PETRONAS

ELEVATING GREATER AMBITIONS

SUSTAINABILITY REPORT 2023

PETRONAS GAS BERHAD

198301006447 (101671-H)

ELEVATING GREATER AMBITIONS

Our cover visual, "The Value Tree," creatively represents our value chain, from the gas source to society's pinnacle, showcasing our commitment in enriching lives for a sustainable future.

Central to the illustration are leaves and clouds, reflecting our dedication to environmental stewardship in all that we do.

The presence of people underscores PGB's passion for community growth across the nation particularly in our operational areas, building positive social impact.

In line with our theme, "Elevating Greater Ambitions," the visual captures our journey of growth and innovation, being courageous in pushing boundaries for a brighter tomorrow.

BASIS OF THIS REPORT

As Malaysia's Leading Gas Infrastructure and Centralised Utilities Company, we have a deeply-held responsibility to ensure that our business is managed sustainably and positioned for long-term value creation.

Our actions directly impact a wide range of stakeholders, including our employees, our wide range of suppliers and business partners, local communities and the nation as a whole. Moreover, we face increasingly stringent policy requirements pertaining to sustainability in addition to heightened expectations from our investors and consumers. In this context, it is vital that we place key environmental, societal and governance ("ESG") considerations at the heart of our operations and strategic thinking, including by contributing to the global transition towards more sustainable energy sources.

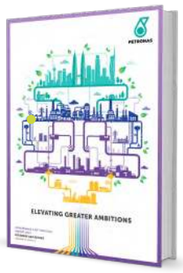
On this note, we are proud to present our 2023 Sustainability Report ("Report"), demonstrating our concerted efforts to harmonise our economic ambitions with the integration of industry-leading ESG approaches across our business. In line with our holistic approach towards sustainable value creation, this Report is one of three (3) within our overall reporting suite, as detailed below.

OUR REPORTING SUITE

INTEGRATED REPORT

As the primary report for our stakeholders, our Integrated Report offers an overview of our financial and non-financial performance, demonstrating how we create and deliver value for our stakeholders.

GOVERNANCE AND FINANCIAL REPORT



Our Governance and Financial Report outlines our integrated approach to creating financial value and discloses our financial results for the year.

SUSTAINABILITY REPORT

Our Sustainability Report details our dedicated initiatives towards creating value across the ESG spectrum and positioning our business for long-term success.

To learn more about PGB, including our business activities, processes and presence, please refer to pages 4-24 of our Integrated Report 2023. Scan the QR code to download.

SCOPE AND BOUNDARY OF REPORTING

The disclosures contained in this Report cover the reporting period from 1 January 2023 to 31 December 2023 (FY2023), unless otherwise stated. Information disclosed covers our primary business activities, encompassing our business segments, subsidiaries and joint venture operations, and is aimed at addressing the information requirements of our investors. This Report additionally details the initiatives we have undertaken to create value for various other key stakeholders, including our employees, customers, government agencies and authorities, suppliers and communities.

The Board Sustainability and Risk Committee (BSRC) was previously known as the Board Risk Committee (BRC). The name change of this committee is effective from 27 February 2024.

The Sustainability and Risk Committee (SRC) was previously known as the Risk and Compliance Committee (RCC). The name change of this committee is effective from 24 January 2024.

RESTATEMENTS OF INFORMATION

Certain data pertaining to our performance in 2021 and 2022 have been restated in this Report due to actions taken to standardise our basis for calculating the data in question or due to a revised interpretation of the relevant data requirements.

REPORTING FRAMEWORK

- Global Reporting Initiative (GRI) Universal Standards 2021
- Sustainability Accounting Standards Board (SASB) Standards
- Bursa Malaysia Securities Berhad's (Bursa Malaysia) Sustainability Reporting Guide (3rd Edition)
- FTSE4Good Bursa Malaysia Index's ESG indicators
- International Petroleum Industry Environmental Conservation Associations' (IPIECA) sustainability reporting guidance for the oil and gas industry (4th Edition, 2020)
- United Nations Sustainable Development Goals (UNSDGs)
- Task Force on Climate-related Financial Disclosures (TCFD) Recommendations
- Task Force on Nature-related Financial Disclosures (TNFD) Recommendations

APPROVAL BY THE BOARD

The Board of Directors recognises its duty to uphold the integrity of this Report which, in their assessment, accurately reflects our sustainability performance and addresses material issues impacting our operations and the industries we operate in.

OUR REPORTING PRINCIPLES

This Report details our sustainability-related performance in 2023, focusing on our operations in Malaysia. To ensure that material topics reported are relevant to sustainability trends, emerging risks and the operating landscape of the industry, we have comprehensively assessed a variety of information sources including government acts, regulations and guidelines, media reports, PETRONAS policies and guidelines, peer benchmarking results, internal auditor reports, surveys and enterprise risk-related documents. We also gathered valuable insights and feedback from stakeholders, allowing us to clearly identify, prioritise and address material sustainability matters in alignment with our business strategies.

In our aim to continuously improve, we remain committed to monitoring our sustainability initiatives and refining the scope and depth of our disclosures on a year-to-year basis. To this end, we conducted a materiality validation exercise in 2023, resulting in the inclusion of fuller disclosures for "Biodiversity Impacts" and "Cybersecurity and Data Privacy".

INDEPENDENT ASSURANCE

SIRIM QAS International Sdn. Bhd. has provided independent assurance for all sections of this Report. The assurance report is shown on pages 160-161.

NAVIGATION ICONS

KEY STAKEHOLDER GROUPS

- Investors and Funding Institutions
- Customers
- Business Partners
- Suppliers and Vendors
- Employees and Unions
- Government Agencies and Authorities
- Communities
- Media

MATERIAL MATTERS

- Sustainable Value Creation
- Mitigating Climate Change
- Environmental Management
- Ensuring Water Security
- Biodiversity Impacts
- Occupational Health and Safety
- Talent Management
- Human Rights
- Supplier Social Impacts
- Equal Opportunity, Diversity and Inclusion
- Community Engagement
- Business Ethics and Transparency
- Cybersecurity and Data Privacy

FEEDBACK

We greatly appreciate and welcome your thoughts and feedback on this Report, which may be directed to:

PETRONAS Gas Berhad
Level 50, Tower 1,
PETRONAS Twin Towers
Kuala Lumpur City Centre
50088 Kuala Lumpur, Malaysia
Attention to Sustainability Reporting Team
or email to **pgbstratcomms@petronas.com**

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INSIDE THIS REPORT

Sustainability Scorecard
The strong progress we made across our sustainability agenda in 2023 to create value for our people, communities and the environment.

Sustainability Blueprint
Our action plan to sustain today and empower tomorrow, brought to life by Group-wide sustainability ambitions through the four (4) sustainability lenses and clearly defined result areas.

Mitigating Climate Change
The effort and progress we are making in reducing our footprint and championing energy-efficient ways of operating, in line with the global energy transition.

Responsible Governance
The efforts we are making to uphold excellence in quality, safety and environmental protection, as recognised by the various awards we received and our elevated FTSE4Good score of 4.1.

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FOREWORD BY THE CHAIRMAN OF THE BOARD SUSTAINABILITY AND RISK COMMITTEE

FOREWORD BY THE CHAIRMAN OF THE BOARD SUSTAINABILITY AND RISK COMMITTEE

"IN THE FACE OF INCREASED SCRUTINY FROM REGULATORY BODIES AND INVESTORS, OUR COMMITMENT TO CLIMATE ACTION AND SUSTAINABILITY WILL BE PIVOTAL IN SAFEGUARDING THE GROUP'S SUCCESS."

Dear Valued Shareholders,

In my capacity as the Chairman of the Board Sustainability and Risk Committee (BSRC), it is an honour to present this foreword for PETRONAS Gas Berhad's (PGB, the Group or the Company) Sustainability Report 2023. This report serves as the primary avenue through which we provide our esteemed stakeholders with valuable insights into our value creation and ESG initiatives.

DATUK YEOW KIAN CHAI
Chairman
Board Sustainability and Risk Committee

Cognisant of growing stakeholder expectations, we have significantly raised the bar on our sustainability framework and endeavours over the past year. Our enhanced outcomes, underscored by our maiden win in PwC Malaysia's Building Trust Awards, signify a shift beyond compliance into a paradigm where sustainability is deeply embedded not only in our processes and practices but also within the overall mindset of the organisation.

Our progress has been empowered by a robust sustainability governance structure that has put forth a clear vision and set actionable targets to drive collective progress across the ESG spectrum. I invite you to delve into this Report and explore how our concerted and conscientious approach to sustainability is playing a pivotal role in safeguarding the stability and long-term prospects of the Group.

ROBUST SUSTAINABILITY GOVERNANCE AND RISK MANAGEMENT

Sustainability governance at PGB continues to be led by the BSRC and Sustainability Working Committee (SWC), providing effective leadership to drive incremental improvements in our sustainability performance.

The BSRC oversees the Group's risk management framework, policies and practices, including ESG, compliance and sustainability matters, while the SWC is responsible for formulating, evaluating and implementing all sanctioned sustainability development initiatives and ensuring transparent communication of outcomes to relevant internal and external stakeholders.

We recognise the imperative for top leaders to stay closely engaged with our sustainability teams. Hence, the SWC is monitored by the Sustainability and Risk Committee (SRC), which is in itself chaired by our Managing Director/Chief Executive Officer (MD/CEO) and further comprised of management representatives from all functional lines across our business units.

Through this robust governance structure, we are empowered to diligently address the evolving sustainability requirements of the energy sector. In the current environment, we face heightened sustainability expectations from regulatory bodies like Bank Negara Malaysia (BNM) and the International Sustainability Standards Board (ISSB), as well as our core shareholders: Permodalan Nasional Berhad (PNB) and Malaysia's Employees' Provident Fund (EPF).

Failure to meet these expectations could expose the Group to various risks, jeopardising our licenses and restricting access to financiers and open markets. On this note, through our Sustainability Blueprint and Strategic Agenda, we are turning these challenges into opportunities to transform and future-proof the Group, aligning our strategic objectives with emerging trends in national and regional energy landscapes.

Through our Sustainability Blueprint and Strategic Agenda, we are turning challenges into opportunities to transform and future-proof the Group.

FOREWORD BY THE CHAIRMAN OF THE BOARD SUSTAINABILITY AND RISK COMMITTEE

PROGRESSING OUR SUSTAINABILITY FRAMEWORK

Our Sustainability Blueprint is aligned with the Greenhouse Gas Protocol (GHG Protocol) and the Oil and Gas Methane Partnership (OGMP 2.0) Framework, in addition to PETRONAS' Net Zero Carbon Emissions 2050 (NZCE 2050) pathway.

Numerous enhancements were made to our overall sustainability framework in 2023 as we expanded upon established strategies and implemented various new initiatives to advance our objectives. The following represents some highlights from the past year:

- Crafted a detailed Sustainability Blueprint that specifies the rollout of key sustainability initiatives until 2030, setting incremental KPIs and targets for each stage of our journey.
- Transitioned one of the four (4) guiding pillars of our Sustainability Blueprint from Continued Value Creation (CVC) to Sustainable Value Creation (SVC), reflecting a holistic expansion of our value creation approach that places greater emphasis on environmental, social, economic and governance considerations.
- Began conducting sustainability initiatives such as Carbon Footprint Assessments for all prospective projects, with relevant training and upskilling programmes also being undertaken to ensure our people remain equipped to support and carry out such sustainability efforts.
- Put into place a Task Force on Climate-Related Financial Disclosures (TCFD) Roadmap that charts a clear course guiding our efforts towards achieving full TCFD recommendations by 2024.
- Broadened the scope of our regular Corruption Risk Assessments from eight (8) to ten (10) key processes, including "Sustainability" and "Self-Regulation" as new processes where corruption risks may emerge.
- Incorporated greenhouse gas (GHG) reduction and Sustainability Blueprint targets into the scorecards of leadership teams, including the MD/CEO, to foster a cohesive and collective Group-wide commitment to sustainability.

EXPANDING OUR SUSTAINABILITY REPORTING

In addressing the growing expectations of stakeholders, we have identified the importance of fortifying our sustainability reporting. In 2023, we participated in a series of dialogues with Bursa Malaysia on FTSE4Good to align with the latest developments of the evolving regulatory landscape.

This was followed up by a reassessment of our materiality matters and, following a validation exercise, we have expanded our disclosures for "Biodiversity Impacts" and "Cybersecurity and Data Privacy" within this year's Report.

On this note, we are pleased to announce a significant improvement in our FTSE4Good score this year from 3.5 to 4.1, with the full marks we achieved within the governance scope validating the effectiveness of our leadership.

STAYING VIGILANT TO THE EVOLVING LANDSCAPE

Looking towards our longer-term strategies, the impending energy transition stands as a key matter being deliberated at the Board level. A Board Strategic Conversation was undertaken in 2023 that delved into the energy landscape in Southeast Asia, along with national strategies aimed at ensuring long-term energy security. This discourse has kept us well-informed about the risks and opportunities shaping the future energy landscape. It will play a crucial role in refining our strategies as we progress on our climate action roadmap and work towards achieving our net zero aspirations.

The Board remains well-informed about the risks and opportunities shaping the future energy landscape.

FOREWORD BY THE CHAIRMAN OF THE BOARD SUSTAINABILITY AND RISK COMMITTEE

While we acknowledge the importance of renewable energy projects to support our long-term growth objectives and safeguard our reputation, we remain mindful of potential challenges. Regulatory uncertainties, including aspects such as gas market liberalisation, renewable energy trading and the implementation of carbon taxes in Malaysia, present key factors to take into consideration. To navigate these challenges, close engagement with stakeholders and regulatory bodies is essential, ensuring that new projects receive the necessary support and operate within a regulatory environment conducive for generating long-term value.

While we acknowledge the importance of renewable energy projects to support our long-term growth objectives and safeguard our reputation, we remain mindful of potential challenges.

In closing, I would like to pay tribute to the strong efforts of the PGB team, who through their dedication and perseverance have enabled the Group to make significant progress towards various sustainability objectives during 2023. As we consistently strengthen our governance and fortify the foundations for achieving our sustainability objectives, we humbly seek the ongoing support of our stakeholders on this transformative journey.

In unity, let us stride forward towards a sustainable future, guided by purpose, resilience and a shared commitment to create lasting value for generations to come. I thank you for your continued support, and for taking the time to read our Sustainability Report 2023.

DATUK YEOW KIAN CHAI
Chairman
Board Sustainability and Risk Committee

MANAGING DIRECTOR/CHIEF EXECUTIVE OFFICER'S STATEMENT ON SUSTAINABILITY

MANAGING DIRECTOR/CHIEF EXECUTIVE OFFICER'S STATEMENT ON SUSTAINABILITY

"AS WE INTEGRATE ESG OBJECTIVES INTO OUR BROADER CORPORATE STRATEGIES, WE ARE TRANSFORMING OUR APPROACH TO VALUE CREATION AND POSITIONING TO CAPITALISE ON EMERGING OPPORTUNITIES WITHIN THE NATIONAL ENERGY TRANSITION."

DEAR VALUED STAKEHOLDERS,

I am delighted to present PGB's Sustainability Report 2023, highlighting our value creation and ESG efforts for the period from 1 January 2023 to 31 December 2023. In a year highlighted by a significantly improved FTSE4Good score, we have made significant progress on our sustainability strategies and demonstrated our readiness to adapt in an evolving landscape.

ABDUL AZIZ OTHMAN
Managing Director/Chief Executive Officer

Moving beyond compliance, we are ingraining a culture of responsibility and accountability across the organisation as we strive towards our net zero ambitions and pioneer sustainable development within the national energy sector. In this statement, I provide an analysis of our sustainability framework, roadmap and strategies, highlighting the substantial initiatives undertaken to advance our sustainable value creation and ESG goals.

AN INTEGRATED SUSTAINABILITY STRATEGY

In an era defined by climate change and energy security concerns, corporate responsibility has taken centre stage. Consequently, sustainability performance has become a key focus for investors and regulatory bodies, particularly in the energy sector. In this rapidly evolving environment, we acknowledge the importance of ingraining a sustainability ethos throughout our strategies, operations and workforce. In doing so, we not only fortify our resilience but also further our aspiration of leaving a positive impact for future generations.

To realise our vision, we have developed a comprehensive Sustainability Blueprint designed to drive cohesive engagement and collective action throughout the organisation. Embedded into the blueprint are pivotal sustainability ambitions that reinforce our commitment to primary sustainable growth and ESG objectives. At the same time, we have aligned our result areas with the G5dot5 targets of our Strategic Agenda, intrinsically linking sustainability performance with our economic and business ambitions.

This blueprint aligns our approach with the prevailing regulatory landscape and the expectations of our valued stakeholders, positioning us to contribute meaningfully to the Malaysian Government's National Energy Policy (NEP) and recently launched National Energy Transition Roadmap (NETR). It also ensures we remain in sync with the Oil and Gas Methane Partnership (OGMP 2.0) Framework, the Greenhouse Gas Protocol (GHG Protocol), as well as the United Nations Sustainable Development Goals (UNSDGs).

To drive progress, we have fortified our Sustainability Blueprint with a comprehensive Sustainability Roadmap, outlining key milestones up to 2030 and setting incremental targets for each stage. By clearly defining our objectives and the pathways to achieve them, we aim to foster greater trust and accountability among all stakeholders, solidifying PGB as a trailblazing energy company with sustainability firmly at the forefront of our ambitions.

In this rapidly evolving environment, we acknowledge the importance of ingraining a sustainability ethos throughout our strategies, operations and workforce. In doing so, we not only fortify our resilience but also further our aspiration of leaving a positive impact for future generations.

MANAGING DIRECTOR/CHIEF EXECUTIVE OFFICER'S STATEMENT ON SUSTAINABILITY

SUSTAINABLE VALUE CREATION

As Malaysia's leading gas infrastructure company, sustaining operational reliability is paramount for not only meeting our contractual obligations and ensuring revenue stability but also to safeguard the nation's energy security. To this end, I am pleased to report that we have once again upheld 100% product delivery reliability for our Peninsular Gas Utilisation (PGU) pipeline during 2023.

With operational reliability intrinsically tied to the value gleaned from our long-term contracts, we will continue to upgrade our facilities to increase efficiency and robustness, while enhancing our infrastructure and capacity to meet increasing domestic demand and adapt to the evolving energy landscape.

The past year witnessed a transformation of our value generation model, as the Board approved a transition from our previous Continued Value Creation (CVC) model to the new paradigm of Sustainable Value Creation (SVC) in March. While our previous CVC approach was primarily centred on conventional business metrics such as revenue and profit margins, SVC encompasses a more holistic approach whereby environmental, social, economic and governance considerations are integrated into commercial pursuits and our overall strategic mindset. Empowered by impact-oriented data, such as insights from Carbon Footprint Assessments (CFA), the SVC approach deepens the integration of environmental and social factors within our value generation processes, empowering us to place sustainability at the heart of our business.

Our recent plans to expand LNG storage capacity and install a cold energy ASU at Pengerang were amongst the first of our growth projects to undertake a CFA from the very early stages of planning and conceptualisation, affording us the insights to integrate sustainability considerations into the core of its design and construction.

Greenifying of our portfolio is another core component of our long-term value generation strategy, and we are exploring several renewable energy projects.

These projects extend beyond long-term value generation; they serve as crucial initiatives signalling our readiness and capacity to engage in emerging opportunities within the national and regional energy sector, most notably in catalytic projects fuelled by the NETR and the proposed ASEAN Power Grid. Looking ahead, we will adopt a more discerning approach in identifying sustainable yet impactful growth projects, leveraging our core expertise while seizing step-out opportunities amidst the energy transition.

SAFEGUARDING THE ENVIRONMENT

As a leader in the regional energy industry, we are dedicated in championing responsible environmental stewardship across our value chain. This commitment is driven by both a sense of moral responsibility as well as a recognition of the inherent business advantages it offers amidst heightened regulatory and investor expectations.

A primary focus of our environmental responsibility initiatives is aimed at mitigating the impact of greenhouse gas (GHG) emissions from our operations. Utilising advanced carbon emission detection tools like Leak Detect and Repair (LDAR), Continuous Emissions Management System (CEMS) and Predictive Emission Monitoring System (PEMS), we are leveraging real-time emissions monitoring to minimise combustion, flaring, venting and the release of other fugitive fumes.

At the same time, we have expanded our application of scenario modelling to enhance energy efficiency, leveraging our analysis to fine-tune operational modes during various scenarios to optimise energy utilisation. In a remarkable validation of our efforts, we collectively reduced GHG emissions by 517,280 tCO_2e in 2023, solely through operational enhancements.

We are concurrently exploring step-out opportunities to harness clean cold energy from our existing operations in order to reduce our carbon footprint. In December 2023, we approved a new project for the installation of an Air Separation Unit (ASU) at Pengerang, which will enable us to harness clean cold energy released during the regasification process.

In terms of reducing waste and optimising our use of resources, we have continued to advance our practices across the 4R principles of Recover, Recycle, Reuse and Reduce. In 2023, we successfully increased our proportion of waste recycled to 74%, a significant increase from the 64% of waste recycled in 2022. At the same time, we more than tripled our total savings through 4R activities from RM1.9 million in 2022 to RM5.9 million over the past twelve months.

In striving to improve the quality and scope of our reporting, we have expanded our disclosure of "Biodiversity Impacts" within this year's report. We have also established a TCFD Roadmap that places the Group on track to achieve full TCFD compliance in 2024.

Moving forward, we will continue to engage meaningfully with our stakeholders, aiming to uncover the depth of their concerns and garner support as we transform our business for a sustainable future.

POSITIVE SOCIAL IMPACT

As a responsible corporate entity, we recognise our duty to safeguard the safety and well-being of our employees, business partners and surrounding communities. Our efforts to instil a Generative Health, Safety, Security and Environment (HSSE) Culture, a crucial objective outlined in our Strategic Agenda, forms a core component of our strategy to consistently improve our practices and performance in this regard.

Through our adoption of a Generative HSSE culture, we encourage responsibility that goes beyond compliance, urging our people to actively apply HSSE principles in their respective work contexts to consistently uncover opportunities for improvement in health and safety practices. In line with this initiative, we introduced the inaugural "Good Catch" award in 2023, rewarding insights and suggestions from employees that contribute to the implementation of a safer working environment.

Despite our ongoing monitoring of leading HSSE performance indicators, it is with regret that I report one (1) Major Loss of Primary Containment (LOPC) and one Loss Time Injury (LTI) during the year. With "zero major incidents" being a key component of our Sustainability Blueprint and Roadmap, we are stringently committed to preventing future recurrences.

To this end, we officially established the Accountability and Behavior Reinforcement Committee (ABRC) in 2023, which is tasked with deliberating the behaviours of all personnel that contribute to Health, Safety and Environment (HSE) incidents. By empowering this committee to take disciplinary measures and give necessary recognition, we hope to eradicate undesired behaviours and inculcate a stronger Generative HSSE Culture capable of upholding our zero HSSE incidents pledge.

In addition, we have significantly expanded training and development activities over the past year, seeking to boost the competencies of our employees, managers and leaders across the domains of HSSE, technical business excellence, leadership and functional skills. The total number of hours spent on employee development and training during 2023 increased by 65% to 190,678 hours, with an average of 105 hours of training provided to each employee over the past 12 months.

MANAGING DIRECTOR/CHIEF EXECUTIVE OFFICER'S STATEMENT ON SUSTAINABILITY

In terms of sharing value with the broader community, we have continued to undertake a variety of educational, outreach and environmental initiatives under the three (3) pillars of Powering Knowledge, Uplifting Lives and Planting Tomorrow. We have continued our sponsorship through the Technical Energy Enrichment (TEP) programme, supporting an additional eight (8) students to bring the total graduates offered positions in the company to 50. Meanwhile, we also provided essential school supplies to 200 students from B40 communities studying at two (2) public schools in Kedah and Melaka.

In addition, we continued to leverage on our Sentuhan Kasih programme in collaboration with Yayasan PETRONAS to deliver basic necessities to underprivileged families across the country during major festive seasons. These efforts remain part of our commitment towards uplifting lives within the communities in which we have a presence. Further details on the full spectrum of our outreach initiatives can be found in the "Positive Social Impact" section of this Report.

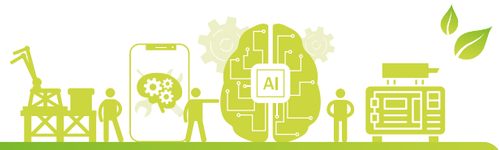
DIGITALISATION AND CYBERSECURITY

We recognise the importance role that new technologies and digitalisation will play in driving us towards our operational excellence targets, which are indeed the bedrock upon which we can steer towards our other long-term targets and objectives. The digital transformation strategies implemented across our key operating assets have enabled our teams to leverage new technologies, advanced analytics, artificial intelligence and machine learning to improve efficiency and support remote operational capabilities.

A big win for our teams in 2023 was the successful implementation of a cutting-edge Gas Transmission Optimisation (GTOPs) digital application that harnesses machine learning to optimise internal gas consumption. I am proud to reveal that this application secured us a victory at the Malaysia Technology Excellence Awards 2023 under the Artificial Intelligence (AI) category.

With a growing reliance on technology and data to augment our operations, there is subsequently an increasing need for vigilance and responsiveness in identifying, assessing and mitigating cybersecurity risks. To enhance our cybersecurity systems in 2023, we implemented the use of Real Time Operational Technology (RTOT) and Operational Technology Asset Management (OTAM), which enable remote monitoring of our cybersecurity and data systems via a Centralised Security Operation Center (SOC). We have also established business continuity and disaster recovery capability against Cybersecurity Ransomware Incidents to ensure critical data availability and operational resilience during potential cyber-attacks.

Moving forward, we will continue to be guided by our adoption and implementation of the PETRONAS Enterprise Cybersecurity Governance Framework as we aim to meet and surpass all applicable laws and requirements. We will simultaneously emphasise cybersecurity and data privacy awareness and communication amongst all stakeholders, most notably by effecting mandatory assessments for internal teams, for which I am pleased to report that we recorded a 95% completion rate in 2023.



The digital transformation strategies implemented across our key operating assets have enabled our teams to leverage new technologies, advanced analytics, artificial intelligence and machine learning to improve efficiency and support remote operational capabilities.

MANAGING DIRECTOR/CHIEF EXECUTIVE OFFICER'S STATEMENT ON SUSTAINABILITY

UPHOLDING RESPONSIBLE GOVERNANCE

We acknowledge the critical role that strong leadership will play in shaping a unified vision and propelling Group-wide action towards the strategies and initiatives outlined in our Sustainability Blueprint.

To ensure the active involvement of our leadership teams and management personnel, sustainability updates have been integrated into the regular agenda of BSRC and SRC sittings. Additionally, monthly reporting of sustainability updates has become standard practice for all leadership teams within PGB. In tandem with this, GHG reduction and Sustainability Blueprint targets have been integrated into the scorecards of leadership teams, including my own, fostering accountability and collective responsibility across the Group.

To ensure the proficiency of our leaders in navigating our journey forward, we are providing relevant training to all members of the Board and Leadership Team, equipping them with the knowledge required to address the evolving requirements of this dynamic sustainability domain, especially on key topics such as TCFD compliance.

As we expand our sustainability initiatives, we are committed to ensuring that all our actions are undertaken responsibly. To achieve this, we have expanded the scope of our regular Corruption Risk Assessment (CRA) exercises to include sustainability and self-regulation processes as new areas where corruption risks may emerge. Furthermore, in line with the Corporate Liability Provision enacted within the Malaysian Anti-Corruption Commission (MACC) Act on 1 June 2020, we established a robust Corporate Liability Program in 2023, identifying and certifying key personnel as Integrity Focal Persons (IFPs) to promote good governance in all of the Group's dealings.

Our concerted efforts to strengthen sustainability governance and performance have resulted in significant achievements this year. Notably, our FTSE4Good score has seen a substantial increase from 3.5 to 4.1 as of December 2023. This improvement is attributed to enhanced scores across the environmental, social and governance spectrum, with the noteworthy achievement of a full score within the governance theme. With our Sustainability Blueprint targeting a score of 4.0 by 2025, our achievement of this milestone ahead of schedule reflects positively on our ongoing sustainability journey.

Furthermore, we played a pivotal role in contributing to PETRONAS winning the esteemed PwC Malaysia's Building Trust Awards (BTA) 2023, where we triumphed over ten (10) other companies from the FBM KLCI to win the accolade for the first time. This biennial award recognises Malaysian public-listed companies that instil trust through capability, transparency and responsibility. Its significance is underscored by its primary judging criteria, which revolves around public perception, including our reputation across social media and employee perception, with over 300 of our employees participating in a survey conducted by PwC.

TOWARDS SUSTAINABLE GROWTH

With gas emerging as a transition fuel of choice, we are committed to consolidating our leadership in the sector and advocating for greater liberalisation of the national gas industry. On that note, as Malaysia moves to phase out coal energy in line with the NETR, we remain open to growth opportunities in gas energy, exemplified by our Sipitang Power Plant project.

The NETR will catalyse a range of transformative projects and we will leverage our robust infrastructure and expertise to pursue initiatives aligned with our core competencies and strategic diversification goals.

While expanding into renewable energy solutions is key to future-proofing our portfolio, we are equally focused on reducing GHG emissions and enhancing energy-efficiency across our operations. Our concerted efforts in emissions abatement have placed us on the right trajectory to achieve net zero by 2050, underscoring our quick and agile action to support PETRONAS' NZCE 2050 pathway commitments.

From a broader sustainability perspective, our strategic and operational initiatives in 2023 showcased our agility and dedication to driving meaningful progress. Building on our improved ESG scores, we are committed to fostering a robust sustainability culture across PGB in 2024 and beyond.

As we forge ahead, we urge our stakeholders and partners to stand by us with unwavering support. Your insights and collaboration are invaluable as we navigate the dynamic market landscape.

Looking to the future, sustainability will remain central to our business strategy, generating value for all stakeholders and strengthening our longevity and prosperity.

I extend my heartfelt gratitude for your continued support.

ABDUL AZIZ OTHMAN
Managing Director/Chief Executive Officer

SUSTAINABILITY SCORECARD

SUSTAINABILITY SCORECARD

We have made firm progress across our sustainability agenda in 2023, underscoring our continued pursuit of excellence in delivering holistic, sustainable value for our business, stakeholders, society and the environment.

- SUSTAINABLE VALUE CREATION
- SAFEGUARDING THE ENVIRONMENT
- POSITIVE SOCIAL IMPACT
- RESPONSIBLE GOVERNANCE

SUSTAINABLE VALUE CREATION

Product Delivery Reliability (PGU)
100%
2022: 100%
2021: 100%

Profit After Tax
RM1.9 billion
2022: 1.8
2021: 2.1

Assets
RM19.3 billion
2022: 19.7
2021: 19.2

Average Salesgas Delivered
2,187 mmscfd
2022: 2,188
2021: 2,003

Tax
RM441.3 million
2022: 511.4
2021: 480.2

Market Capitalisation
RM34.4 billion
2022: 33.9
2021: 35.6

Revenue
RM6.4 billion
2022: 6.2
2021: 5.7

Dividends Declared
72.0 sen per share
2022: 72.0
2021: 82.0

Land
5,103 hectares
2022: 5,008
2021: 4,997

SAFEGUARD THE ENVIRONMENT

GHG Emissions
5.91 million tonnes CO_2e
2022: 5.80
2021: 5.99

GHG Emissions without Exported Energy Emissions
4.74 million tonnes CO_2e
2022: 4.59
2021: 4.80

Waste Recycled
74%
2022: 64%
2021: 57%

Recover, Recycle, Reuse and Reduce (4R) Cost Savings
RM5.9 million
2022: 1.9
2021: 0.7

Freshwater Reduction
219,000 m^3
2022: 226,000
2021: 20,000

Fines and Infringements
0
2022: 0
2021: 0

Wastewater Discharge
0.78 million m^3
2022: 0.87
2021: 1.04

Chemical/Hydrocarbon Spillage
0
2022: 0
2021: 0

POSITIVE SOCIAL IMPACT

Approved Positions
1,848
2022: 1,806
2021: 1,670

Employee Overall Turnover Rate
3.3%
2022: 2.8%
2021: 7%

Employees
1,821
2022: 1,763
2021: 1,671

Contract Employees
0.7%
2022: 1%
2021: 0.2%

Permanent Employees
99.3%
2022: 99%
2021: 99.8%

Loss Time Injury Frequency (LTIF)
0.08
2022: 0.08
2021: 0.09

Fatalities
0
2022: 1
2021: 0

Hours Spent on Employee Development Training
190,678
2022: 115,373
2021: 209,088

Mandays Spent on Employee Development Training
23,835
2022: 14,423
2021: 26,136

Average Hours of Training Per Employee
105
2022: 65
2021: 125

Average Days of Training Per Employee
13.1
2022: 8.2
2021: 15.6

Employee Composition by Nationality
100/0 Malaysian/Foreign
2022: 100/0
2021: 100/0

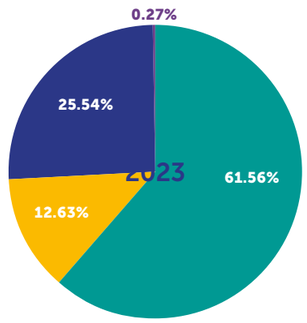
Type of Training
HSE, Technical Business Excellence, Leadership, Functional

Major LOPCs
1
2022: 0
2021: 1

Major Fires
0
2022: 0
2021: 0

Employees with Disabilities
0
2022: 0
2021: 0

Employee Composition by Age/Generation

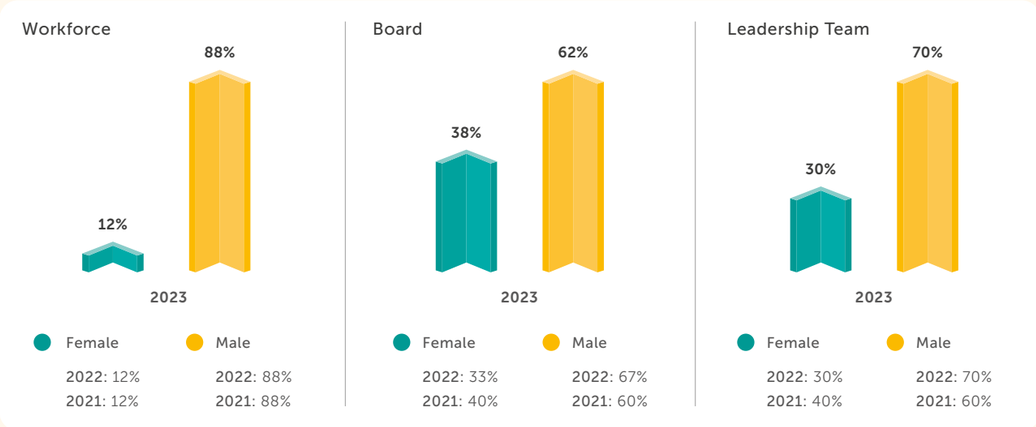


- Baby Boomers (1965 and before)
  2022: 1%
  2021: 1%
- Gen X (1966 – 1979)
  2022: 34.4%
  2021: 32%
- Millennial (1980 – 1994)
  2022: 59.3%
  2021: 65%
- Post Millennial (1995 and after)
  2022: 6.1%
  2021: 3%

SUSTAINABILITY SCORECARD

POSITIVE SOCIAL IMPACT

Composition by Gender



	Female	Male
Workforce	2022: 12% 2021: 12%	2022: 88% 2021: 88%
Board	2022: 33% 2021: 40%	2022: 67% 2021: 60%
Leadership Team	2022: 30% 2021: 40%	2022: 70% 2021: 60%

In delivering benefits to local communities, we align with PETRONAS' three (3) pillars of Powering Knowledge, Uplifting Lives and Planting Tomorrow, under which we contribute to a wide range of long-term, community-based initiatives.

SOCIAL IMPACT MANAGEMENT (SIM) PILLARS

Powering Knowledge

- We have continued our sponsorship through Technical Energy Enrichment (TEP) programme, supporting an additional eight (8) students to bring the total graduates offered positions in the company to 50.
- We provided an opportunity for 108 Graduate Employability Enhancement Scheme (GEES) and 77 student internship graduates to be exposed to a real working environment within the company, thus enhancing employability of new graduates to obtain long term employment.
- As part of our Back to School programme, we provided essential school supplies for students to B40 communities in SK Hosba in Jitra, Kedah and SMK Seri Tanjong in Melaka. A total of 200 students benefited from this initiative.

Uplifting Lives

- Under the umbrella of our Sentuhan Kasih initiative, we conducted outreach programmes during each festive season of 2023, donating hampers and goodies to selected families at various regions around the country.
  - Sentuhan Kasih CNY – Seremban
  - Sentuhan Kasih Aidilfitri – Segamat, Kertih and Shah Alam
  - Sentuhan Kasih Deepavali – Kuantan
  - Sentuhan Kasih Krismas – Klang
- We also promoted initiatives to encourage better health and wellbeing amongst the community, supporting the Orchid Run, Terry Fox Run and Bursa Bull Charge run during 2023.

Planting Tomorrow

- We continued to inculcate sustainability awareness among communities through the following community-based environmental activities:
  - Beach Cleaning Programme at Pantai Petak @ Rhu Kudung, Paka
  - Planting Tomorrow Beach Cleaning and Recycling Awareness at Pantai Puteri, Melaka
  - NAKUDAH Programme *'Nampak, Kutip and Riadah'* at Pantai Batu Rakit, Terengganu
  - *'Program Cintai Sungai'* at Kertih, Terengganu
  - *'Program Hijaukan Bumiku'* at Sultan Zainal Abidin University Malaysia (UniSZA)
  - Turtle Conservation Program at Masjid Tanah, Melaka

SUSTAINABILITY SCORECARD

RESPONSIBLE GOVERNANCE

RECOGNISED FOR EXCELLENCE

PGB

Awards

- PwC Malaysia's Building Trust Award

Our comprehensive publication on ESG

- Information contributed to an improved FTSE4Good Rating of 4.1

Completion of 2023 Integrity Compliance programmes

- Corruption Risk Assessment
- Asset Declaration
- Integrity Day
- Group Integrity Periodical Reporting
- COBE, ABC, Whistleblowing Awareness and Education

GAS PROCESSING

Anugerah Keselamatan Kebakaran Nasional (APPKN) (Awarded in 2023)

- Industry and Manufacturing category - GPS

Anugerah Penarafan Bintang Sasaran Penting (APBSP) 2023

- Emerged as a third-time winner - TSET

Institut Kimia Malaysia (IKM) Excellence Award 2023

- Award for GPK, GPS and TSET

MSOSH Award 2023

- Grand Award - GPK and TSET
- OSH Gold Class - GP
- Gold Class 1 Award for Engineering Department (Turnaround and Shutdown)

National Council for Occupational Safety and Health (NCOSH) Award 2023 (Awarded in 2023)

- Petroleum/Gas/Chemical category - GPS
- Storage category - TSET

Prime Minister's Hibiscus Awards (PMHA) 2021/2022 - HSSE (Awarded in 2023)

- Excellent Achievement (Highest Level of Award) - GPS and UK
- Exceptional Achievement (Second Highest Level of Award) - GPK, UG and TSET

UTILITIES

Institut Kimia Malaysia (IKM) Excellence Award 2023

- Award for UK and UG

MSOSH Award 2023

- Grand Award for UK and UG

Prime Minister Hibiscus Awards (PMHA) 2021/2022 - HSSE (Awarded in 2023)

- Excellent Achievement (Highest Level of Award) - UK
- Exceptional Achievement (Second Highest Level of Award) - UG

GAS TRANSPORTATION

Malaysia Technology Excellence Awards 2023

- Artificial Intelligence (AI) category - Gas Transmission Optimisation (GTOPs) Project (by using digital application to optimise IGC consumption)

MiSHA National Excellence Awards on OSH Principle of Prevention (OSHPoP) 2023

- 15 MiSHA Gold Awards within Gas Transportation and Regasification segments

MSOSH Award 2023

- Gold Merit - Pasir Gudang, Seremban, Shah Alam and Sitiawan Regional Offices

RoSPA Health and Safety Award 2023

- Gold Class 1 Award - Project STAR
- Silver Award - Operation Shah Alam Regional Office

Safety and Health Assessment System in Construction Assessment by CIDB

- 5 Star Award - Project STAR (Southern Operation)

REGASIFICATION

British Safety Council Award

- Distinction in the International Safety Awards 2023 with score of 52 out of 56 - RGTSU
- Malaysian Best in Country Award - RGTSU

International Data Corporation (IDC) Future Enterprise Award 2023

- Best in Future of Operation Award in both Malaysia and Asia Pacific categories - RGTSU Digital Transformation

MiSHA National Excellence Awards on OSH Principle of Prevention (OSHPoP) 2023

- MiSHA Platinum Award - Segamat Operation Centre
- MiSHA Diamond Award - PLNG2, RGTSU, Gurun RO and Kuantan RO
- 15 MiSHA Gold Awards within Gas Transportation and Regasification segments

MSOSH Award 2023

- Grand Award - RGTSU and RGTP

Prime Minister's Hibiscus Awards (PMHA) 2021/2022 - HSSE (Received in June 2023)

- Exceptional Achievement Award in Environmental Performance - RGTSU and RGTP
- Special Project Award (Silver) for Sustainable Waste Management - RGTSU

RoSPA Health and Safety Award 2023

- Gold Award - RGTSU
- RO Silver Award - Central Operation Shah Alam

OUR SUSTAINABILITY APPROACH

OUR SUSTAINABILITY APPROACH

HOLISTIC OVERVIEW OF SUSTAINABLE VALUE CREATION

Sustainability is not merely a checkbox on our business agenda but a vital enabler of our operational and strategic objectives. This is reflected in our transition from a Continued Value Creation (CVC) model of thinking to the new paradigm of Sustainable Value Creation (SVC), under which ESG impacts are core considerations when formulating strategies and operational approaches across our business.

