impacts

We continue to refine our approach in remedying adverse human rights impacts. While not all grievances received are found to be valid, we take steps to address those that are substantiated. This reflects our ongoing commitment to support rights-compatible outcomes and to improve access to remedy for affected individuals and communities.

Performance in 2024

- 83 employee grievances cases recorded
- 15 supply chain grievance cases recorded
- **38** community grievance cases recorded

- Zero security personnel grievance cases recorded
- Zero grievance cases of forced and child labour within PETRONAS' operations recorded

Monitoring and Accountability

PETRONAS' commitment to human rights is embedded at the highest levels of leadership. The Human Rights Command Centre within the Corporate Sustainability Division continues to strengthen the integration of human rights principles across PETRONAS' operations, supporting the progressive implementation of our Human Rights Policy.

The PETRONAS Board of Directors plays an active role in overseeing human rights strategies and performance, ensuring alignment with international standards and best practices. To strengthen decision-making, PETRONAS engages external experts to provide insights on evolving human rights expectations and emerging global best practices, offering an outside-in perspective to enhance our approach.

Strategic oversight is further supported by the Sustainability Executive Leadership Team, chaired by the President and Group Chief Executive Officer of PETRONAS. The team provides strategic direction to ensure human rights are prioritised in operational and business decisions, that human rights considerations are integrated within PETRONAS' broader governance framework.

+ Please refer to Corporate Governance at PETRONAS on page 186.

Human Rights Command Centre

PETRONAS has established a dedicated Human Rights Command Centre, whose leader reports directly to the President and Group Chief Executive Officer, to drive the implementation of human rights policies and processes across all business operations. The Human Rights Command Centre ensures effective management of human rights practices across the Group ensuring line of sight through various senior leadership teams and committees, enabling structured governance and alignment at functional levels. These platforms facilitate cross-functional integration, meaningful dialogues and tracking of progress on key sustainability priorities.

The Human Rights Command Centre and other key business functions proactively identify and manage human rights risks across the organisation as part of day-to-day operations, supported by social performance technical professionals.

Resourcing and Capacity Building

PETRONAS allocates adequate financial and human resources to support the effective implementation of our human rights commitments. We invest in continuous training and capacity-building programmes to enhance understanding and strengthen the organisation's ability to manage human rights risks across all levels. These efforts are supported by communication of our Human Rights Policy to employees, contractors, suppliers, business partners and other relevant stakeholders. Training and engagement activities reinforce our commitment to embedding human rights principles across the broader PETRONAS ecosystem.

Employees

Following the launch of the PETRONAS Human Rights Policy, employees were engaged through multiple communication channels, with over 40 physical and virtual sessions conducted to raise awareness, ensure accessibility and enhance accountability across all levels of the organisation. Communications and outreach were further strengthened by engaging the Health, Safety and Environment (HSE) fraternity through various platforms, including conferences, programmes and leadership forums.

In 2024, a total of 231 participants took part in various capacity-building sessions, expert sharing forums and targeted trainings to strengthen understanding of human rights risks and responsibilities. This included participants who completed the Human Rights for Human Resources training. In addition, personnel from key functions attended a grievance management workshop to enhance organisational response capability and received training on human rights management, social risk assessment, grievance mechanisms and engagement with Indigenous Peoples. The sessions also covered modules on Free, Prior and Informed Consent, as well as Social Impact Assessment.

These targeted efforts are part of our broader commitment to upskilling employees involved in implementing human rights policies across employee-related functions. To further embed human rights principles into day-to-day business practices, PETRONAS also conducted expert sharing sessions, interactive discussions and thematic workshops.

To deepen understanding, PETRONAS conducted online and classroom-based training on human rights principles and their application in daily operations. As of December 2024, about 28,000 employees have completed the human rights e-learning training.





Function-Specific Capability Building

We continued to build technical capacity across specialised functions. Technical professionals in Social Performance lead due diligence efforts by identifying, mitigating, tracking and monitoring risks related to human rights. They are supported by technical standards and guidelines covering Social Risk Assessment, Indigenous Peoples, cultural heritage, land acquisition, involuntary resettlement and grievance mechanisms.

To support security-related awareness, 100% of auxiliary police officers in Malaysia operations had completed human rights training as of December 2024. In Iraq, training was also delivered to relevant business leaders, and a separate engagement plan is being developed to raise awareness among Iraqi authorities on the limitations and responsibilities of responsible security practices.

Supply Chain

PETRONAS communicated the Contractors Code of Conduct on Human Rights Self-Assessment to 5,456 licensed and registered vendors via email and the PETRONAS Licensing Management System. Awareness of the Code's requirements was further reinforced through engagement with 1,016 vendors under the PETRONAS Supplier Support Programme. The Human Rights Policy and the Contractors Code of Conduct on Human Rights is also publicly accessible through the PETRONAS corporate website.

To strengthen human rights compliance across the supply chain, PETRONAS provides governance frameworks, training and resources to support ethical business conduct. We enhanced implementation of the Contractors Code of Conduct on Human Rights by requiring mandatory compliance for all contractors and promoting broader awareness of sustainability expectations within the Oil and Gas Services and Equipment ecosystem.

+ Please refer to Sustainable Supply Chain on pages 145 to 146.

Strengthening Capability in Human Rights on Community Well-being

To enhance organisational capability in managing community-related human rights risks, PETRONAS continued to build awareness and knowledge across key functions. A total of 466 employees participated in the Social Performance Forum, which facilitated discussions on human rights implementation and best practices across businesses, operating units, functions and projects. Another 396 employees took part in the Social Performance Masterclass on Indigenous People's Rights and Free, Prior and Informed Consent, which deepened understanding of engagement with Indigenous communities. In addition, internal audit personnel were upskilled in Social Risk Assessment and Grievance Mechanism.

Reviewing Human Rights Risks in Human Resources Governing Documents

In 2024, we assessed human rights risks within PETRONAS' internal Human Resource governance by evaluating the alignment of existing guidelines and processes with Malaysian laws and international standards. Supported by an expert external party, the exercise aimed to identify and address gaps in relevant governing documents and address them accordingly. The review focused on stipulations relevant to Malaysian operations to ensure alignment with international human rights frameworks and countryspecific labour regulations. Following the assessment, we finalised updates to internal Human Resource governance documents, including those guiding policy implementation, procedures and grievance mechanisms.

Monitoring and Continuous Improvement

PETRONAS conducts assessments and audits in accordance with the annual assurance and assessment plan, monitoring compliance with company policies and international human rights standards. Findings from these assessments, guide continuous improvement and strategic decision-making. We also monitor legislative developments and compliance related to workers' rights to ensure alignment with regulatory requirements. Corrective measures are implemented where necessary, with outcomes reported to senior leadership to reinforce accountability.

PETRONAS Uplifting Lives

Supporting Pathways for Sustainable Livelihoods

We have various initiatives aimed at improving access to essential services and economic opportunities for our communities, including solar panel installation, clean water and learning programmes for the indigenous Orang Asli children in Malaysia.

Through the use of solar energy, the initiative delivered over RM2.5 million in energy cost savings, adding 1.24 million hours of lighting for education, work and daily activities. Complementing the programme further, the Orang Asli teachers were trained on how to conduct classes and construct learning syllabus to suit the needs of students.

PETRONAS strives to nurture social well-being by ensuring that vulnerable communities have access to care and support during festive seasons such as Hari Raya, Chinese New Year, Deepavali, Gawai, Kaamatan, as well as Christmas. Yayasan PETRONAS contributed food and essential items to underprivileged communities, enabling them to celebrate with dignity, joy and a sense of belonging. Yayasan PETRONAS also extended RM2.3 million in donations to various healthcare institutions and social organisations such as Diabetes Malaysia, Jabatan Kesihatan Negeri Sabah (Sabah State Health Department) and Yayasan Sayang Malaysia.

PETRONAS in Turkmenistan supports access to basic necessities by providing uninterrupted fresh water supply through a joint project with Turkmengaz in the construction of water supply infrastructure for around 2,000 people in Kiyanly and Guwlymayak villages, replacing the current reliance on tanker water supply.

We continue to strengthen community resilience by promoting social entrepreneurship and skills development, helping to foster self-sufficiency and financial stability. In Malaysia, Yayasan PETRONAS has rolled out entrepreneurship training programmes in Johor, Kelantan, Terengganu, Pahang, Kedah and Perlis, helping lower income households improve their livelihoods and income streams. These programmes have helped 1,408 individuals by providing training, tools and mentorship. Additionally, Yayasan PETRONAS collaborated with SIRIM in Malaysia to train 140 participants in the East Coast Economic Region and 97 participants in the Northern Corridor Economic Region.

In East Malaysia, PETRONAS is empowering local farmers in Lawas, near the Sabah-Sarawak Gas Pipeline, by commercialising homegrown produce such as Adan Rice, Arabica Coffee and Adan Arabica Coffee through the establishment of a production house equipped with machineries and specialised tools.

In addition, through strategic collaborations with Institut Kemahiran MARA Bintulu and the District Office, 33 rural youths from Lawas secured job placements by completing a two-week technical training on scaffolding.

We also partnered with the Department of Fisheries Malaysia to deploy 40 Fish Aggregating Devices in Sabah over two years (2023-2024) and contributed over 300 fish trawls, increasing local fishermen's income by more than 20 per cent and promoting sustainable fishing practices.

We also support self-sustaining social enterprises nurtured by SEEd.Lab, such as Sagemaker Asia, that has helped harness sewing talents among 24 women from underprivileged communities, enabling them to create educational 'busy books' for children, which generated a cumulative income of RM23,547 for the beneficiaries. Another SEEd.Lab enterprise, Sejolly has developed a digital tool for Autism Early Intervention, enabling continuous therapy collaboration between therapists and parents to reinforce therapy at home, with 1,233 lives touched since 2022.

Our programmes also extend to Turkmenistan and also international initiatives that empower housewives through micro, small and medium enterprise development within the local community in Indonesia. In Manyarsidorukun Village, East Java, 10 women improved their livelihoods by gaining employment and skills in batik production. In Kramat Village, Bungah Subdistrict, 11 out of 14 women from the local community rose above the poverty line through the success of the locally produced Krupy Fish Crackers.