CONTINUED VALUE CREATION (2019 - 2022)	SUSTAINABLE VALUE CREATION (2023)
Value is defined by conventional business metrics such as revenue, profit margin and operating cash flow.	Value is defined holistically, combining financial metrics with economic, environmental, social and governance considerations, which are integrated into our mindset and our approach to commercial pursuits.
As a public listed company, our business imperative is centered on maximising shareholder value and distributing earnings in the form of dividends. Given that the ability to deliver positive returns depends on the flow of revenue and profits from core businesses, CVC focuses on economic value-driven activities within existing product and service streams.	While sustaining economic performance through CVC strategies, further value creation is pursued by embracing a sustainability-centric approach, taking advantage of opportunities and mitigating associated risks in growth initiatives. This orientation embodies an ongoing commitment to assess and refine our approach as we progress towards the goals outlined in our Sustainability Blueprint.

The key initiatives outlined below demonstrate our commitment to creating enduring value, not only for our stakeholders today but also for future generations, through business models underscored by the SVC concept.

Economic Sustainability	We drive the creation of economic value through responsible investments and strive to achieve stable profit generation underpinned by long term contracts, anchoring on operational and commercial excellence as well active portfolio management, while ensuring asset reliability at all times.
Economic Diversification	We diversify our portfolio based on the security of our steady flow of income from our core businesses by exploring several renewable energy projects.
Energy Conservation* and Green House Gases (GHG) Emission Reduction	We actively engage in conserving energy and reducing GHG emissions through continuous enhancements in plant design and operation. To minimise the adverse environmental impact of our emissions, we place great emphasis on optimising the efficiency of all business processes and systems.
Energy and Loss Management System	We are committed to fostering an energy-conscious culture and becoming a cost-effective production unit by implementing an energy and loss management system aimed at eliminating wasteful energy.

* Energy Conservation is the practice of reducing the consumption of energy by producing or using less of it.

OUR SUSTAINABILITY STRATEGY

External Environment Analysis

Moving the needle towards a low-carbon economy while supporting the energy needs of today demands the concerted effort of industry players, policymakers, energy users, infrastructure providers and investors. With this in mind, we believe that analysing our external environment helps us better understand our role within global and national contexts, adapt to evolving change and make meaningful contributions towards shared objectives.

Outlined below are some of the key factors which continuously shape our thought process and action plans on sustainability.

- Participating countries, including Malaysia, are legally bound by the Paris Agreement, which targets to restrict the increase in global average temperature to below 2°C above pre-industrial levels, with further efforts to limit this increase to 1.5°C by 2050.
- A Just Energy Transition acknowledges the social and economic disruptions caused by the transition away from carbon-intensive economies and presents opportunities for industry stakeholders to ensure individuals and communities at every level receive fair, inclusive and equitable treatment.
- Leaders within the global and national energy sectors must balance competing demands across the energy trilemma (i.e., energy security, energy equity (affordability) and environmental sustainability) to establish and sustain healthy energy systems.
- Geopolitical tensions pose inherent risks to energy markets and may consequently escalate fuel prices and global inflation.

OUR STRATEGY TO MANAGE IMPACT

As a leader in the energy sector, we take responsibility for driving positive change and contributing towards larger societal goals. The following represents the ongoing strategies that we have deployed to navigate climate change expectations and potential impacts:

Aligning with PETRONAS' Net Zero Carbon Emissions by 2050 (NZCE 2050)	We have aligned our sustainability strategy with PETRONAS' NZCE 2050 initiative, which is in turn guided by the establishment of the PGB Sustainability Blueprint.
Developing Renewable Energy Solutions	Our strategic focus centres on pursuing growth opportunities with an increased emphasis on renewable energy projects. These projects are expected to complement our existing businesses and align seamlessly with our goal of greenifying our portfolio.

MOVING FORWARD

Guided by our Sustainability Blueprint, we will continue to catalyse change and positive action towards our NZCE 2050 goal while undertaking regular reviews of our strategies and keeping abreast of new regulations and standards pertaining to climate change. To this end, we will continue to seek out ways that we can strengthen our collaborative ties with the PETRONAS Group, particularly through our adoption of cutting-edge carbon mitigation measures. This will enable us to meet the evolving expectations of our stakeholders and investors in this area.

OUR SUSTAINABILITY APPROACH

DETERMINING OUR MATERIAL MATTERS

Our material sustainability matters are identified through periodic materiality assessments. The results are presented at multiple management platforms and subsequently tabled to and approved by the Board. Once approved, these material matters receive strategic guidance from the Board and Leadership Team (LT), laying the groundwork for Group-wide strategies, initiatives and action plans to be developed.

In 2023, we conducted a materiality validation process by benchmarking our existing material matters against relevant local and international industry peers. As a result of this process, we concluded that each of the matters presented in our FY2022 Sustainability Report remained material to the Group.

Further to this, with increasing stakeholder expectations and new standards such as the Taskforce on Nature-related Financial Disclosures (TNFD), we decided to include a fuller disclosure on "Biodiversity Impacts" in this year's report. "Cybersecurity and Data Privacy", on the other hand, was expanded due to the increasing frequency and sophistication of cyber attacks on corporate entities. This necessitates a strong and coordinated Group-wide approach to threat protection, which we have disclosed within this Report.

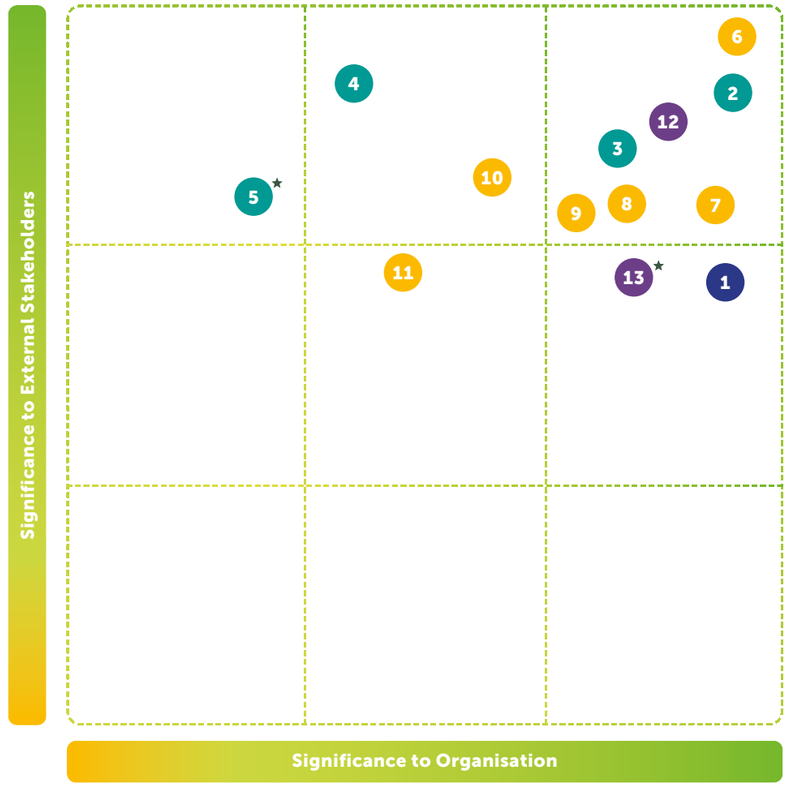
Moving forward, we intend to carry out a full review of our material matters by 2026.

Material Matters Identification Process

IDENTIFICATION	To identify material matters, we employ a combination of in-house desktop analysis and extensive research. This involves assessing our business landscape, operational environment and resource dependencies, and gathering feedback. Our assessment takes into account financial, reputational, operational, environmental, social, strategic and legislative factors. We then deliberate on risks and opportunities within each area, based on the identified material topics.
PRIORITISATION	Leveraging the results of our analysis and research, we rank each material matter based on its importance to our business operations and stakeholders to form our Material Matters Matrix.
VALIDATION	The identified and prioritised list of material matters is tabled for validation by the Management.
CONTINUOUS MONITORING AND RISK ASSESSMENT	Once these material matters are integrated into our strategy, we implement continuous monitoring of our performance and risk elements, benchmarking them on focus areas and key performance indicators (KPI) which are cascaded from the top.

OUR SUSTAINABILITY APPROACH

Material Matters Matrix



ECONOMIC

1 Sustainable Value Creation

ENVIRONMENT

2 Mitigating Climate Change

3 Environmental Management

4 Ensuring Water Security

5 Biodiversity Impacts

SOCIAL

6 Occupational Health and Safety

7 Talent Management

8 Human Rights

9 Supplier Social Impacts

10 Equal Opportunity, Diversity and Inclusion

11 Community Engagement

GOVERNANCE

12 Business Ethics and Transparency

13 Cybersecurity and Data Privacy

★ Fuller Disclosure in 2023

OUR SUSTAINABILITY APPROACH

Material Matters	Risk Description	Mitigation Opportunities
Sustainable Value Creation	• Inability to secure and deliver growth projects effectively • Unsustainable profitability from non-regulated businesses such as utilities • Inability to achieve reasonable tariffs for the regulated business	• Explore growth opportunities in core and adjacent domains, and in non-regulated business (e.g., utilities, power and ancillary service areas) to drive further value
Mitigating Climate Change	• Continuous emissions from operational activities such as combustion, flaring and venting • Inefficient energy consumption • Failure to adapt to climate change	• Improve operational energy efficiency • Implement renewable energy solutions • Explore carbon abatement technologies, waste-to-resource/energy and cold energy optimisation
Environmental Management	• Adverse reputational impact and operational disruptions from breaches of environmental laws, regulations or licensing conditions	• Enhance facilities' performance while ensuring stringent compliance with environmental requirements
Ensuring Water Security	• Fines and penalties from failure to comply with relevant laws • Negative impacts on waterways due to overuse of water	• Implement water conservation initiatives across our business • Maintain stringent wastewater management practices
Biodiversity Impacts	• Irreversible damage to natural habitats • Legal and reputational impacts of any incidents	• Undertake biodiversity and ecological risk assessments at all new projects and operations

OUR SUSTAINABILITY APPROACH

Material Matters	Risk Description	Mitigation Opportunities
Occupational Health and Safety	• Unsustainable HSSE performance, impacting business, operations and reputation	• Inculcate a behavioural safety culture, enforcing commitment from all employees • Implement stringent health and safety standards at all operations
Talent Management	• Insufficient competent talents to drive growth and value	• Establish structured capability development for core and growth skill set requirements
Human Rights	• Unethical hiring of forced labour within the supply chain, tarnishing company reputation	• Hiring procedures are complied with by all parties
Supplier Social Impacts	• Ineffective manpower management, impacting business and plant operations • Reputational damage resulting from any violations of environmental, human rights or other regulations by a supplier	• Create healthy opportunities within the supply chain, supporting surrounding communities • Build our suppliers' capabilities in sustainability
Equal Opportunity, Diversity and Inclusion	• Unhealthy or non-progressive workplace practices impacting business operations	• Promote progressive ways of working and encourage diversity of ideas

OUR SUSTAINABILITY APPROACH

Material Matters	Risk Description	Mitigation Opportunities
Community Engagement	• Negative impacts arising from community engagements • Failure to create desired impact or meet public expectations	• Invest consistently in long-term education, community well-being and development, and environmental initiatives
Business Ethics and Transparency	• Misconduct, corruption, unethical business dealings and failure to uphold integrity in day-to-day operations poses reputational risks	• Conduct training for employees on core corporate values
Cybersecurity and Data Privacy	• Inability to keep up with evolving cyber and data privacy risks • Exposure to operating system failure and data breaches caused by ineffective cybersecurity can disrupt business operations and erode customer trust	• Adopt modern threat protection approaches across our businesses • Conduct 24/7 network monitoring through PETRONAS' Centralised Security Operation Centre (SOC)

Aligning to Sustainable Development Goals

Our sustainability approach reflects our unwavering commitment to the 17 interconnected objectives established under the UNSDGs and its 2030 Agenda for achieving a better and more sustainable future for all.

Aligned with PETRONAS' principles, we prioritise seven (7) of the UNSDGs that are most relevant to our sustainability agenda through the four (4) Sustainability Lenses of Sustainable Value Creation, Safeguard the Environment, Positive Social Impact and Responsible Governance.

UNSDG 3: Good Health and Well-being

UNSDG 4: Quality Education

UNSDG 7: Affordable and Clean Energy

UNSDG 8: Decent Work and Economic Growth

UNSDG 9: Industry, Innovation and Infrastructure

UNSDG 12: Responsible Consumption and Production

UNSDG 13: Climate Action

This focused alignment with the UNSDGs helps us better coordinate our support of the global sustainability agenda while strengthening our collaborative efforts with our stakeholders as we actively pursue our business objective of fostering Sustainable Value Creation (SVC).

OUR SUSTAINABILITY APPROACH

ENGAGING OUR STAKEHOLDERS

Recognising that our stakeholder groups are guided by unique interests and expectations, which are in turn shaped by the ways that our businesses impact them, we are committed to initiating frequent and effective dialogues with them in order to understand and meet their needs.

We keep our stakeholders well-informed on our sustainability initiatives, targets and achievements, maintaining open engagement channels to better understand their needs, concerns and viewpoints. These insights continuously shape our sustainability strategy and contribute to the strategic improvement of our sustainability efforts.

The information presented in this section outlines why and how we engage with our key stakeholders, in addition to our response to their concerns and areas of interest.

INVESTORS AND FUNDING INSTITUTIONS

WHY WE ENGAGE

- Better access to financing
- Liquidity of our shares
- Promote open dialogue with both institutional and private investors to enhance their understanding of the our business
- Continuously build and maintain transparent communication with shareholders, potential investors and the investing community

WHAT WE OFFER

- Solid investment case – stable share price/earnings and low volatility
- Assurance that business activities and decisions are aligned to strategy in creating sustained value
- Assurance that sustainability and compliance with governance principles are considered and integrated into business practices
- Ability to sustain attractive returns to shareholders

KEY CONCERNS

- Impact of elevated energy prices and foreign exchange rates
- Progress of growth initiatives
- Prospect of Gas Processing Agreement renewals
- Continued shareholders' returns
- Sustainability practices and disclosures
- Shift of interest from oil and gas sectors due to heightened environmental awareness

RESPONSE

- Guided disclosures on company strategies and growth initiatives
- Issuance of quarterly results announcements, quarterly analyst briefings and press statements
- Continuous engagement with all relevant stakeholders
- Timely response to queries and shareholders' feedback
- Disclosure of sustainability and governance practices in annual report, company presentations and website

CHANNEL AND FREQUENCY OF ENGAGEMENT

- A One-on-one meetings
- A Emails/Letters/Surveys
- Q Analyst briefings
- Q Website (for analyst briefings only)
- Y Annual General Meeting
- Y Investor conferences and roadshows
- Y Site visits

Frequency A As required W Weekly M Monthly Q Quarterly Y Yearly

OUR SUSTAINABILITY APPROACH

CUSTOMERS

WHY WE ENGAGE

- Present a superior offering that reflects our operational and commercial excellence
- Extend contracts
- Secure new contracts
- Foster and maintain good business relationship

WHAT WE OFFER

- Reliable product delivery at competitive cost
- Quality product offerings
- Commitment to product delivery reliability and conformance to specifications

KEY CONCERNS

- Delivery of high quality products and services in a timely manner
- Competitive product offerings

RESPONSE

- Close integration along the value chain to ensure reliability and Product Delivery Reliability (PDR)
- Increased offering of customer centric-solutions for both products and prices
- Increased customer engagements and visits
- Increased marketing activities and outreach to customers

CHANNEL AND FREQUENCY OF ENGAGEMENT

- W One-on-one meetings
- Q Customer visits
- Y Annual customer experience survey
- Y Industry conferences, forums and events

BUSINESS PARTNERS

WHY WE ENGAGE

- Foster strong relationships through regular communication and collaboration

WHAT WE OFFER

- PGB is licensed in its core regulated businesses (i.e. pipeline, RGTs)
- Better understanding on the latest requirements and regulations
- Work together on joint initiatives that benefit both parties

KEY CONCERNS

- ESG regulations and requirements by potential business partners
- Vice versa where PGB may require a certain threshold of ESG compliance by potential partners

RESPONSE

- Established partner selection criteria to ensure strategic fit

CHANNEL AND FREQUENCY OF ENGAGEMENT

- W One-on-one meetings
- M Management committee meetings
- Q Board meetings
- Y Strategic dialogues, conferences, forums and events

SUPPLIERS AND VENDORS

WHY WE ENGAGE

- Delivery of goods and services aligned to PETRONAS and PGB values

WHAT WE OFFER

- Opportunities and partnerships that assist in growing their business

KEY CONCERNS

- Fair and seamless business transactions

RESPONSE

- Leverage on PETRONAS Group Procurement and Financial Services' relevant policies and procedures
- Close engagements to maintain reliable supply chain

CHANNEL AND FREQUENCY OF ENGAGEMENT

- W Toolbox sessions
- W HSSE contractor improvement programme
- Q Project sponsor meetings
- Y Contractor engagements and clinics

Frequency A As required W Weekly M Monthly Q Quarterly Y Yearly

OUR SUSTAINABILITY APPROACH

EMPLOYEES AND UNIONS

WHY WE ENGAGE

- To foster a positive ecosystem and encourage employees to make valuable contributions in delivering business strategies and achieve strategic goals
- Identify and fill skills gap in order to nurture and develop future talent
- Inspire employees to collaborate harmoniously with the management and working level personnel
- Maintaining conducive relationships with union representatives to maintain industrial harmony

WHAT WE OFFER

- A work environment that promotes sustainability and psychological safety
- Opportunities for learning, development, and growth
- Opportunities to make valuable contributions to achieve personal fulfilment and satisfaction

KEY CONCERNS

- Staff physical and mental well-being
- Conducive and inclusive working environments
- Staff capability development
- Maintaining industrial harmony

RESPONSE

- Roll-out of Mind-A-Care programme designed to provide understanding on risk factors of mental illness, early detection of mental health signs and symptoms
- Communication programmes to encourage staff to embrace diversity and inclusion in the workplace
- Structured staff development that focuses on technical, functional and leadership skills
- Engage and collaborate with union representatives to ensure seamless understanding of HR policies and procedures

CHANNEL AND FREQUENCY OF ENGAGEMENT

- M Engagement with employees
- M Intranet and internet newsletters
- Q Union engagements and activities

GOVERNMENT AGENCIES AND AUTHORITIES

WHY WE ENGAGE

- Positioning PGB to support government initiatives such as the National Energy Transition Roadmap (NETR)
- Be a consultative partner in shaping the direction and market of the gas and power industry in Malaysia

WHAT WE OFFER

- Extensive gas delivery network in Peninsular Malaysia
- Cleanest fossil fuel energy from cogeneration plants
- Safe, reliable and efficient operations across all facilities

KEY CONCERNS

- Gas supply, security and reliability as well as alignment and support towards national agenda
- Economic impact to consumers
- Compliance to regulations and demonstration of commitment to ESG practices
- Health and safety of PGB operations and impact to surrounding communities
- Integrity and ethical business practices
- Timely public disclosures related to Sustainability (e.g. TCFD, TNFD)

RESPONSE

- Formal and informal engagements
- Joint emergency response exercises
- Familiarisation visits to PGB facilities
- Regular reporting to government agencies

CHANNEL AND FREQUENCY OF ENGAGEMENT

- Q Engagement programmes
- Y Consultative sessions

Frequency A As required W Weekly M Monthly Q Quarterly Y Yearly

OUR SUSTAINABILITY APPROACH

COMMUNITIES

WHY WE ENGAGE

- Increase communities' understanding of PGB's business and operations
- Maintain positive image of the company

WHAT WE OFFER

- Education and social support
- Environmental protection and biodiversity preservation

KEY CONCERNS

- Health and safety of PGB operations and impact to surrounding communities
- Education and social support
- Environmental protection and biodiversity preservation

RESPONSE

- Implementation of social impact programmes in the area of education, community wellbeing and environment
  - Powering Knowledge programmes (education)
  - Uplifting Lives programmes (community wellbeing)
  - Planting Tomorrow programmes (environment)
- Sponsorships and donations
- Outreach activities to foster favourable relationship with communities

CHANNEL AND FREQUENCY OF ENGAGEMENT

- M Regular employee engagements
- M Intranet and internet newsletters
- Q Union engagement and activities

MEDIA

WHY WE ENGAGE

- Enable a key communication link between our business and our stakeholders
- Collaborate with the media to circulate vital information that impacts our corporate reputation and brand

WHAT WE OFFER

- Transparency of information
- Regular engagement with PGB spokesperson LT

KEY CONCERNS

- Business performance
- Environmental management and sustainability efforts
- New innovation and technology

RESPONSE

- Foster open and transparent communication with the media
- Provide a speedy response to the media's enquiries on business developments
- Organise rapport-building and sharing activities

CHANNEL AND FREQUENCY OF ENGAGEMENT

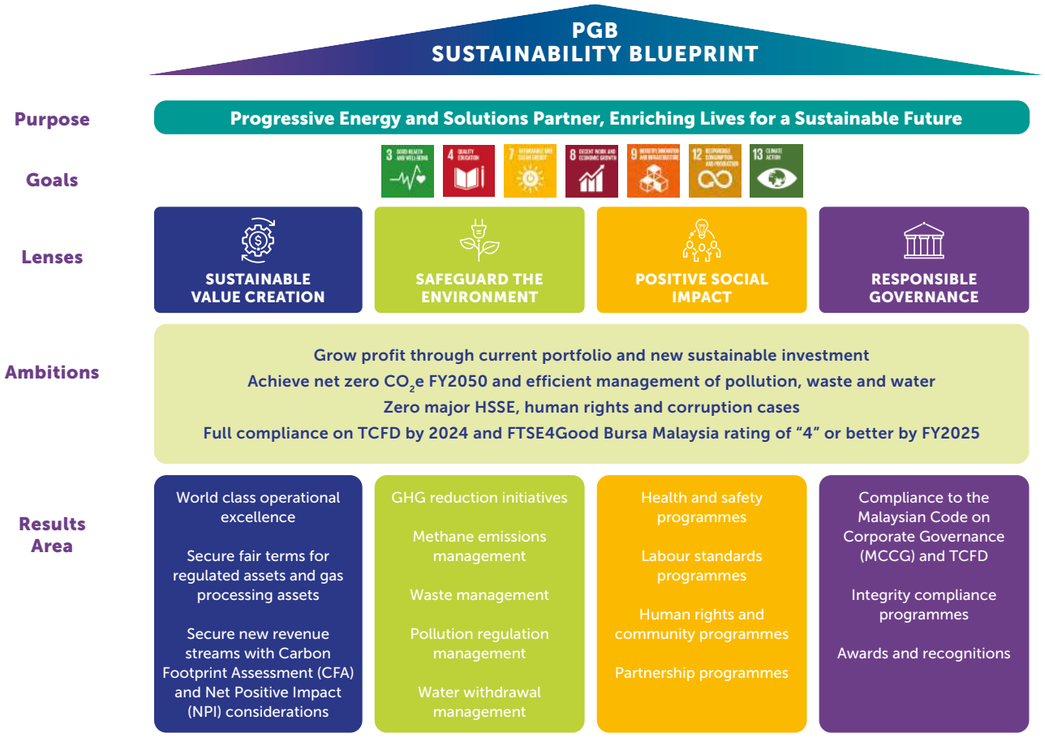
- Q Press releases on quarterly performance
- Y Press releases on key business updates

Frequency A As required W Weekly M Monthly Q Quarterly Y Yearly

OUR SUSTAINABILITY APPROACH

SUSTAINABILITY BLUEPRINT

Our organisational approach to sustainability is encapsulated within our Sustainability Blueprint, which was established and approved on March 2023. The Sustainability Blueprint encompasses the goals, lenses, ambitions and result areas that guide our initiatives and targets. All of these are aligned with and support PETRONAS's Statement of Purpose, "A Progressive Energy and Solutions Partner, Enriching Lives for a Sustainable Future". With each of these elements working in harmony, the blueprint facilitates goal setting and performance measurement, ultimately acting as a guiding compass to reinforce strategic alignment between our economic pursuits and ESG considerations.



Our blueprint and its initiatives are guided by the following standards and frameworks:

- UNSDGs with a focus on SDG 3, SDG 4, SDG 7, SDG 8, SDG 9, SDG 12 and SDG 13
- GHG Protocol and OGMP 2.0 Framework
- PETRONAS' Statement of Purpose: "A Progressive Energy and Solutions Partner, Enriching Lives for a Sustainable Future"
- PETRONAS' NZCE 2050 pathway
- PETRONAS' Sustainability Agenda
- Standards of global ESG ratings agencies

OUR SUSTAINABILITY APPROACH

OUR SUSTAINABILITY APPROACH

SUSTAINABILITY GOVERNANCE

In its commitment to discharge its management duties in the best interest of the Group, our LT realises the importance of maintaining an effective sustainability framework and ensuring that sustainability-oriented decisions and initiatives are implemented throughout our business. This is particularly important amidst today's operating environment and the more specific expectations of stakeholders pertaining to sustainability.

Sustainability Development Governance Structure

Demonstrating our unwavering commitment to sustainability the Board approved the renaming of the Board Risk Committee (BRC) to the Board Sustainability and Risk Committee (BSRC) effective 27 February 2024. This change is intended to better reflect the committee's responsibilities, which encompass not only risk management but also the oversight of ESG, compliance and sustainability matters.

Presently, the BSRC and the Sustainability Working Committee (SWC) are jointly responsible for discussing and deliberating sustainability-related matters, ensuring that sustainability strategies, priorities, targets and performance are transparently communicated to both internal and external stakeholders.

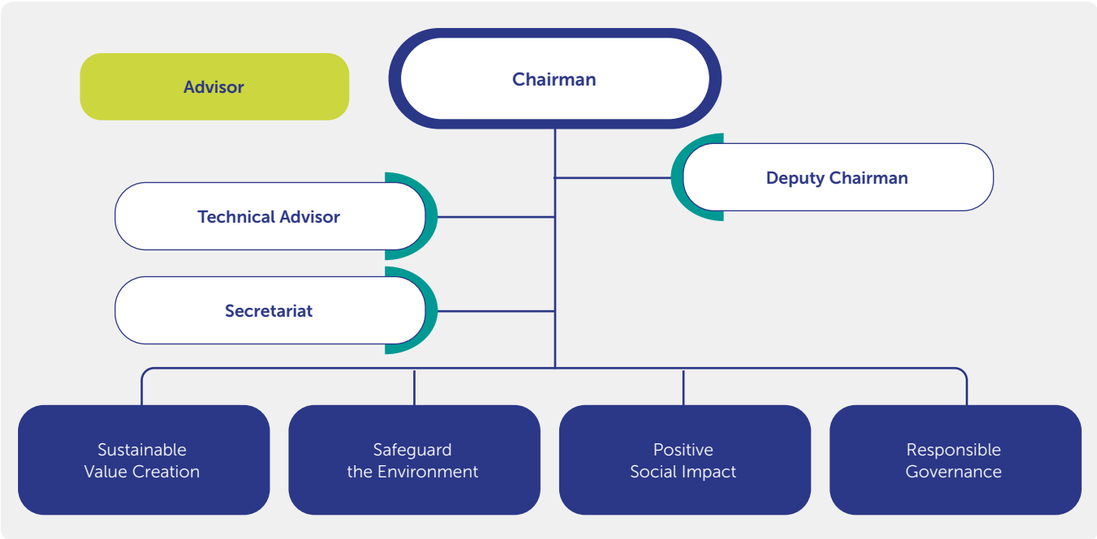
For further information about our "Governance Structure", please refer to page 24 of our Governance and Financial Report 2023.

PGB Sustainability Working Committee

The SWC is entrusted with vigilantly overseeing the implementation of approved sustainability initiatives outlined in the Sustainability Blueprint. Utilising sustainability governance mechanisms and best practices, the SWC promotes the seamless integration of sustainability considerations into all our products and services. Led by the Head of HSSE and Sustainability Department, the committee meets regularly to ensure that sustainability is ingrained as part of our value creation activities and ESG goals.

Discussions regarding sustainability stewardship within the management are facilitated through the Sustainability and Risk Committee (SRC), which is chaired by the MD/CEO with members representing various functions across our business units.

The structure, roles and responsibilities of the SWC are detailed below:



Advisor (Designated Focal Person)	• Provide high level advice and direction to steer sustainability across our businesses • Provide the relevant links and network to foster sustainability development within the Group • Serve as the chief sustainability communication liaison with the Board
Chairman	• Orchestrate and determine the best approach for the Group's sustainability in terms of business strategy, implementation resources, communication to stakeholders, timelines and schedules • Provide oversight for the smooth planning and execution of all sustainability commitments • Chair working committee meetings and provide direction on the Group's sustainability development • Ensure our sustainability milestones and objectives are met
Secretariat	• Organise SWC activities as discussed and agreed upon during the sittings of the SWC • Provide logistics requirement for SWC activities • Capture all agreed upon action items and the way forward and share these with SWC members • Follow up on any actions to be executed by identified parties as indicated by the SWC
Technical Advisor	• Advise on the technical requirements and standards for developing sustainability practices within our operations • Provide technical perspectives on initiatives, gaps and Sustainability Lens metrics • Provide best practices from other OPUs or other SMEs to be embedded within the Group
Lens Leader	• Develop and embed sustainability practices in our business and operations • Conduct gap analyses and implement gap closures • Liaise with relevant stakeholders whenever required • Ensure the appropriate resources are available to perform team duties • Ensure Sustainability Lens metrics and intents are met
Lens Member	• Support the Lens Leader in developing and embedding the respective sustainability practices within the asset • Act as a change agent within the asset or department • Identify gaps and propose suitable gap closures at each asset or department • Support the Lens Leader in liaising with the relevant stakeholders whenever required

Operational Excellence Management System

As we strive for operational excellence, we are harnessing the power of digitalisation, progressive solutions and technologically-advanced facilities to meet our performance targets in a cost-effective manner while maintaining high productivity. We ensure that our operational excellence efforts are grounded on safe, reliable and sustainable approaches by utilising our Operational Excellence Management System (OEMS). This system follows a value-driven approach, providing customised solutions for key operational areas.

Following the introduction of Sustainability as the 15th element of the system in 2022, it was included in the annual Management System Review (MSR) the following year. The findings from the MSR will contribute to the ongoing development and refinement of Sustainability in PGB.

Subscription to Standards and Certification

We adhere to ISO 45001:2018 Occupational Health and Safety Management System (OHSMS) as well as ISO 14001:2015 Environmental Management System (EMS).

OUR SUSTAINABILITY APPROACH

Risk Management and Sustainability

As a leading gas infrastructure and centralised utilities company, we are inevitably confronted with a range of significant risks that can influence, among other outcomes, our operations, financial position, sustainable development and reputation. We proactively employ a risk management system and internal controls to mitigate these risks. Further information regarding our risk management and mitigation activities is available in the Statement on Risk Management and Internal Control (SORMIC) within our Governance and Financial Report.

PROGRESS AND WHAT'S NEXT

Throughout 2023, we have made positive strides in meeting ESG requirements that are material to our business while ensuring our responsibilities to our customers are fulfilled.

Looking ahead, we shall strive to fortify our sustainability efforts by undertaking improvement projects for our power plants and gas infrastructure business while optimising assets across our facilities and exploring carbon abatement technologies along with other renewable energy initiatives.

Meanwhile, we will continue to ensure our alignment to the Malaysian Government's climate change agenda, NETR, PETRONAS' Sustainability Agenda and NZCE 2050 pathway, the UNSDGs, FTSE4Good Bursa Malaysia criteria and the OGMP 2.0 framework. Our Sustainability Blueprint will guide our approach and provide us with a roadmap to meet industry and regulator expectations while delivering greater positive value across our business footprint.

In summary, sustainability will remain central to our business strategy, functioning as a key lever to ensure our competitiveness within a fast-evolving market landscape. By continuing to prioritise the creation of sustainable value for our people, communities and the environment while capitalising on opportunities brought about by the global energy transition, we can in turn safeguard the sustainable growth of our business.

Adopting the Recommendations of the Task Force on Climate-Related Financial Disclosures

We acknowledge the upcoming mandatory disclosure requirements concerning climate-related financial risks, in accordance with the Task Force on Climate-related Financial Disclosures (TCFD) recommendations. Our TCFD Roadmap has been established and approved by the Board Sustainability and Risk Committee (BSRC) and will be reflected in our FY2024 Sustainability Report.

SUSTAINABLE VALUE CREATION

Sustainable Value Creation 34

SUSTAINABLE VALUE CREATION

We have transitioned from the financially-focused Continued Value Creation model to the more holistic Sustainable Value Creation model

WHY IT MATTERS

Our continued ability to generate revenue serves as the foundation of our operational viability while enabling us to fulfil our obligations to our stakeholders and the nation at large. After all, by achieving long-term growth, we can in turn deliver improved returns for our shareholders, support the economic advancement of our employees and suppliers, and invest in the sustainable development of local communities.

In our dedication to create sustainable value for our stakeholders, we have refreshed our value creation approach by transitioning from the financially-focused Continued Value Creation (CVC) model to the more holistic Sustainable Value Creation (SVC) model. Through SVC, we are embedding sustainability into every facet of our decision-making processes, thus aligning the twin priorities of economic growth and sustainable development as considerations of equal importance at all levels of the Group.

OUR APPROACH

Maintaining collaborative relationships with our stakeholders is fundamental in sustaining positive returns. To this end, we strive to uphold accountability through transparent financial reporting and compliance to regulatory frameworks such as Malaysian Financial Reporting Standards (MFRS), International Financial Reporting Standards (IFRS), Gas Supply Act (Amended) 2016, Incentive Based Regulation (IBR) and Third-Party Access Framework. Additionally, we ensure that our initiatives, as detailed in the following sections, adhere to sound governance practices and receive adequate top-level oversight through discussion forums and reporting platforms such as our Investment Steering Committee, Board meetings, Annual General Meetings, analyst briefings and stakeholder management events.

Long-Term Contracts and Effective Portfolio Management

The needs of our customers form the bedrock of our business strategies. Our long-term contracts with them play a pivotal role in mitigating risks associated with evolving market dynamics, driving continued investment into our businesses and sustaining our economic performance.

Through the following long-term contracts, we consistently deliver thoughtful, customer-oriented products, services and technological solutions.

Gas Processing Agreement

Parties: PETRONAS and PGB
Expiry: 31 December 2033

Gas Transportation Agreement

Parties: PEGT and PGB
Expiry: 31 December 2033

Terminal Use Agreement (RGTSU)

Parties: PEGT and RGTSU
Expiry: 21 June 2033

Terminal Use Agreement (RGTP)

Parties: PEGT and PLNG2
Expiry: 1 November 2042

Utilities Agreements

4 contracts expire in 2032
1 contract expires in 2040
6 contracts expire in 2041
2 contracts expire in 2043

Building on the strength of our long-term contracts, we embrace a multi-faceted portfolio management approach that empowers us to achieve our sustainable economic development goals.

EXPAND CURRENT BUSINESS IN LINE WITH DEMAND

Projects Completed in 2023

- GT has completed works on a 10 km gas pipeline to Banting, Selangor.
- UT has secured products delivery to PCC Oxyalkylates Malaysia Sdn. Bhd. in Kertih, Terengganu.
- 42 km lateral gas pipeline to Pulau Indah, Selangor is ready for gas-in.

Ongoing Projects

- New gas compressor in Kluang, Johor is scheduled to commence operations in early 2025.
- A 52 MW power plant in Sipitang, Sabah is expected to be commissioned in 2026.

Projects that achieved FID in 2023

- Liquefied Natural Gas (LNG) Storage Expansion – Growing our future LNG storage capacity with the set-up of a new Floating Storage Unit at Pengerang, Johor.
- Cold Energy Utilisation – Installation of an Air Separation Unit (ASU) at Pengerang, Johor to explore step out opportunities in cold energy utilisation.

SUSTAINABLE VALUE CREATION

Strategic Infrastructure Investments and Community Engagements

Our ability to maximise shareholder wealth and foster long-term business growth goes hand-in-hand with the prosperity of the markets and communities where we operate. With this in mind, we have made positive strides in our infrastructure development projects, each of which are integral to our operations.

As well as being the building blocks for our commercial businesses, these infrastructure investments also spur economic development in areas such as Pengerang, Kertih, the Pulau Indah pipeline routes and their surrounding Right-of-Way (ROW) vicinities. Beyond providing new job and upskilling opportunities, our presence empowers the local community and future generations aspiring to join our team to pursue technical certifications and other skill enhancement programmes that would enrich them with market-ready capabilities. Furthermore, our engagement in the communities where we operate has increased local awareness about our businesses and the significant role we play in the country's development.

At the same time, we acknowledge the adverse effects our business activities may have on these communities, including the displacement caused by development projects, the perception of increased GHG emissions and other forms of pollution, as well as potential land ownership complications or encroachments, all of which may have knock-on impacts on our reputation.

As we pledge to incorporate ESG factors across all dimensions of our economic growth initiatives, we are proactively tackling these challenges to minimise the negative impacts of our operations. This commitment involves conducting comprehensive external environment analyses and undertaking initiatives like environmental impact assessments as well as community outreach programmes. By mobilising action and ensuring that our initiatives are grounded in robust governance and stakeholder engagement practices, we are well-positioned to address key concerns and deliver greater net benefit to the economy.

MOVING FORWARD

Looking ahead, our Sustainability Blueprint will pave the way for the integration of sustainability into all aspects of our economic growth initiatives. To ensure the ongoing economic viability of the Group, we are committed to maintaining a meticulous selection of high-value growth projects. At the same time, we will prioritise projects that are rooted in cost-savings and operational efficiency principles. Our proven record of energy efficiency at our cogeneration utilities facilities at Kertih and Gebeng, where electricity generation can be performed with lower amounts of fuel gas, substantiates our ability to meet this commitment. In 2023, we also started the implementation of CFAs across projects, based on our requirements, while empowering our employees to acquire the certifications essential for conducting impact assessments.

From a broader perspective, we are actively embracing the shifting momentum towards gas power plants as a clean energy alternative. Drawing from our unique competitive advantage gained from operating a gas-powered facility in Kimanis, we aim to expand our gas supply and venture into the power generation business. This aligns with the Malaysian Government's commitment to phase out coal from the nation's energy mix by retiring around 7 GW of coal-fired power plants by 2039.

Maintaining relationships and tapping into the strength of collaborations will remain a top priority to create innovative solutions and confront global sustainability challenges as we move towards our shared net zero ambitions. As the regulated tariffs for our facilities under the Third-party Access (TPA) System have a direct impact on our revenue, it is also imperative for us to maintain an active dialogue with regulatory bodies to effectively navigate tariff-related concerns as they arise.

SUSTAINABLE VALUE CREATION

OUR PERFORMANCE

Direct Economic Value Generated and Distributed (RM million)	2021	2022	2023
Direct Economic Value Generated			
Revenue	5,648.6	6,160.2	**6,445.4**
Other Income[1]	53.8	35.2	**230.1**
Economic Value Distributed			
Operating Costs (e.g. Materials, Products, Facilities Purchased)	1,700.0	2,457.0	**2,639.6**
Employee Wages and Benefits	372.6	416.8	**493.4**
Payments to Providers of Capital	1,646.1	1,735.6	**1,506.1**
Payments to Governments by Country	480.2	511.4	**441.3**
Community Investments	-	-	**5.2**
Economic Value Retained	1,503.5	1,074.6	**1,589.9**

Operational Excellence

For further information, please refer to "Performance Scorecard: Operations" on page 9 of our Integrated Report 2023.

Minimum Wage Compliance and Local Recruitment Efforts

As part of our commitment to non-discriminatory recruitment practices aimed at uplifting the socio-economic fabric of the country, we are pleased to disclose that at our significant locations of operations[2], 100% of our Senior Management[3] employees were hired from local[4] communities. We also ensure strict adherence to minimum wage requirements established by the government.

[1] Comprises net other income, financing costs and contribution from joint ventures and associate.
[2] Refer to "Where We Operate: Our Presence" on page 18 to 19 of our Integrated Report 2023 for a definition of "significant locations of operations".
[3] Senior Management encompasses our Senior Managers, General Managers, Senior General Managers and MD/CEO.
[4] Local is defined as Malaysia.

SAFEGUARDING THE ENVIRONMENT

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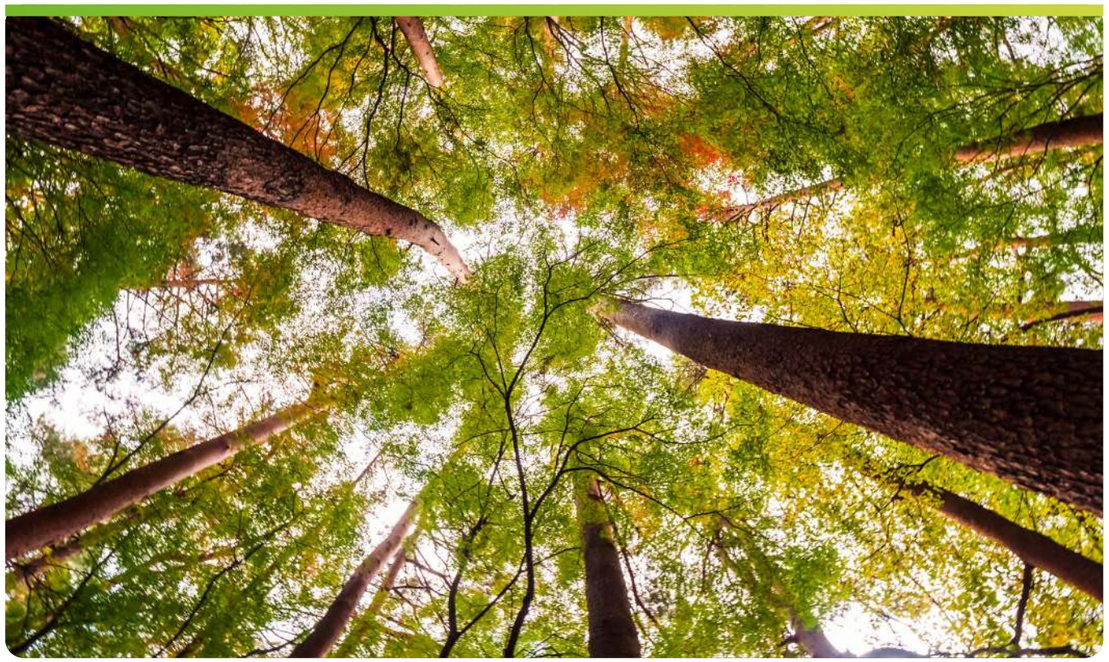
MITIGATING CLIMATE CHANGE



We promote enhanced operational efficiencies, integration of innovative technologies and growth within the renewable energy sector while transitioning towards a low-carbon economy

WHY IT MATTERS

The Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report (AR6) highlights that human activities, particularly the emissions of GHGs, stands as the dominant cause of global warming. With changing temperatures, erratic weather patterns and the alarming rise in severe storms and sea levels, climate change is a global emergency and currently one of humanity's most pressing challenges.

However, beyond the humanitarian and planetary crises at stake, climate change also presents unprecedented opportunities that can be harnessed for enduring success. For instance, the transition towards a low-carbon economy promotes enhanced operational efficiencies, the integration of innovative technologies and growth within the renewable energy sector – underscoring the importance for us to take proactive measures in combating climate change. Consequently, we aim to ensure that our unwavering dedication to mitigating climate change is woven into the collective consciousness of our people and all aspects of our business operations.

MITIGATING CLIMATE CHANGE

MITIGATING CLIMATE CHANGE

OUR APPROACH

Aligning with Group Policies and Global Frameworks

Our climate action strategies are guided by our Sustainability Blueprint, which was developed in alignment with PETRONAS' guidelines on carbon commitment and climate change as well as the Energy and Loss Management System (ELMS) Charter. The blueprint establishes our ambition to achieve net zero carbon emissions by 2050, in line with PETRONAS' NZCE 2050 aspiration.

In adopting a targeted approach towards minimising GHG emissions, we also adhere to relevant international standards and frameworks (e.g., GHG Protocol). In this regard, the TCFD recommendations serve as one (1) of our primary frameworks, steering our implementation of climate-related actions with enhanced reporting transparency and accountability.

In addition, PETRONAS Group's membership in the World Business Council for Sustainable Development (WBCSD) offers us the privilege of acquiring sustainability-related best practices from member organisations. Through the WBCSD, we are empowered to network with a like-minded community of forward-thinking companies that aspire to unlock progress towards sustainable energy production through collaboration, education, tools and technology. We believe that our continued access to the WBCSD will benefit us tremendously in the years ahead.

PGB CLIMATE CHANGE RISK MANAGEMENT FRAMEWORK

The PGB Climate Change Risk Management Framework (CCRM) comprises of three (3) pillars: Carbon Footprint, Mitigation and Adaptation.

Goals

- Comply with Regulations
- Minimise Waste and Optimise Resource Utilisation
- Meet Net Zero Carbon Emissions Commitment by 2050
- Top Quartile ESG Rating
- Comply to TCFD Requirements by 2024

Understand

GHG Boundary (Scope 1 and Scope 2)
- Gas Processing Business
- Utilities Business
- Regasification and Gas Transportation Business

Relevancy of Scope 3 Emissions

GHG Measurement

GHG Inventory
- Combustion
- Venting/Fugitive
- Flaring
- Activities
  - Operation
  - Maintenance
  - Shutdown

Climate Change Scenario Analysis
- Risk
- Opportunity

Mitigation and Adaption

Deployment and Abatement Solution
Eliminate/Reduce Emissions
- Combustion
  - Gas Turbine Optimisation
  - Boilers Heat Recovery
  - Equipment Reliability System
  - Furnace Optimisation
  - Hydrogen
  - Electrification
- Flaring/Venting
  - Flare Recovery
  - Change of Sweep Gas
- Fugitive
  - Leak Prevention and Rectification
- Renewable Energy
- Green Electricity

Capture and Monetise Emissions
- Carbon Capture and Storage (CCS)
- CO_2 Utilisation
- Waste-to-Energy
- Waste-to-Value

Carbon Offsets
- Nature Based Solutions
- Carbon Trading

Climate Change Adaptation
- Transitional Risks
  - Business Advocacy on Gas Utilisation
  - R&D to Capture Post-Combustion Emissions
- Physical Risks
  - Crisis Management
  - Business Continuity Plan

Metrics and Targets

Disclosure of GHG Emissions, Related Risks and Performance Against Targets

Measurement Tools and Digital

The CCRM Framework Approach

The framework seeks to establish clear objectives and helps us better understand our journey toward achieving our net zero aspirations. It identifies pivotal risks and opportunities in our daily operations, including the thoughtful consideration of carbon pricing factors in our growth projects and investments. Alongside climate-positive strategies and implementation plans, the framework provides guidance on disclosing our performance against set targets to track and benchmark progress.

SETTING FOCUSED GOALS

Under the framework, we have set the following climate change goals, which play an important role in helping us achieve our net zero ambition.

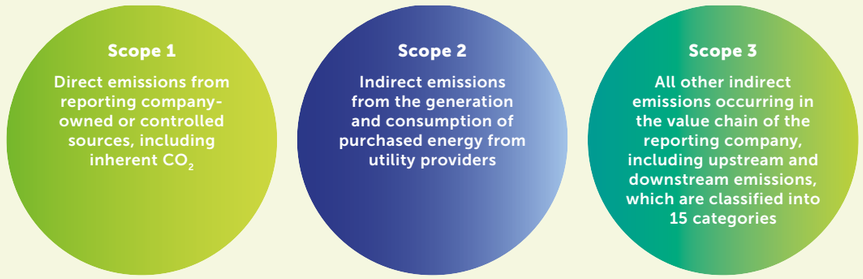
Strive to comply with all relevant laws and regulations at all times and to maintain our record of zero non-compliance incidences or penalties.	Enhance operational efficiencies by implementing two (2) strategies: • Minimise waste and optimise energy consumption • Maximise use of low-carbon power	Mitigate inherent and post-combustion emissions through carbon abatement strategies and address other forms of emissions through netting, carbon offsetting and carbon trading.	Comply with the TCFD recommendations by 2024 and sustain our top quartile ESG performance.

UNDERSTANDING THE REQUIREMENTS

At PGB, we adopt a systematic approach to quantifying our carbon footprint which involves defining clear boundaries, identifying sources and verifying measurements on GHG emissions across operations at our LPG terminal and our gas processing (GPK, GPS and TSET), utilities (UK and UG), regasification (RGTSU and RGTP) and gas transportation facilities.

GHG Emissions Scope of Disclosure

The GHG Protocol Corporate Standard outlines methodologies for quantifying and reporting GHG emissions across three (3) different scopes as defined below:



Presently, our GHG emissions baseline assessment covers Scope 1 and Scope 2. Moving forward, we will continually assess the relevance of the 15 categories under Scope 3 within the existing boundaries of our disclosures.

We have conducted essential measurements and compiled a comprehensive emissions inventory for all our facilities, including inherent CO_2 emissions in our feedgas, combustion, venting, flaring, fugitive and purchased energy. On the other hand, we have observed relatively low levels of methane emissions given that methane sources are limited to factored-in emissions, planned maintenance, venting and fugitive emissions which are accounted for within our overall GHG emissions. Our emissions data for FY2022 has been assured externally by third party independent verification.

Measurement of Emissions

Through CCRM, we have thus far defined our climate action targets and developed a well-rounded understanding of relevant boundaries, scopes and measurement methodologies, along with requirements for climate change scenario analysis.

In charting our trajectory towards NZCE 2050, our emissions baseline as of 2019 is as follows:

GHG: 6.17 million tCO_2e (including emissions from exported energy)

Methane: 6,317.5 tonnes (157,937.48 tCO_2e)

MITIGATING CLIMATE CHANGE

GHG EMISSIONS INITIATIVES

Our ongoing dedication to reducing emissions has kept us within the limits established by PETRONAS. This paves the way for our continued efforts in curbing emissions, primarily through two (2) key strategies – enhancing our Operational Excellence (OE) to reduce Scope 1 emissions and exploring renewable energy opportunities such as Tenaga Nasional Berhad's (TNB) Green Electricity Tariff (GET) to reduce Scope 2 emissions. Our commitment to effective emissions management is further reinforced by our active participation in various decarbonisation initiatives within the PETRONAS group.

In 2023, within the PETRONAS-wide boundary, we emitted a total of 4.74 million tCO_2e (Scope 1 and Scope 2 combined), which is within the target limit of 5 million tCO_2e (2022: 4.59 million tCO_2e).

Exploring Climate Change Aspects, Impacts, Risks and Opportunities

While we proactively employ strategies to mitigate our impact on the climate, we also acknowledge the importance of understanding the climate's reciprocal influence on our business. This understanding allows us to harness the resilience needed to pivot effectively in the face of escalating climate risks and leverage emerging opportunities, safeguarding our business and the livelihoods of our people over the long run.

CLIMATE CHANGE SCENARIO ANALYSIS

The climate change scenario analyses we have conducted underpin the identification of climate-related risks and opportunities. This has guided the formulation of targeted strategies for our daily operations and growth plans. Currently, we maintain a conscientious approach to resource allocation, ensuring a balanced focus on meeting energy demands while actively reducing our carbon footprint. To this end, we continue to participate in PETRONAS' ongoing climate vulnerability assessment conducted across its various business locations in Malaysia. The scope of the assessment includes the following:

MITIGATING CLIMATE CHANGE

CLIMATE TRANSITION RISKS

Utilising TCFD criteria, we have assessed and analysed the full gamut of climate transition risks relevant to our operations, empowering us to identify their implications to our business while revealing the opportunities each risk element simultaneously presents.

TCFD Element	No.	Risk Statement (RS)	Business Implication	Business Opportunity
Policy and Legal	RS1	Introduction of climate change regulations by host authority	Increased cost of compliance and reputational damage (e.g., unable to comply in a timely manner)	Opportunity to collaborate with the host authority to craft climate change regulations that also address energy security and affordability. Opportunity to explore new technologies and business strategies to ensure compliance and cost optimisation.
	RS2	Lack of clarity on the carbon offsets mechanism	Unable to meet NZCE targets, delay to NZCE 2050 business growth opportunities and the possibility of un-optimised expenditure	Opportunity to explore and prioritise investments in low carbon technologies and solutions for emissions reduction. Opportunity to reconsider carbon offset-related projects at a later stage when the mechanism is made clear.
	RS3	Unfavourable carbon price introduced	An increase in business and operational costs	Opportunity to explore cost optimisation strategies and prioritise investment from the Sustainability Lenses perspective through CFA. Opportunity to secure incentives for low-carbon projects from the molecule owner and to explore the potential/value of adjacent waste-to-energy businesses.
	RS4	Failure to comply with climate disclosure requirements	Reputational damage and financial impact (e.g., difficulty) in securing funding (including internationally) and a poor credit rating	Opportunity to leverage high technology measurements and digital tools for quantification, monitoring, tracking and projection. This will lead to better transparency and the attainment of a higher index score, which in turn will enable smooth fundraising and facilitate PGB's growth agenda.
Technology	RS5	Untimely deployment of low-carbon technologies and innovation	Loss of opportunities to market new low-carbon solutions (low carbon footprint), impacting PGB's growth strategies.	Opportunity to proactively work with our parent company and to be considered a solution partner in carbon utilisation, in addition to expediting the deployment of low-carbon technologies and innovation.
	RS6	The threat of the emergence of cheaper clean or low-carbon technologies	PGB is substituted by a new energy and solutions company	Opportunity to remain as one of the main energy providers through the promotion of a total energy transition package encompassing energy security and energy affordability as well as abatement through CCS activities, thus driving competitive advantage.
	RS7	No proven low-energy technology to manage post-combustion emissions	Unable to materialise growth opportunities for PGB	Opportunity to proactively work with the parent company and a technology solution partner to embark on a new carbon capture, utilisation and storage (CCUS) project.

MITIGATING CLIMATE CHANGE

TCFD Element	No.	Risk Statement (RS)	Business Implication	Business Opportunity
Market	RS8	Failure to manage methane emissions in the gas value chain	Limits the opportunity to promote natural gas as a low-carbon fuel, leading to loss of potential revenue	Opportunity to leverage high technology measurement and digital tools for quantification, monitoring, tracking and projection, to provide better transparency relating to methane emissions management.
	RS9	Untimely response to the increasing demand for gas during the energy transition (e.g., the shift from coal to gas)	Loss of potential business opportunities and revenue	Opportunity to cater for increased demand for infrastructure/gas to power via, for instance, increased capacity storage, pipeline expansion, new RGT and new power plants (hybrid).
Physical	RS10	Failure to determine the vulnerability of our operations and adapt to current asset readiness requirements	Unsafe facility/work environment, loss of production days, and personnel and asset damage	Opportunity to include climate change considerations in project designs to build climate-resilient facilities as well as establish an effective crisis management and business continuity plan.
Operational	RS11	Insufficient internal capacity to provide the necessary intervention	Reputational, social, environmental and financial losses	Opportunity to include climate change considerations in the ecosystem, resulting in PGB being perceived as a strong and sustainable company.
	RS12	Introduction of carbon price by host government may lead to the reduction of LPG product demand exports due to sentiments concerning higher prices, etc	Operational constraints in inventory management (e.g., slowdown, product flaring and cost increments due to the increase in emissions)	Opportunity to increase the domestic base of LPG customers and explore new customers with less carbon tax. Opportunity to revisit the plant operating philosophy and plant prioritisation of supply for more sustainable operations.
Reputation	RS13	Increased stakeholder concerns, negative feedback and perception in view of increasing expectations relating to climate change	An increase in the cost of capital and loss of stakeholder trust, thus degrading PGB's intangible value and goodwill.	Opportunity to implement a proactive resolution towards achieving a good index score which will contribute to smooth fundraising and facilitate PGB's growth agenda. Opportunity to explore the step out potential of CCUS (with PETRONAS), waste-to-resource and waste-to-energy initiatives, as well as cold energy optimisation.

MITIGATING CLIMATE CHANGE

PHYSICAL CLIMATE CHANGE RISKS

The risk ratings for physical climate change are derived from a joint climate change vulnerability assessment conducted in collaboration with PETRONAS' Group Health, Safety, and Environment (GHSE) division. The table below details the outcomes of this assessment, with medium-term defined as 2030 and long-term as 2050.

Climate Change Vulnerability Assessment

Hazard	Surface Water Flooding		River Flooding		Coastal Flooding		Storminess		Lightning		Marine Sedimentation, Coastal Erosion		Corrosion		Seawater Temperature		Heat		Droughts		Wildfires		Landslides		River Morphology	
Region/ Year	2030	2050	2030	2050	2030	2050	2030	2050	2030	2050	2030	2050	2030	2050	2030	2050	2030	2050	2030	2050	2030	2050	2030	2050	2030	2050
East Coast	20	25	15	15	15	15	25	25	0	0	15	15	20	20	0	0	4	4	4	4	20	20	16	16	4	4
West Coast	8	8	2	2	2	2	2	5	16	16	2	2	3	3	1	1	1	2	16	25	8	8	4	4	3	3
Southern	12	12	3	3	3	3	6	6	0	0	6	6	3	3	0	0	1	2	3	3	6	6	1	1	1	1
Northern	3	3	3	3	0	0	3	3	0	0	0	0	2	2	0	0	2	4	9	12	1	1	1	1	1	1

Risk Level	Exposure	Score
Very Low		1
Low		2 to 3
Medium		4 to 9
High		10 to 14
Very High		15 to 25

Basis

- Adopt PETRONAS risk scoring based on regional risk exposure
- Offshore facility (RGTSU) is considered as an onshore facility in the assessment
- The risk level is an initial risk rating which excludes existing or future mitigation

The risk scorings above are borne out of initial assessments and do not account for existing or future mitigation efforts. The assessment findings highlight risks in physical climate change adaptation, emphasising potential impacts from extreme weather events like floods and storms, along with the consequences from failure to act on climate change.

MITIGATING CLIMATE CHANGE

MITIGATING CLIMATE CHANGE

CLIMATE RISK MITIGATION AND ADAPTATION PLANS

To safeguard our operations from extreme weather events, we leverage the following climate risk and adaptation strategies:

Flood Preparation and Mitigation

Upon the completion of the drainage system improvement project in 2014, Flood Committees have been established across our locations. These committees are mobilised during the monsoon seasons from October to December and are tasked with the implementation of flood prevention measures and emergency response in the event of floods. Working collaboratively with local authorities such as the Fire and Rescue Department of Malaysia (Jabatan Bomba dan Penyelamat Malaysia or BOMBA) and the Public Services Department (Jabatan Perkhidmatan Awam or JPA), these committees help evacuate affected areas and provide essential support to impacted families, including assistance with flood clean-up efforts.

Protection from Storms

We conduct studies and periodically implement enhancements to reinforce our roofing, with the aim of ensuring its ability to withstand the predetermined wind speed loading of 28 m/s. A key initiative has been our replacing of the conventional nailing system at the Air Separation Unit (ASU) 2 compressor shelter with an enhanced clipping system to strengthen the structural integrity of the metal roofing deck and its components.

The ASU 2 shelter has also been enrolled in the Structure Integrity Management System (SIMS) preventive maintenance programme, which entails annual monitoring to preserve the superstructure's integrity. After conducting an integrity exercise on wind loading for the ASU2 compressor shelter, it was confirmed that the shelter can now withstand 40% higher wind loading, affirming its long-term durability.

Corrosion Prevention

We utilise an innovative graphene-based technology to protect our steel structures from corrosion. This initiative, undertaken in collaboration with PETRONAS Research Sdn. Bhd., aims to extend asset lifespan by five (5) to 15 years.

Mitigating Coastal Erosion

We utilise breakwaters, which shield our operational sites from tides, currents, waves and storm surges, as an integral component of our coastal management system. Additionally, they create sheltered spaces for vessel berthing and mitigate sediment transport within the littoral/basin zone.

Preventing the Spread of Wildfires

In 2019, a fire occured in the vicinity of one of our assets in Gebeng due to the overheating of peat-rich soil during the hot season. There have been no further fires in this location since, and we remain attentive to any risks that may arise.

DEPLOYING OUR ABATEMENT SOLUTION STRATEGY

Mitigation and adaptation strategies are critical components of our overall risk management approach, vital to achieving our NZCE 2050 aspirations. To this end, we have established our own NZCE 2050 pathway which outlines our deployment of abatement solutions that align to PETRONAS.

Elimination and Reduction of Emissions

To steadily reduce our GHG emissions over time, we continue to build upon our OE initiatives to reduce or eliminate flaring as well as combusted, vented or fugitive emissions. We significantly leverage on technology and innovation to adopt science-based resource optimisation and decarbonisation solutions which include:

Optimisation and upgrading of gas turbines	Improvements in boiler heat recovery	Implementation of an equipment reliability system	Optimisation of furnace
Utilisation of zero carbon methane	Installation of flare recovery systems	Replacement of sweep gas with inert gas	Installation of leak prevention and rectification systems

The switch to renewable energy represents a viable opportunity to further minimise emissions, and successful implementation of solar power at our Seremban facility sets the precedent for wider use. In 2023, we managed to procure 3,200 MWh of green energy, contributing to the reduction of 2,134 tCO_2e of GHG emissions. Furthermore, since 2005, we have integrated hydrogen rich gas utilisation at another operational unit and expect to maximise consumption at an equivalent emissions reduction of approximately 4,700 tCO_2e per annum.

Capture and/or Monetise Emissions

We are collaborating with PETRONAS to capture not only inherent CO_2 but also post-combustion CO_2 as part of the roadmap to net zero, with nearly 1.70 million tCO_2e per annum from inherent CO_2 alone. We have also put in place a plan to address post-combustion emissions through fuel switching in electrification for gas and steam turbines. We have been generating revenue from the sales of CO_2 since the early 2000s and, in 2023, monetisation from CO_2 sales contributed to the reduction of 0.2 million tCO_2e of GHG emissions.

Netting, Carbon Offsetting and Carbon Credits for Remaining Emissions

To address any residual, unavoidable emissions beyond our carbon mitigation capabilities as described above, netting would be the next viable option in our pursuit of net zero. Currently, we are exploring the feasibility of new green projects centered around renewable energy, waste-to-energy and waste-to-value initiatives. As we continually develop our understanding of these ventures and the possibilities they bring, we are also assessing the best ways to apply for entitlement certificates, which can then be used for netting or offsetting purposes.

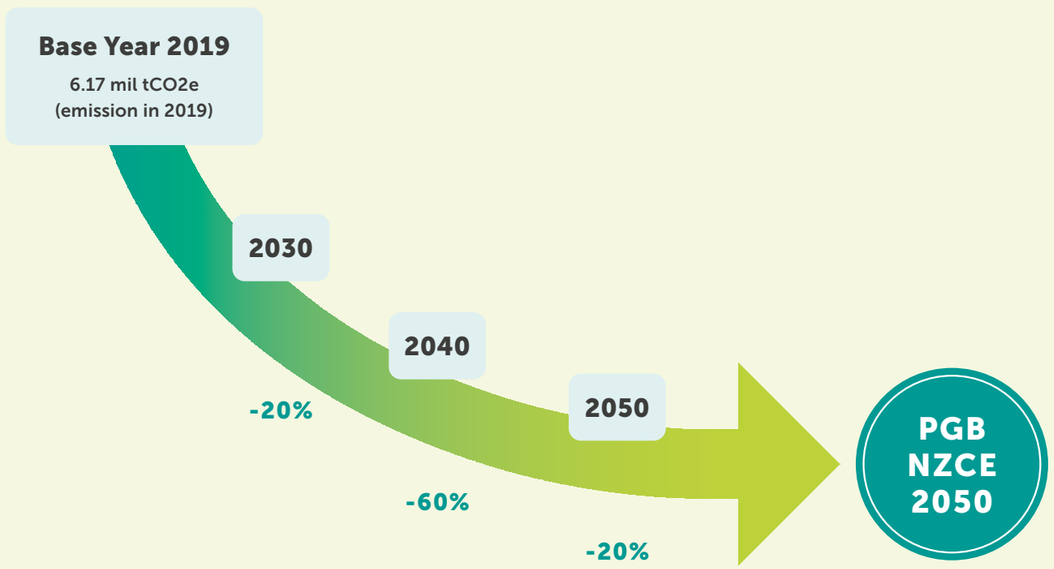
Monitoring Of Real-Time GHG emissions

We remain focused on transforming our business and operations in order to fully comply with the sustainability requirements of NZCE 2050. To this end, we have availed ourselves of enhanced data collection automation and real-time monitoring of GHG emission via iCON, a GHG accounting and management system. This will further improve our data reliability and accuracy.

MITIGATING CLIMATE CHANGE

In adopting these four (4) abatement strategies, we have mapped out our initiatives on the following roadmap to guide us towards our NZCE 2050 goals, focusing on Scope 1 and Scope 2 with the base year of 2019. We have been carrying out abatement initiatives and efforts, such as flare reduction programmes, fuel gas optimisation, equipment reliability and efficiency measures flare gas recovery and CO_2 utilisation, since 2000.

PGB NZCE 2050 PATHWAY



INITIATIVES AND EFFORTS

2019	2030	2040	2050
			Carbon Offset/Credit
		Waste to Energy/Value	Waste-to-Energy/Value
	Renewable Energy	Renewable Energy	Renewable Energy
	Eliminate/Reduce Emission	Eliminate/Reduce Emission	Eliminate/Reduce Emissions
	Fuel Switching	Fuel Switching	Fuel Switching
	Flare Reduction Programme	Flare Reduction Programme	Flare Reduction Programme
Flare Reduction Programme	Fuel Gas Optimisation	Fuel Gas Optimisation	Fuel Gas Optimisation
Fuel Gas Optimisation	Equipment Reliability and Effciency	Equipment Reliability and Effciency	Equipment Reliability and Efficiency
Equipment Reliability and Effciency	Flare Gas Recovery	Flare Gas Recovery	Flare Gas Recovery
Flare Gas Recovery	CCS	CCS	CCS
CO_2 Utilisation	CO_2 Utilisation	CO_2 Utilisation	CO_2 Utilisation

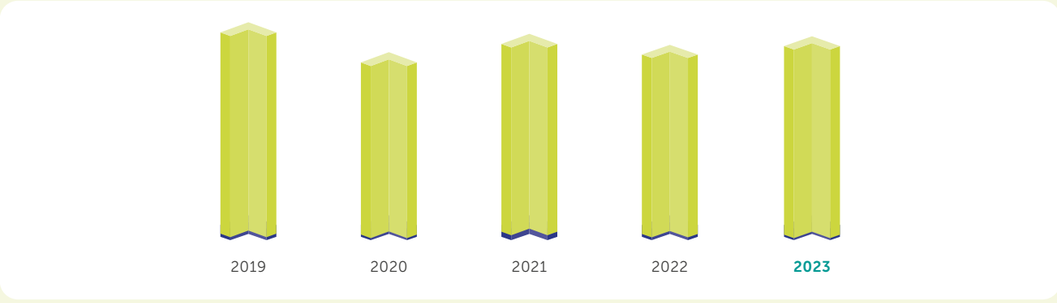
Capture and Monetise Emissions · Eliminate/Reduce Emissions · Netting, Carbon Offsets and Carbon Credits

MITIGATING CLIMATE CHANGE

OUR PERFORMANCE

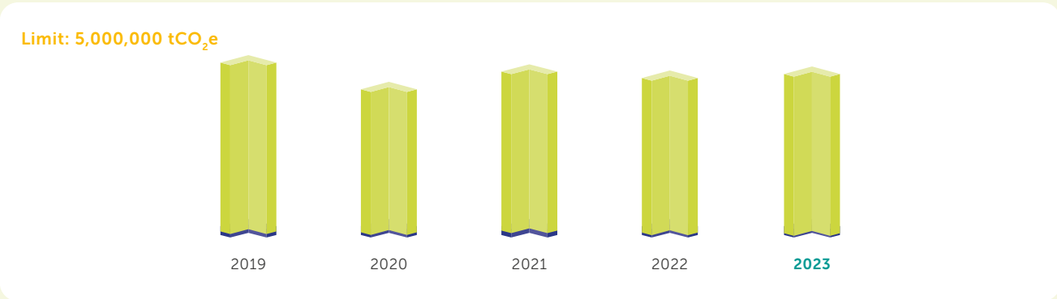
Climate change performance has been incorporated into the yearly KPIs of our senior executives, with the key KPI being progress towards achieving the Group's GHG reduction target. All methodologies used conform to the following international standards: American Petroleum Institute (API) Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industries, the GHG Protocol and our internal PETRONAS Technical Standard 18.72.05 GHG Emission Management.

GHG EMISSIONS WITH EXPORTED ENERGY[1]



GHG Emissions (tCO_2e)	2019	2020	2021	2022	2023
Scope 1	6,103,427	5,360,039	5,916,446	5,754,544	**5,859,402**
Scope 2	67,664	63,844	74,627	49,762	**49,165**
Total	6,171,091	5,423,883	5,991,072	5,804,306	**5,908,567**

GHG EMISSIONS WITHOUT EXPORTED ENERGY[2]



GHG Emissions (tCO_2e)	2019[3]	2020	2021	2022	2023
Scope 1	4,963,672	4,171,334	4,725,993	4,543,796	**4,692,356**
Scope 2	67,664	63,844	74,627	49,762	**49,165**
Total	5,031,336	4,235,178	4,800,620	4,593,558	**4,741,521**

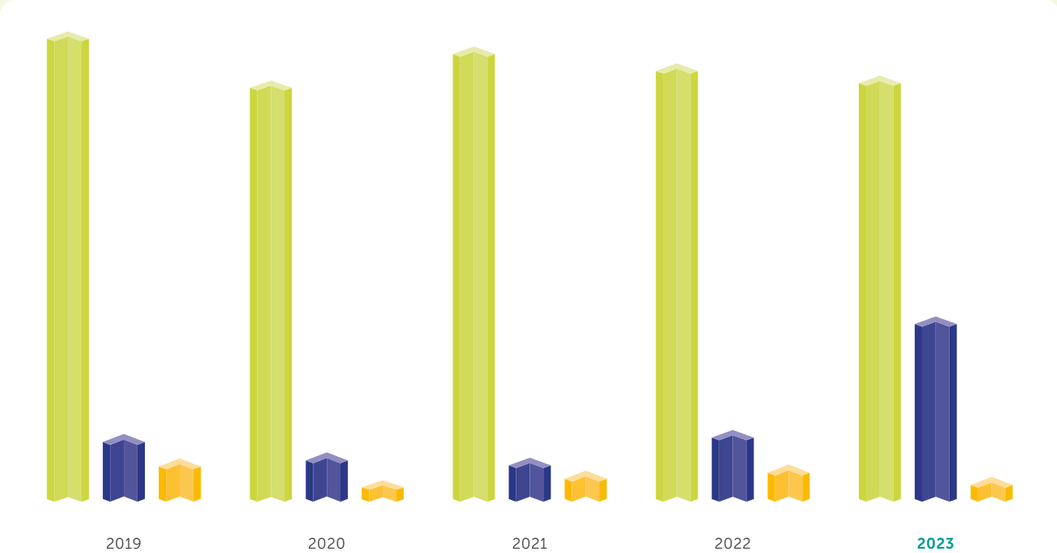
[1] Inclusive of emissions from exported energy to other PETRONAS subsidiaries (i.e., electricity and steam).
[2] Exported energy refers to emission associated to electricity and steam sold to other PETRONAS subsidiaries.
[3] 2019 is the base year of emissions.

In 2023, our GHG emissions with exported energy was 4% lower compared to our baseline year of 2019. This reduction in emissions was due to the success of our efforts, which were guided by our Climate Change Risk Management Framework. Meanwhile, our GHG emissions without exported energy fell within our target limit of 5 million tCO_2e.

Note: Data from 2019-2022 has been corrected based on the findings from an independent third-party verification conducted in January 2024.

MITIGATING CLIMATE CHANGE

GHG EMISSIONS PERFORMANCE BY TYPE
Scope 1 Breakdown by GHG Type for 2021 - 2023



Pollutant (tonne)	2019	2020	2021	2022	2023	Global Warming Potential (GWP)*
CO_2	5,923,899.37	5,217,855.22	5,772,762.77	5,564,964.84	**5,471,599.79**	1
CH_4	6,317.50	4,921.53	4,891.71	6,725.04	**14,670.71**	25
N_2O	72.45	63.23	70.85	71.49	**70.42**	298

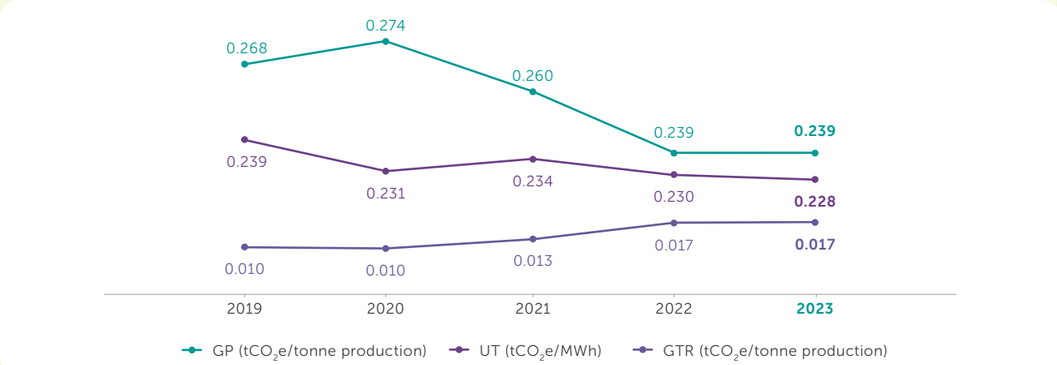
* GWP is a factor describing the radiative forcing impact of one (1) mass-based unit of a given GHG relative to an equivalent unit of carbon dioxide. Hence, the higher the value, the higher the global warming impact of the specific type of GHG. We are following Malaysian reporting standards using the Fourth Assessment Report.

In 2023, CO_2 decreased as compared to 2022 because of our use of scenario modelling in UT and GP (refer to "Operational Excellence Initiatives" on page 52 of our Sustainability Report 2023 for more). CH_4 increased in 2023 because of reliability issues related to equipment, with this issue resolved in January 2024.

Source: Table TS2 page 33-34, Climate Change 2017: The Physical Sciences, Working Group 1 Contribution to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.

MITIGATING CLIMATE CHANGE

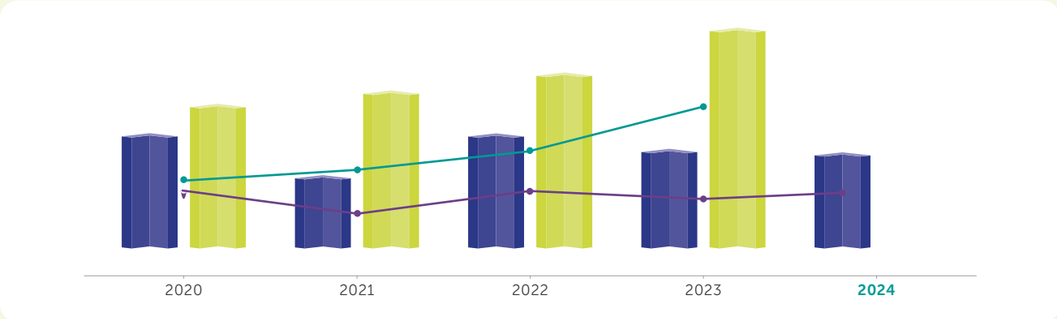
GHG INTENSITY*



* GHG Intensity represents the GHG emissions released per unit of production. It is calculated based on GHG emissions released from combustion, flaring, venting, fugitive leaks and imported energy, normalised by the total value of production output.

The trend in GHG Intensity for GP and UT indicates that we have progressively reduced our GHG emissions per unit of production since our 2019 baseline thanks to our efforts to improve production efficiencies. Compared to our baseline year of 2019, GP and UT have reduced their GHG Intensity by 11% and 5% respectively due to their use of CO_2 monetisation strategies and by increasing operational efficiencies through operational excellence initiatives. The GHG Intensity of GTR, meanwhile, increased by 7% due to maintenance activities, new project rollouts and low sendout sales gas in our regasification terminal.

GHG REDUCTION (FORECAST VS ACTUAL)



Short-Term Reduction Targets for Scope 1 and 2 Emissions	2020	2021	2022	2023	2024
Project/Initiative Emission Reduction Forecast (tCO_2e)	80,725	51,256	80,402	75,000	69,115
Percentage of Reduction from 6.17 million (%)	1.31	0.83	1.30	1.12	1.25
Actual Reduction (tCO_2e)	150,919	204,449	296,783	517,280	
Actual Percentage (%)	2.45	3.31	4.81	8.38	

Our short-term reduction targets are derived from a preliminary study analysing various CO_2 reduction initiatives that could potentially reduce Scope 1 and 2 emissions. Each initiative is evaluated based on its impact on GHG, fuel gas and flared gas emissions reduction, using the baseline that was established in 2019.

Through effective implementation of the reduction initiatives identified, we have consistently outperformed our short-term reduction targets, as illustrated by the above chart.

Due to the effective implementation of GHG emissions reduction projects, our Group-wide Scope 1 and 2 emissions have decreased significantly in comparison to our 2019 baseline year, even after factoring in the increase in production over the same time period.

MITIGATING CLIMATE CHANGE

Operational Excellence Initiatives

In 2023, we rolled out four (4) OE clusters encompassing operational excellence, fuel switching, renewable energy and CO_2 monetisation. These projects contributed to the reduction of approximately 517,280 tCO_2e of GHG emissions. The GHG reduction data was based on savings in fuel gas as well as a decrease in product flaring. The details of these projects are outlined below:

Initiatives	Cluster	Scope
1. Scenario Modelling GP and UT 2. Improvement of GPS overhead compressor utilisation 3. Boiled-off Gas Skid Rejuvenation 4. Improvement of refrigerant compressor operation philosophy 5. UK Gas Turbine Generator Uprate 6. Gas Processing Plant (GPP) 2, 3 and 4 Propane Treator Optimisation 7. UK utility optimiser installation 8. GPP3 steam user optimization 9. GPK auxiliary boiler excess oxygen and turndown reduction 10. GPS waste heat boiler seal air blower reinstatement 11. Automation of heat exchangers	**Operational Excellence** GHG Reduction: 509,079 tCO_2e/annum	**Scope 1:** **Combustion -** 390,828 tCO_2e/annum **Flaring -** 118,251 tCO_2e/annum
12. Hydrogen rich gas pipeline reinstatement	**Fuel Switching** GHG Reduction: 4,742 tCO_2e/annum	**Scope 1:** **Combustion -** 4,742 tCO_2e/annum
13. Green Electricity Tariff (GET) subscription	**Renewable Energy** GHG Reduction: 2,134 tCO_2e/annum	**Scope 2:** 2,134 tCO_2e/annum
14. Selling CO_2 to neighboring plants	**CO_2 Monetisation** GHG Reduction: 1,325* tCO_2e/annum	**Scope 1:** 1,325 tCO_2e/annum
Total GHG Reduction	**517,280 tCO_2e/annum**	

* 1,325 tCO_2e is an additional capacity only, however the total tCO_2e monetised/exported in 2023 is 204,688 tCO_2e.

ENERGY MANAGEMENT

We aim to preserve and optimise the consumption of our precious energy resources

WHY IT MATTERS

In our rapidly evolving world, the confluence of humanity's energy needs and the pursuit of sustainable development is more palpable than ever. At PGB, we deeply recognise the profound significance of responsible energy management in combating climate change and propelling us towards a sustainable future as envisaged by the UNSDGs.

As a gas processing and utilities company positioned at the forefront of catalysing tangible change in our collective transition to green energy, we maintain an unwavering commitment to environmental stewardship. Through comprehensive planning, vigilant monitoring and robust governance over the lifecycle of energy-related processes, we aim to preserve and optimise the consumption of our precious energy resources. This dedication aligns with our mission to contribute actively to a more sustainable world, driving positive transformation within our industry and beyond.

ENERGY MANAGEMENT

OUR APPROACH

Our goal is to nurture an energy-conscious corporate culture and evolve towards being a cost-effective production unit through the implementation of a robust Energy and Loss Management System (ELMS). We prioritise energy conservation and GHG emissions reduction by consistently integrating operational efficiencies at our sites. We achieve this by encouraging efficient energy utilisation, reducing wasteful practices and undertaking zero routine flaring.