PETRONAS remains committed to respecting human rights in all aspects of our operations. We will continue strengthening our internal processes and procedures, implementing a unified grievance mechanism and developing structured capability programmes to ensure consistent and effective human rights management across the organisation. We will also enhance communication and disclosure to foster greater transparency and accountability.



sc Sustainable Supply Chain

Why This Is Important to Us

Our operations are driven by a resilient and sustainable supply chain that goes beyond procurement and logistics, connecting us to a broad global network of suppliers within the Oil and Gas Services and Equipment (OGSE) sector. These suppliers deliver a wide range of products and services that not only propel our business but also contribute to the growth and strength of Malaysia's energy ecosystem. We are dedicated to maintaining an ethical and sustainable supply chain through responsible business practices.

Our Approach

We integrate environmental, social and governance principles into our operations, upholding ethical business standards and respect for human rights. We also prioritise supplier growth and resilience, particularly for small and medium-sized enterprises, through targeted development programmes.

The PETRONAS Sustainable Supply Chain microsite covers our position on four key material topics in supply chain sustainability, namely integrity; health, safety and environment; human rights; and greenhouse gas emissions. The microsite supports transparency and alignment with stakeholder expectations. PETRONAS also introduced the Supplier Sustainability Hub, a customised e-learning platform featuring industry-specific modules, case studies and self-assessment tools. Actively used by vendors under the PETRONAS Supplier Support Programme, the online resource supports capacity building and promotes responsible business practices across the value chain.

(III) For more information, please refer to Sustainable Supply Chain.

Our Action Plan

Vendor Development and Recognition Programmes

We empower our suppliers through financing, business development programmes and structured support to enhance their resilience, efficiency and sustainability. Our initiatives have enabled vendors to scale their operations and compete locally and internationally.

Access to Financing

The Vendor Financing Programme, launched in 2018, has facilitated RM2.2 billion across 357 applications to date. In 2024 alone, RM328.3 million was disbursed to 39 applications. We also renewed partnerships with all nine participating financial institutions.

The Special OGSE (SOS) Financing Programme remains an alternative financing option for smaller-scale vendors. Since 2022, it has facilitated RM73.4 million for 47 applicants, with RM31.9 million disbursed to 20 applications in 2024.

The Road to Bursa programme has coached 34 companies towards listing on the Malaysian stock exchange, with three successfully listed in 2024.

Vendor Development, Innovation and Technology Programmes

Established in 1993, the Vendor Development Programme aims to foster a competitive local supply chain, promote the development of small and medium-sized enterprises and integrate Malaysian companies into the global oil and gas value chain. To date, the programme has supported 171 vendors, enabling over 20 to expand into international markets.

Meanwhile, the Technology Innovation and Adoption (TITAN) programme supports OGSE vendors in adopting technology through sandbox opportunities that act as a safe space to test new innovations and development grants in partnership with agencies such as SIRIM, and the National Technology and Innovation Sandbox. Launched in 2023, the programme has, as of 2024, facilitated access to 20 sandboxes and provided RM5.7 million in development grants to 23 companies.

OGSE Talent Development

Led by the Malaysia Petroleum Resources Corporation, in collaboration with PETRONAS and the Malaysia Oil, Gas and Energy Services Council, the Industry Talent Framework (InTAF) analyses talent demand and supply in the OGSE sector for the next three years. Insights from InTAF are expected to be published in 2025 under the National OGSE Industry Blueprint 2021-2030.

The Human Resources Development Corporation, in partnership with the Construction Industry Development Board and PETRONAS is allocating funds under *Program Latihan Madani* to support OGSE-specific upskilling programmes. This initiative aims to equip local graduates with industry-relevant skills for the oil and gas sector.

Strengthening Industry Relations

In 2024, we recognised 47 Sarawak-based vendors who were awarded major contracts for their contributions to regional industry advancement, as part of our Sarawak Commemoration Day 2024.

Meanwhile, our OGSE Partners Day was held in Sabah, Kuala Lumpur and Terengganu to engage with vendors and stakeholders in encouraging collaboration and building a sustainable and resilient OGSE ecosystem.

Upholding Sustainable Practices in the Supply Chain

In 2024, we launched the PETRONAS Supplier Support Programme to equip licensed and registered vendors, with tools and training on environmental, social and governance practices to strengthen their sustainability management. In collaboration with Bursa Malaysia, the United Nations Global Compact Network Malaysia & Brunei (UNGCMYB) and Bank Negara Malaysia, the programme provides capacity bulding, access to digital tools like the Centralised Sustainability Intelligence platform for guided sustainability reporting and financing opportunities to facilitate a just energy transition.



From left: Executive Director, UNGCMYB, Faroze Nadar, Chief Executive Officer, Bursa Malaysia, Datuk Muhamad Umar Swift, Executive Vice President and Group Chief Financial Officer, PETRONAS, Liza Mustapha, Assistant Governor, Bank Negara Malaysia, Datuk Norhana Endut and Vice President and Group Chief Sustainability Officer, PETRONAS, Charlotte Wolff-Bye, officiated the launch of the programme together.

Engaged with **1,016** PETRONAS suppliers through **23** virtual and in-person sessions held across Kuala

Sessions held across Ruala Lumpur, Terengganu, Johor, Sabah and Sarawak, Malaysia

PETRONAS Supplier Support Programme

4.7 out of **5** satisfaction rating achieved from the engagement sessions

96 per cent improved sustainability knowledge, as reported by beginner training participants **417** PETRONAS vendors registered through the ESG START Maturity Assessment

We will continue to drive industry engagements to strengthen supplier resilience, reduce emissions and promote sustainability across the energy value chain. We aim to shape a future-ready energy sector that thrives in a lower-carbon economy through strong health, safety and environmental standards, operational excellence and sustainable growth.

EAR Employee Attraction, Retention and Development

Why This Is Important to Us

The oil and gas industry continues to adapt its workforce in response to changing business needs in this evolving environment. With the energy transition reshaping workforce requirements, talent strategies focusing on cultivating broad and specialised capabilities to support productivity and business continuity, while addressing potential skill gaps.

Our Approach

We recognise that a skilled and engaged workforce is essential to supporting our business. Our approach to attracting, retaining and developing talent is anchored in meritocracy, inclusivity and continuous growth that ensures our employees are equipped to navigate the evolving energy landscape.

Employee Attraction	Employee Retention	Employee Development
Building a Competitive Talent	Fostering a High-Performance	Strengthening Future-Ready
Pipeline	Culture	Capabilities

We attract talent by offering competitive remuneration, career progression opportunities and a purpose-driven work culture. Our people strategy foster an inclusive and high-performance environment where employees feel valued, supported and empowered to contribute meaningfully. To build future-ready capabilities, we invest in structured learning, leadership development and upskilling initiatives, integrating digitalisation and sustainability-focused competencies into our talent development efforts.

We also believe in nurturing early interest in science, technology, engineering and mathematics (STEM) to help ensure a consistent pipeline of skilled talent. Our PETRONAS Powering Knowledge initiatives comprise education sponsorships, vocational training assistance and Discover PETRONAS@Schools programmes.

Our Action Plan

Building a Competitive Talent Pipeline

Our workforce spans diverse regions worldwide, ensuring a stable presence where we operate to support our international operations. PETRONAS is committed to upholding the highest standards of integrity, ethical behaviour and professionalism, adhering to all applicable laws in all our operations. We ensure that foreign or migrant employees are fully compliant with the labour and immigration laws of the host country.

PETRONAS welcomed 2,029 graduates under the Graduate Employability Enhancement Scheme and 2,050 interns in 2024. The Graduate Employability Enhancement Scheme equips unemployed graduates with essential skills and work experience through a structured one-year training focused on experiential learning, soft skills, basic entrepreneurial knowledge and technical skills, facilitating their transition into the job market. Interns, primarily final-year university students, gain practical experience relevant to their fields of study.

We also nurtured young talent through scholarships and graduate recruitment, with 328 PETRONAS scholars joining the workforce, representing 89 per cent of all scholars recruited. In addition, 14 scholarships were awarded to non-Malaysians at Universiti Teknologi PETRONAS.

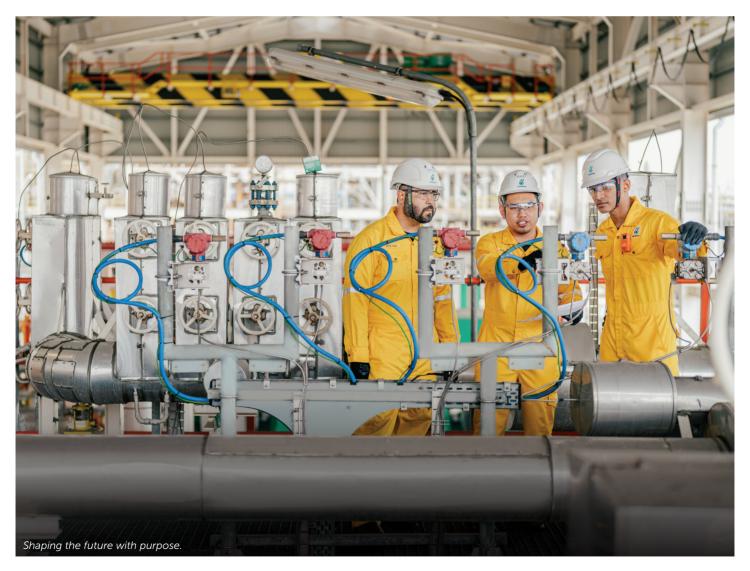
To foster employee growth, PETRONAS ensured that 100 per cent of eligible employees, 37,928 in total, received regular performance and development reviews. Initiatives such as the Goal Setting Campaign, Check-In Conversation Campaign, behavioural nudges and various upskilling and coaching sessions strengthened engagement and supported growth-oriented career development. These efforts reflect PETRONAS' commitment to building a future-ready, high-performing workforce.

Employee Benefits

PETRONAS upholds remuneration parity principles, ensuring fair and competitive compensation that reflects employees' roles, contributions and market standards. Our structured remuneration framework covers both monetary and non-monetary benefits, fostering inclusivity and employee well-being.

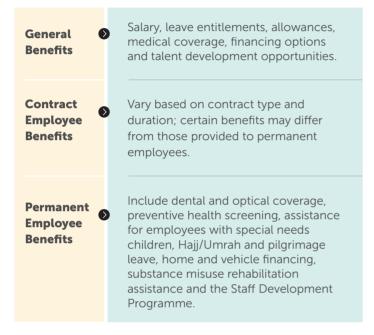
Full-time employees in Malaysia receive a comprehensive benefits package, including salary, leave entitlements, allowances, medical coverage and talent development opportunities. Contract employees' benefits vary based on contract type and duration, with differences in medical coverage, financing options, leave entitlements and development programmes. For employees based outside Malaysia, benefits are provided in accordance with the terms and conditions applicable in their respective countries.