Adopting Scenario Modelling

In our efforts to enhance energy efficiency, we have begun the utilisation of scenario modelling, under which we foresee and analyse the energy loads of different operational scenarios, thus accessing valuable insights to optimise processes and enhance overall efficiency. By creating models that simulate various operating conditions, our teams can make informed decisions to implement variable modes for optimisation.

In our Gas Processing segment, we are able to change the mode between sales gas maximisation or liquid hydrocarbon maximisation, depending on the operating environment. As for Utilities, we maximise the power export to New Electricity Dispatch Arrangements (NEDA) when the fuel gas price is lower than RM44.7 per GJ, or adjust the number of cogeneration units that are running during minimal requirement periods.

Scenario modelling has enabled us to identify inefficiencies, minimise waste, streamline operations and identify areas for improvement. Vitally, this will lead to a reduction in our internal gas consumption, which will not only reduce our operating costs and GHG emissions but also contribute to our long-term sustainability ambitions.

Our Energy Management Roadmap

We have established an Energy Commitment and Roadmap to support energy management and the delivery of energy-related responsibilities and performance obligations within our Gas Processing and Utilities (GPU) and Gas Transportation and Regasification (GTR) divisions.

The roadmap encompasses a five-year Energy Index (EI) target, a comprehensive list of initiatives and the projected energy savings associated with each initiative. To provide strategic guidance and leadership for the implementation of these initiatives, a dedicated Energy Working Committee is in place within each division. These committees are responsible for ensuring milestones outlined on the roadmap are met within the targeted timeframes.

ENERGY MANAGEMENT

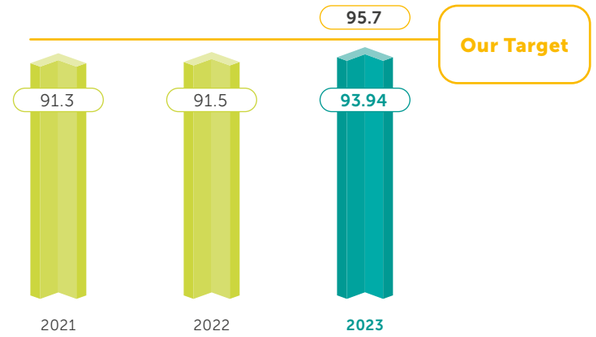
OUR PERFORMANCE

Energy Management at PGB

High Level Strategy to Achieve Top Quartile Standard Energy Index

In our aim to achieve a top quartile Energy Index (EI) performance, we adhere to three (3) core practices: optimising our maintenance processes to minimise energy use, implementing efficient energy consumption controls and identifying designs that drive optimum efficiency.

ENERGY INDEX ACHIEVED



* EI is defined as the ratio of the actual energy performance of the plant to the energy performance that the plant was designed for. It is a comparison of the Actual Specific Energy Consumption (Actual SEC) of the plant with the Specific Energy Consumption calculated during the original design of the plant (Design SEC).

In 2023, as a result of intensive energy and emissions reduction initiatives, we were able to maintain our EI* performance by attaining a rating of 93.94 versus the EI annual target of 95.7.

Power Production Capacity by Energy Type	Total Electricity Generation Capacity (MW)	Total Steam Generation Capacity (MT/hour)
Natural Gas	398	1,312
Solar	0.151	N/A

Power Production by Energy Type (MWh)	2021	2022	2023
Fuel Gas	17,310,838	17,992,509	**17,022,704**
Solar	202	252	**248**
Imported Electricity	111,884	74,606	**73,711**
Green Electricity Tariff	-	-	**3,200**

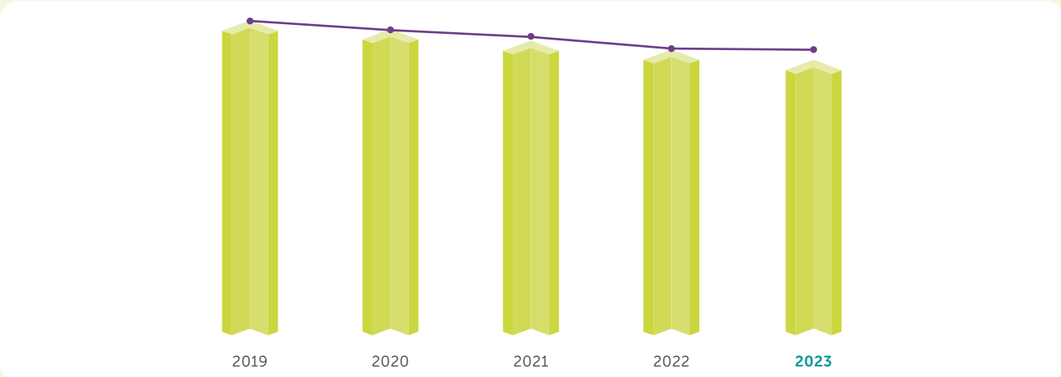
Energy Consumption (GJ/year) (million)	2021	2022	2023
GPU	60.14	60.71	**57.30**
GTR	3.53	4.13	**4.36**
Total	63.67	64.84	**61.66**

ENERGY MANAGEMENT

ENERGY MANAGEMENT

Energy Management at GPU

GPU ENERGY INDEX



	2019	2020	2021	2022	2023
Actual	100.0	98.7	96.8	95.1	**93.5**
Target	100.0	99.0	98.0	95.7	**95.3**

In 2023, GPU delivered an improved performance, achieving an EI rating of 93.5 compared to the target of 95.3 while generating savings amounting to RM74.5 million from the execution of energy efficiency initiatives. The savings are calculated based on the baseline performance and the performance after the energy initiatives are executed. Over the years, the division's EI performance has shown continuous improvement, attributed to the successful execution of various initiatives at the plant level.

Energy Consumption* (GJ/year) (million)	2021	2022	2023
GP	26.12	26.51	**25.24**
UT	34.02	34.20	**32.06**
Total	60.14	60.71	**57.30**

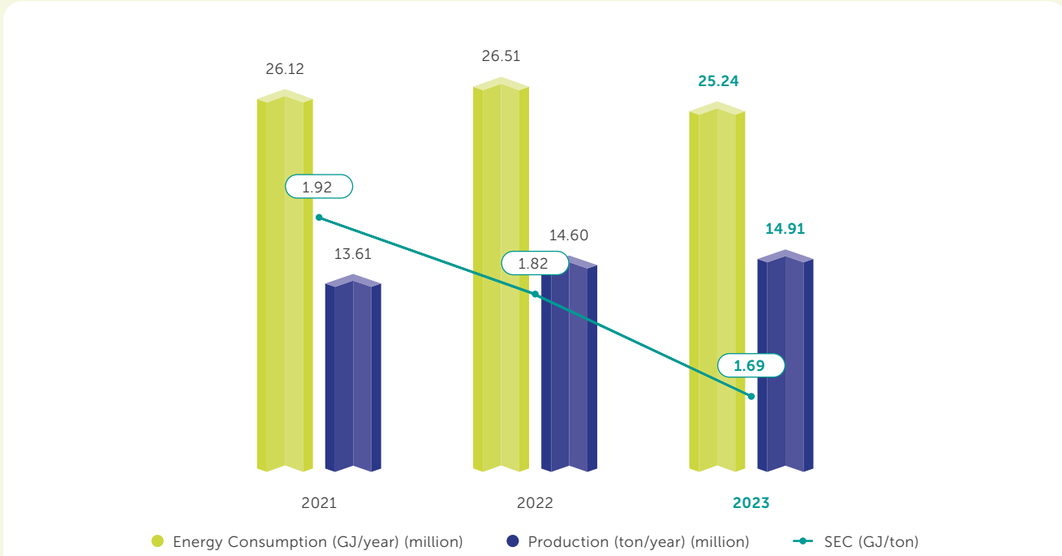
* The energy consumption for GPU is calculated based on energy required for production at GP (methane, ethane, propane and butane) and UT (steam and power).

During the year, GPU also recorded total energy consumption of 57.3 million GJ, which is 6% lower compared to 2022, as a result of lower total production at the utilities plant and the execution of energy efficiency initiatives across all plants. The specific types of energy consumed are continously monitored to assess the impact of energy-related initiatives against the overall energy performance.

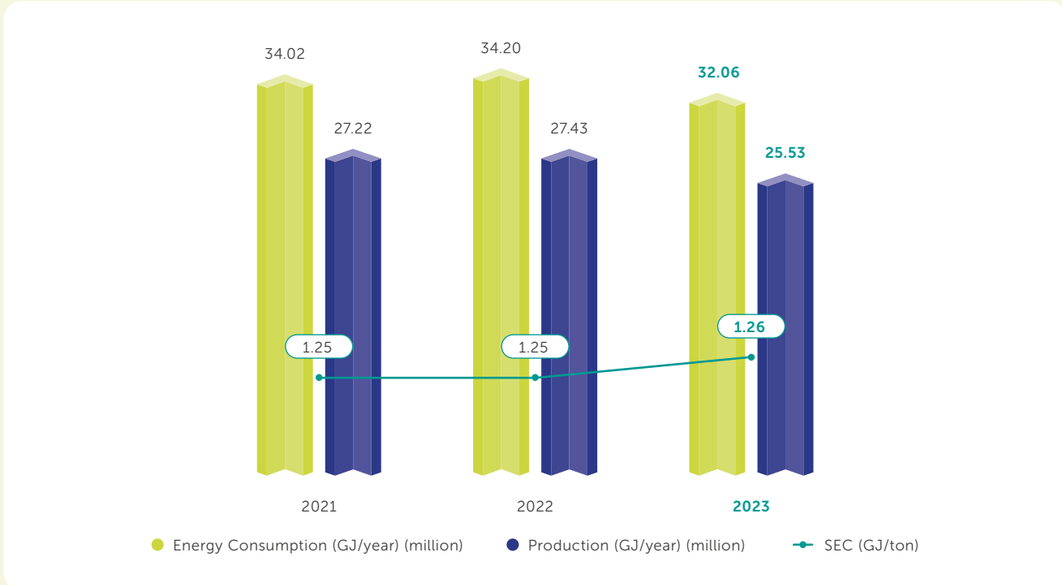
Energy Consumption and GHG Emissions Reduction Projects at GPU

Scenario Modelling GP and UT	At GP plants, the allocation of plant loads according to market demand analysis has enabled us to operate at our most efficient level while also minimising energy wastage and environmental impact due to improved efficiency. In addition, scenario modelling has been carried out across GP plants, resulting in a cumulative 341 $ktCO_2e$ reduction in GHG emissions as of 2023. At our UT plants, meanwhile, efforts to strike a balance between energy requirements and customer demands has resulted in an optimised plant configuration, driving an emissions reduction of 17 $ktCO_2e$ throughout 2023.
Improvement of GPS Overhead Compressor Utilisation	Our improved GPS overhead compressor offers a more flexible operating range by incorporating a stepless capacity control system, resulting in higher utilisation of the overhead compressor as it can now operate at lower and carry out fluctuating compressor loading. This has propelled a total GHG emissions reduction of 72,000 tCO2e per year due to the higher amount of hydrocarbon gases recovered by the compressor.

GP SPECIFIC ENERGY CONSUMPTION*



UT SPECIFIC ENERGY CONSUMPTION



Specific Energy Consumption (GJ/ton)	GP	UT
Total	**1.69**	**1.26**

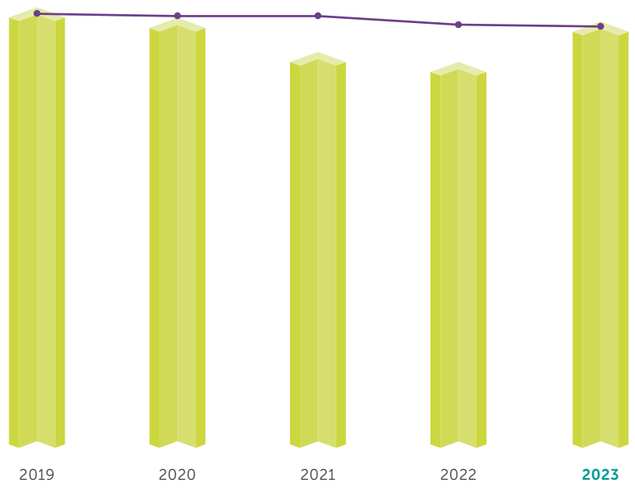
* SEC is also known as energy ratio, portraying how much energy is used for producing a unit of product.

ENERGY MANAGEMENT

ENERGY MANAGEMENT

Energy Management at GTR

GTR ENERGY INDEX



	2019	2020	2021	2022	2023
Actual	97.3	95.2	88.3	86.3	**94.42**
Target	96.8	96.7	96.7	93.8	**93.77**

In 2023, GTR's EI was higher than the division's limit but lower than the PGB limit. This was due to our recalibration of the division's baseline EI during 2023, with energy consumption per unit now measured against historical data instead of design. The move was undertaken to enable a more accurate representation of actual energy consumption.

Energy Consumption (GJ/year)	2019	2020	2021	2022	2023
RGTSU	355,764.53	438,316.04	374,117.17	392,999.50	**382,803.04**
RGTP	208,299.80	196,659.93	125,576.08	154,014.99	**170,227.02**
GT	3,256,648.85	2,699,546.60	3,033,061.27	3,582,218.45	**3,810,882.21**
Total	3,820,713.18	3,334,522.57	3,532,754.52	4,129,232.94	**4,363,912.27**

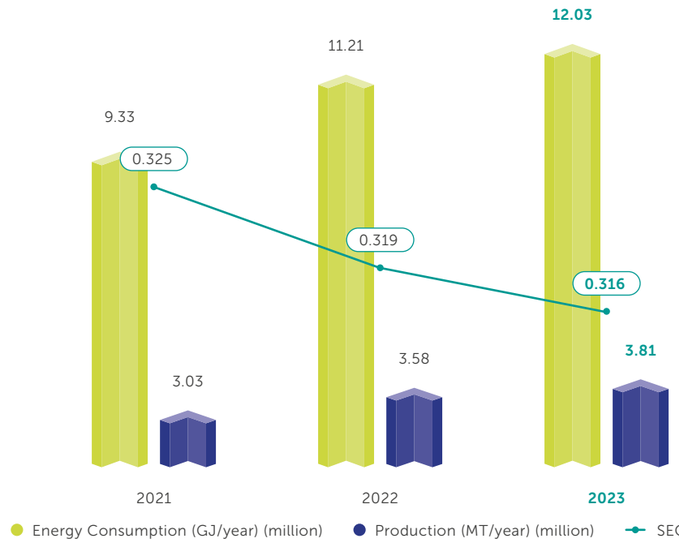
Reduction in Energy Consumption from GTOP Initiative* (GJ)	GT
Total	**49,021.15**

We have adopted the use of Gas Transmission Optimisation (GTOP) to improve our Internal Gas Consumption (IGC), a move that is especially crucial in an environment of gas price volatility. The GTOP system delivers compressor setpoints to optimise operations while ensuring product quality is maintained, both in terms of volume and pressure. GTOP also enables us to optimise our fuel gas consumption at Segamat Operation Center and resulted in an estimated energy reduction of 49,021.15 GJ during 2023.

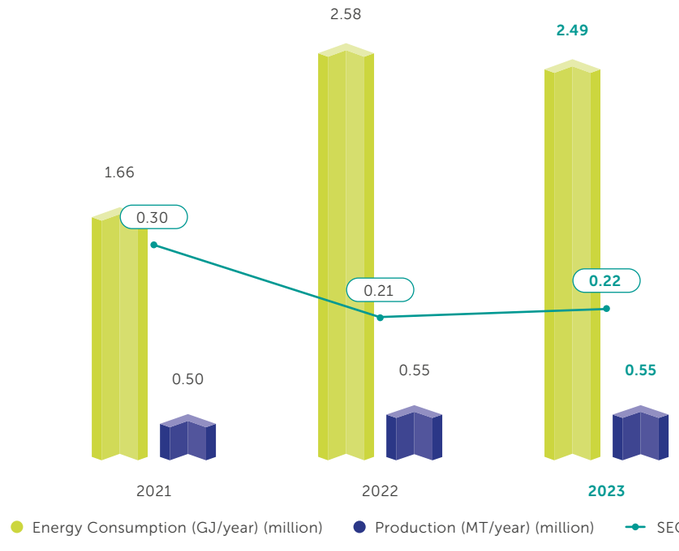
* The basis of calculation involves using IGC gas price and actual Gas Heating Value (GHV) data for conversion from flow rate to energy.

Specific Energy Consumption*

GT SPECIFIC ENERGY CONSUMPTION



RGT SPECIFIC ENERGY CONSUMPTION



Specific Energy Consumption (GJ/MT)	GT	RGT
Total	**0.3167**	**0.2220**

* The types of energy included in the ratio include fuel and electricity consumption within the organisation.

ENVIRONMENTAL MANAGEMENT

We ensure that our pollution, waste and resource management practices align with global and industry standards

WHY IT MATTERS

The natural environment underpins the economy, climate and our very existence – caring for our environment is caring for our collective well-being. As a company at the heart of the nation's development, we are mindful of our choices, the far-reaching consequences they have and our responsibility to preserve natural environments for both current and future generations. This commitment is reflected in our endeavours to minimise our ecological footprint, reduce our consumption of finite natural resources and work towards a circular economy.

Moreover, in today's industrialised world, marked by escalating environmental degradation, societal expectations for a cleaner, healthier environment come into focus. Stakeholders are actively choosing to align themselves with organisations that demonstrate progressive, environmentally responsible values. For that reason, our unwavering pledge to ensure environmental protection is not merely the right thing to do but also one that is founded on sound business principles.

OUR APPROACH

As one of the strategic lenses within our Sustainability Blueprint, "Safeguard the Environment" represents our dedication to environmental and resource conservation. Towards these objectives, we ensure that our pollution, waste and resource management practices fall in line with global and industry standards such as the International Organisation for Standardisation (ISO), Original Equipment Manufacturer (OEM) standards and other pertinent regulatory guidelines. In addition, internally developed policies such as the PGB Health, Safety and Environment (HSE) Policy and PETRONAS' HSE Mandatory Control Framework (MCF) outline the guiding principles for HSE risk management, including mandatory environmental assessments and audits to safeguard the technical and operational integrity of our facilities.

Comprehensive Policy Commitments

Our commitment to pollution and resource management is outlined within the PGB HSE Policy, in alignment with PETRONAS' HSE MCF. These guiding documents prioritise the highest standards for the health and safety of our workforce as well as the safeguarding of our assets, stakeholders, communities and the environment.

The HSE Policy articulates the guiding principles for managing risks and hazards relevant to our business operations. Its primary objective is to ensure that every individual across our locations consistently follows the correct procedures, and it sets forth specific requirements pertaining to the management of significant HSE risks, encompassing the technical and operational integrity of our facilities and equipment. This involves conducting environmental assessments at various project phases, while regular audits and risk management activities ensure the effectiveness of daily operations.

In line with our HSE mandate, ongoing measures are implemented to safeguard the environment, prevent pollution and ensure the sustainable use of natural resources. Our steadfast commitment involves identifying potential environmental hazards arising from pollution, natural resource depletion or excessive waste generation. Subsequently, we work towards reducing these risks to a level as low as reasonably practicable, affirming our dedication to minimising environmental impact.

Element	Initiatives	Impacts
Wastes	Food compost initiative Recycling spent perlite as a soil conditioner in the plantation sector	Reduced waste disposed at landfill
Water	Water harvesting	Reduced usage of water from municipal sources
Resources	Optimise chemical concentration of our boiler system	Reduced use of chemicals in our boiler system
Biodiversity	Tree planting and beach cleaning activities	Healthier ecosystem

ENVIRONMENTAL MANAGEMENT

ENVIRONMENTAL MANAGEMENT

Pollution Management

In 2023, we continued to undertake activities geared towards identifying and managing potential hazards originating from sources of pollution. Activities carried out included:

ONGOING R22 REFRIGERANT PHASE-OUT ACTIVITIES

In 2020, the Malaysian Government gazetted the new Environmental Quality (Refrigerant Management) Regulations, which prohibits the use of R22 refrigerants in the manufacturing or assembling of any air conditioning equipment and sets a target of zero R22 utilisation by 2030.

As a responsible company that supports the nation's aspiration to move towards zero R22 utilisation, we have continued to phase out the remaining units of R22 refrigerants in our existing refrigeration and air conditioning equipment. By the end of 2023, a total of 605 units of equipment containing R22 had been phased out. We will continue to track these activities closely to ensure 100% compliance with regulations by 2030, in line with our Sustainability Blueprint.

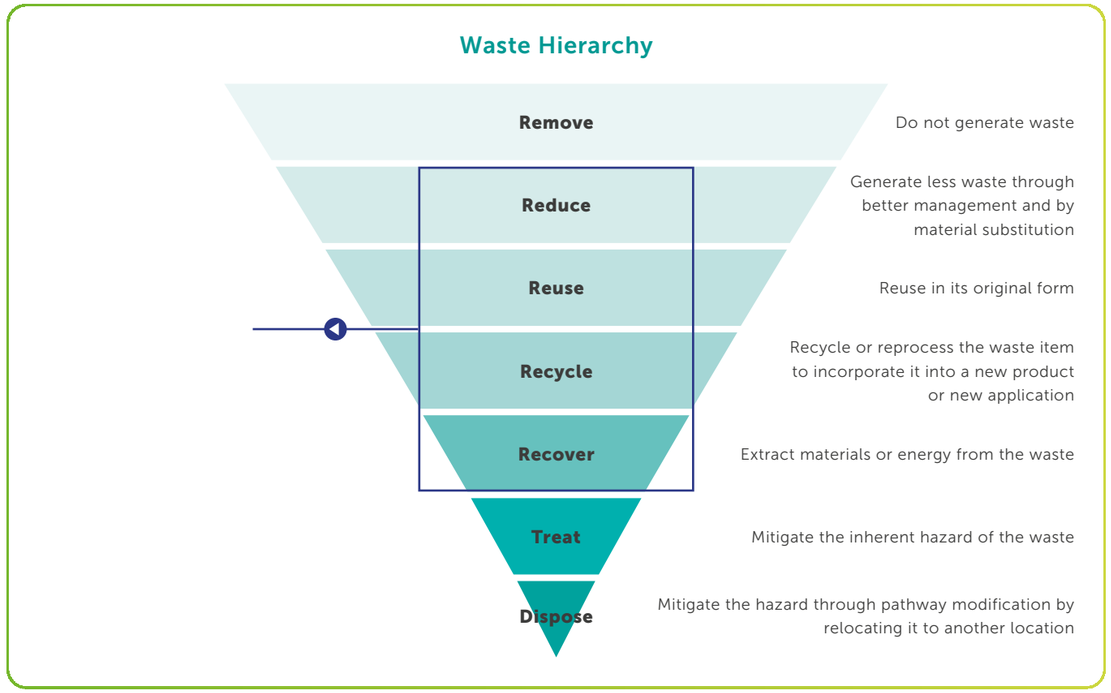
	GPU	GTR
Total Units	663	428
Total Units Phased Out by End-2023	429	176
Percentage Phased Out	**65%**	**41%**

GREEN SCHEDULED WASTE YARD PROJECT

GPK successfully launched the Green Scheduled Waste Yard project on 5 October 2023, exemplifying our dedication to responsible and sustainable waste management within our plant operations. The establishment of the waste yard emphasises pollution prevention by upgrading our secondary containment.

Waste Management

As part of our commitment to responsibly manage waste generated from our operations, we have implemented the Waste Hierarchy concept, which focuses on the 4R principles of Recover, Recycle, Reuse and Reduce.



In line with our HSE Policy stance of preventing pollution throughout our operations, we continue to review our Waste Management Plan on an annual basis while making good strides forward under the 4R principles.

Environmental Aspect Impact (EAI) assessments, wherein we are fully aligned to and certified by ISO 14001:2015, form another key component of our environmental management system. Our EAIs are live assessments which are carried out from time-to-time across our normal operations as well as our maintenance activities, projects and turnaround activities.

The following is an example of the typical business activities that lead to actual and potential waste-related impacts from our operations. Our waste is mainly generated from our day-to-day activities, operation and maintenance activities, shutdown activities and turnaround activities, among other sources.

Activities	Input	Outputs
Top up of chemicals	Chemicals (e.g., Glycol)	Spent chemicals
Filter change out	New filter and fresh lube oil	Spent filter and spent lube oil
Catalyst change out	Catalyst	Spent catalyst
Painting of fire fighting equipment (FFE)	Paints	Spent paint

ENVIRONMENTAL MANAGEMENT

Hazardous Waste Management

In strict adherence to regulations set by local environmental authorities, we entrust certified waste contractors registered with the DoE to manage our hazardous wastes, ensuring that we maintain utmost compliance with local environmental regulations at all times. These contractors are subjected to an annual third-party assurance review to ensure ongoing compliance with legislative requirements.

Utilising the Electronic Scheduled Waste Information System (eSWIS) developed by the DoE, we ensure systematic monitoring of waste-related data from its point of generation through to treatment and disposal processes. The adoption of eSWIS provides numerous advantages, including streamlined processes and improved accuracy in reporting.

The following are among the key 4R initiatives that we conducted in 2023 to manage hazardous waste.

Spent Catalyst Recovery at Recovery Facilities	A total of 313 MT of spent catalyst, such as spent molecular sieves, spent alumina balls and spent ceramic balls, were sent to a recovery company to be recycled as raw materials for cement-related industries. This waste minimisation initiative generated cost savings amounting to RM 943,909 in 2023.
Usage of Sludge Waste as an Alternative Raw Material in Cement Plants	In an effort to minimise sludge disposal to landfills, we implemented filter press technology to decrease the volume of waste generated from our Industrial Effluent Treatment System (IETS). Subsequently, we partnered with designated facilities to undertake additional treatment of 260 MT of sludge waste, transforming it into alternative raw materials for use in cement plants.
Household E-Waste Collection Program at RGTSU	Conducted in conjunction with Earth Day, our household e-waste collection program has shown promising results. From February to April 2023, we collaborated with Malaysian Refining Company Sdn. Bhd. (MRCSB) and Meriahtek (M) Sdn. Bhd. and successfully collected a total of 1.23 MT of e-waste. The process of e-waste recycling involves extracting valuable materials from discarded electronic devices, which can then be reused in the manufacturing of new electronic appliances. This approach not only diminishes the demand for new production but also contributes to safeguarding human and environmental health. By preventing the disposal of hazardous materials such as cadmium, beryllium, mercury and lead into landfills, e-waste recycling plays a crucial role in sustainable waste management.

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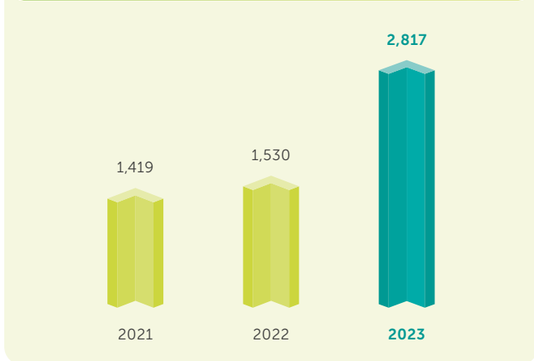
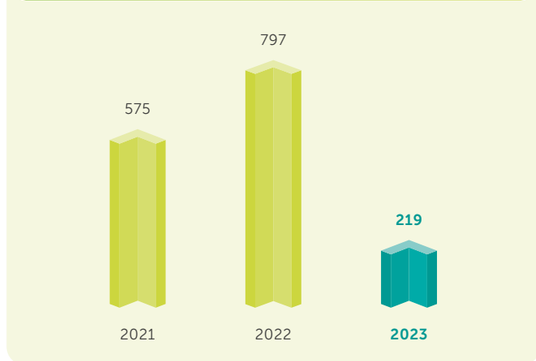
OUR PERFORMANCE

Hazardous Waste Management

QUANTITY OF HAZARDOUS WASTE GENERATED (MT)



QUANTITY OF HAZARDOUS WASTE DISPOSED (MT)

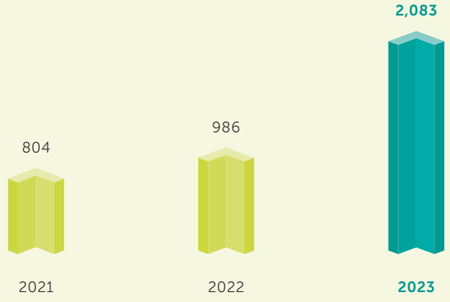


In 2023, our hazardous waste generation increased to 2,817 MT due to our regular operations, new projects, turnaround and shutdown activities.

Hazardous Waste Disposed by Disposal Operations

Type of Disposal Operation	2021	2022	2023
Incineration with Energy Recovery	0	0	**0**
Incineration without Energy Recovery	510.44	608.08	**205.12**
Secured Landfill	19.30	3.45	**7.79**
Other Disposal Operations (i.e., physical treatment, solidification)	39.20	183.04	**6.09**

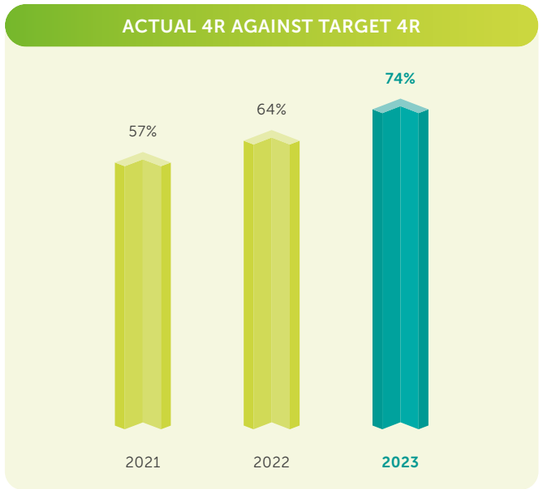
QUANTITY HAZARDOUS WASTE DIVERTED FROM DISPOSAL BY 4R ACTIVITIES (MT)

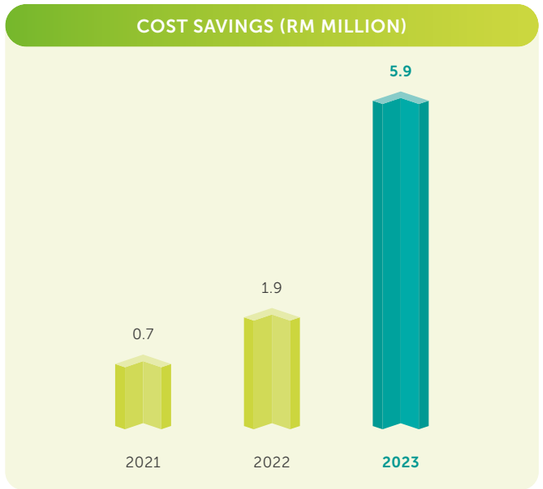


Type of Recovery Operation	2021	2022	2023
Preparation for Reuse	0	0	**0**
Internal Recycling	0	0	**0**
Other Recovery Options - Third Party Prescribed Premises	804	986	**2,083**

ENVIRONMENTAL MANAGEMENT

ENVIRONMENTAL MANAGEMENT





	2020	2021	2022	2023	2024
Target 4R (%)	42	55	56	**56**	**61**
Actual 4R (%)	65	57	64	**74**	
Actual (MT)	966	804	985.7	**2,083**	

* Preliminary target based on FY2022 plan

A total of 2,083 MT, equivalent to 74% of our total hazardous waste, was recovered by 4R activities at prescribed premises, thereby exceeding our target of 56% set for 2023.

Non-Hazardous Waste Management

In addition to prioritising hazardous waste management, we are actively committed to the responsible handling of non-hazardous waste. To this end, we have implemented several key initiatives aimed at preventing waste generation and effectively managing significant impacts associated with waste. Many of these activities involve working with other companies to further amplify impact.

PILOT ON FOOD WASTE COMPOST DURING TURNAROUND AT REGAS TERMINAL PENGERANG

In our continuous effort to curtail waste generation and embrace eco-conscious practices, we have successfully launched a food composting program at our Regas Terminal Pengerang (RGTP). The concept is elegantly straightforward yet profoundly impactful: ensuring every bit of food serves a purpose. Rather than discarding food scraps, our dedicated colleagues have taken proactive measures to compost them.

This initiative stands as a testament to our pledge to alleviate the strain on landfills while nurturing our environment. Transforming food waste into nutrient-rich compost not only prevents wastage but also enriches soil quality. Through our commitment to composting, we are not merely reducing food waste but generating a valuable resource that enhances land fertility. To this end, RGTP has collected 192.8 kg of compost, year to date.

The commendable efforts of our colleagues at RGTP serve as a model for adopting a health-conscious lifestyle. Looking ahead, we plan to replicate this initiative across other GTR facilities throughout Malaysia within this year, further amplifying our positive impact on sustainability practices.

4R (REDUCE, REUSE, RECYCLE, RECOVER) CAMPAIGN

We have initiated a dedicated recycling campaign to enhance our waste management and domestic waste handling practices and enhance awareness of recycling across our workforce. Within this programme, we are collaborating with various concession and waste recycling companies such as SWM Environment Sdn. Bhd., Alam Flora and Klang Waste Care.

We have also witnessed notable success in collaborating with the AWIE Metal recycling centre in Terengganu to recycle waste from our GPK and GPS.

GPK, which embarked on the 4R for You programme in 2022, contributed a total of 1,520 kg of recycled waste in 2023 alone. Following the extension of our 4R waste campaign to GPS, the complex contributed 993 kg of recycled waste in 2023.

GPU FREE MARKET AT PAKA

GPU made a significant impact with the successful implementation of the GPU Free Market CSR programme on April 15, 2023, held at Dewan Sivik Paka. This collaborative effort, which involved the GPU social bureau and various other departments, was more than just an initiative to share blessings during Ramadan and Aidilfitri — it was a powerful drive to champion recycling practices.

At its core, the GPU Free Market placed a strong emphasis on recycling, aiming to instill a heightened awareness of its importance among GPU staff. The goal was to actively engage and inspire staff members to participate wholeheartedly in recycling efforts and contribute to a sustainable and eco-friendly future.

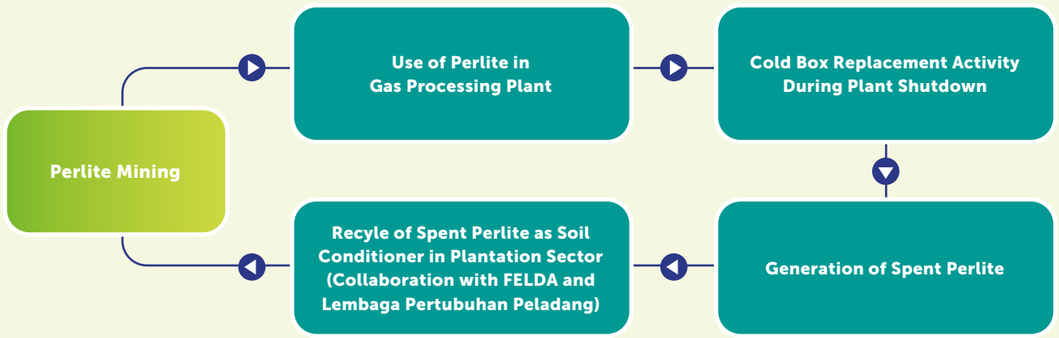
GPU staff members joined forces not only to share 3,350 pairs of clothes, pants, scarves and shoes during the event but also to emphasise the significance of recycling in their contributions. Every donated item, including books, toys and kitchen utensils, became a testament to the dedication of GPU staff to supporting the community and actively promoting recycling for a greener, cleaner and more sustainable future.

RECYCLING SPENT PERLITE

We actively seek out ways to recycle the materials we use. For example, perlite, a non-renewable material consisting of amorphous volcanic glass that is used in our plants' cold box, which is replaced during plant shutdowns for heat insulation.

We collaborated with the Federal Land Development Authority (FELDA) in 2022 and Lembaga Pertubuhan Peladang in 2023 under our 4R programme to recycle spent perlite. Due to its amorphous properties and relatively high-water content, spent perlite can be used to improve soil conditions and boost plant growth, bringing benefits to farmers.

In total, we contributed approximately 32,000 kg of spent perlite to FELDA in 2022 and 5,200 kg to Lembaga Pertubuhan Peladang in 2023. This effort has diverted these materials from landfill disposal, averting a total cost of disposal of RM3,349.41 during 2023. In recognition of this achievement, the collaboration received the Gold Award and Best Sustainability Award at the MIPAC 2022 event.

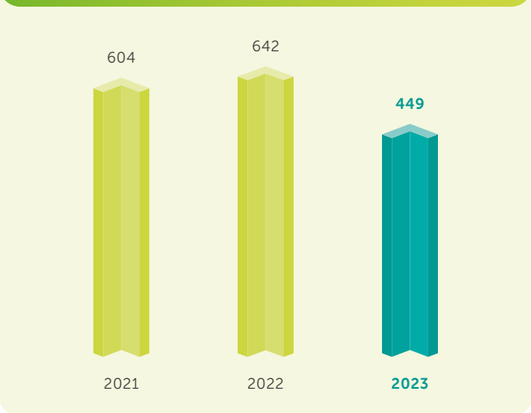


ENVIRONMENTAL MANAGEMENT

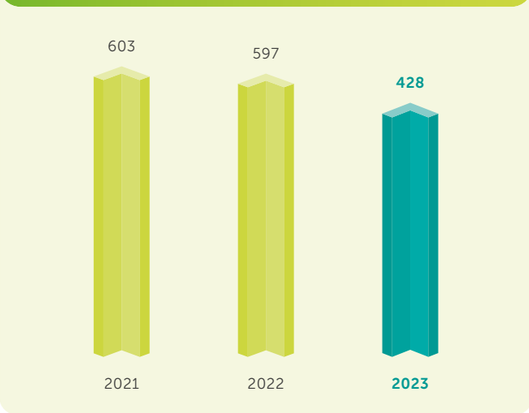
OUR PERFORMANCE

Non-Hazardous Waste Management

QUANTITY OF NON-HAZARDOUS WASTE GENERATED (MT)



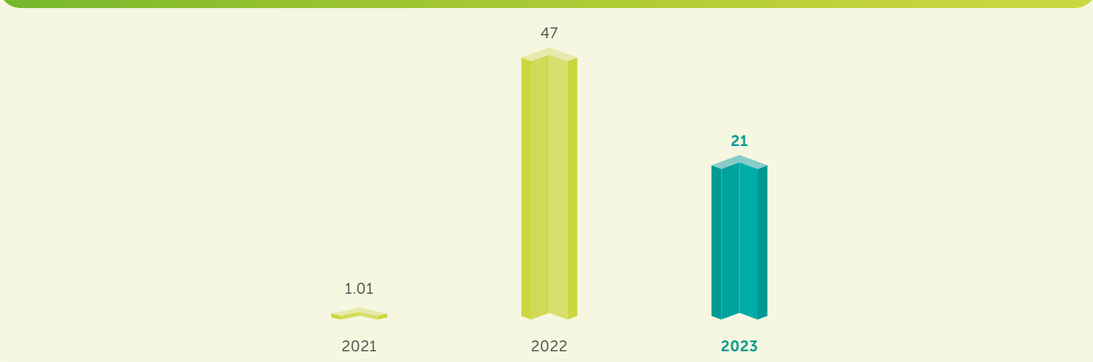
QUANTITY OF NON-HAZARDOUS WASTE DISPOSED (MT)



Non-Hazardous Waste Disposed by Disposal Operations

Type of Disposal Operation	2021	2022	2023
Incineration with Energy Recovery	0	0	**0**
Incineration without Energy Recovery	0	0	**0**
Landfilling	603	597	**428**
Other Disposal Operations	0	0	**0**

QUANTITY OF NON-HAZARDOUS WASTE DIVERTED FROM DISPOSAL BY 4R ACTIVITIES (MT)



Non-Hazardous Waste Diverted from Disposal by 4R Activities

Type of Recovery Option	2021	2022	2023
Preparation for Reuse	0	0	**0**
Recycling	1	47	**21**
Other Recovery Operations	0	0	**0**

ENVIRONMENTAL MANAGEMENT

Resource Management

Our finite natural resources provide fundamental life support and are vital in maintaining the delicate balance of natural ecosystems. With this in mind, we have aligned our resource management efforts with UNSDG 12 (Responsible Consumption and Production) and embarked on the following initiatives in 2023:

RECYCLING WATER USING RAIN HARVESTING TECHNOLOGY

GPK successfully launched the Green Scheduled Waste Yard project on October 5, 2023, exemplifying our dedication to responsible and sustainable waste management within our plant operations.

Additionally, GPK has implemented rain harvesting technology to capture and store rainwater, with a storage capacity of 3,000 L at a time, for everyday use in its scheduled waste yard. The establishment of the waste yard is in accordance with our HSE Policy, which emphasises pollution prevention throughout our operations. GPK also integrates the 4R principles in its day-to-day activities, contributing not only to effective waste management but also to the conservation of water as a natural resource.

IMPROVING THE CYCLE OF CONCENTRATION OF OUR BOILER SYSTEMS

UK and UG have conducted improvement studies and made operational adjustments, strengthening their respective boiler systems' cycle of concentration from 10 cycles to 38 cycles. The improved cycle of concentration ultimately contributes to the reduction of water and chemical consumption.

Raw Materials Usage

		Annual Average Consumption According to the Type (kg)		
Unit	Type of Chemical	2021	2022	2023
Cooling Water	3DT 129	7,737	10,780	**9,259**
	3DT 304	12,051	15,055	**10,586**
	N7330	14,655	19,557	**12,816**
	3DT 199	4,080	4,355	**3,960**
	GN8020	23,413	24,934	**24,032**
	NX1103	14,985	15,850	**14,137**
	NX1104	14,887	13,902	**12,976**
	SODIUM HYPOCHLORITE	220,000	120,201	**280,000**
Boiler Water	TriAct 1800	36,291	35,449	**28,531**
	ELIMINOX	4,865	5,369	**4,270**
	HTP73614	22,276	27,418	**20,568**
	NA0660	5,826	5,065	**5,171**
	OS5300	6,284	5,586	**5,359**

* Data taken from GPU sites.

ENVIRONMENTAL MANAGEMENT

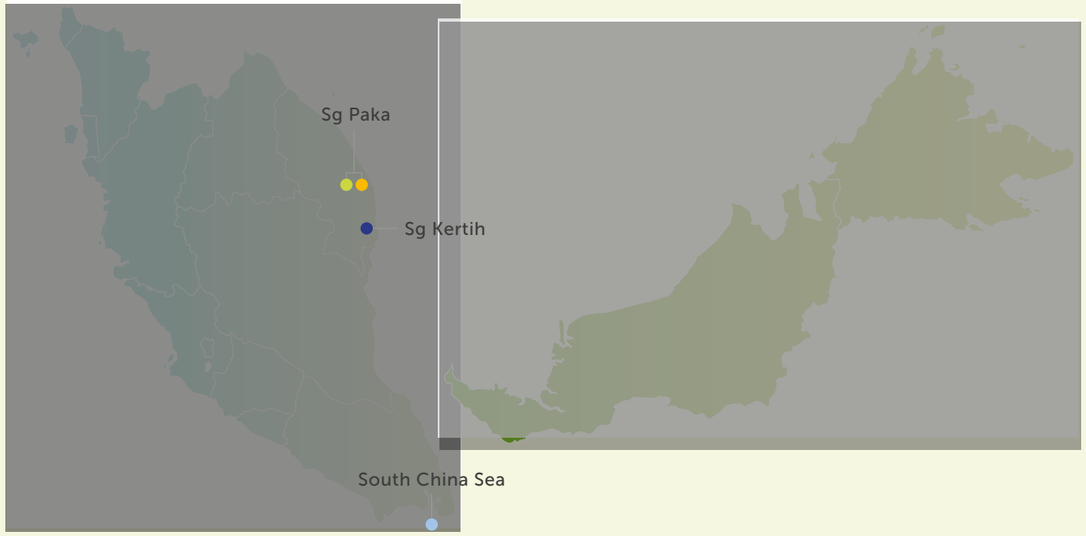
ENVIRONMENTAL MANAGEMENT

Effluent Management

Effluent is generated mainly from our facilities, namely GPK, GPS, UK and RGTP. We monitor effluent discharge from the Industrial Effluent Treatment System (IETS) to ensure compliance with the Department of Environment (DoE) Standard B limit as per the Environmental Quality (Industrial Effluent) Regulations 2009 (IER 2009). Performance monitoring is conducted monthly by an IETS-competent person certified by the DoE. Furthermore, we also monitor the final effluent discharge using our internal and external third-party laboratory.

The table below highlights the PGB facilities that generate effluent and the respective locations where this effluent is discharged:

Point of Effluent Generation	Location	Destination of Discharge
GPK	Surface Water (River)	Sg Paka
GPS	Surface Water (River)	Sg Kertih
UK	Surface Water (River)	Sg Paka
RGTP	Surface Water (River)	South China Sea



South China Sea

The table below shows our IETS discharge for Chemical Oxygen Demand (COD) parameters across all plants between 2021 and 2023. Based on the analysis, the results were within the limit as per Standard B.

Effluent Discharge and COD Loading from Each Facility

Plant	Parameter	2021	2022	2023
GPK	Amount of Effluent Discharge (m^3)	36,279.00	30,340.00	**38,853.00**
	COD Loading (tonne)	1.89	2.75	**3.32**
GPS	Amount of Effluent Discharge (m^3)	109,514.00	48,925.00	**32,673.00**
	COD Loading (tonne)	3.78	1.29	**0.98**
UK	Amount of Effluent Discharge (m^3)	889,906.00	792,005.00	**705,236.00**
	COD Loading (tonne)	27.47	27.24	**25.22**
RGTP	Amount of Effluent Discharge (m^3)	0	0	**0**
	COD Loading (tonne)	0	0	**0**
PGB	Amount of Effluent Discharge (m^3)	1,035,699.82	871,270.00	**776,763.00**
	COD Loading (tonne)	33.10	31.29	**29.52**

As a responsible company dedicated to upholding legal compliance, we have implemented internal limits for specific parameters in GPU's IETS. This measure guarantees early alerts for our operations team in case of any issues with the IETS process. These internal limits are intentionally set below the Standard B limit specified in IER 2009, considering the unique characteristics of our effluent.

To maintain consistent quality of the receiving water body and prevent any adverse effects on rivers and oceans, monitoring of seawater and river conditions is carried out in accordance with the specified frequency outlined in our Environmental Management Plan (EMP).

This initiative has been effective in enabling us to manage the impacts of the water we discharge. This is demonstrated by our consistent record of zero incidents of non-compliance related to discharge limits.

Incidents of Non-compliance Related To Discharge Limits	2021	2022	2023
Total	0	0	**0**

ENVIRONMENTAL MANAGEMENT

ENVIRONMENTAL MANAGEMENT

Air Emissions Management

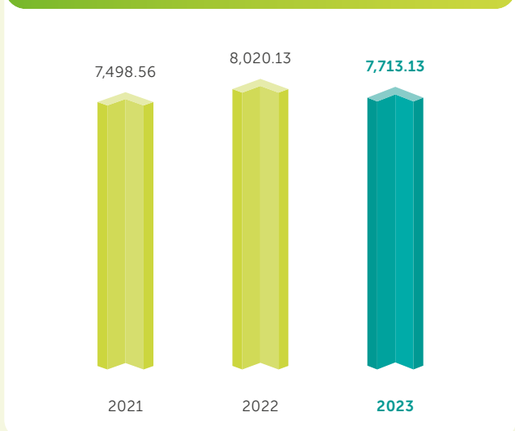
We are committed to the vigilant supervision and regulation of our air emissions, employing advanced technologies such as the Continuous Emission Monitoring System (CEMS) and Predictive Emission Monitoring System (PEMS). In addition, accredited third-party contractors conduct manual sampling of our air emissions to ensure standards are upheld.

As of 2023, we have successfully installed 34 units of CEMS across our equipment, enabling access to real-time data on air emissions. Supported by the Integrated Remote and Monitoring System (iREMOTE), a monitoring system developed the DoE, on top of our internal GPU Technical Centre (GTC), immediate action can be taken in the event of any abnormal readings.

Monitoring Nitrous Oxide and Sulphur Oxides Loading

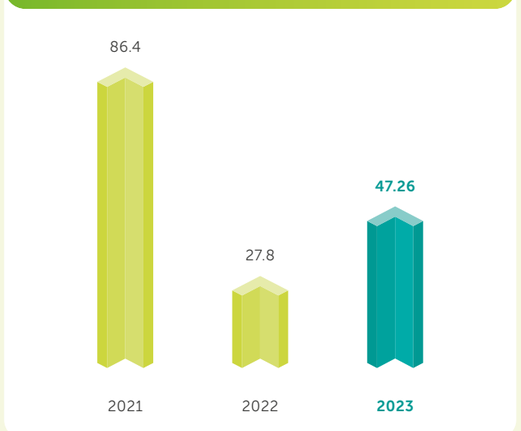
In addition to monitoring the quality of our air emissions, we also measure the quantity of our emissions by calculating Nitrous Oxide (NOx) and Sulphur Oxides (SOx) loading. The following charts highlight NOx and SOx loading from our operations between 2021 and 2023.

PGB NOx EMISSIONS (TONNES)



NOx decrease due to effort in doing plant/equipment operational control at all sites to reduce pollution from NOx.

PGB SOx EMISSIONS (TONNES)



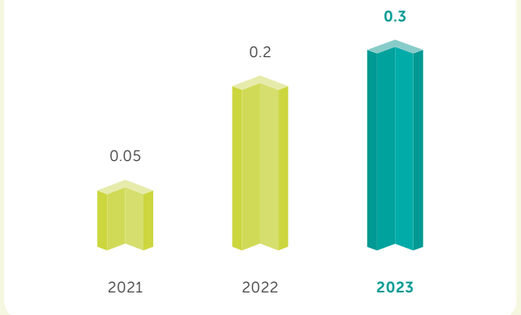
From 2021, we have significantly reduce our SOx emission. In 2023, SOx emission is increase as compared to 2022 due to high H_2S loading in feedstock and increase in production.

Monitoring Volatile Organic Compound (VOC) Emissions

In 2021, we began quantifying our VOC emissions. While all VOC emissions in hydrocarbon storage are directed to flare, a minimal residue of VOC emissions is released through the breathing line from the diesel and methanol tank. To ensure optimal safety, control measures such as nitrogen (N2) blanketing within the tanks have been implemented, and the tanks are strategically positioned in a remote area within the plant.

In 2023, our VOC emission increased by only 0.1 tonnes as compared to 2022 due to the higher frequency of diesel tank refill activities, which are conducted to meet operational requirements.

PGB VOC EMISSIONS* (TONNES)

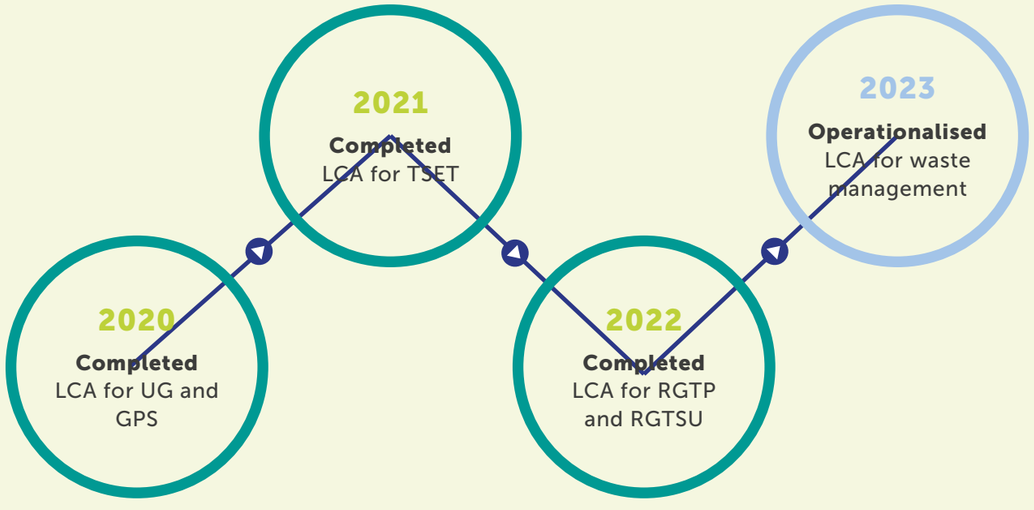


* Data taken from GPU sites.

Life Cycle Analysis

We continue to collaborate with the PETRONAS HSE Product Stewardship and Toxicology team to study hydrocarbons (i.e., methane, ethane, propane, butane and condensate) and their respective environmental footprints and carbon prices. The results of these assessments have been used to identify opportunities to optimise our waste minimisation programme and natural resource utilisation.

Thus far, assessments have been conducted across various facilities, leveraging outcomes derived from the Lifecycle Analysis (LCA) to strategically inform our initiatives and strategies. The outcomes gleaned from these assessments are actively integrated into our strategic planning and initiatives, reinforcing our commitment to sustainable practices and responsible resource management.



Environmental Fines and Penalties

We have been able to maintain our zero environmental fine and penalty track records in 2023. Looking forward, we will strive to maintain this excellent record by delivering to standards that exceed compliance requirements.

	2021	2022	2023
Number of Environmental Fines or Penalties	0	0	**0**
Total Cost of Environmental Fines (RM)	0	0	**0**

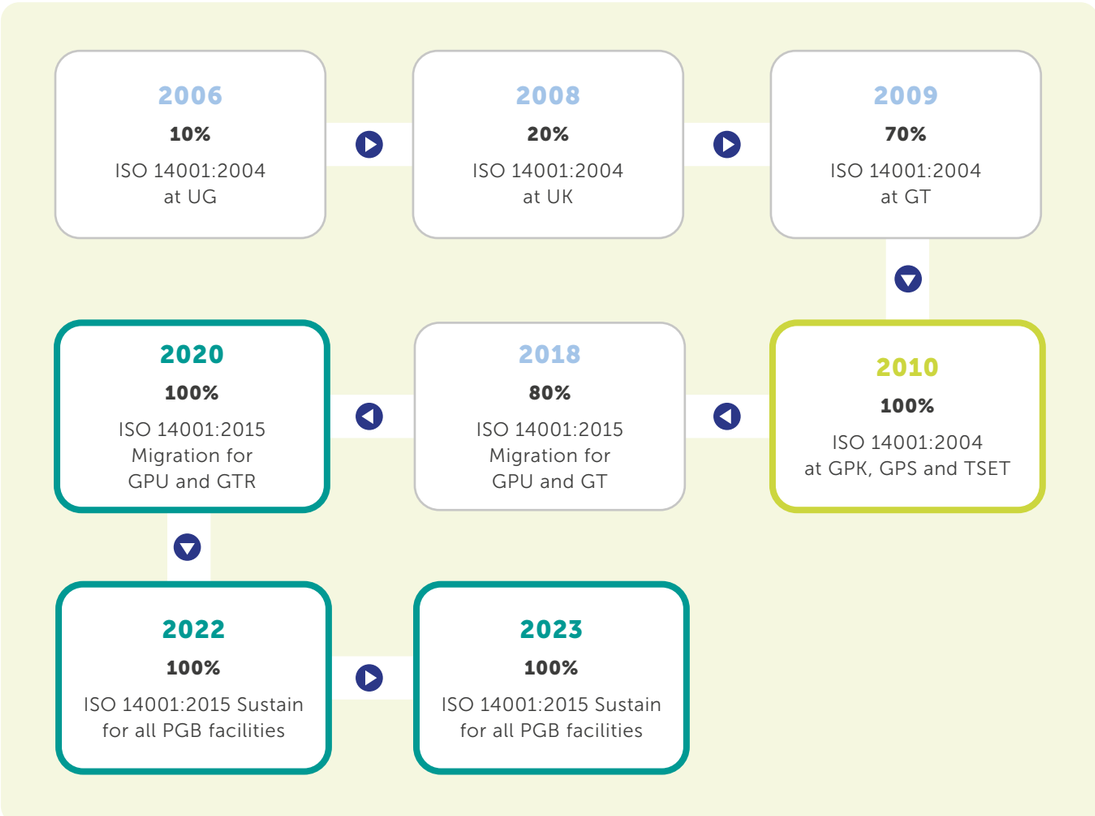
ENVIRONMENTAL MANAGEMENT

ENVIRONMENTAL MANAGEMENT

Our Environmental Management System

We began our ISO certification journey in 2008 with the commencement of 14001:2004 accreditation at UG and UK. The ISO 14001:2004 standard was then implemented at our other facilities, namely GPK, GPS, TSET and GT, effective 2010, until we successfully migrated to the updated ISO 14001:2015 standard.

To date, 100% of our sites, including RGTSU and RGTP, have successfully obtained ISO 14001:2015 accreditation and we are confident of renewing this come the next assessment cycle. This achievement emphasises our commitment to improving our environmental performance by making more efficient use of our resources and reducing our waste. On top of this, having an accreditation that complies with global sustainability practices and requirements accords us a strong competitive advantage and strengthens our good standing with our stakeholders.



Third Party Environmental Audits

Selected PGB facilities maintain an annual practice of conducting third-party environmental audits in accordance with the conditions specified in Environmental Impact Assessment (EIA) approvals. Following the guidelines outlined in the Environmental Audit Guidance Manual, these audits are carried out by auditors registered with the DoE. The audits involve assessing environmental data compliance submitted to authorities, covering aspects such as effluent and air emissions. Furthermore, these facilities undergo independent limited assurance audits conducted by SIRIM auditors annually to ensure the continuity of their ISO 14001:2015 certification.

To improve on the accuracy and integrity of environmental data, we engaged SIRIM in February 2024 to conduct an independent assurance via data verification.

Our Environmental-Related CSR Efforts

We are committed to collaborating with a variety of organisations to undertake effective CSR activities.

In 2023, we collaborated with various local authorities and non-governmental organisations (NGOs) under the Sayangi Pantai and Sungai Kita (Love Our Beaches and River) programme, which is aimed at preserving coastal ecosystems. This initiative provided an opportunity for our staff, local government entities and NGOs to join forces in enhancing coastal and ocean ecosystems. The focus was on safeguarding marine life from improperly discarded waste and preventing disruptions to the aquatic life cycle caused by toxic materials. Beyond fostering stronger ties between our staff and partners, the programme also played a role in instilling a healthy lifestyle among participants.

Initiatives

Beach Cleaning Programme at Pantai Petak @ Rhu Kudung, Paka

A group of 250 participants, including staff with families from GPS and TSET and NGOs (GPI-Geng Plastic Ija), alongside the GPU leadership team, contributed to community and environmental well-being by undertaking a clean-up initiative along Pantai Petak @ Rhu Kudung, Paka. Beyond contributing to the development of tourism in Terengganu by maintaining the cleanliness of the beaches, the programme also enhanced employee well-being through physical activities. In total, the participants collected 1,057 kg of waste, including plastic bottles, tires and polystyrene, during the programme.

Planting Tomorrow Beach Cleaning and Recycling Awareness at Pantai Puteri, Melaka

On 14 October, 2023, the Planting Tomorrow Beach Cleaning and Recycling Awareness programme was conducted at Pantai Puteri, Melaka. The program was inaugurated by YB Datuk Rais bin Datuk Wira Yasin, Senior Executive Councillor for Housing, Local Government, Drainage, Disaster Management and Climate Change. Also present were members of the MBMB Council, Tn. Ahmad Azlan bin Ahmad Salleh (the MBMB City Secretary) and MBMB members. This programme involved collaboration with SWM Environment, the Department of Environment Melaka, the Melaka State Education Department, the community around Pantai Puteri, JAPERUN and employees from PETRONAS Selatan. The programme successfully collected around 130.5 kg of waste.

NAKUDAH Programme (Nampak, Kutip and Riadah) at Pantai Batu Rakit, Terengganu

The three-day celebration of Hari Alam Sekitar Negara (HASN) at the state level in Terengganu and Karnival Lestari Pantai Timur 2023, held from 21 October 2023 to 23 October 2023, featured the NAKUDAH programme (Nampak, Kutip dan Riadah), which engaged various community segments.

The programme, delivered in partnership with UniSZA, DoE Terengganu, GPI, the Village Development and Safety Committee (JPKK) and key collaborators, successfully gathered and responsibly disposed of 264 kg of waste with the support of the Kuala Terengganu City Council (MBKT), which provided transportation services.

ENVIRONMENTAL MANAGEMENT

Initiatives

Program Hijaukan Bumiku at Sultan Zainal Abidin University Malaysia (UniSZA)

This programme focuses on enhancing ecosystem quality in the Terengganu region, where many of our primary plants are located.

To deliver the programme, we have engaged in partnerships with local authorities, regulators, universities and NGOs including the DoE, UniSZA, the Forestry Department of Peninsular Malaysia and the Department of Agriculture. Held in conjunction with Hari Alam Sekitar Negara 2023 and Karnival Lestari Pantai Timur 2023, the programme spearheaded the planting of 1,000 trees to aid carbon removal and ecosystem strengthening. As part of our contribution, we planted a total of 230 seedlings.

Program Cintai Sungai at Gas Processing Kertih

As a strategic partner, we executed the Cintai Sungai programme on 5 October, 2023, coinciding with the recent launch of Program Denai Sungai Kebangsaan by the DoE. The objective of the programme is to ensure the sustainability and aesthetics of the river while regulating activities that could lead to river pollution. Collaboratively, staff members participated in cleaning the battery limit area, demonstrating creativity through the application of the 4R concept. Other noteworthy initiatives were also undertaken including repurposing used tires as flower pots, utilising surplus paint from maintenance and operational activities to enhance the appearance of battery limits and repurposing and revitalising old signboards.

Turtle Conservation Program at Masjid Tanah, Melaka

In the heart of Melaka, with active participation from 77 individuals, we have taken proactive steps towards preserving one of our planet's most ancient and beloved creatures: the turtle. This significant program took place at Pusat Konservasi dan Penerangan Penyu Melaka, with activities including knowledge sharing sessions about turtles and comprehensive cleaning activities covering turtle habitats, cages and beaches, culminating in the release of turtles into the sea.

ENSURING WATER SECURITY

We place utmost priority on embedding effective water conservation practices at every level of decision-making and operational management

WHY IT MATTERS

Water scarcity, where billions of people lack adequate access to clean water, is a growing crisis affecting many parts of the world. The impact of water shortages extends beyond a lack of drinking water; it is closely linked to all aspects of life including health, sanitation, agriculture and overall economic development. Recognising water's pivotal role as an indispensable natural resource for our collective welfare, we place the utmost priority on embedding water conservation practices and climate change mitigation strategies at every level of decision-making and operational management as these interconnected challenges should be tackled hand-in-hand.

ENSURING WATER SECURITY

ENSURING WATER SECURITY

OUR APPROACH

Water Management Guidelines

Our obligation to social responsibility, asset and environmental protection is firmly anchored within our HSE Policy.

The policy helps ensure measures are taken to protect the environment, prevent pollution and ensure that natural resources are used sustainably.

Working in tandem with this broader health and safety agenda, PETRONAS' Guidelines on Water Practices (WAPS) and Technical Standard (PTS) for Wastewater Management and Water Management form our guiding principles for the responsible management and optimised utilisation of our precious water resources. WAPS and PTS encompass various elements such as cooling water, ion exchange, reverse osmosis, electrode ionisation, steam generation and condensate water, and they detail the correct procedures for handling sludge, wastewater discharge, collection and treatment, and recycling methodologies, among other aspects.

Five (5) out of 11 sites in our portfolio of assets (GPK, GPS, TSET, UK and UG) currently conform to the requirements outlined in the PTS. This includes having a water management plan in place (i.e., for condensate return system, brine reverse osmosis, etc.) that is comprehensively developed to include details on a water recycling system.

Freshwater Withdrawal

Our main source of freshwater water supply is municipal potable water. On the other hand, at our regasification terminals – RGTSU and RGTP – seawater is used as a medium to heat up LNG and convert it back into its gaseous state for commercial use. Systematic procedures are in place to monitor and regulate the temperature of the discharged seawater, ensuring that it is at an optimal level for marine life.

POWER GENERATION WATER WITHDRAWAL/CONSUMPTION INTENSITY

Water consumption or withdrawal is not necessary for powering our facilities as our exclusive sources for electricity generation are gas turbines and rooftop solar panels.

STAKEHOLDER ENGAGEMENT AT WATER-STRESSED SITE

We have partnered with the Gebeng Industrial Group (GISG) to support the Pahang State Government and other local authorities in addressing water supply interruptions that have been plaguing Gebeng, Pahang. As part of our joint initiatives to resolve water challenges in the region, we engaged in a series of in-person sessions with Pengurusan Air Pahang Berhad (PAIP) and Badan Kawal Selia Air Pahang to deliberate on short and long-term solutions.

ASSESSMENT AT WATER-STRESSED SITE

In 2022, a freshwater availability assessment within the Gebeng area was conducted in a joint effort with the PETRONAS HSE Department. The assessment sought to accomplish the following objectives:

- Assess future freshwater availability against projected demand from the years 2021 to 2070 through a detailed water availability projection modelling
- Identify current and future risks associated with freshwater availability and develop appropriate mitigation actions

The assessment also enabled us to evaluate our freshwater management position, particularly for assets with high freshwater withdrawal.

In 2023, building upon the findings of this assessment in Gebeng, we adopted our Water Risk Mitigation and Resource Management Plan, encompassing a comprehensive strategy that integrates water use optimisation, emergency preparedness and long-term sustainability. The plan addresses the following key risk factors:

To address these challenges, we have identified high-level potential water conservation opportunities within the UG area, including:

- Water use intensity ratio
- Demineralisation water improvement
- Steam generation system management
- Cooling tower management system
- Improvement of condensate recovery
- Feasibility of wastewater reuse

These initiatives aim to enhance water efficiency and resilience, contributing to a sustainable and responsible water management approach.

Wastewater Management

As an integral part of our wastewater management practices, we actively monitor the Chemical Oxygen Demand (COD) in our wastewaters prior to discharge. The COD represents the amount of dissolved oxygen required to oxidise chemical organic materials (e.g., petroleum). Wastewater effluents with elevated COD levels pose an increased threat to the oxygen levels of receiving waters, thereby adversely impacting living organisms.

In addition to the COD, we monitor parameters like temperature, ammonia, free residuals and pH levels, ensuring that all wastewaters are treated to conform to Level 3 requirements stipulated in the PETRONAS Technical Standard (PTS) for Wastewater Management and the Standard B limit of the Environmental Quality (Industrial Effluent) Regulations 2009 (IER 2009). The treated wastewaters are then directed into rivers and seas, avoiding enclosed water bodies.

Regular monitoring of seawater and rivers is conducted in accordance with the specified frequency outlined in our EMP, assessing impact and ensuring that our wastewater discharge does not compromise the health of surrounding ecosystems and communities. The risk assessment carried out through GPS' routine river monitoring exercise exemplifies this commitment.

ENSURING WATER SECURITY

ENSURING WATER SECURITY

OUR PERFORMANCE

Saved 219,000 m³ in freshwater withdrawal from our water reduction initiatives

Operated within the set water intensity limit

Zero fines and non-compliance incidents

Freshwater Withdrawals

In 2023, we recorded a total water withdrawal of 8.26 million m³ compared to 8.15 million m³ in 2022, marking a 1.3% increment in our water withdrawal activities. The rise in water usage in 2023 can be attributed to several factors:

- Maintenance activities associated with tank and column cleaning
- Scheduled turnaround activities at three (3) plants, involving water usage for processes like water jetting equipment cleaning
- Rectification of underground water leaking, with the necessary repairs having been completed

In 2021, we initiated the monitoring of freshwater intensity for GP and UT. Limits were established based on mode data for proactive and early monitoring purposes.

Municipal Freshwater Withdrawal* by Location (million m³)	2021	2022	2023
GTR	0.27	0.38	**0.63**
GPU	7.63	7.77	**7.63**
PGB	7.90	8.15	**8.26**

Water Withdrawal by Source (million m³)	2021	2022	2023
Surface Water from Rivers, Lakes, Natural Ponds	0	0	**0**
Groundwater from Wells, Boreholes	0	0	**0**
Used Quarry Water Collected in the Quarry	0	0	**0**
Municipal Potable Water	7.90	8.15	**8.26**
External Wastewater	0	0	**0**
Harvested Rainwater	0.235	0.25	**0.251**
Sea Water, Water Extracted from the Sea or Ocean	62	128	**109**
Total	70	136	**117.5**

* Water withdrawal represents the total amount of water withdrawn from surface water or groundwater sources.

Freshwater Intensity

GP Freshwater Intensity (m³/tonne production)	2021	2022	2023
Q1	0.2066	0.2098	**0.1975**
Q2	0.2004	0.1908	**0.2107**
Q3	0.2128	0.2271	**0.2205**
Q4	0.2013	0.2164	**0.1851**
Total	0.2051	0.2099	**0.2024**
Limit/Target	0.2890	0.2890	0.2890

UT Freshwater Intensity (m³/tonne production)	2021	2022	2023
Q1	0.3536	0.4035	**0.4262**
Q2	0.3652	0.4434	**0.4730**
Q3	0.4344	0.4636	**0.4418**
Q4	0.3991	0.4131	**0.4593**
Total	0.3877	0.4305	**0.4503**
Limit/Target	0.4710	0.4710	0.520

Water Discharge by Location (million m³)	2021	2022	2023
Ocean Total Discharge	62.00	128.00	**109**
Surface Water Total Discharge	4.09	3.50	**4.15**
Subsurface/Well Total Discharge	0	0	**0**
Off-site Water Treatment Total Discharge	0	0	**0**
Beneficial/Other Use Total Discharge	0	0	**0**
Total	**66.09**	**131.50**	**113.15**

Water Consumption at All Sites by Source (million m³)	2021	2022	2023
Total	3.531	4.063	**4.168**

Power Generation Water Withdrawal/Consumption Intensity by Source (million m³)	2021	2022	2023
Total	0	0	**0**

ENSURING WATER SECURITY

ENSURING WATER SECURITY

Water-Stressed/Scarce Regions

Two (2) of our assets – the UG operational site and RGTSU site office – operate within water-stressed regions in Melaka. In 2023, water withdrawal/consumption in UG increased due to high levels of turbidity from our municipal water supply which led to an increased blowdown at the UG cooling water system. Meanwhile, there has been a decrease in water withdrawal/consumption at RGTSU compared to last year, attributed to the completion of repair works addressing a municipal underground pipe water leakage.

Water Withdrawal/Consumption at Water-Stressed Locations (million m³)	2021	2022	2023
UG			
Water Withdrawal	1.1890	1.2160	**1.238**
Water Consumption	0.2760	0.7590	**0.7201**
RGTSU			
Water Withdrawal	0.0005	0.0020	**0.0010**
Water Consumption	0.0005	0.0020	**0**
Total	1.4655	1.977	**1.96**

In response to the 2022 water crisis at Gebeng, approximately RM986,000 was invested in deploying risk-mitigating actions and sustaining operations. There was no recurrence of the water crisis in 2023 within the area. Nonetheless, we remain committed to exploring additional preventive measures and initiatives for reducing water withdrawal to safeguard our access to clean water.

Costing Category	Cost (RM)	Remarks
Costs associated with water-related risks	0	No cost was incurred for purchasing and transporting water as there was no water crisis in 2023.
Investment in R&D to mitigate water-related risks	450,000	This cost was incurred for a freshwater availability assessment targeted at identifying potential future shortages in the Gebeng area.

Wastewater Management

Wastewater Discharge by Location (m³)	2021	2022	2023
GPK (Sg Kertih)	36,279	30,340	**38,853**
GPS (Sg Paka)	109,514	48,925	**32,673**
UK (Sg Kertih)*	889,906	792,005	**705,236**
Total	1,035,700	871,270	**776,762**

* The wastewater discharge from UK is inclusive of the treated effluent from other plants (customers).

Wastewater Chemical Oxygen Demand (COD) Loading (tonne)	2021	2022	2023
COD Loading	33.15	31.29	**29.52**

In 2023, we recorded a decrease in COD loading levels by 2 tonnes due to the reduction of wastewater flow received.

Water Conservation Initiatives

Our facilities across various business segments have adapted water management approaches to suit their nature of operations and specific needs. For example, GPU and GTR have developed their own process equipment and technology performance procedures. The following highlights key measures that have been implemented to date:

REDUCTION OF BLOWDOWN VIA IMPROVEMENT IN WATER CYCLE OF CONCENTRATION THROUGHOUT THE COMPANY FACILITIES

Improving the water cycle of concentration, which represents the efficiency of the water treatment system, has become one of our key initiatives, applied across our facilities. By increasing the cycle of concentration, we can reduce boiler blowdown water and subsequently reduce water consumption through make up water. This also leads to reduced chemical consumption in our cooling water and boiler water systems.

Improved Cycle of Concentration for the Boiler System

UK and UG have conducted improvement studies and implemented operational adjustments to enhance the cycle of concentration of their respective boiler systems, increasing it from 10 to 35 cycles. The goal of improving the cycle of concentration is to reduce boiler blowdown water and consequently lower water consumption and reduce chemical usage in their respective boiler systems.

In 2023, UK achieved further improvement by enhancing monitoring at its boiler treatment system through the implementation of discrete control limits, resulting in an increased cycle of concentration from 35 to 40 cycles. This improvement led to a reduction in water consumption at both plants of 30,344 m³/year.

Improved Cycle of Concentration for the Cooling Water System

GPK and UK have implemented advanced chemical treatment programmes, substituting polymer chemicals with the latest robust polymer technology. These measures enhance corrosion and scaling protection for the sites' cooling water systems, improving the number operating cycles from 4 to a minimum of 6 and thereby reducing cooling water system blowdown.

In 2023, both plants improved their efficiency, increasing their number of cycles from 6 to 8 thanks to enhanced monitoring of their respective cooling water treatment systems using discrete control limits. This improvement resulted in a further reduction in water consumption and withdrawal of 128,140 m³/year.

COLLABORATION WITH UK AND UG CUSTOMERS TO RECYCLE CONDENSATE WATER

UK and UG, which produce a variety of products and industrial gases, continued to collaborate with our customers in their surrounding vicinities to recycle condensate water. This sustainable approach involves buying back and recycling condensate from the steam supplied to serve as an input for boiler operations.

In 2023, the amount of water recycled at UK and UG was 2.985 million m³.

IMPROVEMENT AT GAS TURBINE COOLING WATER SYSTEM

UK underwent a change in chemicals for its gas turbine closed-loop cooling water system. This adjustment has not only reduced off-spec cooling water but has also subsequently minimised blowdown of the cooling water.

ENSURING WATER SECURITY

RAIN HARVESTING INSTALLATION THROUGHOUT PGB ASSETS

Rainwater harvesting involves the collection and storage of rain for reuse, instead of allowing it to run off or be absorbed into the ground, drains, streams or rivers. As part of our commitment to reducing water consumption, we have undertaken a comprehensive study and implementation of rainwater harvesting across our assets. According to our rain harvesting system installation plan, the project will be extended in phases over several years, encompassing various sites. The installation has been successfully completed for RGTSU in 2022, with a capacity of 9 m^3, as well as for GPK in 2023, with a capacity of 3 m^3.

CHANGE IN COOLING WATER OPERATION PHILOSOPHY DURING PLANT SHUTDOWN

To mitigate raw water withdrawal, totaling 21,000 m^3/year, at the GPK cooling water system, a shift in the shutdown cooling water operating philosophy has been implemented. The updated approach involves maintaining the circulation of the cooling water in a closed-loop system, effectively preventing cooling water blowdown. This revised operating philosophy has resulted in a significant reduction in water withdrawal.

CONDENSATE BOILER WATER RECOVERY

At GPK, condensate boiler water recovery has increased to above 90% following the rectification of steam leaks, effectively eliminating demineralised water losses at a rate of 11 m^3/hour. As a result, total annual water withdrawal has been reduced by 39,000 m^3.

MOVING FORWARD

We have continuously directed efforts towards advancing environmental practices, concentrating on the development of comprehensive, integrated approaches for energy, air, materials, waste and water management that extend beyond mere compliance standards. Moving forward, we intend to further fortify KPIs, policies and the range of our measures. By harnessing innovation and embracing industry best practices, we aim to preserve the environment for the benefit and enjoyment of future generations.

BIODIVERSITY IMPACTS

We are committed to protecting endangered species and their habitats surrounding the areas where we operate

WHY IT MATTERS

Biodiversity is an essential component of human life, providing natural resources that meet our fundamental needs and sustain our economies. Healthy ecological environments, made possible by the richness and variety of organisms interacting within it, also increase our resilience to climate change and serve as natural buffers against extreme weather events. However, much of the Earth's biodiversity is in jeopardy due to pollution, overexploitation of species, deforestation and other human activities that disrupt natural habitats.

As an ethically responsible energy and solutions provider, we recognise the importance of sustainable development in protecting the biodiversity of our ecosystems. We also understand that failure to integrate biodiversity considerations into our corporate strategy may increase operational inefficiencies, exposure to public scrutiny and regulatory risks. As such, in line with our climate protection goals, we are committed to biodiversity conservation efforts aimed at protecting endangered species and their habitats surrounding the areas where we operate.

BIODIVERSITY IMPACTS

OUR APPROACH

Our leadership on the nature and biodiversity agenda in Malaysia is guided by the foundations laid by PETRONAS' Sustainability Agenda, NZCE 2050 ambitions and Nature and Biodiversity Position. Our efforts are demonstrated through the following key areas of action:

Areas of Action	Commitment
Establishing voluntary exclusion zones	• We acknowledge the Outstanding Universal Values[1] of UNESCO World Heritage Sites and pledge not to undertake any new operations or projects within these sites.
Managing nature and biodiversity risks	• We acknowledge the significance of nature and biodiversity conservation and seek to minimise or eliminate any adverse impacts our current and future operations may have on biodiversity. • Our goal is to achieve a net positive impact (NPI) on nature and biodiversity for new project developments in Protected Areas[2] and Key Biodiversity Areas[2] from 2024 onwards. • For our existing sites, we will create site-specific inventories of critical biodiversity features and consider implementing additional conservation measures through a risk-based approach. • For new operations or projects situated in Protected Areas[2] or Key Biodiversity Areas[2], we will formulate a Biodiversity Action Plan (BAP) from 2024 onwards; while for existing operations, this plan will be developed for high and very high risk sites[2], as determined through Biodiversity and Ecosystem Services (BES) risk profiling.
Promoting nature and biodiversity through partnerships and collaboration	• We advocate for and actively engage in initiatives devoted to the preservation and restoration of nature and biodiversity. Our efforts are directed towards the protection of endangered species and habitats within Malaysia and the regions where we operate. • We partner with credible international organisations to align our conservation efforts to global best practices, international frameworks and standards. • In our ongoing commitment to prevent biodiversity loss, we prioritise fostering goodwill and strengthening collaborative relationships with local communities and non-profit organisations in our development areas. Additionally, we regularly partner with governmental and local authorities, such as officials from various district offices and regulatory bodies (e.g., the DoE, state drainage and irrigation, forestry and education departments, municipal councils, state assemblymen and police departments). Further information regarding our joint initiatives with these stakeholders can be found within the "Our Performance" section of this topic.
Supporting public policy that aims to protect nature and biodiversity	• We embrace PETRONAS' endorsement of the forthcoming Post-2020 Global Biodiversity Framework (GBF) and Malaysia's National Policy on Biological Diversity (NPBD). • We are committed to respecting and harmonising our operations with the policies and objectives of the countries where we operate.
Promoting high-quality nature-based climate solutions	• We acknowledge that balanced ecosystems supported by biodiversity play a vital role in offsetting carbon emissions and contribute positively to our NZCE 2050 goal. • We ensure that the natural climate solutions we proactively invest in adhere to internationally accredited certification standards.

[1] Outstanding Universal Values means cultural and/or natural significance which is so exceptional so as to transcend national boundaries and to be of common importance for present and future generations of humanity (Source: UNESCO World Heritage Centre – Compendium).

[2] Will be determined using BES risk profiling and analysis by leveraging the Integrated Biodiversity Assessment Tool (IBAT) (Source: UNESCO World Heritage Centre - Compendium).

BIODIVERSITY IMPACTS

BIODIVERSITY AND ECOSYSTEM SERVICES (BES) EXPLAINED

In recent years, there has been an increasing expectation for corporations to uphold higher levels of accountability in the management of BES. The term **"Biodiversity"**, derived from "biological diversity", refers to all life forms on Earth, their habitats and the intricate ecological relationships they form. On the other hand, **"Ecosystem Services"** refers to the various contributions of ecosystems to human well-being and quality of life. These services can be categorised into four (4) groups:

- Provisioning services – production of tangible resources (e.g., water, fish, timber)
- Regulating services – regulation of natural environments (e.g., climate regulation, flood control, carbon sequestration and storage)
- Cultural services – non-material benefits with aesthetic value or recreational or spiritual purposes
- Supporting services – fundamental processes necessary for the production of all other ecosystem services (e.g., nutrient cycling, photosynthesis, soil formation)

Source: World Resources Institute (WRI) materials

To mitigate the impact of our operations on biodiversity and sustain the flow of benefits derived from our surrounding ecosystems, we firmly align with PETRONAS Group's conservation initiatives. These efforts are supported by comprehensive Biodiversity and Ecosystem Services Risk Assessments (BESRA) and various tools including Environmental Impact Assessments (EIA) and the Integrated Biodiversity Assessment Tool (IBAT), which houses a centralised global dataset on biodiversity.

Chronological Overview of Biodiversity Assessments

Between 2010 and 2022, several biodiversity-related assessments were carried out within the PETRONAS Petroleum Industry Complex (PPIC) operations area. The PPIC comprises all of PETRONAS' existing onshore and offshore facilities in Malaysia, including our facilities – GPK, GPS, TSET and UK – which are situated in Kertih, Terengganu.