Our merit-based remuneration policy aims to ensure that all employees receive fair and competitive compensation, regardless of gender, age, nationality, ethnicity or religion. In Malaysia, the average entry-level salary for PETRONAS employees exceeds the national minimum wage by 35 per cent.



Benefits Overview

The benefits provided cover approximately 36,000 employees, including 1,700 temporary employees. Of these temporary employees, 68 per cent are based in Malaysia.



Employee Working Hours

Managing and Monitoring Working Hours

Managing working hours effectively is essential for maintaining a productive and healthy work environment. PETRONAS monitors and regulates working hours in line with national labour laws and international human rights standards to ensure compliance while promoting employee well-being.

The average working hours for shift and regular offshore employees are 42 hours per week, while other employees work 39 hours per week. Non-executive employees required to work on their rest or off days are compensated based on rates agreed in the collective agreement.

PETRONAS provides two rest days per week to eligible employee groups. This entitlement applies across various work arrangements, including standard office hours and shift-based schedules. All employees are entitled to at least one rest day per week, as stipulated under the Malaysian Employment Act. An exemption has been granted by the Ministry of Human Resources for 1,983 offshore employees, given the nature of their work. Through structured tracking mechanisms, PETRONAS ensures:

- Compliance with regulated work hours and mandated rest periods to prevent fatigue and burnout.
- Monitoring of overtime practices to ensure fair compensation and prevent excessive workloads.
- Flexible work arrangements, where feasible, to support work life integration.
- Regular reviews and engagement with employees to strengthen workforce management practices.
- + Please refer to Human Rights on pages 132 to 144.

Fostering Productive Trade Union Engagement

PETRONAS is committed to fostering open communication and mutual respect between employees and the organisation. Through active collaboration with trade unions, we ensure meaningful dialogues, fair employment practices and workplace harmony.

We recognise five trade unions representing 8,728 nonexecutive employees, which make up approximately 20 per cent of Malaysia-based employees, all of whom have the right to collective bargaining. Five collective agreements are currently in place, signed every three years upon the conclusion of negotiations. In 2024, we have successfully concluded our collective bargaining with all five trade unions for the next 3 years. These agreements define employment terms and conditions, which are also extended to nonexecutive employees not covered by a collective agreement. For other employee groups, terms are governed by company policies, guidelines and individual contracts. Any modifications to a collective agreement requires negotiation and agreement by both parties.

Our engagement includes regular trade union dialogues, structured grievance mechanisms and capability-building initiatives to enhance transparency, strengthen industrial harmony and improve employee satisfaction.

As part of our broader sustainability agenda and as an expression of respecting human rights, PETRONAS upholds social dialogues and constructive stakeholder engagement on different aspects of the energy transition, ensuring fair labour practices amid workforce transformations.

In 2024, a total of 45 engagement sessions were held with trade union representatives. By fostering constructive collaboration, we empower our employees and uphold our long-term commitment to workplace excellence.

Notice of Operational Changes

In PETRONAS, the notice period and provisions for consultation and negotiation are specified in collective agreements as per the following details:

- The collective agreement's term is three years. If a new agreement has not been agreed upon before the expiry date, the current agreement continues to be valid until superseded by a new one.
- Either party may serve a three-month written notice to negotiate a new agreement before the expiry of the current one, unless both parties agree to commence negotiations earlier.
- During the term of the collective agreement, both parties may seek to vary, alter, modify, annul or add to any of the provisions by jointly submitting an agreement to the Industrial Court.

Collective agreements also set out provisions for consultation and negotiation, including fixed agreement terms, procedures for renewal or renegotiation through written notice, and processes for amending terms by mutual consent during the agreement period.

Transition Assistance Programmes

PETRONAS provides comprehensive support to employees navigating employment transitions, ensuring their continued employability through structured assistance programmes. These programmes, facilitated by a third-party consultant, include a range of services that can help employees transition effectively. Key components of the transition assistance programme includes:

Outplacement Support Impacted employees receive outplacement support to help them transition to new employment opportunities.	Resume and Interview Preparation Assistance is provided with preparing resume and practicing interview techniques to enhance employability.
Career Coaching and Training Personalised career coaching and training sessions are provided to help employees identify their career aspirations and develop the necessary skills to achieve their goals.	Job Search Assistance Impacted employees benefit from support in searching for job opportunities, including access to job listings and networking resources.

The programme takes a holistic approach, offering support from career counseling to job search assistance, ensuring that employees are well-prepared for their next career steps. It has a high success rate, with a notable percentage of employees successfully finding new job opportunities through the services provided.

Fostering a High-Performance Culture

We strive to create an inclusive environment where employees feel valued, empowered and motivated to contribute. PETRONAS continues to drive cultural transformation by fostering collaboration and knowledge-sharing internally and externally. We encourage continuous learning and innovation to enable a productive and positive work environment.

Diversity and Inclusion

Diversity and inclusion are fundamental to human rights, ensuring all individuals, regardless of gender, nationality, age or background, are treated with fairness, respect and dignity. Our approach to Diversity and Inclusion aligns with the PETRONAS Human Rights Policy, by promoting equitable opportunities and strengthening inclusivity across the organisation. In 2024, PETRONAS continued to prioritise gender representation, multinational workforce, age inclusivity and cultural behavioural shift for employees. We strengthened accountability for Diversity and Inclusion by embedding performance measurement into the top management long-term incentive plan. Inclusive practices were formalised through metrics and performance indicators that drive performance.

The Diversity and Inclusion Committee continued to guide progress and steer the overall delivery of targeted outcomes.

Drivers	Key Indicators	Achievements
Institutionalise Diversity and Inclusion accountability through strengthened commitments	Measuring progress for the areas of: gender, multinational, age and culture, and stewardship of the Diversity and Inclusion Committee, ensuring progress in advancing equitable representation, diverse talent inclusion and culture shift.	 Gender (Women) in Senior Leadership Roles - 29 per cent (target exceeded). Multinationals in Senior Leadership Roles - 14 per cent (target exceeded). Young talents in Corporate and Business priorities - 26 per cent (target exceeded). Diversity and Inclusion Culture measured at Quartile 3, Progressing level (target met).
	Implement measurement for top management, focusing on education and engagement to advocate and role-model inclusive practices.	 Approved performance measurement for top management roles to embed inclusion in culture and practices.

Our approach to strengthening inclusivity focuses on raising awareness among employees and enhancing leadership capabilities and decision-making touchpoints involved in talent development and progression. Key programmes implemented during the year included Conscious Inclusion for People Development Committee leaders, Disability Equality Training for targeted roles, and Diversity and Inclusion awareness modules for employees.

To advance inclusion for neurodivergent talents, we implemented a range of awareness and support programmes aimed at educating line managers, leaders and employees. These initiatives were complemented by cross-industry knowledge sharing through a practitioner-led community of practice, which contributed to the continuous refinement of our talent management approaches.

Training and coaching efforts supported inclusive hiring, which included targeted recruitment of Persons with Disabilities and neurodivergent talents.

Drivers	Approach	Achievements
Strengthen awareness and capability in inclusive leadership through expanded training and awareness programmes to foster deeper understanding of practices	Conscious Inclusion Programme for Leadership teams, and Diversity and Inclusion training modules	 Conducted 58 regional sessions, equipping 339 leaders with tools. Train-the-Trainer Bootcamp for 47 internal and external facilitators to embed Conscious Inclusion. Diversity and Inclusion awareness modules to fast-track awareness and understanding, reaching 1,115 employees.
	Disability Equality Training and Awareness programme on Neurodiversity	 8 Disability Equality Training sessions delivered to Diversity and Inclusion Committee members, upskilling 176 leaders on Persons with Disabilities inclusion, training extended to project teams and hiring managers to mainstream disability inclusion into recruitment and workplace practices. Neurodiversity awareness sessions reached 1,600 employees. Conducted Training for Line Managers on performance management and understanding neurodivergent talents, supported by three certified job coaches from the Department of Social Welfare.
	Integrate inclusive hiring into talents strategy, ensuring equitable opportunities for People with Disabilities, including neurodivergent talents	 Persons with Disabilities were recruited at PETRONAS Dagangan Berhad, mainly at PETRONAS service stations, while neurodiverse individuals were recruited at PETRONAS Digital Sdn Bhd.

Guided by PETRONAS' Shared Values and the PETRONAS Cultural Beliefs, we are committed to cultivating an empowered workforce and an inclusive work environment, where every employee is heard, valued and empowered to contribute their unique perspectives and creativity.

PETRONAS conducts an annual Groupwide survey to monitor employee engagement, sentiment and emerging trends. The PETRONAS Organisational Culture Survey provides valuable insights for management, helping to identify areas for improvement, strengthening retention and promoting a supportive and engaging workplace.

The 2024 survey focused on four areas which relate to engagement, psychological safety, diversity and inclusion, and change readiness. Within the Diversity and Inclusion dimension, seven key elements were assessed, namely a larger purpose, inclusive leadership, discrimination, challenging the status quo, intentional inclusivity, speaking up and managing difficult conversations. These elements were designed to deepen the understanding of employee perceptions around workplace culture and inform targeted actions.

To strengthen internal engagement, we launched the Spokesperson and Advocates Programme, appointing management leaders and line managers across the business and human resource functions. These advocates serve as connectors to leadership teams and support the implementation of Diversity and Inclusion initiatives. Their role also includes enabling engagement and embedding inclusivity throughout the talent practices.

We exchange information and raise awareness on topics such as gender diversity, women in technical role and neurodiversity. These efforts contribute to a more inclusive and informed industry dialogue.

We will continue collaborating with leading organisations to advocate Diversity and Inclusion, share best practices and foster continuous enrichment among industry leaders. At the same time, we will reinforce internal practices in alignment with our Human Rights Policy.

Drivers	Approach	Achievements
Culture and EngagementStrengthen internal practices and steer industry- wide Diversity and Inclusion progress, advocating for equitable workplace practices at industry and regional platformsFoster an inclusive workplace that reinforces shared responsibility for role- modelling culturePosition PETRONAS as a Diversity and Inclusion advocate in driving industry- wide awareness and best practices across the Asia Pacific region, with a focus on women, women in technical roles and neurodiversity	reinforces shared responsibility for role-	 Improved Inclusive Leader score in the PETRONAS Organisational Culture Survey from 72 in 2023 to 73 in 2024. Diversity and Inclusion Spokesperson and Advocates Programme - Appointment of five leaders and 22 line managers across Business and Human Resource functions to drive progress on Diversity and Inclusion initiatives.
	 Co-developed the Diversity, Equity and Inclusion (DEI) Implementation Guide for Malaysia with the CEO Action Network, launched in May 2024. Co-sponsored the APAC-DEI Summit 2024 in collaboration with LeadWomen, contributing to the orchestration and curation of Diversity and Inclusion- focused dialogues. Held two Neurodiversity roundtables and a co-creation workshop to build an inclusive ecosystem for future workforce. Shared insights at events including the Offshore Technology Conference Asia, Leaders Conversation (JP Morgan and Khazanah Nasional), Malaysia's National Training Week 2024, and 2024 World Women Economic and Business Summit. 	

PETRONAS Lean Six Sigma

Agile Capability

PETRONAS deployed the Lean Six Sigma approach in 2016 at the enterprise level to equip employees with globally recognised and structured process improvement methodologies. Accredited by the International Association for Six Sigma Certification and The Council for Six Sigma Certification, the programme standardises the business process improvement facilitation across the organisation.

The programme received international recognition as a finalist at the Business Transformation and Operational Excellence Summit Awards 2024, in the United States. Fully driven by in-house specialists with global recognition, the programme integrates continuous improvement into daily operations, fosters cross-functional collaboration and delivers measurable value. It also strengthens talent development while enhancing overall business performance.

In 2024, we enhanced our Lean Six Sigma programme by establishing the Yellow Belt as a prerequisite for Green Belt certification, thereby streamlining learning pathways to improve project execution. The Kaizen Squadron was activated as a platform for certified practitioners to exchange insights and support ongoing process improvement. To broaden access, the Yellow Belt e-learning was rolled out via the online portal myLearningX to all employees, reducing training time to five hours from the previous 1.5 days. Facilitation of process improvement projects led to the optimisation of 186 initiatives, generating RM2.31 billion in value and saving more than 270,000 hours worked. Average cycle efficiency reached 64 per cent. In terms of capability development, 732 employees were trained in Yellow Belt, 248 in Green Belt, and 37 in Black Belt. A total of 121 employees were certified as Green Belts and eight as Black Belts.

Agile Capability and Awareness

We integrate agility into our talent development strategy by embedding agile practices across the organisation. Agile capability focuses on equipping leaders, coaches and practitioners with the necessary skills, while agile awareness broadens understanding of agile principles at all levels.

In collaboration with the PETRONAS Leadership Centre, Agile Enterprise designs learning experiences to foster adaptability, continuous improvement and alignment with industry best practices, ensuring the workforce is resilient and responsive to business challenges.

Our initiatives are to build a sustainable ecosystem for practitioners to exchange knowledge, collaborate and drive agile maturity across business units and across industries. In 2024, these included excursions to Telekom Malaysia, AIA and Maybank, which provided opportunities for crossorganisational learning, enabling participants to exchange experiences, skills and best practices, including innovative facilitation techniques such as LEGO SERIOUSPLAY, for improved effectiveness.

Beginner's Introduction to Professional Professional Aaile In 2024. **Guide to Agile** Agile Scrum Scrum Product Coach we Master **Enablement** Owner upskilled: 1,041 944 218 76 69 **Agile Awareness Survey** Total online >14.6k (Pulse Check) engagement 2024: Score of 3.85/5.0 72 (2023: Score of 3.45/5.0) Roadshows and Engagements >900 Employees **Total additional agile** engaged employee bench strength **Net Promoter** 1,421 Score^{*}

Note:

* Net Promoter Score is a method that uses a single survey question to gauge employee satisfaction by measuring how likely employees are to recommend agile programmes or activities. The Net Promoter Scores are based on total average.

Driving Talent Growth through Coaching

The 2024 Coaching Campaign set out to embed coaching as a catalyst for talent growth, business success and team excellence. The goal was to inspire leaders to embrace and role-model a coaching culture, strengthening PETRONAS' foundation for future-ready leadership.

The campaign focused on building essential coaching skills. Participants engaged in real-time learning, developed coaching habits, explored regional demands and tackled challenges in fostering a coaching culture. This interactive approach not only strengthened skills but also empowered participants to view coaching as an everyday leadership tool.

The campaign results surpassed expectations, attracting 1,848 unique visitors or 134 per cent above the initial target of 1,380. Development opportunities were above projections, at 2,792, a more than threefold increase. Key to this success was the contribution of 30 internal PETRONAS coaches, who served as facilitators, panelists and moderators, exceeding the initial target of 12.

Strengthening Future-Ready Capabilities

We focus on upskilling and reskilling our people to deliver on our business strategies in the new energy landscape. This means heavily investing in our people to become a highlyskilled, innovative and agile workforce, in critical areas, such as leadership, innovation and core skills.

A transition-specific Skills Gap Assessment is conducted annually, focusing on carbon management, renewables and digitalisation. The findings guide curriculum design at Universiti Teknologi PETRONAS, INSTEP and internal learning pathways, ensuring alignment with PETRONAS' Energy Transition Strategy.

Talent Reshaping Programme

This programme aims to cultivate system-thinkers and broadbased technical professionals equipped with digital skills, business acumen and adaptability. The programme supports alignment with our organisational priorities, provides structured onboarding for new hires and strengthens collaboration across technical functions.

In 2024, we enrolled more than 500 junior technical executives from four business units into the programme, representing more than 60 per cent of the targeted group,

with the remainder expected by June 2025. We developed and optimised career paths for 11 technical skill groups and completed a General Technology Inventory and Ruler, embedding sustainability elements across each group.

The Talent Reshaping Framework and Tactical Strategy for technical junior executives to general managers, set the foundation for development across technical levels. The Talent Reshaping Playbook was published on the internal web portal to support consistent implementation.

Looking ahead, we plan to expand the Talent Reshaping Programme to junior executives, introduce technical tools for senior talent and transition existing professionals from specialised roles to broader skill-based groups.

Institut Teknologi Petroleum PETRONAS

As the technical training arm of PETRONAS, Institut Teknologi Petroleum PETRONAS (INSTEP) provides a comprehensive competency-based learning experience through hands-on exposure to projects on campus grounds. Aligned with our goal of enriching the energy workforce for a sustainable future, INSTEP offers structured development programmes such as Executive Technical Solutions and Non-Executive Technical Solutions for engineers and technicians, along with Technical Certification Solutions, which deliver competency-based training for employees at all levels.

In 2024, INSTEP achieved 36,832 development opportunities through 2,186 training sessions, reflecting its strong role in advancing technical capabilities. These efforts upskilled more than 23,220 PETRONAS employees and 13,612 external industry technical talents.

Strengthening Leadership Development

Our leadership development strategy is executed through two distinct initiatives, Leadership EDGE and behavioural science in leadership programme, both aimed at building adaptable, forward-thinking leaders.

In 2024, PETRONAS expanded the Leadership EDGE programme to include executive secretaries and auxiliary police, supporting our competency-driven talent development approach. These upskilling sessions equipped 310 employees with a deeper understanding of EDGE, its sub-competencies and their practical applications. Additionally, 557 employees undertook the Leadership Competency Assessment, where the results guided progression decisions. This initiative strengthened decision-making, teamwork and continuous learning, fostering a more adaptable workforce.



To further enhance leadership effectiveness, we integrated behavioural science principles into leadership programmes. Workshops such as Change the Conversation, Elevating Careers for Top Talents and Conscious Inclusion guided leaders in overcoming ingrained behaviours and hesitation to adopt new approaches, improving decision-making and adaptability. The approach encourages habit formation and alignment with PETRONAS' cultural goals, with data insights supporting personal growth.

PETRONAS plans to expand behavioural science integration to mid and entry-level leadership programmes, collaborate with academic institutions for advanced research and implement continuous feedback loops to refine interventions dynamically.

Fostering Innovation and Entrepreneurship through PING

The PETRONAS Innovation Garage (PING) programme aims to nurture entrepreneurial thinking and become the catalyst for transformative ideas and impactful ventures within the Group. To date, PING has received 185 ideas from employees, with 21 venture ideas incubated from the first two cohorts.

PING's success extends beyond programme participation. In 2024, five of the venture teams launched their solutions as independent start-ups while four other teams were transferred internally within PETRONAS to advance solutions that address operational challenges.

Within just a year of incubation, PING's ventures have delivered impressive outcomes, such as:

- Securing investment for growth JAZRO Technology Robotics Sdn Bhd (JAZRO) programmes attracted significant investment from venture capital firm Gobi Partners Sdn Bhd through Malaysia sovereign wealth fund Khazanah Nasional Berhad-backed Gobi Dana Impak Ventures (GDIV) fund, enabling further expansion.
- **Developing cutting-edge solutions** Tigasfera Sdn Bhd, a material conversion technology and service provider, successfully built and deployed a waste-to-energy machine, while V Cred Sdn Bhd (V-Cred) (now known as Rosary Labs), a team of data enthusiasts, engineers, and innovators and Alngineer Sdn Bhd (Alngineer) launched artificial intelligence-powered solutions that have gained traction through multiple Proof of Concepts both internally and externally.
- **Creating social impact** JAZRO's robotics programmes have reached about 70,000 students, including autistic children, fostering inclusive education through technology.
- Achieving industry recognition V-Cred and Alngineer emerged among seven winners of the Cradle MyHackathon programme by Cradle Fund Sdn Bhd, competing against over 500 groups nationwide. Alngineer went on to reach the finals of the International Talent Entrepreneurship SEA 2024 competition.

Advancing Sustainability Capabilities

PETRONAS offers a range of internal and external programmes that empower our employees and other stakeholders to become sustainability champions. This approach equips them with the knowledge and tools to incorporate sustainability practices into their daily work routine, which will support the Group in achieving its business goals.

Sustainability Capability Programmes

PETRONAS has rolled out a series of learning programmes tailored to different leadership and operational levels in sustainability. These include the Sustainability Excellence Programme for general managers, the Sustainability Masterclass for executives to senior managers, and Sustainability Explained sessions for non-executives. These programmes aim to raise awareness of PETRONAS' Net Zero Carbon Emissions by 2050 Pathway, PETRONAS Position on Nature and Biodiversity, and PETRONAS Human Rights Policy, while equipping participants with knowledge and skills to incorporate sustainability considerations into their roles and decision-making. The Sustainability Excellence Programme has also been extended to external participants through the Sustainability Excellence Programme for Professionals. In addition to the above, it features real-world case studies, which contributes to the nation's path towards environmental and socio-economic balance. It also fosters unique crosssector collaboration by bringing together leaders from both government and industry to enhance synergy in developing and executing initiatives aligned with Malaysia's National Energy Transition Roadmap. In 2024, a total of 721 individuals, including PETRONAS employees, government representatives and supplier representatives, participated in these programmes.