The first BES was carried out in 2010, followed in 2017 by the first BESRA, which formed the baseline data for subsequent BESRAs conducted through to 2020. In addition, over the course of 2020 and 2021, BES risk profiling was carried out to identify high and very high risk operations and sites.

To identify appropriate mitigation strategies, the high and very high risk sites identified then underwent BESRAs. Meanwhile, another BES survey was conducted for the purpose of benchmarking against the previous survey carried out in 2010 and to complement a BESRA that was conducted in 2018.

2022 also saw the establishment of PETRONAS' Nature and Biodiversity Position, providing more comprehensive guidance on appropriate standards, strategies and targeted outcomes in relation to biodiversity management.

BIODIVERSITY IMPACTS

The following sections outline in further detail the various biodiversity surveys, risk assessments and profilings that were carried out over the years.

2018

A Biodiversity and Ecosystem Services Risk Assessment (BESRA) was undertaken at PPIC, encompassing major operations in the region. The BESRA methodology is designed to provide enhanced insights into the potential impact of operations on BES in surrounding areas. The result of the risk assessment indicated that PPIC poses a low to moderate risk to BES and the biodiversity information gathered serves as baseline data for subsequent assessments.

2020

Biodiversity and Ecosystem Services (BES) risk profiling was conducted for all of PETRONAS's onshore and offshore facilities in Malaysia, including our sites located within PPIC.

Although situated outside a protected area, PPIC received a medium risk rating considering its scale and operational complexity. These factors suggest that any environmental pollution from its activities may harm crucial riverine, marine and coastal ecosystems, along with the communities surrounding them. This medium risk rating was similarly applied to the GPK, GPS, TSET and UK sites within PPIC. Meanwhile UG, a separate site in Pahang, was assigned a medium risk rating due to its proximity to protected forest reserve areas. As a result of the medium risk rating, a BAP is not required as per PETRONAS' Biodiversity Positioning.

Concurrently, BES risk matrices were developed based on the PETRONAS HSE Matrix and the "Good Practices for Biodiversity Inclusive Impact Assessment and Management Planning" document. The table below provides details on risk likelihoods and severity levels across our operational sites.

Facility/Asset	Likelihood	Severity	Risk Rating	Justification
PPIC Facilities in Kertih (GPK, GPS, TSET, UK)	(C) Possible	(3) Moderate	C3 Medium	Attributed to PPIC's scale and complexity of and potential impact on vulnerable surrounding ecosystems and communities
UG	(C) Possible	(3) Moderate	C3 Medium	Attributed to UG's proximity to protected areas

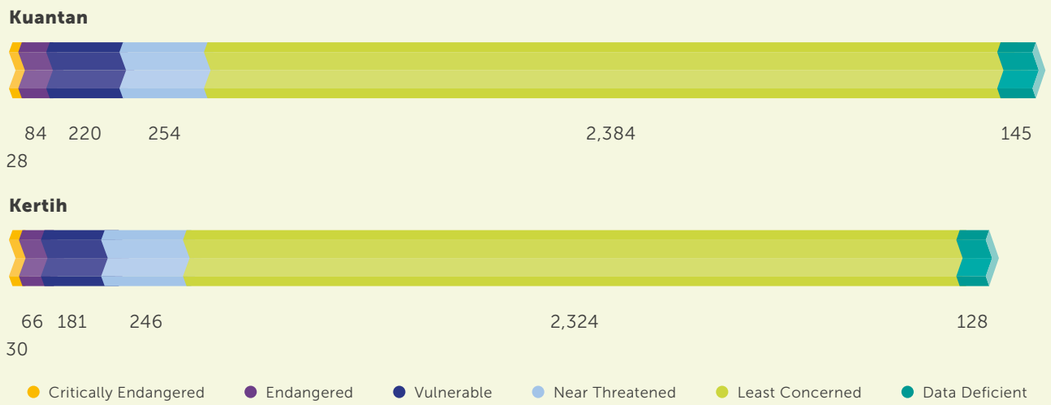
BIODIVERSITY IMPACTS

The following map highlights the Key Biodiversity Areas (KBA) located within a 10 km to 20 km radius of our Gas Processing and Utilities facilities, and their corresponding categories as defined by the International Union for Conservation of Nature (IUCN):

What is the IUCN?

The International Union for Conservation of Nature (IUCN)'s Red List of Threatened Species is the world's most comprehensive repository of conservation statuses for animal, fungi and plant species. It serves as a critical indicator of global biodiversity health and helps mobilise action towards conservation and policy change, essential for protecting the natural resources that fulfill our collective survival needs. Category VI in the IUCN denotes protected areas with sustainable use of natural resources, while Category IV denotes protected areas that serve to protect particular species or habitats with management strategies that reflect this priority.

The IBAT provides information on the potential number of flora and fauna species within a 50 km radius of our facilities, as detailed below:



BIODIVERSITY IMPACTS

BIODIVERSITY IMPACTS

BES SURVEYS

2010

BES survey was initiated within PPIC to enhance our understanding of the biodiversity surrounding our facilities. The results then served as the baseline data for the area's biodiversity.

2022

A follow-up survey was conducted by Chemsain Konsultant Sdn. Bhd. alongside a subject matter expert from Universiti Sains Malaysia (USM), to provide an updated perspective on the ecosystem's health and identify changes in the area over the course of a decade. The survey assessed the four (4) main habitats in the area, which include hill forests, coastal sandy beaches, freshwater swamps, man-made lakes, mangroves and riparian areas of Sungai Kertih. It also examined various flora and fauna groups such as fish, avifauna (birds), herpetofauna (reptiles and amphibians) and arthropods (insects). Additionally, the results from the 2022 BES survey were compared against the Biodiversity Blueprint developed by the Malaysian Nature Society (MNS) in 2010.

Despite differences in survey methodologies and coverage areas between the 2010 and 2022 surveys, the 2022 survey indicated an overall increase in species groups around the facilities. The findings are summarised in the following tables:

Group	2010	2022
Plants	190	286
Mammals	7	10
Fish (Swamp and Man-Made)	17	18
Fish (Sg Kertih)	9	13
Avifauna (Birds)	123	122
Total	**346**	**449**

Based on the BES survey findings, the following species have been identified to date:

Group	Species	
FLORA	• Kelat Jambu Laut • Rhizophora Spp • Nypa Fruiticians (Nipah) • Balau Laut • Willow • Asam Kumbang	• Rotan Kerai Laut • Serdang • Calamus Ericnaceus (Rotan Bakau) • Keruing Gasing • Akasia • Semalu Gajah
SNAKES	• Mangrove Snake • Painted Bronzeback • Striped Bronzeback • Puff-Faced Water Snake	• King Cobra • Equatorial Spitting Cobra • Dog-faced Water Snake
MAMMALS	• Long-Tailed Macaque • Dusky Leaf Monkey	• White-Handed Gibbon • Smooth-Coated Otter

Group	Species	
FROGS	• Sunda Toad • Bulter's Rice Frog • Dark-Sided Chorus Frog • Banded Bullfrog • Greenback Frog • Three Striped Frog	• Common Treefrog • Malayan Slender Treefrog • Dark-Eared Treefrog • Grass Frog • Rough-Sided Frog
BIRDS	• Lesser Adjutant • Grey-Headed Fish Eagle • Great Hornbill • Red-Crowned Barbet • Red-Throated Barbet	• Mangrove pitta • Green Iora • Black-Bellied Malkoha • Rhinoceros • Hornbill
LIZARDS	• Spiny Tailed House Gecko • Flat-Tailed House Gecko • Many-Lined Sun Skink • Garden-Fenced Lizard	• Green-crested lizard • Water monitor • Common butterfly lizard • Clouded monitor
TURTLES	• Southern River Terrapin • Painted Terrapin	• Southeast Asian Box Turtle • Malayan Softshell Turtle
CROCODILES	• Estuarine Crocodile	
FRESHWATER FISH	• Puyu • Tahi Lalat • Haruan • Tilapia • Keli Kayu • Bulan • Selat • Sepilai	• Sepat Siam • Sepat Kedah • Keli Bunga • Pelampong Jaring • Seluang • Tembok Tebing • Patung • Julung
SEAWATER FISH	• Serinding • Tahi Lalat • Duri • Kapas • Ubi • Bawal Bulan • Belanak • Bolos	• Buntal • Julung • Gerut • Siakap • Kekek • Udang • Ketam Nipah • Udang Galah
INSECTS	• Bees • Wasps • Ants • Flies • Mosquitoes • Beetles • Weevils • Moth • Bugs • Treehoppers • Cicadas • Termites	• Cockroaches • Dragonflies • Damselflies • Mantids • Butterflies • Grasshopper • Katydid • Cricket • Caddisflies • Barkflies • Earwig • Lacewings

BIODIVERSITY IMPACTS

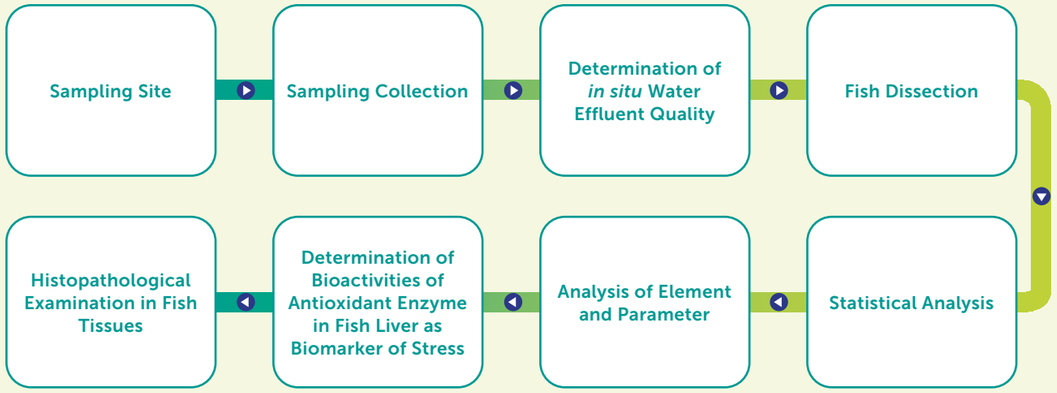
CONDUCTING AN ECOLOGICAL RISK ASSESSMENT WITH UMT

In 2022, a collaborative ecological risk assessment* was conducted with University Malaysia Terengganu (UMT) to study the quality of effluent water in the drains surrounding PPIC, with the following objectives in mind:

- Evaluate the impact of our operations on surrounding aquatic life
- Understand optimal water conditions required for healthy aquatic life during the monsoon and dry seasons
- Determine xenobiotic compound(s) and physical parameters for effluent water quality
- Assess biotic activities using biomarkers for the development of rapid analysis
- Establish selective parameters for monitoring effluent water quality beyond the regulatory standard limit

* Ecological or environmental risk assessment involves estimating the adverse effects of potential contaminants and other anthropogenic activities on ecosystems. One widely used approach to assess pollution in aquatic environments is to undertake chemical analysis of water and sediments (Prabhakaran et al, 2017). Biomonitoring, also known as biological monitoring, is employed to ascertain the condition of or changes in the environment by measuring the responses of living organisms, referred to as biomarkers.

The PGB-UMT ecological risk assessment study involved the following processes:



Following the study, we identified parameters in the PPIC area that were harmful to aquatic life and developed solutions to mitigate these risks.

Enhancement Monitoring of Discharge Water to River

In line with the recommendations of the ecological risk assessment carried out, we now rigorously monitor water discharge from our UK plant using an automated water quality discharge monitoring system. This system, which has been upgraded to include additional monitoring parameters, aids in early detection of anomalies and facilitates prompt intervention.

BIODIVERSITY IMPACTS

Environmental Impact Assessments

As part of our commitment to biodiversity protection within the context of economic development, we perform due diligence on new operations and projects through Environmental Impact Assessments (EIA). These assessments play a pivotal role in assessing the ecological impact of our business in the respective areas where we operate. Based on the 2021 EIA performed for the new pipeline installation at Pulau Indah, Selangor, significant direct and indirect impacts across biodiversity and socioeconomic aspects were identified.

Impact to Flora and Fauna	The majority of the cleared area was situated within an oil palm plantation which is not inhabited by flora and fauna species that are endangered or possess major conservation value. The affected population consisted of mangrove trees covering 0.35 acres of land, along with a small proportion of faunal species, some of which were considered pests. Overall, this infrastructure development project had a relatively insignificant impact on its surrounding ecosystem. On another note, with the establishment of infrastructure within a designated Right-of-Way (ROW), certain land management practices and alternations to the local environment can indirectly contribute to new habitats or ecological niches for birds and other wildlife. Moreover, selective vegetation planting and landscaping measures around these newly developed areas may serve as a source of food for herbivorous animals.
Socioeconomic Impact	Our development project uplifts the livelihoods of surrounding communities by creating employment opportunities. Towards this end, we aim to prioritise local hiring, demonstrating our commitment to preserving social cohesion and securing community support for our business. Additionally, our operations foster growth for local businesses, particularly in the food, construction materials supply and maintenance support sectors. This expansion in existing industries catalyses the emergence of new enterprises across primary service sectors (e.g., engineering, project management, transportation) and other support sectors (e.g., hospitality, education and training).

Environmental Aspect and Impact*

At PGB, we recognise that the basic drivers for addressing biodiversity concerns are grounded in robust risk management principles. To this end, we have adopted an Environmental Aspect and Impact (EAI) approach in our management systems to evaluate risks and opportunities. We channel dedicated efforts to assess every facet of ecological impact across all our operational plants and ongoing projects, ensuring rigorous alignment with ISO 14001:2015 requirements.

* An environmental aspect is defined in ISO 14001:2015 as an element of an organisation's activities, products or services that may or does impact the environment. An environmental impact is a result of an environmental aspect.

BIODIVERSITY IMPACTS

BIODIVERSITY IMPACTS

OUR PERFORMANCE

Biodiversity Protection and Conservation Programmes

In upholding the highest standards of corporate citizenship, we continue to collaborate with other industries, NGOs, national regulators and local communities in the following biodiversity protection and conservation programmes:

Hijau Bumiku Programme

As our main operational sites - GPS, GPK, TSET and UK - are located within Terrenganu, this programme is focused on enhancing the quality of the state's ecosystem.

Through our collaboration with the DoE, UniSZA, the Forestry Department of Peninsular Malaysia and the Department of Agriculture, we contributed 230 seedlings towards the planting of 1,000 trees in conjunction with Karnival Lestari Pantai Timur 2023 and Hari Alam Sekitar Negara 2023, aiding carbon removal and ecosystem strengthening.

The theme of the Hari Alam Sekitar Negara 2023 celebration - "Alam Sekitar Tanggungjawab Bersama" - underscores our collective dedication towards environmental conservation and preservation in line with the UNSDGs.

Flora Species

Fagraea Fragrans: **60**

Hopea Odorata: **30**

Mesua Ferrea: **50**

Syzygium Grande: **60**

Others: **30**

Other Initiatives

Sayangi Sungai and Pantai Kita

This beach cleaning campaign aims to preserve and restore the marine ecosystem, safeguarding aquatic life forms from the harmful effects of toxic substances generated from irresponsible waste disposal practices.

The below initiatives exemplify our commitment to mitigating biodiversity impacts through collaborative efforts:

Initiatives

- Beach Cleaning Programme at Pantai Petak at Rhu Kudung, Paka
- Planting Tomorrow Beach Cleaning and Recycling Awareness at Pantai Puteri, Melaka
- NAKUDAH Programme (Nampak, Kutip and Riadah) at Pantai Batu Rakit, Terengganu
- Program Cintai Sungai at Kertih, Terengganu
- Turtle Conservation Program at Masjid Tanah, Melaka

Further details can be found in the sub-section titled "Our Environmental-Related CSR Efforts" within the Environmental Management section of this Report.

POSITIVE SOCIAL IMPACT

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OCCUPATIONAL HEALTH AND SAFETY

We integrate Health, Safety, Security and Environment into every aspect of our operations to foster a culture of safety, preparedness and environmental consciousness

WHY IT MATTERS

We recognise that robust occupational health and safety practices are crucial for maintaining a competitive edge in a rapidly evolving business landscape. By integrating Health, Safety, Security and Environment (HSSE) into every aspect of our operations, we demonstrate to our investors and partners — and the community at large — that we are a responsible company committed to fostering a culture of safety, preparedness and environmental consciousness that aligns with global sustainability targets and ambitions.

OCCUPATIONAL HEALTH AND SAFETY

OUR APPROACH

Our Comprehensive HSSE Policy

Our approach to managing occupational health and safety is guided by our HSSE Policy, which complies with all legal requirements of the Occupational Health and Safety Act 1994 and the OSH Legal Register. The policy — which applies to all employees and contractors entering our premises — is in turn governed by our HSSE Management System (HSSEMS), which is aligned with the International Organisation for Standardisation's ISO 45001:2018 OHSMS and ISO 14001:2015 EMS criteria.

Our Board and LT are responsible for integrating the policy and its processes across our operations, working closely with our employees and contractors to create awareness of our collective responsibilities and drive action against our set targets and KPIs.

The policy prescribes our areas of focus in nurturing safer and healthier workplaces, as described below:

MANAGEMENT LEADERSHIP	We are committed to HSSE excellence in every aspect of our activities.
WORKSITE ANALYSIS	We proactively seek to eliminate workplace hazards and diminish risks, adhering to the "as low as reasonably practicable" (ALARP) principle.
WORKER PARTICIPATION	We carry out active consultation and participation with our employees and stakeholders on HSSE matters, fostering a shared culture of safety and care.
HAZARD PREVENTION AND CONTROL	We identify and assess potential workplace hazards to minimise the risk of injuries.
HEALTH AND SAFETY TRAINING (COMPETENCY)	We empower our workforce with the necessary knowledge and skills in HSSE, ensuring all team members are equipped to uphold our standards and advocate for improvements where necessary.
CONTINUAL IMPROVEMENT	We place focus on driving the continual enhancement of our HSE management system, in alignment with changes in international standards and our own performance metrics.

Ultimately, our HSSE Policy empowers us to maintain spotless performance against our "Four Zero" targets: zero fatalities, zero major fires, zero major Loss of Primary Containment (LOPC) incidents and zero major security incidents, by 2025. This mission is further empowered by our Annual HSSE Scorecard KPIs, which are developed based on historical data and improved on a yearly basis.

TARGET **0**

- FATALITIES
- MAJOR FIRES
- MAJOR LOPC INCIDENTS
- MAJOR SECURITY INCIDENTS

OCCUPATIONAL HEALTH AND SAFETY

In support of achieving our targets, we vigorously track and monitor lagging and leading indicators of our HSSE performance.

Lagging Indicator	Limit/Target	PGB Result 2021	2022	2023	Industrial Standard
Fatalities	0	0	1	**0**	American Petroleum Institute (API) U.S. Petroleum Industry Workforce Benchmark
Lost Time Injuries	1	1	1	**1**[1]	
Lost Time Injury Frequency	0.13	0.09	0.08	**0.08**	
Major Fire	0	0	0	**0**	API Recommended Practice 754
Major LOPC	0	1	0	**1**[2]	
HSE Non-monetary Sanctions	0	0	1	**1**[3]	ISO 45001:2018 OHSMS and ISO 14001:2015 EMS

Leading Indicator	Limit/Target	PGB Result 2021	2022	2023
Unsafe Act, Unsafe Condition (UAUC) Total Numbers	2	2	2	**2**
First Line Assurance Implementation – Schedule Compliance (%)	85	94	95	**97**
HSE Mandatory Training	100	99	99	**99.9**
Management Walkabout Per Year/Lesson Learnt Sharing Per Month	1	2	2	**2**
Culture Maturity Survey Score	4.5	4.15	4.15	**4.16**

[1] Lost Time Injury : A pigging machine caught fire at a laydown area next to a furnace (F5-0601) at GPS.
[2] Major LOPC: Occured during excavation activities at a pipeline replacement project site.
[3] HSE Regulatory Non-Compliance (Notice of Prohibition): Pigging machine caught fire at a laydown area next to a furnace (F5-0601).

A Strong Management Structure

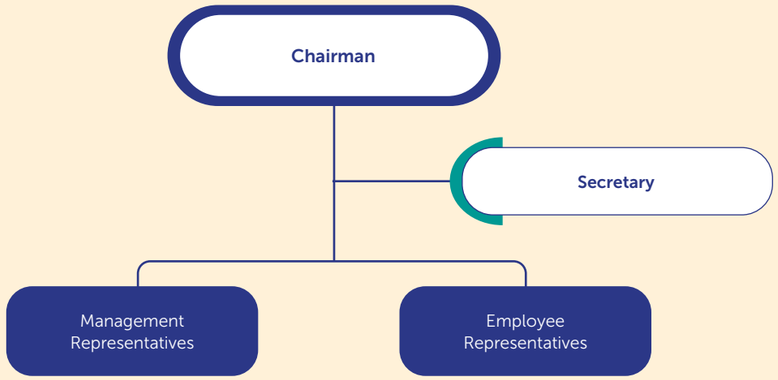
Our management of health and safety is spearheaded by our HSSE Leadership Team, which is chaired by our MD/CEO and reports directly to the Board.

To ensure full coverage and optimal response to health and safety risks across our business, we have established HSSE Committees at every asset level within the Group. The responsibilities of the committees include but are not limited to:

- Reviewing the implementation and effectiveness of our HSSEMS programmes
- Recognising health and safety achievements amongst our employees and teams
- Promoting employee awareness, positive thinking and actions towards driving health and safety excellence
- Discussing ways to eliminate or reduce injuries, property damage, environmental pollution and occupational illnesses and diseases
- Reviewing and analysing trends in incidents and accidents
- Ensuring compliance with all regulations
- Promoting a Generative HSSE Culture across our workforce and developing campaigns to this end

OCCUPATIONAL HEALTH AND SAFETY

Our HSSE Leadership Team meets quarterly to discuss pertinent health and safety issues relevant to the asset level in question. In order to promote collaborative and two-way dialogue, all committees feature balanced representation from both management and employees, with all employees represented and permitted to join any meeting of the committee of their asset level. This structure is detailed in the diagram below.



Asset-level committees are complemented by HSE Committees at the worksite level, who meet on a monthly basis to discuss site-specific HSSE issues, programmes and performance, in addition to issues related to compliance. These committees also contain management and employee representatives, and report matters to our LT for further action. Relevant matters raised across committees at both worksite and asset level are then reported to the HSSE Steering Committee and then onwards to the Board.

The following is a sample of the issues typically brought up and deliberated at an HSSE Committee meeting:

EXAMPLE OF ISSUES BROUGHT UP AT HSSE COMMITTEE MEETINGS

Health and Safety Incidents	Emergency Response	Increasing Trend of Permit-to-Work (PTW) Incompliance
Insufficient Manpower	Air-Conditioning System	Wild Animal Threats (e.g., monkeys and dogs in process area)
Issues on Maintenance Drainage Systems Located at Perimeter Fencing	Corroded Structure in Process Areas (e.g., streetlights, railing, platforms)	Windsock Visibility at Night

HSSE Committees are also tasked with introducing HSSE initiatives such as walkabouts as well as awareness and HSSE campaigns to instill a Generative HSSE Culture among workers and contractors. The following are some of the typical initiatives undertaken by the committees.

OCCUPATIONAL HEALTH AND SAFETY

HSSE Campaign Highlights in 2023

- HSSE first line assurance upskilling
- RGTP e-Permit to Work plus ePTW+ 1.0 deployment
- Improvement of Permit-to-Work approval time
- Elevating workplace well-being
- Mental Health Day
- GPU Integrity Day
- Fitness challenge (Fat2Fit Challenge)
- Fun Run
- HSSE Hero of The Week

Ensuring Full Compliance

In order to ensure full compliance to prevailing regulations and standards, we undertake regular audits of our practices and take actions towards achieving relevant international OSH certification for our assets. Our efforts in this area are governed by the PETRONAS Assurance Framework, a structured approach based on three (3) lines of assurance, managed through the myAssurance online platform.

To ensure the robustness of our health and safety practices, we conduct annual HSSE Management System reviews. The findings of these reviews are elevated to the attention of the HSSE Steering Committee, which undertakes analysis of the findings on a quarterly basis.

OCCUPATIONAL HEALTH AND SAFETY

Certifying our adherence to international best practices in HSSE, all of our assets and subsidiaries have achieved the ISO 45001:2018 OHSMS[1], the upgraded version of the ISO OHSAS 18001:2007 certification.

Location	2021	2022	2023
PGB Headquarters Office	S[2]	RC[3]	S
GP Santong	S	RC	S
TSET	S	RC	S
GT Gurun RO	S	RC	S
GT Sitiawan RO	S	RC	S
GT Shah Alam RO	S	RC	S
GT Seremban RO	S	RC	S
GT Segamat RO	S	RC	S
GT Pasir Gudang RO	S	RC	S
GT Kuantan RO	S	RC	S
GT Kertih RO	S	RC	S
RGT Sungai Udang	S	RC	S
RGT Pengerang	S	RC	S
GP Kertih	S	RC	S
UT Kertih	S	RC	S
UG	S	RC	S

[1] ISO OHSMS 45001:2018 certification (upgraded version of ISO OHSAS 18001:2007) covers 100% of sites in PGB hedquarters, GTR, RGT and GPI.
[2] S: Surveillance
[3] RC: Recertification

Our health and safety standards are independent assessed and verified by independent third parties including SIRIM QAS International Sdn Bhd and other verification bodies in line with local and international standards including the National Fire Protection Association (NFPA), ISO 45001:2018 OHSMS, ISO 14001:2004 EMS and the Occupational Safety and Health Act 1994 (OSHA 1994).

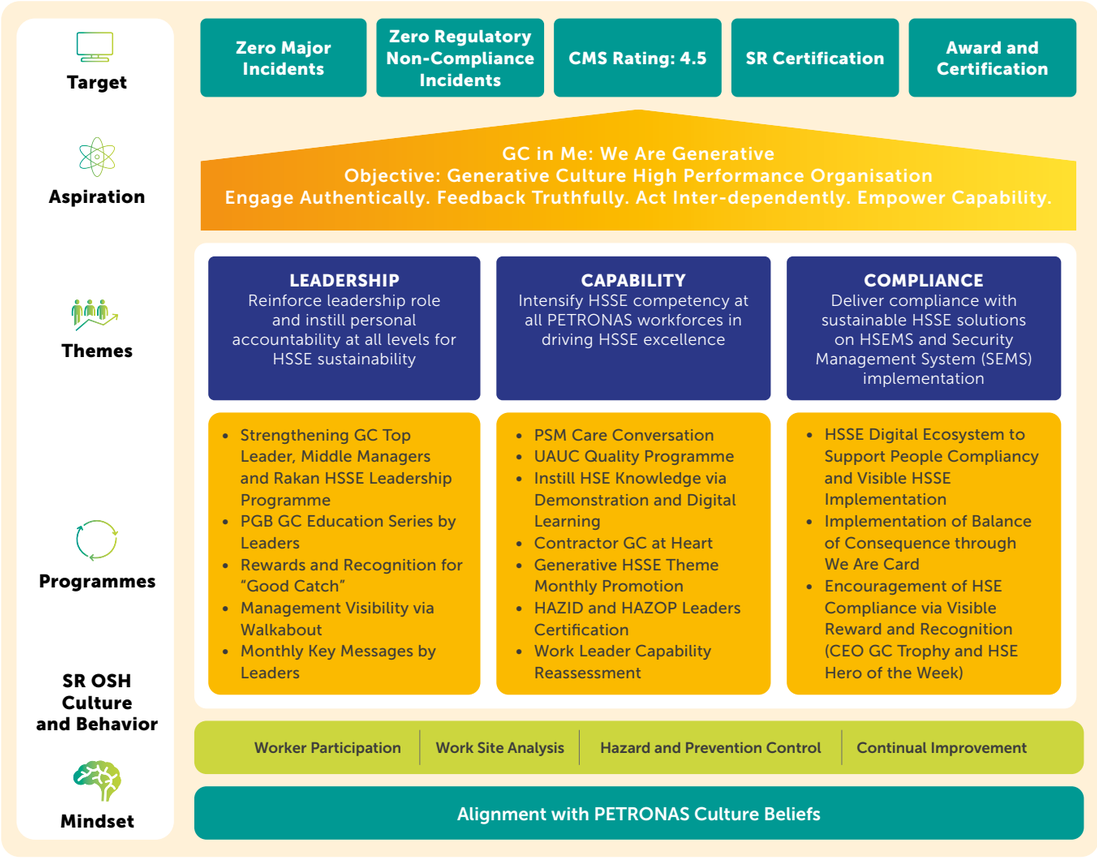
OCCUPATIONAL HEALTH AND SAFETY

Fostering a Generative HSSE Culture

With our operations spread over a wide geographical area and encompassing a range of workplaces, it is vital that awareness and action on health and safety is embedded in the mindset of each and every member of our workforce. This is essential in our pursuit of a Generative HSSE Culture.

A Generative HSSE Culture can be described as a collective responsibility to take ownership of HSSE matters, going beyond compliance to apply HSSE principles in the context of specific work scenarios and place health and safety at top of mind, always. It requires all employees, and not just assigned leaders, to be champions of HSSE, and is a key target under our Strategic Agenda.

To achieve a Generative HSSE Culture, concerted action is needed across leadership growth, capability development and compliance. These themes, and the programmes we have launched within, are described in the diagram below:



A Culture Management Survey (CMS) was conducted in 2023, wherein we achieved an overall rating of 4.16 driven by the successful implementation of existing and new initiatives and programmes. However, we are still behind our target of 4.5 and have thus planned enhanced initiatives such as incident "all clear" sessions, videos on candid leadership and the publicising of good behaviours at worksites.

OCCUPATIONAL HEALTH AND SAFETY

Managing and Minimising Risks

We maintain a rigorous and systematic approach to managing work-related hazards and safety risks. Our methods are grounded in the principles outlined in the Hazard and Effect Management Process (HEMP) and bolstered by Job Hazard Analysis exercises conducted for both routine and non-routine operations. To determine hazards that pose a risk to ill health, Hazard Risk Assessments and Chemical Risk Assessments are carried out in line with the Occupational Safety and Health (Use and Standard of Exposure Chemical Hazardous to Health) Regulations 2000 (USECHH Regulations).

To ensure the quality of our processes, we conduct mapping exercises based on our HSE Training Matrix, leading to the selection of employees to attend risk assessment trainings that include the Tripod Beta certification and Root Cause and Failure Analysis (RCFA). Moreover, our processes are reviewed comprehensively by management on an annual basis as part of our HSSE Management System reviews.

In addition to this, we employ a variety of techniques to minimise the risk of work-related hazards, including:

- Hazard Identification (HAZID)
- Process Hazard Analysis (PHA)
- Health Risk Assessment (HRA)
- Environmental Impact Assessment (EIA)
- Project Risk Assessment (PRA)
- Job Hazard Analysis (JHA)
- Environmental Aspect and Impact (EIA) Assessment
- Chemical Health Risk Assessment (CHRA)
- Noise Risk Assessment (NRA)
- Simultaneous Operations (SIMOPs) Assessment
- Turnaround Risk Assessment (TARA)
- Quantitative Risk Assessment (QRA)

We also use the Control of Major Accidents Hazards (CIMAH) Report to identify the type, relative likelihood and consequence of major accidents which have the potential to occur at our plants. The report also provides recommendations relating to safe operation of activities, outlines controls for a serious deviation which could lead to a major accident and details emergency procedures which may be employed in the event of an accident.

Based on the CIMAH Regulations 1996, manufacturers undertaking industrial activities that involve the processing, utilisation, production or storage storage of hazardous substances in a quantity that exceeds the threshold quantity as listed in Schedules 1 and 2 must notify the public of the potential hazards of their activities. The regulation also requires manufacturers to prepare and maintain an on-site emergency plan and an off-site emergency plan to be implemented in the event of a major accident.

CIMAH Information to Public Day 2023

OCCUPATIONAL HEALTH AND SAFETY

Occupational health hazards, meanwhile, are identified through Health Risk Assessments (HRA), leading to the formulation of appropriate control measures to mitigate the risks identified.

To further reduce safety risks to our teams, our stop-work commitment allows any employee to remove themselves from situations of imminent danger, ensuring their right to a safe work environment is upheld without fear of negative consequences.

Further to this, the PTS for HSSE Due Diligence process serves to examine all potential merger and acquisition projects and new operations. The process focuses on the following key areas, which includes HSSE issues:

- Commercial
- Financial
- Human Resources
- Intellectual Property
- Legal
- Taxation
- Technical and Operations

Health, Safety and Environment (HSSE)

- HSSE Management System
- Environmental and Natural Resources Management
- Social Performance
- Product Stewardship and Toxicology
- Climate Change
- Operations Safety
- Process Safety Management
- Industrial Hygiene
- Occupational Health
- Crisis Management

Enhancing Process Safety

Beyond fostering a safe working environment for our employees, the nature of our work in gas processing necessitates a comprehensive approach towards ensuring process safety, which aims to prevent major accidents involving the release of hazardous materials from our plants and equipment.

To minimise the risk of major process safety incidents, we adhere to the Process Safety Principles in our facility-based designing, building, operating, maintaining and inspecting activities. At present, the following process safety digital initiatives have been implemented across our operations:

- Integrated Process Safety Solution (IPSS) for Management of Change (MoC), Pre-activity Safety Review (PASR) and Hazard Identification and Risk Assessment (HIRA) processes.
- Process Safety Management (PSM) performance monitoring through Power BI dashboard.
- Enhanced e-Permit to Work plus (ePTW+ 1.0), integrated with Safety Critical Protective Device (SCPD) bypass.
- Barrier Risk Centralized Solution (BRICS) for the management of preventive and corrective maintenance of safety critical equipment.
- Alarm Management Plant State Suite (PSS), which serves as an alarm management tool at GPU.
- Temporary Repair – Temporary Repair Digital Management.
- Enhanced EDMS system with 3D plant view to manage process safety information.
- Corrosion analytics for plant piping and equipment corrosion prediction.
- Integration between EDMS with PETRONAS Risk Based Inspection for plant risk visualisation.
- Remote monitoring and control from our Unified Operation Centre (UOC) through operation and maintenance digital transformation.

OCCUPATIONAL HEALTH AND SAFETY

Our processes are continually monitored to ensure full compliance with PETRONAS standards, with assessments carried out regularly at all levels of our business.

Recognising the vital importance of preventing process safety incidents, we have also implemented a Layer of Protection Analysis (LOPA) framework, which details five (5) layers of controls towards minimising risks:

Event Initiated

Basic process control systems

Monitoring systems (process alarm)

Operator supervision

Mechanical protection system

Process alarms with operator corrective action

Safety instrumented control systems

Safety instrumented prevention systems

Mechanical mitigation system

Safety instrumented control system

Safety instrumented mitigation system

Operator supervision

Evacuation procedures

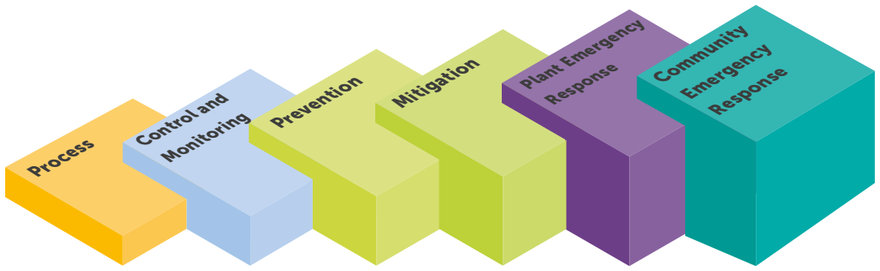
Emergency broadcasting

Event Realised

To assess the adequacy of the Independent Protection Layers (IPLs) against an accident scenario based on their availability, efficiency and hazard reduction factor

To enable better risk decisions to be 'as low as reasonably practicable' (ALARP), this may also serve to meet specific regulatory requirement

To evaluate the risk of complex scenarios which includes high severity of consequence and uncertain initiating event, sequence of events and IPLs determination



OCCUPATIONAL HEALTH AND SAFETY

To further reduce the risk of process safety incidents, our employees are availed of regular communication on process safety via email and are required to adhere to our Process Safety Essentials – a list of key priorities to keep top-of-mind when engaging in activities that may pose process safety dangers:

PROCESS SAFETY ESSENTIALS

1 I Own Process Safety

- I am accountable and responsible for my actions towards process safety
- I am passionate in ensuring all process safety barriers are healthy in order to improve process safety performance
- I step up to intervene/escalate process safety concerns to the appropriate level and stop work if required
- I collaborate with stakeholders and contractors towards achieving a common process safety goal

Courage To Act | Be Enterprising

2 I Embrace the Red and Challenge the Green

- I uphold the integrity and transparency of process safety reporting
- I challenge the GREEN by verifying the data at site
- I embrace the RED by understanding the issues and providing required support
- I am committed to diligently conducting process safety assurances in order to identify and mitigate process safety risks

Courage To Act | Speak Up

3 I Make Conscious Risk-Based Decisions

- I adopt a risk-based mindset in my day-to-day operations and aim to ensure that risks are managed to the ALARP level
- I consult respective SMEs for sound technical decisions
- I am committed to provide comprehensive inputs in conducting process safety risk assessments

Speak Up | Innovate Now

4 I Prioritise Resources and Respond Timely to Process Safety Matters

- I proactively plan and make resources available to mitigate process safety threats
- I continuously develop myself and my subordinates on process safety capabilities
- I collaborate and share Process Safety Lessons Learnt for the greater good of PGB

Customer Focused | Be Enterprising

Courage To Act	I take action to progress with pace	Be Enterprising	I seek opportunities and make them happen
Speak Up	I express my views openly	Customer Focused	I deliver solutions from a customer lens
Innovate Now	I challenge norms and push boundaries		

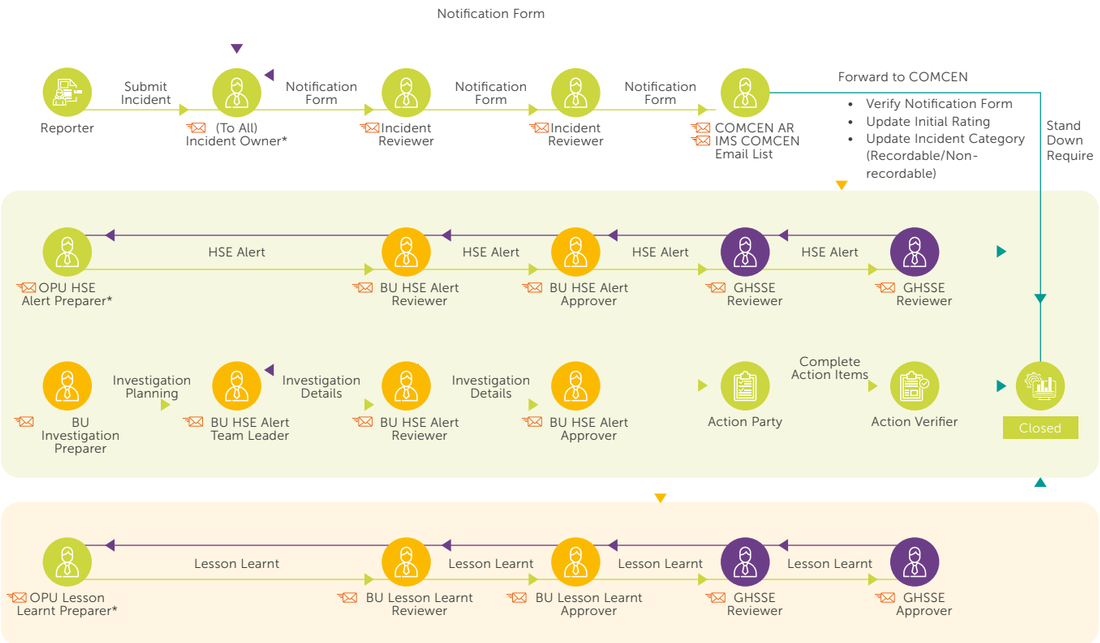
OCCUPATIONAL HEALTH AND SAFETY

OCCUPATIONAL HEALTH AND SAFETY

Investigating Accidents and Incidents Thoroughly

We adopt a rigorous approach to investigation that involves the participation of all individuals related to the accident or incident in question, including the employees involved, the employees' line managers and the employees' representative. All health and safety accidents and incidents are reported and managed through our centralised HSSE Incident Management (IM) system, which feeds data directly to our HSSE Monitoring and Reporting System (MARS) for the automatic generation of monthly HSSE performance reports.

Our structured investigation process is pivotal to understanding each incident's root causes and determining the appropriate course of action, and necessarily involves a variety of key internal stakeholders and experts, as detailed below:



Enhancing Our Emergency Preparedness and Response Processes

To ensure timely response to any emergencies or crises that occur, we adopt the PETRONAS Resiliency Model (PRM), which outlines processes and priorities across three (3) areas – enterprise risk management, crisis management and business continuity management.