To strengthen technical capabilities in emissions reduction, PETRONAS rolled out a Decarbonisation Programme for designated roles in the organisation. The programme provided practical knowledge on key emissions reduction levers, greenhouse gas accounting and forecasting, carbon pricing and project economics to support the development of assetlevel emissions reduction plans. A total of 87 participants completed the programme across five cohorts.

Sustainability in Higher Education

As part of our ongoing efforts to strengthen sustainability competencies, PETRONAS collaborates with Universiti Teknologi PETRONAS to deliver structured learning through the Centre for Advanced and Professional Education. Designed for PETRONAS employees, these programmes integrate sustainability into talent development pathways, ranging from undergraduate specialisation courses in Environmental and Sustainable Engineering, Renewable Energy and Sustainability, to postgraduate programmes such as the Master of Science in Industrial Environmental Engineering and the Master of Business Administration in Energy Management programmes. The university also offers 57 professional short courses that build capabilities in sustainability-related areas.

Sustainability in Leadership

As part of PETRONAS' commitment to developing sustainability-focused leaders, two top talents strengthened their capabilities in leadership styles, communication and decision-making through the World Business Council for Sustainable Development Leadership Programme, conducted in collaboration with Yale University and the Institute for Management Development, Switzerland.

In addition, another top talent took part in the World Business Council for Sustainable Development LEAP Programme, developed with Yale University and ESADE, which supports women in progressing to senior leadership roles while embedding sustainability into corporate strategy.

To build internal expertise, PETRONAS supported 109 employees in completing executive education programmes on sustainability from leading institutions including the Yale School of Management, the Cambridge Institute for Sustainability Leadership and the Massachusetts Institute of Technology. In addition, two employees participated in specialised training programmes, including the Prince of Wales Business & Sustainability Programme by the Cambridge Institute for Sustainability Leadership and the Sustainability and Climate Risk Certificate by the Global Association of Risk Professionals.

PETRONAS has also embedded sustainability content into its Foundational Leadership programme to cultivate awareness among executives. A total of 350 participants completed the enhanced programme across six cohorts, supporting earlystage leadership development with a focus on sustainability business practices.

Sustainability Engagement and Advocacy

To strengthen internal advocacy, PETRONAS has appointed around 200 Sustainability Network Change Agents across the organisation. In 2024, six engagement sessions were conducted, including a sustainability townhall, sustainability workshops, knowledge sharing by international renowned leaders, and sharing of best practices from various businesses.

As part of our efforts to raise sustainability awareness among future talents, PETRONAS conducted two sessions for 95 Universiti Teknologi PETRONAS students to build understanding of climate change, environmental degradation and inequality, and to explore actions they can take to foster positive impact.

The President and Group Chief Sustainability Officer, Charlotte Wollf-Bye engaging with engloyees on sustainability.

PETRONAS Powering Knowledge

We believe education unlocks individual potential and drives national progress. PETRONAS champions accessible, high-quality education through sustained investments in Science, Technology, Engineering and Mathematics (STEM) and Technical and Vocational Education and Training (TVET). These efforts aim to empower individuals and build a future-ready workforce.

One flagship initiative trained 411 teachers in Cohort 4 as *Duta Guru* or Teacher Ambassadors, equipping them with the skills to cultivate deeper STEM appreciation among secondary school students. This support was extended with the launch of three STEM hubs and the announcement of *Duta Guru* funding.

Our efforts in STEM education continue through the provision of leadership capacity building for 57 officers from District Education Offices to drive change in STEM education, and the empowerment of 40 teachers across 20 primary schools in Kulim in Kedah and Taiping in Perak to ignite early interest in science and technology.

We also support TVET institutions through the Vocational Institution Sponsorship and Training Assistance (VISTA) programme by providing training resources, enhancing syllabus and developing skills to produce industry-ready technical talents. Since its inception in 1992, the programme has positively impacted 14,674 students, including 854 in 2024 alone.

In addition, PETRONAS upskilled 496 undergraduates across five cohorts through a focused two-week programme centered on digital literacy, design thinking, career fundamentals and digital entrepreneurship. Since its launch in 2022, this programme has facilitated 276 job matches through over 90 hiring partners.

Education Sponsorships

RM345.56 million sponsorship investment allocated for **984** students, including

RM319.4 million for 596

top 2023 Sijil Pelajaran Malaysia* students to pursue studies at Universiti Teknologi PETRONAS and other leading local and international institutions

Note:

* Malaysia High School Certificate.

92 per cent of scholars from lower-income households

Fields of Study

55 per cent pursuing engineering disciplines

- **18** per cent in digital fields
- **27** per cent in business studies

Expanding STEM Learning through Petrosains

PETRONAS supports learning reinforcement and enrichment through Petrosains, The Discovery Centre, and Petrosains PlaySmart[™], providing physical and digital platforms where students and the public can strengthen their STEM knowledge, explore PETRONAS' sustainability journey and better understand the transition to a lower-carbon energy future.

In 2024, Petrosains transformed and enhanced its gallery space into an interactive learning hub, featuring immersive STEM exhibitions and creative spaces such as Maker Studio, which offers engaging experiences in coding, prototyping and robotics.

Petrosains also organised a science drama competition, engaging 1,047 participants from primary and secondary schools across Malaysia to spark interest in STEM and raise sustainability awareness, while promoting the 4Cs of critical thinking, creativity, communication and collaboration. In addition, Petrosains introduced a programme to empower Indigenous students with vital skills in robotics, coding and programming. In 2024, the programme benefitted 376 students through workshops conducted across nine states in Malaysia, culminating in a major achievement when students from Pekan, Pahang won the 26th International Robot Olympiad in Busan, Korea.

605,219 visitors welcomed at the Discovery Centre **14,548** individuals benefitted from the programmes

128.14 million people reached through digital platform, enhanced brand visibility

645,751 visitors engaged at Petrosains PlaySmart[™] centres

Empowering a Skilled Workforce for a Sustainable Energy Future

As the energy landscape evolves, investing in the future of workforce remains essential to ensure resilience, foster innovation, and drive sustainable growth.

PETRONAS supports this through its state-of-the-art training institution, Institut Teknologi Petroleum PETRONAS (INSTEP). INSTEP pioneers initiatives such as the Technical Energy Enrichment Programme, which integrates on-the-job training at PETRONAS' Floating LNG facilities to enhance practical learning and competencies.

Expanding its commitment to inclusive education, INSTEP partnered with Yayasan Pendidikan MAIDAM (MAIDAM Education Foundation) for the 2024-2025 Oil and Gas Wakalah TVET Programme^{*}, providing underprivileged individuals in Terengganu with industry-relevant skills to boost their employability in the oil and gas sector.

Note:

* The programme utilises wakalah fund received from zakat center.

RM30.3 million invested

in training for **273** students

36 students trained in collaboration with Hibiscus Petroleum and Sarawak Shell

75 *asnaf*^{**} students from Terengganu provided with three-month industry training

Note: ** Recipients who are eligible for Islamic tithe (zakat).



HW Health and Well-being

Why This Is Important to Us

PETRONAS recognises workforce health and well-being as essential to sustaining a resilient, high-performing organisation. We strive to provide an environment where every employee can thrive both professionally and personally. A healthy workforce is not only more productive, engaged and innovative, but also critical to achieving long-term, sustainable business success.

Occupational health plays a key role in protecting and supporting our workforce. Its main functions include preventing work-related illnesses, managing health risks in the workplace and ensuring that job roles align with employee's physical and psychological capabilities. As the nature of work evolves, occupational health has also expanded to encompass mental, emotional and social well-being. By integrating health promotion into occupational safety and health (OSH) management systems, we continue to strengthen preventive practices that safeguard our people and contribute to long-term organisational resilience.

Our Approach

PETRONAS adopts a comprehensive and proactive approach to employee well-being, anchored in fostering a safe, healthy and inclusive workplace culture.

Our commitment to diversity and inclusion ensures equitable access to opportunities and resources for all employees, regardless of gender, background, age or ability. This is supported by targeted programmes and guided by the Wellness Steering Committee, which drives our strategic health and well-being agenda across the organisation.

Guided by PETRONAS' Shared Values and the PETRONAS Cultural Beliefs, we are committed to inculcating an empowered workforce.

Industrial Hygiene

We strive to uphold workers' rights to a safe working environment by strengthening the management of hazardous chemicals, improving ventilation and gas testing practices in confined spaces, reducing noise risks through engineering controls and utilising digital systems for industrial hygiene risk assessments.

In 2024, through our in-house hazardous chemical management system, we achieved 100 per cent compliance in chemical registers and chemical labelling, and improved the availability of Safety Data Sheets in both local and English languages. We also recorded successful noise reduction ranging from 3-34 A-weighted decibels (dB(A)), achieved from preventive and corrective maintenance of high noise equipment and implementation of corresponding engineering controls.

Providing Support through Employee Assistance Programme 2.0

PETRONAS strengthened mental health support through the Employee Assistance Programme 2.0 delivered via myFriends, a confidential platform offering counselling and wellness services to employees and their family members, subject to evaluation and recommendation. In 2024, 464 employees received support through 1,577 sessions, totaling 1,740 hours of counselling. Comparatively, in 2023, 338 employees received support, amounting to around 1,036 hours of counselling. To further raise awareness, five wellness webinars were held throughout the year, engaging 6,209 participants across virtual and in-person formats.

Driving a Culture of Inclusion

PETRONAS is committed to fostering a workplace where employees feel safe, respected and valued. Guided by our Shared Values and Cultural Beliefs, we promote open communication through regular check-ins, team-building activities and employee surveys to understand workplace sentiment and performance. We also prioritise Diversity and Inclusion by creating an accessible and supportive environments for all employees.



PETRONAS Organisational Culture Survey

PETRONAS conducts an annual Groupwide survey to monitor employee engagement, sentiment and emerging trends, as part of ongoing efforts to stay connected with the workforce. The PETRONAS Organisational Culture Survey provides valuable insights for management to identify areas for improvement, strengthen retention and promote a supportive and engaging work environment that supports mental, emotional and physical well-being.