In ensuring the readiness of our response teams and our emergency facilities, we regularly conduct emergency drills specific to Pre-Incident Action Plan (PIAP). In 2023, a total of 344 Tier 1 small-scale drills and four (4) Tier 2 drills were conducted with the support of external response agencies. In addition, two (2) full-scale exercises with the involvement of other PETRONAS operating units and local authorities were conducted at both GPU and GTR.

EMERGENCY RESPONSE EXERCISE AT GTR

On 31 October 2023, GTR, in collaboration with PETRONAS Chemicals Fertiliser Kedah (PCFK) and the National Disaster Management Agency (NADMA), conducted a table-top Emergency Response Exercise (ERE) titled "Ex-Northern". This exercise involved Majlis Keselamatan Negara, Polis Diraja Malaysia Gurun, Bomba Guar Chempedak, the Department of Safety and Health Sungai Petani, the DoE Sungai Petani and a few other agencies.

The exercise was based on the acute event scenario of ammonia gas being released during maintenance work for hot work and regulator servicing at a metering station. A failure in the natural gas main intake valve leads to a plant upset, causing overpressure. Subsequently, the Pressure Safety Valve (PSV) pops, resulting in a flash fire and injuries. The unpleasant odor then reaches neighboring areas and encroaches on a main road, leading to some residents complaining of dizziness and sore throat.

During this exercise, GTR utilised digital platforms such as Microsoft Teams to activate the Emergency Management Team (EMT), facilitating communication management stationed in other states of Malaysia. As a result of the exercise, the EMT and Emergency Response Team (ERT) of GTR were equipped with skills that enhanced their readiness to manage emergencies.

Exercise Santong Bara 2

EMERGENCY RESPONSE EXERCISE AT GPU

On 9 November, 2023, GPU conducted an ERE titled "Ex-Santong Bara II" for their response teams, including their ERT and EMT as well as other partner organisations such as the PETRONAS Central Emergency and Fire Services (CEFS) Response, Kerteh Interplant Clinic (KIC), Jabatan Bomba and Penyelamat Malaysia (JBPM) and Kementerian Kesihatan Malaysia (KKM). The exercise aimed to familiarise these teams with their roles and responsibilities during emergencies and enhance coordination and communication processes.

The exercise addressed various aspects of emergency response including Next of Kin (NOK) management, minor public unrest, media management and public intrusion at the main gate area. It was based on a realistic scenario involving a major jet fire at the slug catcher area, simulating a situation where multiple workers are injured.

To embrace digital transformation, GPU utilised various digital tools for efficient emergency management, such as the Crisis Management Information System (CMIS), drone surveillance, CCTV monitoring, digital unauthorised drone intervention, a digital mustering area and 3D modeling for plant areas. These tools provided on-site data to facilitate decision-making and ensure an efficient emergency response

In a remarkable display of emergency preparedness, and through the seamless integration of digital tools, GPU successfully executed the ERE with zero HSSE incidents, receiving commendable feedback from both internal and external stakeholders. As such, the success of the ERE underscored the effectiveness of their emergency response system.

OCCUPATIONAL HEALTH AND SAFETY

OCCUPATIONAL HEALTH AND SAFETY

Fostering Employee Participation

Our employees stand at the frontline of our operations and, as such, have vital input to provide towards the improvement of our health and safety processes. With this in mind, we encourage and provide the means for our workers to participate at all levels of our HSSE Management System – including policymaking, strategy development and execution.

Further to their representation in their relevant HSSE Committee, employees participate in engagements with our MD/CEO on a quarterly basis, where they are provided with updates on our health and safety performance. The following activities were also held in 2023:

- GPU Townhall 2023
- UAUC Campaign
- Occupational Safety Campaign: Webbing Sling
- Health Campaign: Symptoms and Prevention of Pulmonary TB
- Food Safety Campaign

Quarterly Leadership Team Engagements

Culture Maturity Survey (conducted across five (5) locations)

PGB Generative Culture CEO Trophy

To empower our employees to be champions of health and safety, our Unsafe Act and Unsafe Condition (UAUC) platform enables them to report safety risks that they encounter in their day-to-day work without fear of reprisal. The platform is fully digital, thus allowing our employees to submit their reports through web-based and mobile applications. The best quality submissions are rewarded by our "Good Catch" reward programme. As such, the platform played a major role in helping us maintain our 100% quality observation score in 2023.

Total UAUC Observations	HSE First Line Assurance	Incident Investigation Completion	Stop Work Orders
30,304	1,631	100%	264

OCCUPATIONAL HEALTH AND SAFETY

OCCUPATIONAL HEALTH AND SAFETY

Health and Safety Standards Training for Staff

To improve our employees' ability to detect and rectify hazards, and ensure they possess the right competencies to work at our sites, we ensure that they receive comprehensive occupational health and safety training.

Training programmes are in line with regulatory requirements and developed based on our HSSE Training Matrix plan, which is in turn based on the PETRONAS Technical Standard (PTS) 18.03.02 – HSE Competence Assurance. In 2023, 1,544 employees has attended HSE related training, with overall 9,546 attendance recorded across the following training categories.

Programmes	Total Employees Trained
HSE Management System	1,660
Emergency and Crisis Management	1,581
On Scene Commander	69
Advanced Industrial Fire Fighting	396
Hazardous Waste	964
Safe Handling of Chemicals (SHOC)	1,136
Noise and Hearing Conservation Awareness	300
Certified First Aider and AED Training	224
Energy Isolation	1,027
Permit-to-Work (PTW)	1,245
Working at Height	944

Lastly, to incentivise safe behaviours in the workplace, we have introduced the HSE Accountability and Behaviour Reinforcement (HSE ABR) programme, which rewards and recognises employees, directors and third parties working for or on behalf of PGB who act in ways that promote workplace safety. The programme also provides constructive reinforcement to those who act in ways that heighten workplace hazards and safety risks. Unsafe behaviours that are verified through an incident investigation may also lead to disciplinary action taken against the person or persons in question.

POSITIVE REINFORCEMENT
Encourage individuals to repeat the desired behaviour

CONSTRUCTIVE REINFORCEMENT
Influence individuals to modify the undesired HSE behaviour

POSITIVE/CONSTRUCTIVE REINFORCEMENTS

DEFINITE
Identify specific Desired/ Undesired HSE Behaviours

PERSONALISED
Identify and acknowledge/intervene specific individual/team that has demonstrated the Desired/ Undersired HSE Behaviours

IMMEDIATE
Timely recognition/intervention

VISIBLE
(Positive Reinforcement)
Presentation of reward and recognition to be seen by many

COMMUNICATE
(Constructive Reinforcement with Formal Discipline)
Share lessons learnt from the Undesired HSE Behaviour

Consistent implementation amplifies and nurtures the Desired HSE Behaviour whilst dampening the Undesired HSE Behaviour. This inculcates trust and psychological safety, encourages individuals to *Speak Up*, promotes learning and builds a restorative environment across the organistion.

Promoting Employee Health

We place a high value on the health and wellness of our employees, and this extends beyond occupational health. To promote holistic wellness, we have implemented the following initiatives:

PREVENTIVE HEALTH SCREENINGS

All employees aged 30 and above have access to annual preventive health screenings. We also provide RM1,000 per employee to cover dental and optometry services.

INCENTIVES FOR PARTICIPATION IN HEALTH PROGRAMMES

To encourage the adoption of healthy lifestyles, our Team-based Reward (TBR) system rewards employees that participate in external health programmes. Other ways that we support health journeys include:

Fat to Fit Program
An initiative focused on promoting weight loss and overall fitness with assigned coaches

GTR Fun Run
A friendly 5 km race with the involvement of staff and contractors

Green Walk
Morning walks through nature within our office compound

Sponsoring Employees to Participate in Runs
In 2023, we sponsored 50 runners each for the Orchid Run and Terry Fox Run, and five (5) runners for the Bursa Bull Charge

MIND-A-CARE AMBASSADOR

Beyond physical health, we also have taken steps to support our employees' mental well-being in 2023 by launching various mental health programmes including a Mental Health Day and Mind-A-Care, which provides employees with the opportunity to acquire the skills necessary to provide support to those experiencing distress or poor mental health. On a similar note, our provision of four (4) work-from-home (WFH) days per month reduces stresses related to commuting and enables our employees to better balance their work and home-based commitments. In addition, we also provide professional support to affected employees via our Employee Assistance Programme.

Mind-A-Care Ambassador: Mental Health Day

OCCUPATIONAL HEALTH AND SAFETY

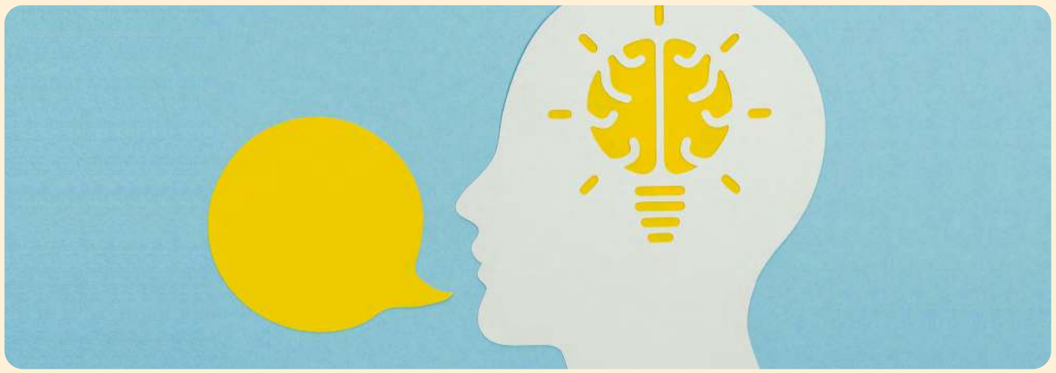
In addition, we allocated approximately RM663,000 for the Integrated Health and Occupational Health (IHOH) programme conducted by GPU and GTR in 2023, reflecting our dedication to investing in our employees' health.

Fat to Fit Program

GTR Fun Run 2023

Green Walk

GPU Mental Health Day 2023



OCCUPATIONAL HEALTH AND SAFETY

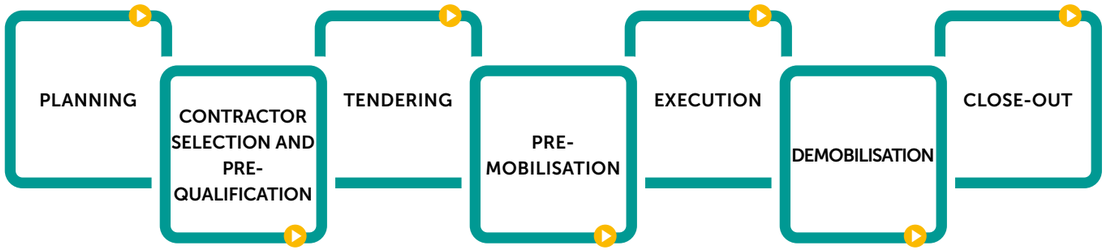
Driving Health and Safety Across Our Supply Chain

We have a responsibility to ensure that our health and safety standards are reflected in the practices of our contractors. To this end, we have implemented the following processes:

- All contractors are required to undergo a detailed pre-requisite screening before entering our premises to perform work.
- Appointed contractors must conduct an overall assessment of their health and safety risks using our hazard register.
- Appointed contractors are required to undergo health and safety trainings and become verified via the XPRESS system.
- We engage with the top management of appointed contractors to establish a clear line of communication for the swift rectification of any health and safety issues identified.
- We evaluate the HSSE performance of appointed contractors using the External Risk Management (Ex-RM) programme, which is aligned with PETRONAS Technical Standard 18.03.03 Contractor HSSE Management and L3 Contractor HSSE Management and covers onsite risks as well as the prior HSSE performance of the contractor in question.

Beyond these measures, we have established clear processes to minimise health and safety risks resulting from our contractor relationships. This includes proactively identifying of actual or potential hazards in our operations brought about by our contractors, introducing control barriers to manage the identified hazards, and continuously verifying the integrity of these controls. Any gaps identified are promptly rectified, ensuring the integrity of the HEMP cycle.

Recognising the impact that contractor performance has on our health and safety record, we adhere to a detailed contractor management structure which comprises eight (8) critical stages for managing procurement, from planning to close-out.



To assist our contractors in elevating their HSSE performance, our Contractor HSE Mentorship Programme provides expert-led assistance, driving alignment with our standards. The latest batch of mentees under the programme are expected to graduate by end of 2024.

1ST PHASE	2ND PHASE	3RD PHASE	FINAL PHASE
APPOINTMENT OF MENTEE OPU appoints contractor as a mentee under the GHSSE Mentor-Mentee Programme	**KICK-OFF MEETING** Prepare for planning and programme start	**EFFECTIVENESS REVIEW** Review the effectiveness of implementation to drive continual improvement and follow up on the plan and programme	**GRADUATION** Contractor meets all objectives and KPIs of the programme

OCCUPATIONAL HEALTH AND SAFETY

In seeking to minimise HSSE incidents caused by our contractors, we further leverage the following digital tools and engagement platforms:

Express Registration for External Service Suppliers (XPRESS)

The XPRESS system requires contractors to comprehensively disclose their competencies and critical information such as medical and security details. The system hosts a centralised database for workers' personal track records to deter misconduct and ensure compliance with our standards.

Contractor HSE Engagement Series

Our quarterly Contractor HSE Engagement Series provides a platform for open exchange on health and safety matters, enabling us to reinforce our expectations while empowering our employees and contractors to raise any issues they may be facing.

Contractor Mentorship Program: Collaboration Agreement Signing Ceremony

Contractor Engagement During Turnaround GPP2

Safety Observation Reporting via UAUC

Contractors are encouraged to utilise the UAUC reporting system to report safety risks and hazards at our worksites, thus enabling enhanced tracking and better closure of safety gaps. Contractors that submit quality UAUC reports are provided with rewards.

OCCUPATIONAL HEALTH AND SAFETY

Furthering Our HSSE Journey In 2023

In 2023, our efforts in advancing safe and healthy workplaces encompassed the following initiatives:

Communication

Share lessons learnt from major HSSE incidents in PETRONAS openly with all staff for their learning and reflection.

HSSE is a **two-way communication** between all levels and not driven by top leaders alone.

Management to **surface out the real root cause** of incidents, especially the major ones. The outcome of the investigation must be communicated to all staff. In addition, the HSSE team should establish a platform for near-miss reporting.

Practice a **culture of discussion** and open-mindedness to allow subordinates to voice out their opinions.

Culture

Educate HSSE team to be more **effective in supporting O&M**, towards nurturing a safe and reliable workforce.

Align HSSE activities with those of other teams to **foster collaboration and empowerment**.

Leaders **believe in HSSE** as a culture in order to ensure all personnel buy in to it.

Internalise the HSSE culture and **encourage feedback** even if it is not in line with the management's opinions.

Implementation and Monitoring

Focus on core business and work deliverables, and avoid activities that may affect performance.

A matter or incident is **investigated transparently, fairly and equitably**.

Education or understanding of safety among all staff and contractors.

Review data from **UAUC system** to gauge report quality.

Ensure internalisation of **HSSE culture by contractors**.

OCCUPATIONAL HEALTH AND SAFETY

This year, we conducted turnaround activities at RGTP, DPCU2, GPP2, GPP5 and ASU2. We also made the following progress on HSSE turnaround initiatives:

Turnaround Initiative	Outcome	Impact
Enterprise ePTW+ 1.0	• Paperless permit with seamless activation to enhance efficiency and time saving in relation to applications, approvals and permit tracking • Smooth data management and online tracking of any event	Improves productivity
Online gas detection monitoring	• Real-time and continuous gas monitoring at site • Live reading is displayed via the online dashboard throughout shutdown execution • Enhanced safety for confined space activities • Data collection for gap analysis and improvement	Zero incidents
ITDIS (Integrated Turnaround Digital Solution)	• Transparency of shutdown progress, HSSE information and manpower productivity • Enables monitoring of progress of low-level details • Accessible anywhere through the ITDIS Dashboard via a laptop, phone or tablet • Incorporation of the Work Control Sheet (WCS) tracking feature in the dashboard improves work efficiency and assists in PASR closure	Improves productivity and enables immediate intervention during any progress delay
Explosion proof digital tablet	• The device smoothens the process of ePTW application, obtaining updates and carrying out PTW audits during walkabouts	Improves productivity and enables immediate intervention during any progress delay
Biometric and temperature scanner	• An enhanced system equipped with face recognition features, temperature scanner and daily health declaration • Effective and safe COVID-19 screening with no human intervention required for temperature checks • Shortens the duration for manpower to enter the plant • Furnished with auto blocking features for fatigue management and COVID-19 screening	Reduces time spent on screening upon entry and improves overall productivity
Real-time drone monitoring	• Enables monitoring of critical activities and working at height • Immediate intervention via attached camera and speakers • Reduces UAUC incidences	Increases HSSE self-awareness, and improves overall productivity
Using of Drone DJI M30T and Fuse for DOSH inspection	• Prevents risks associated with human entry • Reduced preparation time for confined space entry	Completion of RGTP turnaround ahead of time without HSE incidents
Safety campaigns by phases	• ePTW+ 1.0 activation process campaign to promote new enterprise foolproof system • Finger injury and confined space campaigns to instil awareness on safety and incident prevention	Zero HSE incidents during RGTP turnaround

OCCUPATIONAL HEALTH AND SAFETY

OUR PERFORMANCE

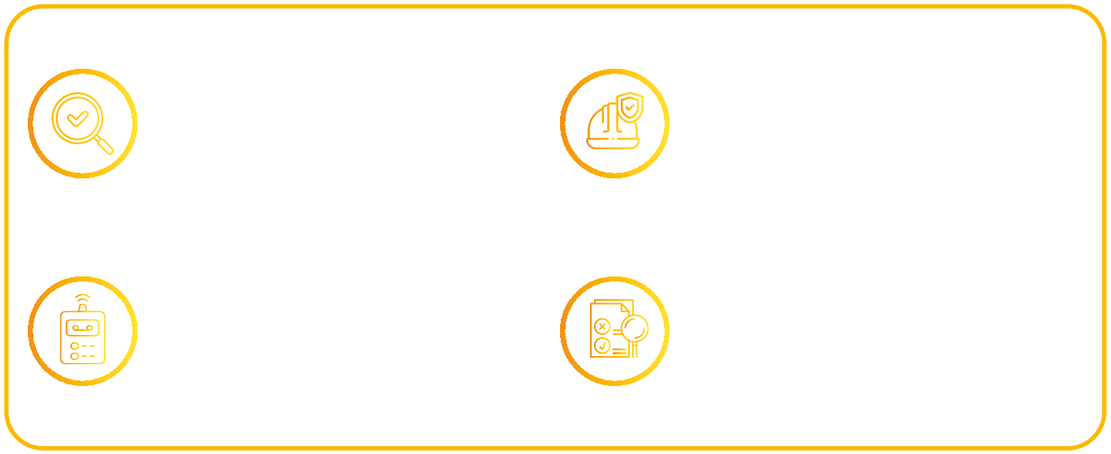
Workers Covered by an Occupational Health and Safety (OHS) Management System

100% of our employees and contractors are covered by our OHS Management System, which has been audited internally and is guided by the standards of ISO 14001:2015 and ISO 45001:2018.

Work-Related Injuries and Fatalities

In 2023, we recorded one (1) high-consequence injury within our operations, which was due to unexpected presence of hydrocarbons.

In response to this unfortunate event, an independent investigation team has recorded the following recommendations:



To prevent similar incidents from occurring in the future, our management team actively communicates lessons learned from Lost Time Injury (LTI) incidents across the organisation. Furthermore, as part of our commitment to compliance and safety, we conduct regular internal audits and thorough risk assessments before engaging in high-risk activities or operations. This proactive approach enables us to ensure that our employees and contractors are fully aware and comply with safety procedures at all times, with a heightened focus on high-risk activities at sites.

We also recorded one Loss of Primary Containment (LOPC) case in 2023, which occurred during an excavation activity during a pipeline replacement project site.

OCCUPATIONAL HEALTH AND SAFETY

OCCUPATIONAL HEALTH AND SAFETY

As a result of the incident, the following recommendations were formulated:

- Ensure that all drawings are verified as the latest version and that underground utilities/services as-built drawings are validated by the Area Owner prior to commencement of work
- All excavation activities must comply with internal excavation standards and procedures
- Both the Project Team and Area Owner of the project in question are responsible for identifying and mitigating all potential risks and hazards before initiating any work
- Continuous monitoring to be undertaken by the Excavation Supervisor to ensure safe excavation work
- Exercise caution and take extra care when conducting activities in close proximity to existing live equipment or pipelines

To reduce the risk of a similar LOPC incident occurring in future, our technical specifications and job execution methodology for the process in question have since been revised, and more stringent regulations for excavation are being imposed.

Furthermore, in order to further reduce the risk of work-related injuries and LOPC, we are taking various actions including enhancing Work Leader (WL) competency to provide on-site, hands-on training for critical HSE matters. We also initiated a WL capability reassessment with revised requirements in Q3 2023, prioritising WL trades based on site risk exposures in order to enhance competency standards. In addition, we plan to produce an area-specific hazards and effects register for easier hazard-related communication.

All Employees	2021	2022	2023
Fatalities as a Result of Work-Related Injury	0	0	**0**
Number of Work-Related Staff/Employee Fatalities	0	0	**0**
Rate	0	0	**0**
High-Consequence Work-Related Injuries	1	0	**0**
Rate	0.07	0	**0**
Recordable Work-Related Staff/Employee Injuries	0	2	**3**
Rate	0	0.50	**0.75**
Number of Hours Worked	4,026,334	4,001,044	**4,008,202**

Workers Who Are Not Employees But Whose Work and/or Workplace is Controlled by the Organisation	2021	2022	2023
Fatalities as a Result of Work-Related Injury	0	1	**0**
Number of Work-Related Contractor/Worker Fatalities	0	1	**0**
Rate	0	11.61	**0**
High-Consequence Work-Related Injuries	0	1	**1**[1]
Rate	0	0.12	**0.12**
Recordable Work-Related Staff/Employee Injuries	0	5	**5**
Rate	0	0.58	**0.58**
Number of Hours Worked	9,633,536	8,639,726	**8,617,090**
Lost Time Injury Rate/Frequency (LTIR/LTIF)[2]	0	0.12	**0.12**

[1] One (1) injury with hospitalisation.

[2] LTIR/LTIF is defined as the number of lost time injuries per million man-hours worked, as defined by the Occupational Health and Safety Administration. A lost time injury is further defined as a work-related injury or illness which renders the injured person unable to perform his normal duties on any day immediately following the day of the incident. It includes fatality, permanent total disability, permanent partial disability and loss of workday cases. The LTIR/LTIF is based on aggregated employee and worker man-hours.

Our injury rate calculations are based on 1,000,000 hours worked. No worker has been excluded.

Work-Related Ill Health

In 2023, we recorded zero cases of work-related ill health across our employees and contractors.

All Employees	2021	2022	2023
Number of Fatalities as a Result of Work-Related Ill Health	0	0	**0**
Number of Cases of Recordable of Work-Related Ill Health	0	0	**0**

Workers Who Are Not Employees But Whose Work and/or Workplace is Controlled by the Organisation	2021	2022	2023
Number of Fatalities as a Result of Work-Related Ill Health	0	0	**0**
Number of Cases of Recordable of Work-Related Ill Health	0	0	**0**

Note: Our work-related ill health performance covers all workers under PGB and our contractors.

Pipeline Incidents and Inspection

During 2023, we recorded two (2) significant incidents. The first accident led to hospitalisation while the second accident led to the release of gas totalling above USD50,000 in costs.

During the year, 6.8% of our total pipeline length was inspected, totalling to 179.15 km.

Release of Hazardous Materials

Type of Accidents	2023
Hazardous Material Releases	**2**
Hazardous Material Releases from Rail Transportation Activities	**0**

Hydrocarbons constituted 100% of all releases in 2023. To minimise the risk of accidental and non-accidental releases, all releases are subject to a root cause analysis (RCA), leading to the formulation of recommendations which are subsequently implemented, as well as being subject to our established incident management process.

TALENT MANAGEMENT

We attract and retain high quality talent through effective talent management, building our reputation as an employer of choice

WHY IT MATTERS

At PGB, we view the consistent enhancement our talent management strategy and implementation as a key driver of our competitiveness and an enabler of our long-term strategic goals. By providing our employees with capability and leadership skills training, allied with competitive remuneration and benefits, we can equip them to carry forth our culture and drive action towards achieving our business objectives.

Ultimately, doing so not only drives business performance but builds our reputation as an employer of choice, enhancing our competitiveness in the employment market and positioning us to attract and retain high quality talent.

OUR APPROACH

Effective Succession Planning

We have conducted a series of succession planning deliberations while also working with other companies in the PETRONAS Group to widen the our pool of leaders and enable talent enrichment.

Strengthening our succession plan by increasing junior executives to build supply and supporting staff development from entry level is crucial for organisational sustainability and ensures that there is a pool of qualified staff ready to take on critical and leadership roles. Further to this, we closely monitor the development of successors to ensure their readiness to take on such roles.

Nurturing Leadership Development

With the aim of building a pipeline of future leaders, we place priority on providing leadership development opportunities through the implementation of our Leadership and Conditioning Framework. The framework focuses to developing future leaders, nurturing young leaders, coaching and conditioning newly appointed leaders and building awareness of healthy minds in the workplace. In 2023, a total of 16 leadership programs were implemented and completed across various levels of employees.

To assist more experienced staff as they step up to roles of greater responsibility, we offer a range of purpose-fit leadership programmes which include:

Transformational Leadership

Blended solutions specially curated for senior leaders who are transitioning into new roles. Leaders will be equipped with the critical knowledge and skills required to deliver sustainable and transformative business results.

High Impact Leadership

Provides experienced manager-level employees with leadership knowledge and skills they can use to deliver greater impact in their existing roles.

Dynamic Leadership

Empowers new manager-level employees to take the step up with leadership and motivational skills.

The incorporation of a new assessment approach has led to the identification of 16 individuals as new high-potential staff. These individuals will undergo targeted development initiatives to accelerate their readiness to advance to higher roles within the organisation.

In addition to these programmes, we accelerate junior staff development through a structured development plan that focuses on technical, HSE, functional and leadership skills for the first six (6) years of their journey with PGB.

EMPOWERING FASTER CAREER ADVANCEMENT

Our People Development Committee (PDC) plays a key role in formulating staff development plans, mobility strategies and progression initiatives. The ongoing efforts of the committee involve undertaking comprehensive discussions and strategic planning to ensure the holistic growth and advancement of our workforce.

In line with the committee's efforts, the introduction of the "Talent Profile" feature on the myTalentX digital platform offers our employees the opportunity to construct and showcase their personal brand. This innovative feature allows them to disclose key details such as their career statement, career aspirations and interests, and their work preferences. It serves as a means for us to match the profile of our employees against our business needs, driving career mobility, faster progression and other beneficial outcomes.

TALENT MANAGEMENT

ENGAGING OUR EMPLOYEES

We recognise the role that employee satisfaction plays in cultivating a motivated and productive workforce. To this end, we have introduced a range of employee engagement channels through which our employees can provide feedback on challenges in the workplace and speak openly with their teams and superiors. Such channels include yearly townhalls, monthly newsletters, continuous updates on company strategies and plans through our intranet, and other engagements carried out through employee unions.

In addition to these regular engagements, all employees who have been with PGB for more than six (6) months receive regular performance and career development reviews, providing them with an avenue to understand where they can add value to the Group and areas where they can improve.

PROVIDING UPSKILLING OPPORTUNITIES

In addition to professional advancement, we strive to provide our employees with opportunities to widen their knowledge in non-work related areas, cognisant that this helps nurture greater satisfaction and loyalty. In 2023, we introduced a set of educational talks on personal finance in addition to the following programmes, which are not exhaustive.

TED@WORK

- TED Public Speaking Tools: 1: What are ideas?
- TED Public Speaking Tools: 2: What are your ideas?
- TED Public Speaking Tools: 3: What is your throughline?
- TED Public Speaking Tools: 6: Connection
- TED Public Speaking Tools: 8: Explanation
- TED Weekly Coffee Chats
- TED's Secret to Great Public Speaking by Chris Anderson

LINKEDIN

- 34 Things to Know about Carbon and Climate
- Accounting Foundations: Making Business Decisions Using IRR and NPV
- Achieving High-Performance During Times of Stress
- Activate your Professional Network and Increase Your Visibility
- Adopting the Habits of Elite Performers
- Advanced Business Development: Communication and Negotiation
- Advanced Microsoft Power BI
- Agile Development Practices
- Agile Project Management: Comparing Agile Tools
- Artificial Intelligence Foundations: Thinking Machines
- At Your Best: Managing Your Time and Priorities (Book Bite)
- Autodesk Inventor Routed Systems: Pipes
- Azure Data Fundamentals (DP-900) Cert Prep: 2 Working with Relational Data on Azure
- Azure Data Fundamentals (DP-900) Cert Prep: 3 Working with Non-Relational Data on Azure
- Azure Data Fundamentals (DP-900) Cert Prep: 4 Analytics Workloads on Azure
- Azure Data Fundamentals (DP-900) Cert Prep: Core Data Concepts
- Be an Intrapreneur to Take Your Career to the Next Level
- Big Data in the Age of AI
- Body Language Secrets for Powerful Presentations
- Branding Your Authentic Self

CONFERENCES

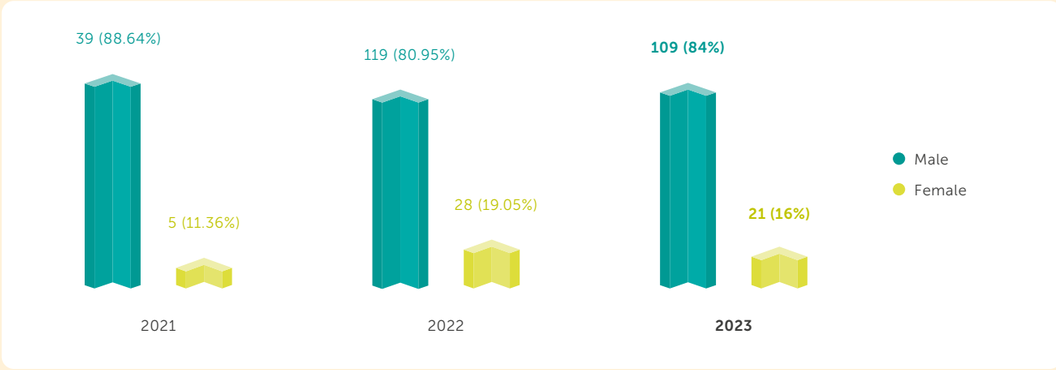
- 23rd Conference and Exibition on Occupational Health and Safety
- Asia Pacific Occupational Safety and Health Conference 2023
- The 17th National Real Estate Research Coordinator (NAPREC) Conference
- World Power Plant Innovation Conference 2023
- Conference and Exhibition on Occupational Safety and Health
- Loss Prevention Asia (LPA) 2023
- Talent 4.0: Winning The Race For Talent
- Malaysia Property Law Conference 2023

TALENT MANAGEMENT

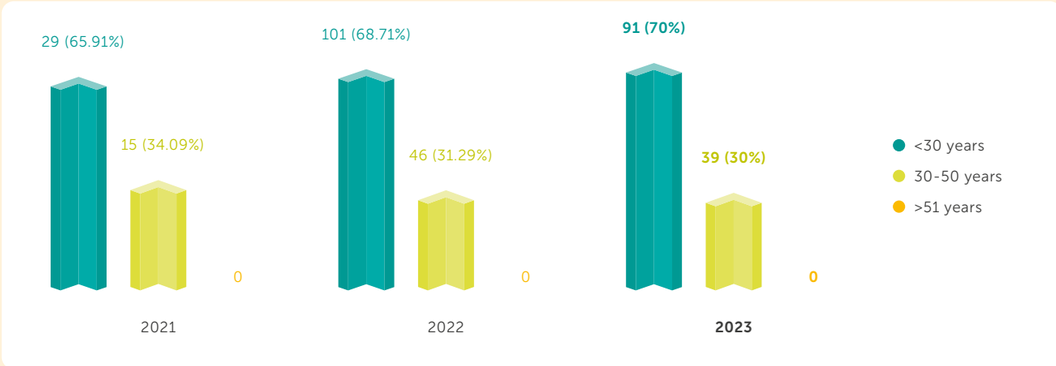
OUR PERFORMANCE

Total and Rate of New Employee Hires (New Recruits Including Experience Hires)

NEW HIRES BY GENDER



NEW HIRES BY AGE GROUP



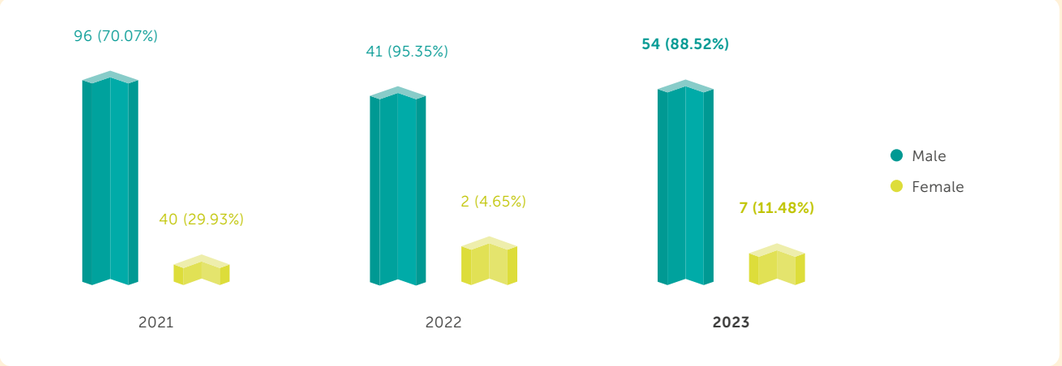
NEW HIRES BY REGION

TALENT MANAGEMENT

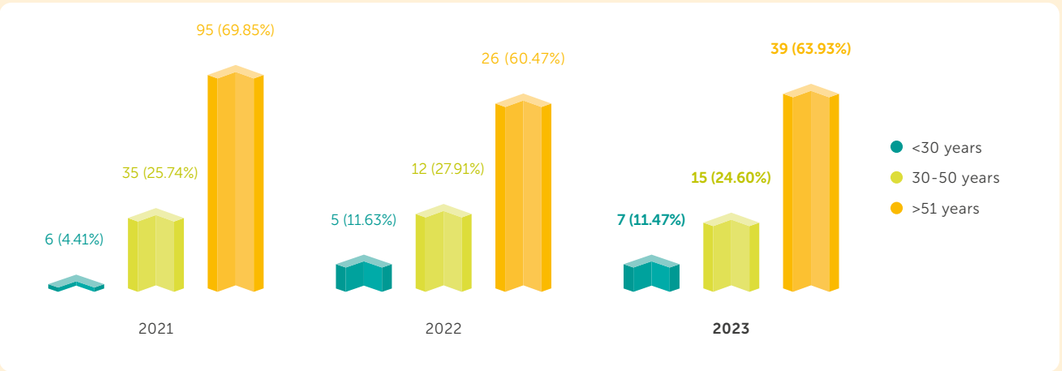
TALENT MANAGEMENT

Total and Rate of Employee Turnover (Overall Attrition)

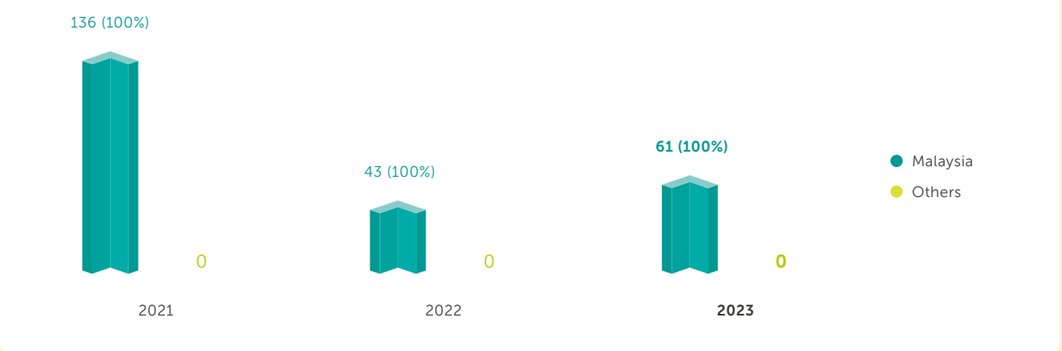
TURNOVER BY GENDER



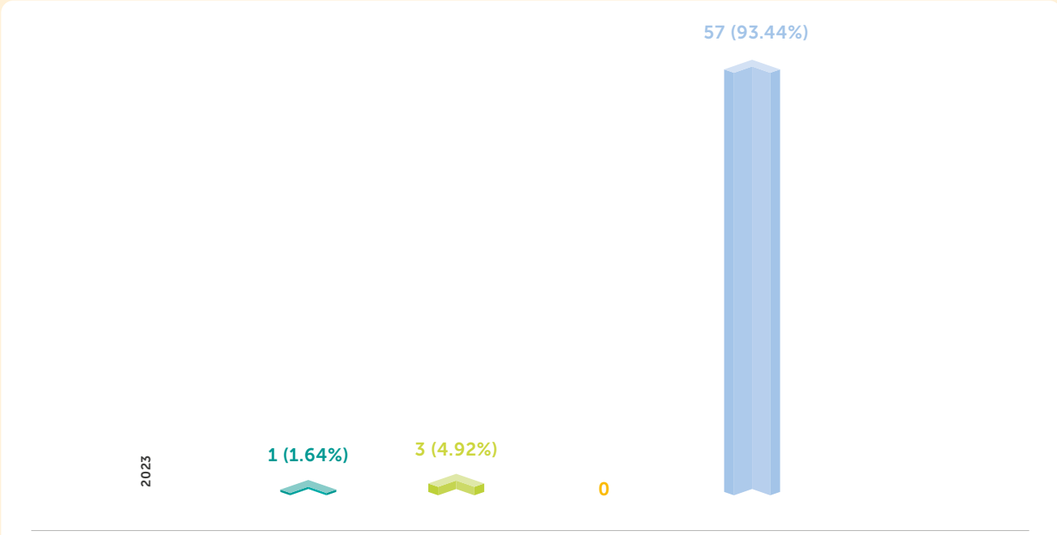
TURNOVER BY AGE GROUP



TURNOVER BY REGION



TURNOVER BY CATEGORY



- **Leadership Committee (PGB LT)**
  - **2022:** 1 (2.33%)
  - **2021:** 1 (0.74%)
- **First Level Management (Manager)**
  - **2022:** 2 (4.65%)
  - **2021:** 10 (7.35%)
- **Senior Management (SM and GM)**
  - **2022:** 3 (6.98%)
  - **2021:** 7 (5.15%)
- **Non-Management (Executive, Non-Executive, Secretary and TTS)**
  - **2022:** 37 (86.05%)
  - **2021:** 118 (86.76%)

Parental Leave

The table below shows a composition of the men and women employees who took parental leave in 2023, as well as the return-to-work and retention rates.

Employees Composition by Genders	Men	Women	Total
Total employees who took parental leave	141	22	**163**
Total employees who returned to work after parental leave ended	141	22	**163**
Total employees who returned to work after parental leave ended and were still employees 12 months after their return to work	141	22	**163**
Rate of return of employees who had taken parental leave	100%	100%	**100%**
Retention rate of employees who had taken parental leave	100%	100%	**100%**

TALENT MANAGEMENT

TALENT MANAGEMENT

Employee Benefits

The benefits we provide our full-time employees cover all minimum requirements mandated by Malaysian laws and include life insurance, health care, disability and invalidity coverage, parental leave, retirement provision, stock ownership and more, as detailed in our internal documents. These documents, which include the Executive Handbook, Secretary Handbook, Technical Trade Specialist (TTS) Handbook and Collective Agreement (CA), are not publicly accessible but adhere to PETRONAS' overarching human resource policies and guidelines.

Benefits provided to employees under Integrated Service Contracts (ISC) are determined according to the provisions of their respective companies.

Training and Education

We invest consistently in the training and upskilling of our workforce. The table below shows the number of training hours that our employees benefitted from in 2023, broken down by gender and employee category, in addition to the number of employees who participated in our skills development programmes.