As part of the Group's 50th anniversary in 2024, employees were invited to share their vision for PETRONAS' future. This initiative generated more than 100,000 suggestions on how to improve operations and drive progress for the next 50 years. The survey achieved a 96 per cent response rate, significantly above the global top 25 per cent benchmark of 75 per cent, reflecting strong engagement across the organisation.

MESTIFit4Health

PETRONAS' flagship health and wellness programme strives to reduce personal health risks and promote healthy behaviour and lifestyle. The aim of this programme is to ultimately ensure optimal health for employees, where they are fit to work, free from work-related illnesses, resilient and committed to maintaining a healthy lifestyle.



Move Right

Encouraging an active lifestyle and overall physical well-being

PETRONAS' Walking Challenge promoted an active lifestyle among employees globally through digital engagement, supporting the Move Right element as a preventive approach to non-communicable diseases. The Walk4Trees 2.0 Challenge (June 2023-June 2024) engaged 13,060 employees and recorded 15.5 billion steps, with the pledge to plant one tree for every 500,000 steps. As a result, Yayasan PETRONAS will plant a total of 31,046 trees, surpassing the number of trees planted from the previous year's challenge. The tree planting will be carried out in phases, beginning at the Kungkular Forest Reserve in Sabah, Malaysia in 2024, and continuing at other identified locations in 2025. To mark PETRONAS' 50th anniversary, the 'P50 Years Homecoming Steps Challenge' recorded 7.9 billion steps, with an average of 1.04 million steps per participant.



Eat Right

Ensuring food and water safety through stringent hygiene standards

The Eat Right programme helped manage the risk of foodborne illnesses during multiple festive events across PETRONAS locations. In collaboration with the Ministry of Health Malaysia, Kuala Lumpur Convention Centre Urusharta and Koperasi Kakitangan PETRONAS (Employees' Cooperative), food safety audits were conducted on hundreds of approved external caterers to ensure compliance with hygiene standards. An internal directive also reinforced preventive measures, including mandatory use of approved caterers, prohibition of potluck-style food contributions, accountability of event organisers and limitations on food menu selections. The effectiveness of these proactive measures was reflected in the zero reported cases of food poisoning during the 2024 *Hari Raya Aidilfitri* (Eid al-Fitr) celebrations.

Sleep Right

Strengthening and expanding our Fatigue Management System to reduce fatigue-related incidents

The Sleep Right programme strengthens fatigue management to prevent workplace incidents. This is supported by revised technical standards that include enhanced requirements on Project Hours of Service Limit, stringent fatigue deviation process and the inclusion of additional high-risk groups such as plant maintenance, and Health, Safety and Environment personnel during critical operations.

Think Right

Supporting employees' mental well-being through a holistic wellness model that addresses psychosocial risk factors

The Think Right programme fosters a psychologically safe workplace through leadership interventions, mental health first aid, resiliencebuilding and mental health literacy. In 2024, 148 senior management leaders were upskilled, and 292 new MIND-A-CARE Ambassadors were trained, bringing the total number of ambassadors to 806. This moves us closer to our 2027 targets of 1,000 ambassadors, equivalent to one ambassador for every 50 employees. A total of 442 employees completed resilience training, with 65 per cent showing improved scores. Mental health advocacy efforts, including the Leaders Reach Out Programme, mental health awareness sessions, onboarding and ongoing promotion via the Health and Well-being one-stop centre, helped stabilise new mental illness cases at 0.76 per cent, below the 0.91 per cent threshold. These efforts also contributed to a 27 per cent reduction in medical boarding out cases, with eight recorded in 2024 compared to 11 in 2023. A major milestone was achieved when the MIND-A-CARE Ambassadors programme, developed in collaboration with INSTEP, won the Gold Medal at the 2024 Brandon Hall Excellence Awards for Best Certification Training Programme.



Individual Right

Empowering employees to make informed health decisions and prevent substance misuse

In 2024, Preventive Health Screening utilisation rose from 7.5 per cent in the first quarter to 46 per cent by year-end, driven by intensive promotion and on-site mobile clinics. Substance misuse prevention was strengthened through integrated awareness in wellness programmes, compliance-driven random testing, centralised reporting for real-time data analysis, certified auxiliary police drug testers and firm actions against non-compliance. PETRONAS also collaborated with Malaysia's National Anti-Drug Agency to support advocacy efforts. These measures resulted in zero substance-related incidents, contributing to a safer and healthier workplace.



PETRONAS is making progress to foster an inclusive and more productive workplace that prioritises employee health and wellbeing. We have actively implemented strategies that acknowledge diverse needs and promote open communication, provide flexible work arrangements and encourage mental health awareness, among others. Sustainability Performance Review

Sustainability Key Performance Data

PETRONAS has set 2019 as the base year for tracking our progress towards achieving the targets of our Net Zero Carbon Emissions by 2050 Pathway. PETRONAS' greenhouse gas (GHG) emissions quantification covers both Operational Control and Equity Share approach for Scope 1 and Scope 2. As part of PETRONAS' efforts to increase confidence in our disclosed GHG emissions data, PETRONAS has embarked on a three-year external GHG verification exercise based on ISO 14064-3:2019.

Greenhouse Gas (GHG) Emissions – Operational Control

PETRONAS Groupwide GHG Emissions Breakdown by Business, Operational Control

(Includes Corporate and Others)

	Unit	2020	2021	2022	2023	2024
Total GHG Emissions (Scope 1 and 2) ¹						
PETRONAS	million tonnes CO ₂ e	55.11	51.58	54.10	54.24	55.71
By Business						
Upstream	million tonnes CO ₂ e	16.36	13.89	13.62	12.88	13.91
Gas and Maritime	million tonnes CO ₂ e	26.03	26.15	28.01	28.03	27.80
Downstream ²	million tonnes CO ₂ e	12.48	11.28	12.19	13.04	13.69
Corporate and Others ³	million tonnes CO ₂ e	0.24	0.26	0.28	0.29	0.31

GHG emissions data are calculated based on the American Petroleum Institute (API) Compendium (2009) and the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report as quantification references. PETRONAS aims to enhance its quantification methods to better align with national reporting requirements, taking into account the significant emissions within the region.

Notes:

1. Covers both Malaysia and international operations.

2. PETRONAS acquired BRB International B.V. and Perstorp Holding AB in 2022. Their GHG accounting systems are currently undergoing an alignment process with PETRONAS' GHG accounting and reporting requirements. The figures above do not include emissions from BRB and Perstorp, which was 0.39 million tonnes CO₂e for 2024.

3. Corporate and Others include KLCC Group of Companies.

PETRONAS Core Business GHG Emissions Detailed Breakdown, Operational Control

(Excludes Maritime, Corporate and Others)

PETRONAS Core Business refers to Upstream, Gas and Downstream, excluding Maritime and Corporate & Others (KLCC Group of Companies).

In 2024, PETRONAS Core Business operations reported 51.55 million tonnes of carbon dioxide equivalent (CO_2e), which is a 4 per cent increase compared to 2023. This growth is primarily attributed to strengthened GHG accounting and monitoring accuracy at downstream petrochemical plants. These enhancements have allowed PETRONAS to better track and manage emissions.

Upstream, Gas and Downstream businesses have shown an increasing trend in production and energy generation due to the higher demand in each business. Scope 1 GHG emissions from PETRONAS Core Business recorded 51.04 million tonnes CO₂e which is higher by 4 per cent compared to 2023, mainly as a result of stationary combustion, fugitive emissions and flaring. There were some changes in Scope 2 emissions for both Malaysia and international Core Business operations in which, international operations recorded a reduction of 95 per cent in Scope 2 emissions in 2024 compared to 2023, due to the divestment of Engen. Engen is an South Africa-based energy group focused on the marketing of petroleum, lubricants and functional fluids, chemicals and retail convenience services. It was a subsidiary of PETRONAS acquired in 1998 and eventually divested in 2024.

	Unit	2020	2021	2022	2023	2024
Total GHG Emissions (Scope 1 and 2)					
PETRONAS Core Business	million tonnes CO ₂ e	50.67	47.13	49.57	49.78	51.55
By Region						
Malaysia	million tonnes CO ₂ e	48.15	44.63	46.09	45.38	46.55
International	million tonnes CO ₂ e	2.51	2.50	3.48	4.40	5.00
By Scope						
Scope 1	million tonnes CO ₂ e	49.76	46.42	48.88	49.09	51.04
Scope 2	million tonnes CO ₂ e	0.91	0.71	0.69	0.69	0.51
Scope 1						
Scope 1	million tonnes CO ₂ e	49.76	46.42	48.88	49.09	51.04
By Region						
Malaysia	million tonnes CO ₂ e	47.64	44.16	45.60	44.89	46.04
International	million tonnes CO ₂ e	2.11	2.26	3.28	4.20	5.00
Ву GHG Туре						
Carbon Dioxide	million tonnes CO ₂	40.34	40.29	43.33	43.76	46.59
Methane	thousand tonnes CH_4	369.36	238.42	214.86	204.51	169.45
Nitrous Oxide	thousand tonnes N_2^{O}	0.64	0.62	0.69	0.73	0.72

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PETRONAS Core Business GHG Emissions Detailed Breakdown, Operational Control

(Excludes Maritime, Corporate and Others) (continued)

	Unit	2020	2021	2022	2023	2024
Scope 1						
By Sources						
Combustion	million tonnes CO ₂ e	32.10	32.05	33.97	29.17	31.52
Carbon Dioxide	million tonnes CO ₂	31.91	31.86	33.76	28.86	31.19
Methane	thousand tonnes CH_4	2.03	2.36	2.26	6.24	7.15
Nitrous Oxide	thousand tonnes N_2O	0.46	0.46	0.50	0.50	0.51
Flaring	million tonnes CO ₂ e	6.65	7.11	7.87	8.49	9.31
Carbon Dioxide	million tonnes CO ₂	6.02	6.49	7.18	7.73	8.54
Methane	thousand tonnes CH_4	24.15	23.82	27.20	28.91	28.80
Nitrous Oxide	thousand tonnes N_2O	0.11	0.12	0.13	0.15	0.15
Venting	million tonnes CO ₂ e	8.19	4.98	3.86	2.49	1.60
Carbon Dioxide	million tonnes CO ₂	1.51	1.31	1.07	0.89	0.79
Methane	thousand tonnes CH_4	267.23	147.04	111.68	64.05	32.27
Nitrous Oxide	thousand tonnes N_2O	-	-	-	-	-
Fugitive Emissions	million tonnes CO ₂ e	1.84	1.63	1.81	2.39	2.35
Carbon Dioxide	million tonnes CO_2	0.02	0.02	0.02	0.02	0.02
Methane	thousand tonnes CH_4	72.88	64.14	71.55	94.62	93.39
Nitrous Oxide	thousand tonnes N_2O	-	-	-	-	-
Others ¹	million tonnes CO ₂ e	0.98	0.65	1.37	6.55	6.26
Carbon Dioxide	million tonnes CO_2	0.88	0.61	1.30	6.26	6.05
Methane	thousand tonnes CH ₄	3.07	1.06	2.17	10.69	7.84
Nitrous Oxide	thousand tonnes N_2O	0.07	0.05	0.07	0.08	0.06
Scope 2						
Scope 2	million tonnes CO ₂ e	0.91	0.71	0.69	0.69	0.51
By Region						
Malaysia	million tonnes CO ₂ e	0.51	0.47	0.49	0.49	0.50
International	million tonnes CO ₂ e	0.40	0.24	0.20	0.20	0.01

Note:

1. Other GHG sources include emissions from activities such as acid gas removal, glycol dehydrator, mobile and transportation, refrigerant and others.

Scope 1: Direct emissions from company-owned or controlled facilities and operations.

Scope 2: Indirect emissions from energy we purchase.

Detailed breakdown may not add up to total due to rounding.

PETRONAS Core Business GHG Emissions Intensity, Operational Control

	Unit	2020	2021	2022	2023	2024
GHG Intensity by Business ¹						
Upstream	tonnes CO ₂ e per kboe	51.51	44.71	36.11	33.80	34.91
Malaysia assets	tonnes CO ₂ e per kboe	61.04	50.14	42.77	37.27	38.62
International assets	tonnes CO ₂ e per kboe	20.06	28.23	24.11	28.31	29.79
Gas and Maritime						
LNG (PLC and PFLNG)	tonnes CO ₂ e per tonnes	0.68	0.65	0.64	0.75	0.64
Downstream ²						
Refineries	tonnes CO ₂ e per barrel	0.018	0.018	0.021	0.019	0.020
Petrochemicals	tonnes CO ₂ e per tonnes	0.62	0.60	0.57	0.62	0.66

Notes:

1. Numerator for GHG intensity is a summation of Scope 1 and Scope 2 GHG emissions under the operational control approach. All GHG intensity figures include carbon dioxide, methane and nitrous oxide emissions expressed in total tonnes CO₂e.

2. Boundary for Downstream GHG Intensity is Malaysia operations only.

A barrel of oil equivalent (BOE) is a unit of energy measurement used to standardise and compare the energy content of different energy sources, such as oil, natural gas and coal, by equating them to the energy contained in one barrel of crude oil.

In 2024, PETRONAS recorded a greenhouse gas (GHG) intensity of 34.91 tonnes CO₂e per kboe for our Upstream operations, which is an increase of 3 per cent compared to 2023, primarily contributed by a ramp up of production in Canada, Iraq, and Kasawari field in Malaysia.

PETRONAS Core Business Methane Emissions Breakdown by Source, Operational Control

(Excludes Maritime, Corporate and Others)

	Unit	2020	2021	2022	2023	2024
Methane Emissions						
PETRONAS Core Business	thousand tonnes CH_4	369.36	238.42	214.86	204.51	169.45
Combustion	thousand tonnes CH_4	2.03	2.36	2.26	6.24	7.15
Flare	thousand tonnes CH_4	24.14	23.82	27.20	28.91	28.80
Vent	thousand tonnes CH_4	267.23	147.04	111.68	64.05	32.27
Fugitive Emissions	thousand tonnes CH ₄	72.88	64.14	71.55	94.62	93.39
Others	thousand tonnes CH_4	3.07	1.06	2.17	10.69	7.84

Methane emissions from PETRONAS Core Business reduced by 17 per cent compared to 2023. This improvement was achieved mainly through flaring and venting reduction, as well as vent-to-flare conversion efforts in Upstream operations.



Greenhouse Gas (GHG) Emissions – Equity Share

PETRONAS Groupwide GHG Emissions Breakdown by Business, Equity Share

(Includes Corporate and Others)

	Unit	2020	2021	2022	2023	2024
Total GHG Emissions (Scope 1 and 2)						
PETRONAS	million tonnes CO ₂ e	47.52	44.05	46.78	46.41	48.32
By Business						
Upstream	million tonnes CO ₂ e	17.96	15.09	15.55	13.77	15.61
Gas and Maritime	million tonnes CO ₂ e	19.30	19.68	21.03	21.66	21.42
Downstream	million tonnes CO ₂ e	10.04	9.04	9.93	10.70	11.01
Corporate and Others	million tonnes CO ₂ e	0.21	0.24	0.27	0.28	0.28

Note:

PETRONAS Groupwide GHG emissions based on Equity Share approach Scope 1 and Scope 2 for 2019 (baseline year) was readjusted post external verification from 54.25 million tonnes CO_2e to 52.67 million tonnes CO_2e .

Total GHG emissions from Scope 1 and 2 for PETRONAS Groupwide operations based on Equity Share approach recorded 48.32 million tonnes CO_2e , which is 4 per cent higher compared to 2023, with Gas and Maritime being the highest contributor with 44 per cent, followed by Upstream with 32 per cent and Downstream contributed 23 per cent.

PETRONAS Core Business GHG Emissions Detailed Breakdown, Equity Share

(Excludes Maritime, Corporate and Others)

	Unit	2020	2021	2022	2023	2024
Total GHG Emissions (Scope 1 and 2)						
PETRONAS Core Business	million tonnes CO,e	45.19	41.68	44.35	44.01	46.09
By Region	-					
Malaysia	million tonnes CO2e	40.56	37.11	39.76	39.63	42.09
International	million tonnes CO_2^{r} e	4.63	4.58	4.59	4.38	3.99
By Scope						
Scope 1	million tonnes CO ₂ e	44.22	40.90	43.57	43.20	45.42
Scope 2	million tonnes $CO_2^{-}e$	0.97	0.78	0.78	0.81	0.67
Scope 1						
By Region						
Malaysia	million tonnes CO ₂ e	40.05	36.67	39.29	39.13	41.65
International	million tonnes $CO_2^{2}e$	4.16	4.23	4.28	4.08	3.77
Scope 2						
By Region						
Malaysia	million tonnes CO2e	0.50	0.43	0.47	0.51	0.45
International	million tonnes CO2e	0.46	0.35	0.31	0.30	0.22

PETRONAS Core Business makes up 95 per cent of total Groupwide GHG emissions Scope 1 and 2 based on Equity Share approach, where Malaysia operations contribute to 91 per cent and International operations contribute to 9 per cent of the emissions.

Note:

PETRONAS Groupwide GHG emissions, for Equity Share approach Scope 1 and Scope 2 for 2019 (baseline year), was readjusted post external verification from 54.25 million tonnes CO_2e to 52.67 million tonnes CO_2e .

Energy - Operational Control

PETRONAS Groupwide Energy Consumption Breakdown by Business, Operational Control

(Includes Corporate and Others)

Unit	2020	2021	2022	2023	2024
petajoules	545.88	531.34	575.55	579.93	595.00
petajoules	72.49	73.53	75.97	74.60	80.01
petajoules	264.01	269.21	289.28	284.60	286.85
petajoules	204.87	183.96	205.21	215.46	222.52
petajoules	4.51	4.65	5.09	5.28	5.61
	petajoules petajoules petajoules petajoules	petajoules545.88petajoules72.49petajoules264.01petajoules204.87	petajoules 545.88 531.34 petajoules 72.49 73.53 petajoules 264.01 269.21 petajoules 204.87 183.96	petajoules545.88531.34575.55petajoules72.4973.5375.97petajoules264.01269.21289.28petajoules204.87183.96205.21	petajoules 545.88 531.34 575.55 579.93 petajoules 72.49 73.53 75.97 74.60 petajoules 264.01 269.21 289.28 284.60 petajoules 204.87 183.96 205.21 215.46

Notes:

1. Covers both Malaysia and international operations.

2. PETRONAS acquired BRB and Perstorp in 2022. Their energy accounting systems are currently undergoing an alignment process with PETRONAS' energy accounting and reporting requirements. The figures above exclude energy consumption from BRB and Perstorp.

3. Corporate and Others include KLCC Group of Companies. The energy consumption for KLCC Group of Companies does not account for inter-company transfers of chilled water.

PETRONAS Core Business Energy Intensity, Operational Control

	Unit	2020	2021	2022	2023	2024
Energy Intensity ¹ by Business						
Upstream						
Total	gigajoules per kilobarrel of oil equivalent	223.35	218.66	197.73	191.14	193.81
Malaysia Assets	gigajoules per kilobarrel of oil equivalent	251.84	249.85	234.11	220.33	227.05
Intenational Assets	gigajoules per kilobarrel of oil equivalent	151.73	151.51	130.95	142.76	145.12
Gas and Maritime						
LNG and Gas Processing	gigajoules per tonne of production	4.80	4.75	4.68	4.68	4.56
Downstream ²						
Refineries	gigajoules per barrel of oil	0.30	0.28	0.33	0.32	0.33
Petrochemicals	gigajoules per tonne of production	10.28	9.83	10.09	9.65	9.33

Notes:

1. Energy Intensity is calculated as total energy consumption over total production or throughput.

2. Boundary for Downstream Energy Intensity is Malaysia operations only.

PETRONAS Groupwide Scope 3 GHG Emissions for Category 11 (2020 – 2024) and Category 1 (2022 – 2024)

	Unit	2020	2021	2022	2023	2024
Scope 3 ¹						
Operational Control						
Category 1: Purchased Goods and Services ^{1,2}	million tonnes CO ₂ e	-	-	30.27	31.06	23.88
Category 11: Use of Sold Products ³	million tonnes CO ₂ e	282.36	277.04	292.09	312.12	298.16
Equity Share						
Category 11: Use of Sold Products ^{3,4}	million tonnes CO ₂ e	277.63	272.54	285.66	297.92	292.00

Notes:

1. PETRONAS' Scope 3 materiality assessment is guided by GHG Protocol, Ipieca and benchmarking with peers. Based on the assessment, Category 11 and Category 1 are the material Scope 3 categories for PETRONAS.

2. Quantification for Category 1 emissions began in 2023 using data from 2022 onwards.

3. Category 11 only includes emissions associated with fuel products sold to third parties. All fuel products sold are assumed to be fully combusted.

4. Scope 3 (Category 11: Use of Sold products) emissions for 2019-2023 have been restated following external GHG verification conducted by LRQA Inspection Malaysia Sdn Bhd.

Category 1 emissions, based on Operational Control approach, decreased by 23 per cent in 2024 compared to 2023, primarily due to reduced purchasing activities by the Downstream business. Category 11 emissions decreased by 5 per cent based on Operational Control approach and decreased by 2 per cent based on Equity Share approach in 2024 compared to 2023. Both reductions were driven by lower sales volume by the Downstream business.

Environment

	Unit	2020	2021	2022	2023	2024
Freshwater Withdrawal						
PETRONAS ¹	million cubic metres	60.5	68.3	77.9	79.2	82.6
By Business						
Upstream	million cubic metres	0.9	1.3	1.3	1.3	1.4
Gas and Maritime	million cubic metres	10.9	10.8	11.2	11.3	11.4
Downstream	million cubic metres	47.4	55.3	63.3	63.4	66.5
Corporate and Others	million cubic metres	1.3	0.9	2.2	3.3	3.2
By Region						
Malaysia	million cubic metres	57.2	67.3	76.8	78.1	81.4
International	million cubic metres	3.3	1.0	1.1	1.1	1.2
Effluents						
Discharges to Water	tonnes of hydrocarbon	532	452	487	327	393
Air Emissions						
Total Sulphur Oxides Emissions	tonnes	84,225	47,954	60,116	60,212	59,400
Total Nitrogen Oxides Emissions ²	tonnes	138,035	133,962	62,790	101,695	92,017
Spillage						
Number of Hydrocarbons Spills into the Environment over One Barrel ³	number of cases	5	2	2	5	10
Waste						
Total Hazardous Waste Generated ⁴	tonnes	92,019	124,884	144,620	152,037	187,294
By Region						
Malaysia	tonnes	67,078	59,882	82,051	66,444	80,116
International	tonnes	24,941	65,002	62,569	85,593	107,178
Total Hazardous Waste Sent for Reuse, Recycling and Recovery (3R)	tonnes	65,170	49,561	73,643	57,424	58,583
By Region						
Malaysia	tonnes	49,022	41,364	63,133	52,147	55,707
International	tonnes	16,148	8,197	10,510	5,277	2,876
Total Hazardous Waste Disposed	tonnes	33,349	59,228	76,485	96,310	121,809
By Region						
Malaysia	tonnes	14,914	21,542	24,449	20,023	17,562
International	tonnes	18,435	37,686	52,036	76,287	104,247

Notes:

1. The increase in freshwater withdrawal by 4 per cent from 79.2 to 82.6 mil m³ is due to an increase in industrial activity by the Pengerang Integrated

Complex. 2. Nitrogen oxide emissions decreased to 92,017 tonnes in 2024 from 101,695 tonnes in 2023 mainly due to lower fuel gas consumption from our maritime

operations. 3. The increase in number of hydrocarbon spills over one barrel is due to factors involving operational handling, connection issues and breaches in secondary

containment. 4. The increase in waste disposal is attributed to the host country's requirements and the limited 3R facilities in the selected international operations.

Safety

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	Unit	2020	2021	2022	2023	2024
Number of Fatalities	number	4	3	4	2	2
Employees	number	1	1	0	1	2
Contractors	number	3	2	4	1	0
Number of hours worked	million hours	273	268	295	292	279
Employees	million hours	120	120	127	131	139
Contractors	million hours	153	148	168	161	140
Fatal Accident Rate (FAR)	number per 100 million hours worked	1.47	1.12	1.36	0.69	0.72
Employees	number per 100 million hours worked	0.84	0.84	0	0.76	1.44
Contractors	number per 100 million hours worked	1.96	1.35	2.38	0.62	0
Lost Time Injury Frequency (LTIF)	number per million hours worked	0.1	0.14	0.13	0.11	0.10
Employees	number per million hours worked	0.09	0.1	0.11	0.08	0.09
Contractors	number per million hours worked	0.11	0.17	0.14	0.12	0.10
Total Recordable Case Frequency (TRCF)	number per million hours worked	0.29	0.41	0.34	0.31	0.30
Employees	number per million hours worked	0.27	0.28	0.26	0.19	0.16
Contractors	number per million hours worked	0.31	0.52	0.40	0.40	0.45
Total Recordable Occupational Illness Frequency (TROIF) for Employees	number per million hours worked	0.39	0.24	0.32	0.66	0.22
Tier 1 Process Safety Events	number of cases	9	10	7	9	7

Employment

	Unit	2020	2021	2022	2023	2024
Total Number of Employees ¹	number	48,679	46,884	49,771	54,105	52,157
By Nationality						
Malaysian	%	80	80	80	79	83
Other Nationalities	%	20	20	20	21	17
By Region						
Africa	%	6.7	6.4	5.7	5.1	0.1
Asia	%	84.6	84.7	83.3	84.5	88.7
Australia and New Zealand	%	0.1	0.1	0.1	0.1	0.2
Commonwealth of Independent States	%	1.4	1.2	1.2	1.2	1.2
Europe	%	2.7	2.9	4.9	4.5	5.0
Middle East	%	2.4	2.3	2.0	1.8	1.9
North and South America	%	2.1	2.4	2.8	2.8	2.9
By Employment Type						
Permanent	%	86	87	88	87	88
Contract	%	14	13	12	13	12
By Age Group						
Above 35	%	53	59	60	58	61
Below 35	%	47	41	40	42	39
Total Number of Trade Union Members	number	8,476	8,353	8,360	8,266	8,728

Note:

1. Employees for 2024 reduced by 3.6 per cent mainly contributed by ENGEN divestment.

	Unit	2020	2021	2022	2023	2024
Gender Diversity						
Employees by Gender						
Women	%	28	28	29	29	30
Men	%	72	72	71	71	70
Employees in Technical Positions by Ge	ender					
Women	%	14	14	14	15	16
Men	%	86	86	86	85	84
Senior Management by Gender						
Women	%	19	26	22	21	20
Men	%	81	74	78	79	80
Management Committee Members by (Gender					
Women	%	22	22	22	22	18
Men	%	78	78	78	78	82
PETRONAS Board Directors by Gender						
Women	%	25	30	18	25	29
Men	%	75	70	82	75	71

	Unit	2020	2021	2022	2023	2024
Benefits						
Employees Who are Entitled to						
Parental Leave						
Women	number	-	-	-	9,863	9,280
Men	number	-	-	-	27,458	27,354
Employees Who Took Parental Leave						
Women	number	-	-	-	679	620
Men	number	-	-	-	2,072	2,221
Employees Who Took Parental Leave and Returned to Work						
Women	number	-	-	-	662	575
Men	number	-	-	-	2,024	1,977
Employees Who Returned to Work After Parental Leave Ended and Still Employed 12 Months After Their Return to Work						
Women	number	-	-	-	652	568
Men	number	-	-	-	1,997	1,973

Note:

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Parental leave refers specifically to maternity and paternity leave, and is subject to eligibility criteria in accordance with local labour laws.

	Unit	2020	2021	2022	2023	2024
New Hires						
Total Number of New Hires ¹	number	2,160	2,172	5,210	7,386	4,079
Malaysian	number	2,003	1,982	4,358	5,796	3,229
Non-Malaysian	number	157	190	852	1,490	461
Undeclared ²	number				100	389
By Nationality						
Malaysian	%	-	86	84	80	88
Non-Malaysian	%	-	14	16	20	12
By Age Group						
Above 35	%	-	31	25	25	34
Below 35	%	-	69	75	75	66
By Job Level						
Non-Executive	%	-	26	37	38	23
Executive	%	-	59	54	52	65
Middle Manager	%	-	14	8	9	11
Senior Management	%	-	1	1	1	1

Notes:

1. Overall new hires decreased compared to 2023, in alignment with management's direction to prioritise internal talent and optimise existing resources.

2. The 'Undeclared' category refers to new hires from companies that are unable to disclose gender information due to the Personal Data Protection

Regulation.

	Unit	2020	2021	2022	2023	2024
Employee Attrition						
Total	%	4.9	8.4	6.6	6.4	12.3
By Gender						
Women	%	1.3	2.8	1.9	1.8	3.7
Men	%	3.6	5.7	4.7	4.6	8.6
By Nationality						
Malaysian	%	-	86	70	68	45
Non-Malaysian	%	-	14	30	32	55
By Age Group						
Above 35	%	-	72	57	55	64
Below 35	%	-	28	43	45	36
By Job Level						
Non-Executive	%	-	41	34	39	46
Executive	%	-	33	48	43	39
Middle Manager	%	-	22	14	15	13
Senior Management	%	-	4	4	3	2

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	Unit	2020	2021	2022	2023	2024
Talent and Future Pipeline						
Training Days per Employee	days	5	4	4.9	7.3	7.1
Average Training Investment per Employee	RM	3,588	2,386	5,433	6,771	6,645
Average Total Hours of Training per Employee	hours	36	30	39.1	58.2	56.9
Average Total Hours of Training per Employee by Gender						
Women	hours	-	36.3	42.0	57.3	58.7
Men	hours	-	27.1	42.7	63.6	61.8
Average Total Hours of Training per Employee by Job Level						
Non-Executive	hours	-	20.5	41.1	63.7	61.2
Executive	hours	-	35.6	46.6	62.9	65.1
Middle Manager	hours	-	35.1	37.9	53.8	56.0
Senior Management	hours	-	21.7	27.5	49.3	42.0
Groupwide Technical Expertise						
Technical Authorities	number	501	601	618	786	838
Technical Professionals	number	1,173	1,281	1,384	1,380	1,455
Technical Trade Specialists	number	259	262	266	255	260
PETRONAS Scholars Recruited	number	219	220	281	256	328
Recruited by PETRONAS	%	61	66	90	91	89
Recruited by Others	%	39	34	10	9	8
Pending Placement	%					3
Sponsorships Awarded to Malaysians ¹	number	370	302	587	615	967
International Universities	%	25	34	34	35	22
Malaysian Universities	%	75	66	66	65	78
Number of Sponsorships Awarded to Non- Malaysians at Universiti Teknologi PETRONA	S number	42	41	41	32	14
Human Rights						
Security Personnel Trained in Human Rights Policies and Procedures	number	913	1,415	617	115	1,827
Number of Operations and Suppliers at Significant Risk for Incidents of Forced or Compulsory Labor	number	0	0	0	0	0
Number of Community Grievance Mechanisms	number	23	14	2	32	38

Note:

1. Sponsorship awarded excludes postgraduate sponsorship.