TOTAL TRAINING HOURS
190,678

Overall Training	2021	2022	2023
Total Employees	1,671	1,763	**1,821**
Total Training Hours	209,088.00	115,380.48	**190,678.00**
Average Training Hours per Employee	125.13	65.45	**104.71**

Training by Employee Category	2021		2022		2023	
	Total Training Hours	Average Training Hours per Employee	Total Training Hours	Average Training Hours per Employee	Total Training Hours	Average Training Hours per Employee
Leadership Committee (PGB LT)	202.09	22.45	275.90	30.66	**834.45**	**83.45**
Senior Management (SM and GM)	1,073.32	23.33	2,065.69	36.89	**3,161.55**	**54.51**
First Level Management (Manager)	3,993.03	33.28	3,964.48	33.04	**9,218.99**	**69.32**
Non-Management (Executive, Non-Executive, Secretary and TTS)	203,819.56	136.24	109,074.41	69.12	**177,463.01**	**109.48**

Participation in Skills Development Programmes

Programme Name	Transformational Leadership	High Impact Leadership	Dynamic Leadership	SKG Training
Total Participants	2	9	18	701

Transition Assistance Programmes

We provide two (2) programmes to ensure that departing employees can transition smoothly into their next role outside the Group, with the goal of helping them find a role that is suited to their skills and experience and assisting them in the adaptation process.

Programme Name	Services Offered	Total Participants	Progress of Programme
	• Job Counseling • Resume Development • Interview Training and Practice • Seminars Covering Practical Areas • Office Support	Two (2) departing employees accepted the programme but opted for encashment instead of the transition assistance programme.	No program has started due to the employees opting for encashment
		One (1) departing employee accepted the programme but opted for encashment instead of the transition assistance programme.	No programme has started due to the employee opting for encashment

Performance and Career Development Reviews

Gender	Male	Female
Total employees	1600	221
Total employees who received performance and career development reviews	1475	208
Percentage of employees who received performance and career development reviews (%)	92.19	94.12

Employee Category	Total Employees	Total Employees Who Received Performance and Career Development Reviews
Leadership Committee (PGB LT)	10	9
Senior Management (SM and GM)	58	58
First Level Management (Manager)	133	132
Non-Management (Executive, Non-Executive, Secretary and TTS)	1621	1484

* Employees who have been with the Group for less than six (6) months are not eligible for reviews.

HUMAN RIGHTS

We uphold human rights as the foundation of our social license to operate

WHY IT MATTERS

As a leading gas infrastructure company, our operations span a large workforce and diverse supply chain, and we have the responsibility to ensure that the well-being and fair treatment of each person within our business footprint is protected at all times.

Beyond this imperative, the upholding of human rights is at the foundation of our social license to operate. Any breach of human rights would have severe implications for our ethical standing, eroding the trust of our stakeholders, leading to employee dissatisfaction and negatively impacting our ability to secure contracts and achieve our strategic objectives. As such, our performance in this critical area has a direct impact on the sustainability of our business.

OUR APPROACH

Comprehensive Policy Commitments

Our external operating landscape has changed drastically over the last decade, and the oil and gas industry is increasingly operating in complex environments where social concerns are a central problem. In this context, proactive foresight on human rights-related risks is crucial in order to sustain our long-term growth.

In our commitment to maintaining the highest standards in human rights protection, we are guided by a range of internal and external human rights instruments and policies which include:

HUMAN RIGHTS INSTRUMENTS APPLIED IN PETRONAS

List of external human rights instruments applied in PETRONAS

- United Nations Guiding Principles (UNGP) on Business and Human Rights
- Fundamental Principles of the International Labour Organization

List of internal human rights instruments applied in PETRONAS

- PETRONAS Human Rights Commitment
- PETRONAS Code of Conduct and Business Ethics (CoBE)
- PETRONAS Health, Safety and Environment Policy
- PETRONAS Anti-Bribery and Corruption Policy and Guideline (ABC Manual)
- PETRONAS Contractors' Code of Conduct on Human Rights

The core instruments and policies we use are our Code of Conduct and Business Ethics (CoBE) and PETRONAS' Human Rights Commitment, which in turn outline clear commitments and standards in human rights protection in alignment with the United Nations Guiding Principles (UNGP) on Business and Human Rights, the UNGP Effectiveness Criteria, the Fundamental Principles of the International Labour Organization and all relevant legal requirements in our markets of operation.

Our CoBE enshrines clear standards on workplace culture and environment which apply to all employees and third parties carrying out work for or on behalf of PGB:

- Safe, Secure and Conducive Workplace Environments
- Unlawful Discrimination
- Sustainable Development
- Dress Code
- Sexual Harassment
- Non-Business Workplace Relationships
- Occupational Health, Safety and Environment
- Substance Misuse (Drug and Alcohol Abuse)
- Borrowing Money
- Workplace Bullying and Harrassment
- Human Rights

PETRONAS' Human Rights Commitment is applicable to all employees of the Group, our contractors, subcontractors and all third parties within our premises or performing work or business for or on behalf of PETRONAS. It is clearly communicated to all stakeholders of the Group, including our business partners, through regular engagement sessions.

The commitment addresses:

- Labour and Working Conditions
- Third-Party Security
- Supply Chain Impacts
- Community Well-Being

Furthermore, the commitment governs how we interact with local communities and establishes our clear stance in support of children's rights.

Our Group HSE department has been appointed as the custodian of the commitment. In order to support its effective adoption across the Group, the department has developed detailed guidelines for implementation and conducts a number of human rights training programmes for our employees. With regard to our day-to-day business activities, we have assigned dedicated employees to ensure that respect for human rights is upheld and non-violation of labour law standards maintained.

Moreover, to ensure that potential impacts across our business are considered and addressed fully, human rights are embedded across the five (5) key areas of the PETRONAS Social Performance Framework that could potentially affect our operational activities, namely:

- Environment
- Health
- Safety
- Security
- Socio-Economic and Cultural

In striving to align with the strictest industry practices and standards on human rights, and leveraging on PETRONAS' membership, we are active in the International Petroleum Industry Environmental Conservation Association (IPIECA), which is global oil and gas industry association for environmental and social issues. Amongst its many projects and initiatives, the association contributes to collaborative learning projects on human rights.

HUMAN RIGHTS

HUMAN RIGHTS

Ensuring Contractor Compliance

Further to the CoBE, all contractors, subcontractors, consultants, suppliers, agents, representatives and others performing work or services for PGB are required to adhere to the Contractors' Code of Conduct on Human Rights (CoCHR), which establishes their responsibility to:

- Respect internationally recognised human rights principles and comply with the CoBE and all relevant legal requirements
- Provide human rights awareness training to their employees and contract personnel, and ensure that all employees and contract personnel providing services to PGB attend the training
- Take reasonable steps to ensure policies and guidelines are in place that demonstrate their respect for human rights, including those applicable to their employees and contract personnel providing services to PGB
- Establish a grievance mechanism for their employees, contract personnel and any party involved in providing services to PGB, with this grievance mechanism made known to them in languages they understand
- Ensure that their policies and guidelines include labour rights, workplace health and safety, security and conditions of employment, with the contents of these policies and guidelines made known to employees and contract personnel in languages they understand
- Provide timely feedback to PGB regarding their human rights performance within the duration of the contract, as gathered through personnel engagements, questionnaires and other appropriate means as required

As a minimum requirement, we also require our contractors to adhere to the following principles:

Freedom of Labour	Not engaging or employing people, under any circumstances, against their own free will or engaging in bonded labour/debt slavery.
Prevention of Child Labour	Not employing children below the legal minimum working age requirement of any country, with employees and contract personnel required to be at least eighteen (18) years of age (unless otherwise determined by the local laws of the host country).
Wages and Benefits	Complying with all applicable laws related to employee compensation, including minimum wage, overtime hours and legally mandated benefits.
Working Hours	Complying with local laws of the host country or agreements regarding working hours, overtime hours and work during holidays.
Establishment of a Grievance Mechanism	That provides a means for grievance reporting and details appropriate follow-up measures while ensuring that the identity of the complainant is protected.
Non-Discrimination	Respecting diversity in the workplace and not engaging in any form of unlawful discrimination based on gender, race, ethnicity, skin colour, religion, nationality, sexual orientation, age, marital status, pregnancy, political affiliation or disability in hiring and employment practices.
Freedom of Association	Respecting the legal rights of employees to become members of a labour union or otherwise.
Humane Treatment	Respecting employee rights and ensuring no harsh and inhumane treatment, including any form of mental or physical coercion, or verbal abuse of employees.
Foreign or Migrant Workers	If foreign or migrant employees are engaged, they are to be employed in full compliance with the labour and immigration laws of the host country. Prior to hiring, the basic terms of employment must be provided to employees in their native language or a language that they understand. Passports and other forms of personal identification must remain in the employee's possession at all times and are never to be withheld by the contractor or any third party, in full compliance with the labour and immigration laws of the host country.

To ensure the compliance of our contractors to our standards, we utilise the following digital instruments:

EXPRESS REGISTRATION FOR EXTERNAL SERVICE PROVIDER (XPRESS)

We strictly prohibit the hiring of underaged children and forced labour, and duly expect our contractors to follow suit. As such, all potential contractors and their employees are further filtered and verified through the online XPRESS system prior to being appointed. We also include these requirements into all contractor contract clauses to ensure full compliance with PETRONAS' CoHR and relevant labour standards.

For our employees, all processes are filtered through HRM hiring processes.

FATIGUE MANAGEMENT SYSTEM (FMS)

To prevent fatigue-related incidents, the FMS system tracks and monitors the amount of hours worked by PETRONAS employees and contractors against their Hours-of-Service Limit. Should an employee of contractor exceed the limit, they are denied entry to their work premise. This system is in line with the following internal and external standards and legal requirements:

- Laws of Malaysia Act 265; Employment Act 1955
- Laws of Malaysia: Police Act 1967 (Act 344) and Rules and Regulations – as at 15 March 2004
- Laws of Malaysia: Police (Auxiliary Police) Regulation, 1970
- Laws of Malaysia Act 298 Protected Areas and Protected Places, Act 1957
- Occupational Safety and Health Industry Code of Practice for Road Transport Activities 2010 (Malaysia)
- Fatigue Risk Management Systems for Personnel in the Refining and Petrochemical Industries – ANSI/API Recommended Practice 755; First Edition, April 2010
- OGP-IPIECA Managing Fatigue In the Workplace – A Guide for Oil and Gas Industry Supervisors and Occupational Health Practitioners – OGP Report 392 (Prior consent was obtained from the OGP-IPIECA Health Committee to reproduce the material from the document)
- OGP-IPIECA Performance Indicators for Fatigue Risk Management Systems – Guidance document for the oil and gas industry 2012
- OGP-IPIECA Assessing Risks from Operator Fatigue - Guidance document for the oil and gas industry 2014
- OGP-IPIECA (2012). Performance Indicators for Fatigue Risk Management Systems – Guidance document for the oil and gas industry – OGP-IPIECA Health Committee, 2012

To ensure consistent oversight and detect any instances of non-compliance, we assess our contractors from time to time through the Contractors' Performance Indicator.

Failure by a contractor to meet our standards may result in the termination of their relationship with PETRONAS and other adverse consequences.

HUMAN RIGHTS

HUMAN RIGHTS

Identifying, Assessing and Mitigating Human Rights Issues

Recognising the potential for human rights risks to arise across our business, we proactively assess our operations and projects through Social Risk Assessments (SRAs). Through these assessments, we are able to identify any salient human rights issues, which are then promptly addressed through appropriate mitigation actions and followed through to closure. We commit to conduct SRAs every five (5) years, or as and when required.

Facilitating Reporting of Grievances

To facilitate the reporting of any human rights issues and concerns, we maintain a dedicated grievance mechanism that is open to all internal and external stakeholders, including local communities that are impacted by our business activities. The mechanism is available in most languages across our countries of operation and guarantees the confidentiality and anonymity of the person making a report.

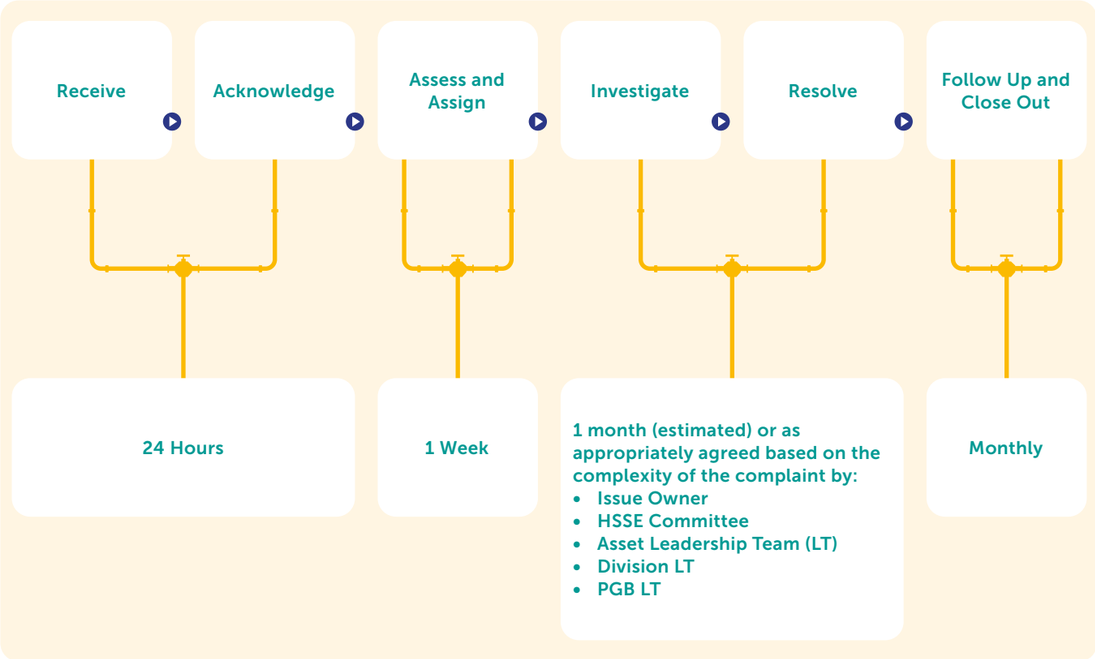
The mechanism covers the following key human rights elements:

Labour and Working Conditions	• Forced labour • Child labour and young workers • Non-discrimination • Freedom of association • Workplace/accommodation health and safety • Conditions of employment
Responsible Security	• Conduct of third-party security • Mechanism to report on security personnel
Community Well-being	• Land management (Right-of-Way, compensation, access to natural resources) • Indigenous peoples • Cultural heritage • Community health and safety • In-migration • Right to clean air and water
Supply Chain Management	• Contractor/supplier performance related to labour and working conditions, responsible security and community well-being

To deal with grievances in an efficient and fair manner, we have created three (3) key roles that are played by dedicated staff:

Community Liaison Officer (CLO) / Grievance Focal	• Engaging with local communities to receive and discuss grievances • Conducting initial assessments of grievances received • Forming a cross-functional team to address grievances received • Advising the Grievance Mechanism Custodian on the assignment of an appropriate Issue Owner (in accordance with the nature of the grievance) • Promoting grievance resolution
Grievance Mechanism Custodian	• Overseeing the overall development and management of grievances • Chairing the Grievance Resolution Commmittee/Grievance Appeal Committee at respective ABT/regional operations and Head Office (HO) • Appointing a third party mediator, if required • Escalating the grievance to a higher level (i.e., BUs), if required • Approving reports for internal and external release
Grievance Resolution Committee / Grievance Appeal Committee	• Analysing grievances and deliberating options for resolution while no conflict of interest • Implementing a resolution or escalating the grievance (when necessary) • Deliberating on appeal cases • Approving the resolution and signing off case closures

The below process flow functions as a guide for all staff receiving grievance reports to ensure that the grievance in question is assigned, investigated and resolved in a timely manner. This helps to ensure that minor grievances do not escalate into larger issues.



To ensure that our stakeholders are informed about the grievance mechanism and equipped to make full use of it when required, we provide relevant information through a variety of mediums including brochures, posters and HELP lines, as well as via Control of Industrial Major Accident Hazard (CIMAH) engagements and townhalls. On this point, we organised the CIMAH Information to Public programme at Kelab Golf and Rekreasi PETRONAS (KGRP) in November 2023. The programme was participated in by 210 representatives from local authorities and communities in Kertih, Kemaman and Dungun.

HUMAN RIGHTS

To ensure the effectiveness of our grievance mechanism and process, we adhere to a First Line Assurance process, whereby an appointed focal person conducts an evaluation on a quarterly basis.

Should a grievance lead to the identification of a human rights issue to which the Group is deemed to have contributed, we commit to taking prompt steps to address the issue and to remedy all parties affected.

Supporting Whistleblowing

We are committed to providing a conducive working environment where each individual's right to protection from all forms of bullying, sexual harassment and unsolicited or unwarranted sexual overtures and advances is respected. In this regard, we have adopted the PETRONAS Whistleblowing Policy to ensure our aspiration of conducting our affairs in an ethical, responsible and transparent manner is upheld.

Through the policy and its accompanying whistleblowing channel, we provide an avenue for all our employees and members of the public to disclose any improper conduct within PGB. Any parties can report a complaint on any wrongdoings that they observe or experience, including but not limited to:

Workplace Bullying	Sexual Harassment	Fraud
Abuse of Power	Conflicts of Interest	Misuse of Company Property
Bribery	Theft or Embezzlement	Non-Compliance with Procedures

The above list is not exhaustive and includes any act or omissions which, if proven, would constitute an act of misconduct under the CoBE, or any criminal offence under relevant legislations in force.

Complainants may submit a report via the myPETRONAS platform. All complaints received are dealt with the following manner:

Whistleblowing Secretariat (WBS)

The **WBS** is responsible for the registration, monitoring and reporting of the complaint. The secretariat will conduct a preliminary assessment and present the findings to the Whistleblowing Committee. The secretariat will ensure the complaint is given due attention and is pursued until closure.

Whistleblowing Committee (WBC)

The **WBC** is responsible for the evaluation of the preliminary assessment. They will assign Investigation Party to conduct a detailed investigation. The committee will then assess and deliberate on the investigation report and determine a forward course of action. The committee will ensure justice is delivered for any misconduct ascertained from the investigation.

Investigation Party

The **Investigation Party** is responsible for performing a thorough investigation of the complaint. They will carry out a comprehensive investigation to allow for a fair evaluation by the committee.

The whistleblower's confidentiality is guaranteed by the PETRONAS Whistleblowing Policy.

HUMAN RIGHTS

All complainants are provided with anonymity throughout the whistleblowing process to the extent that it is reasonably practicable, and are protected against any repercussions that may occur as a result of the complaint lodged, provided that the complaint is made in good faith. This protection is accorded even if the investigation later reveals that the complainant was mistaken as to the facts of the issue or the rules or procedures involved.

To facilitate appropriate handling of instances of bullying or harassment, we organise industrial relations training for our line managers. In 2023, we organised four (4) such sessions, which were collectively attended by 152 employees.

Engaging Employees on Human Rights Issues

We conduct regular engagements with our employees and contractors to refresh their knowledge of human rights and keep them abreast of any new developments in the field. These engagements also function as an avenue to receive feedback on our processes and discuss potential improvements transparently.

In 2023, we conducted two (2) engagement sessions which were open to all stakeholders:

- Engagement and training regarding workplace culture (sexual harassment, workplace bullying and harassment)
  - Session 1 conducted in June 2023
  - Session 2 conducted in August 2023
- Human rights engagement sessions conducted in October 2023 for contractors

In addition to these activities, we further inculcate our human rights commitments within our corporate practices by providing all employees with training in human rights management.

Our contractors, meanwhile, are engaged on human rights issues through a pre-mobilisation assurance process prior to the commencement of jobs at our worksites. This engagement covers issues such as workplace sexual harassment, bullying, prevention of child labour, working hours, non-discrimination, and wages and benefits.

HUMAN RIGHTS

Supporting Freedom of Association and Collective Bargaining

In 1983, we established Kesatuan Kakitangan Petroliam Nasional Berhad (KAPENAS) to fulfil the function of a union for our non-executive staff. Comprising a representative from each of our assets, KAPENAS provides its members with the means to exercise their right to freedom of association and engages in a collective bargaining agreement process with the Group once every three (3) years. During the year under review, an engagement session was held between KAPENAS and our management to discuss union matters, including collective agreement provisions and implementation matters.

We continue to introduce specific measures to manage potential impacts and risks to human rights from our projects and investments. We also ensure that sufficient resources are on hand if any corrective measures are needed. As we navigate through the new normal and the current socio-economic challenges, we stand firm in our commitment to ensure the well-being of people and the safe and optimal operations of our businesses across the value chain.

OUR PERFORMANCE

Human Rights and Labour Violations

During the year in review, we recorded zero human rights violations on workplace harassment and zero non-compliance cases in relation to labour standards, as per the following table:

		2022	2023
Human Rights Violations	On-going	0	**0**
	Closed	1	**0**
	Total	1	**0**
Labour Standards Violations	On-going	0	**0**
	Closed	0	**0**
	Total	0	**0**

Child Labour and Forced or Compulsory Labour

We are steadfast in our commitment to preventing child labour and all forms of forced or compulsory labour across our business footprint, in line with the standards set within Part III: Workplace Culture and Environment of our CoBE.

To minimise the risk of violations across our supply chain, we have integrated child labour and forced and compulsory labour as key considerations within our XPRESS system. In addition, all suppliers are subject to a pre-execution assurance process and regular audits throughout their engagement with PGB to ensure compliance with our policies across all human rights elements.

At the organisational level, we extend our commitment beyond the prohibition of child labor to encompass a broader advocacy for the protection of children's rights. During the year under review, none of our operations or suppliers were assessed to be at significant risk of incidents of child labour or of young workers exposed to hazardous work. Similarly, none of our operations or suppliers were assessed to be at significant risk of incidents of forced or compulsory labour.

Protecting Rights of Indigenous Peoples

For projects within PGB, we abide by the policies and procedures we have been put in place to govern our engagements with indigenous peoples and address their concerns and expectations. This includes identifying, avoiding, minimising and mitigating potential impacts on communities, their livelihoods, cultural heritage and the local environment. We also provide access to culturally appropriate grievance mechanisms and strive to deliver development benefits, including access to jobs and economic opportunities.

During the year under review, there were zero incidents related to violations of the rights of indigenous peoples recorded. This encompasses legal action or complaints relating to the impact of the practices of our employees and the impact of any of our existing or planned activities on indigenous communities.

SUPPLIER SOCIAL IMPACTS

We retain a sustainable and resilient pool of vendors that are equipped to support our strategic objectives

WHY IT MATTERS

We rely on a complex network of thousands of vendors and suppliers across our extensive value chain, and it is our responsibility is to ensure that these business partners uphold ethical and responsible social practices in alignment with our standards and the expectations of our stakeholders.

Through rigorous monitoring of our suppliers' practices, we have the potential to deliver sustainable value to people and communities as well as minimise negative environmental impacts generated across our value chain. This is vital in maintaining our social license to operate and avoiding the risk of non-compliance with regulations. Furthermore, it ensures that we retain a sustainable and resilient pool of vendors that are well versed in our needs and equipped to support our strategic objectives.

SUPPLIER SOCIAL IMPACTS

OUR APPROACH

Setting Clear Supplier Standards

The PETRONAS Contractor's Code of Conduct on Human Rights (CoCHR) defines the expectations we have of our suppliers in respecting human rights and upholding workplace standards. It encompasses the Core Labour Standards of the international Labour Organization (ILO) and specifically requires our suppliers to adhere to the following principles and their related laws, regulations and PETRONAS standards.

In addition, we expect our suppliers to comply with international frameworks and guidelines relevant to their business, which include but are not limited to:

- United Nations Sustainable Development Goals (UNSDGs)
- Global Reporting Initiative (GRI) Standards
- The World Economic Forum (WEF) Stakeholder Capitalism Metrics
- UN Guiding Principles (UNGP) on Business and Human Rights

Building Sustainability Capabilities

To empower our suppliers on their sustainability journeys, we undertake a range of purpose-fit programmes and engagements including:

- Our participation in the Early Adopter Programme (EAP) of Bursa Malaysia's Centralised Sustainability Intelligence, which enables companies to calculate their carbon emissions impact and disclose standardised, common ESG data, thus facilitating decarbonisation across our supply chain
- A collaboration with SME Corporation Malaysia to drive ESG capability building amongst our suppliers, delivered through two (2) engagements in March and June 2023
- An OGSE Survey issued in 2023 to approximately 4,700 of our suppliers to assess their ESG maturity level

MOVING FORWARD

Group Procurement is in the process of developing a sustainable supply chain roadmap that will place emphasis on emissions and human rights - the two (2) identified focus areas for supplier improvement. This includes initiatives to build supplier capabilities, drive enhancements to their ESG disclosures, improve their risk assessment processes, connect them to sustainability-linked financing and more.

Through this holistic approach to value chain sustainability, we can maximise shared value creation between our company and our business partners, towards maximising positive impact for people and planet.

SUPPLIER SOCIAL IMPACTS

OUR PERFORMANCE

Proportion of Spending on Local Suppliers

We strive to support local suppliers, which we define as companies incorporated in Malaysia, wherever possible. During the year under review, 99% of our procurement spend was on Malaysian companies.

To drive the advancement of the local business ecosystem on ESG issues, we actively implement capability-building programmes and initiatives that encourage the adoption of responsible practices across our supply chain, including practices relating to decarbonisation.

Supplier Social Assessments

All new suppliers are expected to affirm their adherence to the PETRONAS Contractors' Code of Conduct on Human Rights (CoCHR) before they can complete the vendor onboarding process. Further to this, we disseminate CoCHR assessments to high-risk suppliers holding active contracts with the Group. The findings of these assessments are summarised below.

- In 2023, 10 contractors were identified to have high-risk exposure on human rights, determined based on the value of the contract awarded and the high-risk activity (e.g., high HSSE risks, labour intensive operations, operations in remote locations and participation of foreign and migrant workers)
- No presence of child labour was detected in our supply chain
- 4% or nine (9) of the suppliers who received the assessment were identified to have significant actual or potential negative social impacts, with these suppliers subsequently provided with Corrective Action Plans (CAPs) for gap closure monitoring and tracking

None of our vendors were terminated as a consequence of being highlighted as having significant actual or potential negative social impacts. Our position is that we have a responsibility to help the OGSE industry in assessing these issues and closing the gaps that are found. We are guided here by the UN Guiding Principle on Business and Human Rights, whereby termination is seen as the last course of action once all other remedies have been exhausted.

EQUAL OPPORTUNITY, DIVERSITY AND INCLUSION

We nurture work environments that bring together a multitude of perspectives, ideas and talents to drive innovation and creativity

WHY IT MATTERS

We believe that maintaining diverse and inclusive workplaces is an essential ingredient in creating value and driving sustainable growth. By nurturing work environments that bring together a multitude of perspectives, ideas and talents, we are equipped to make better decisions, drive innovation and creativity, and reach our strategic goals as an organisation. Being part of a diverse and inclusive organisation that provides equal opportunity to all also fosters greater employee satisfaction and encourages employees to deliver to the very best of their abilities.

OUR APPROACH

Aligning with PETRONAS Standards and Legal Requirements

We are guided by PETRONAS' Diversity and Inclusion (D&I) programmes, which focus on providing equal opportunity to people based on gender, nationality, age and culture. This is in addition to our ongoing compliance with all relevant Malaysian laws on workplace diversity and wages.

Educating Our Workforce on Diversity and Inclusion

We educate our employees on the value of diverse perspectives and backgrounds while driving awareness and behavioural change on the unconscious biases that can act as barriers to achieving true inclusivity and equal opportunity.

To this end, our *"Jom Sembang"* engagement sessions have been rolled out at different locations across the Group. The programme aims to accelerate our transition from "D&I passion" to "D&I competency" and from "unconscious bias" to "conscious inclusion". As an example, we have eliminated the hiring of employees based on their gender, marital status or other factors where unconscious biases may influence the decision taken. To address this specific issue, curriculum vitaes (CVs) are now provided to hiring managers with this information redacted.

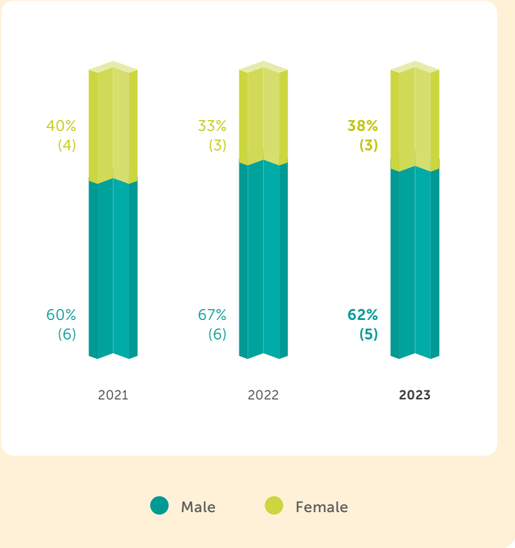
Moving forward, we aim to maintain continuous engagement across our management, employees and contractors on diversity, inclusion and equal opportunity matters towards driving full compliance with PETRONAS' Code of Conduct and Business Ethics (CoBE) and Human Rights Commitment.

EQUAL OPPORTUNITY, DIVERSITY AND INCLUSION

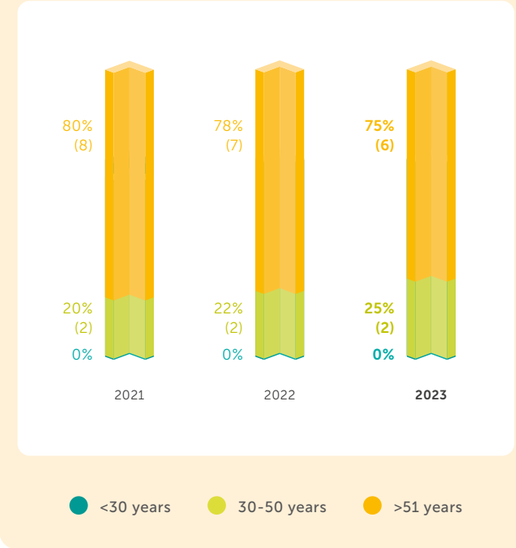
OUR PERFORMANCE

Board and Employee Diversity

GENDER OF BOARD MEMBERS

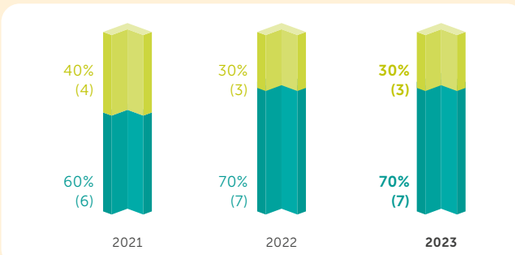


AGE OF BOARD MEMBERS

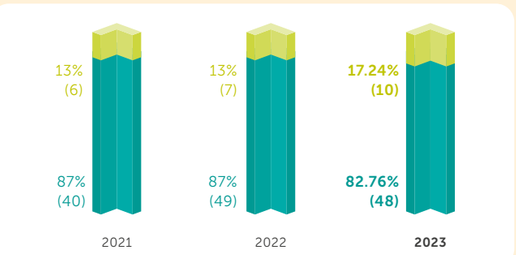


GENDER OF EMPLOYEES

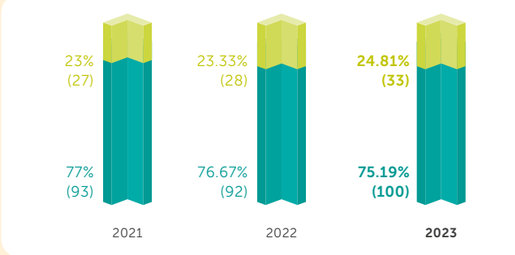
Leadership Committee (PGB LT)



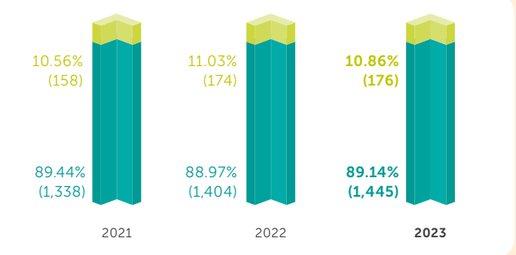
Senior Management (SM and GM)



First Level Management (Manager)



Non-Management (Executive, Non Executive, Secretary and TTS)

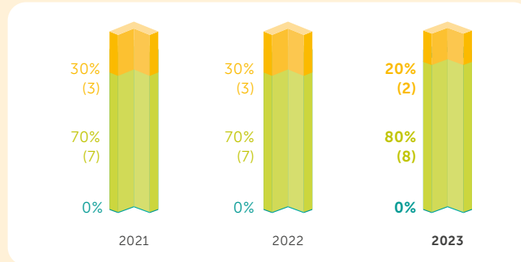


Male Female

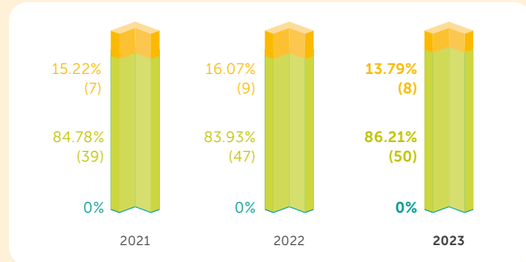
EQUAL OPPORTUNITY, DIVERSITY AND INCLUSION

AGE GROUP OF EMPLOYEES

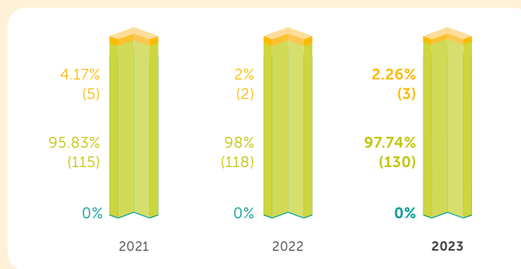
Leadership Committee (PGB LT)



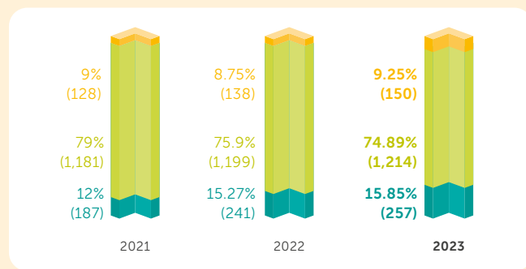
Senior Management (SM and GM)



First Level Management (Manager)



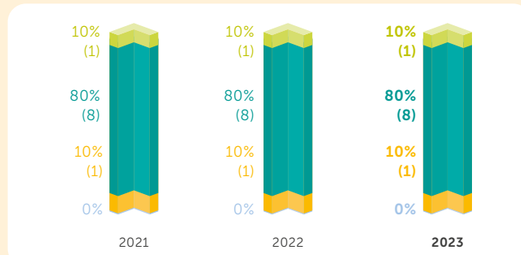
Non-Management (Executive, Non Executive, Secretary and TTS)



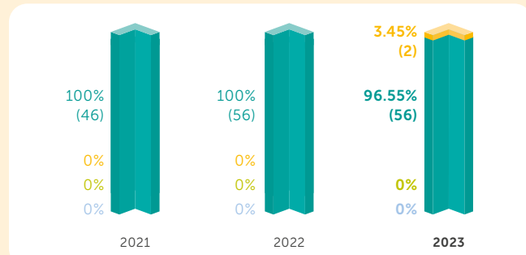
<<30 years 30-50 years >51 years

ETHNICITY OF EMPLOYEES

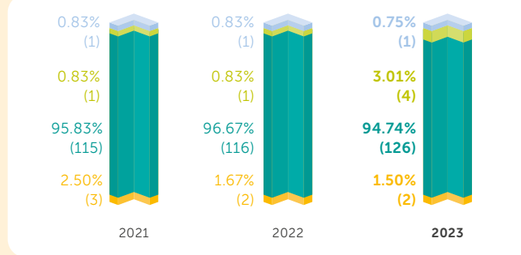
Leadership Committee (PGB LT)



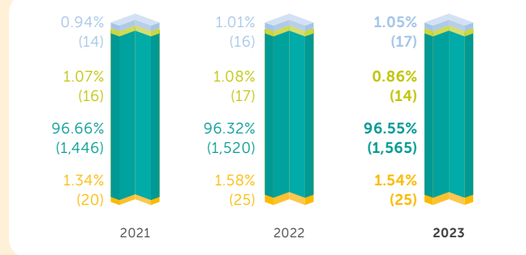
Senior Management (SM and GM)



First Level Management (Manager)



Non-Management (Executive, Non Executive, Secretary and TTS)



Chinese Malay Indian Others

COMMUNITY ENGAGEMENT

Our Social Impact activations synergise with our G5dot5 strategic agenda, thus creating shared value between our business and local communities

WHY IT MATTERS

We embrace our role and responsibility towards sustainable and equitable development not only in the communities that our businesses have direct contact with but across the breadth of the nation.

By contributing to the well-being and socioeconomic prosperity of Malaysians, we can deliver tangible impact in the lives of people and bolster our reputation as a responsible organisation. Furthermore, by engaging and working closely with local communities, we are better placed to identify and mitigate social and environmental risks that could arise from our operations and lay the groundwork for mutually beneficial collaboration on future growth opportunities.

OUR APPROACH

Our Social Impact activations, formerly known as our Corporate Social Responsibility (CSR) activities, are anchored on PETRONAS' Social Impact Management Framework. The main purpose of these activations is to promote sustainable livelihoods and prepare communities to be more adaptive and resilient amidst the changing social and environmental landscape.

Further to this, our activations are strategically planned to ensure synergy with our G5dot5 strategic agenda, thus creating shared value between our business and local communities.

OUR SOCIAL IMPACT ACTIVATIONS ARE BASED ON THREE (3) FOCUS AREAS, WHICH ARE ALIGNED TO PETRONAS' GUIDELINES

Powering Knowledge

PETRONAS Powering Knowledge is our commitment to championing the pursuit of knowledge among students and educators. We support their quest for quality education and expertise and are devoted to empowering them to strive for progress and positively impact a rapidly changing world.

Uplifting Lives

PETRONAS Uplifting Lives is our commitment to provide access to essential resources for undeserved communities to enhance their living standards. We are devoted to our best efforts in empowering communities to reach their full potential and create positive social impact and change.

Planting Tomorrow

PETRONAS Planting Tomorrow is our commitment to champion awareness and promote the importance of biodiversity conservation. We support this through our educational programmes on sustainable living and our reforestation and rehabilitation activities, which include mangrove planting and the replenishing of marine and freshwater ecosystems. Through these activities, we empower communities to contribute towards a healthier planet.

PGB's Efforts in 2023

- Sponsorship of students in the Technical Energy Enrichment (TEP) Programme
- Graduate Employability Enhancement Scheme (GEES) and Student Internship Programme
- Back to School in Kedah
- Back to School in Melaka

- Sentuhan Kasih CNY in Seremban
- Sentuhan Kasih Aidilfitri in Segamat, Kertih and Shah Alam
- Sentuhan Kasih Deepavali in Kuantan
- Sentuhan Kasih Krismas in Klang

Participation and contribution in:

- Orchid Run by Petronita
- Terry Fox Run by Cancer Research Malaysia
- Bursa Bull Charge by Bursa Malaysia

- Beach Cleaning Programme at Pantai Petak @ Rhu Kudung, Paka
- Planting Tomorrow Beach Cleaning and Recycling Awareness at Pantai Puteri, Melaka
- NAKUDAH Programme (Nampak, Kutip and Riadah) at Pantai Batu Rakit, Terengganu
- Program Cintai Sungai at Kertih, Terengganu
- Program Hijaukan Bumiku at Sultan Zainal Abidin University Malaysia (UniSZA)
- Turtle Conservation Program at Masjid Tanah, Melaka

COMMUNITY ENGAGEMENT

We prioritise the building of trust and goodwill with local communities. This enables us to understand their needs and develop solutions that create long-term impact.

The programmes we organised and/or contributed to in 2023 included the following:

POWERING KNOWLEDGE

Sponsorship of Students in Technical Energy Enrichment (TEP) Programme

We have continued our sponsorship of students undergoing the TEP programme, supporting an additional eight (8) students to bring the total graduates offered positions in the company to 50.

Providing Opportunity to GEES and Internship Students

We provided an opportunity for 108 Graduate Employability Enhancement Scheme (GEES) and 77 student internship graduates to be exposed to real working environments within the company, thus enhancing their employability.

Back to School (BTS) Programme

We supported families from B40 communities through donations of essential school supplies, lightening the burden they face and enabling their children to achieve their fullest potential. In 2023, BTS reached two (2) schools – SK Hosba in Jitra, Kedah and SMK Seri Tanjong in Melaka. 200 students received school supplies, uniforms and hygiene kits worth RM200 each, and a total of RM50,000 was spent on the programme.

UPLIFTING LIVES

Sentuhan Kasih PETRONAS Programme

Sentuhan Kasih is our signature initiative under the Community Well-being and Development pillar, under which we contribute essential food supplies and festive hampers to uplift less fortunate communities during festive periods.

Sentuhan Kasih CNY

In collaboration with PETRONAS Selatan (to standardise), we provided support to residents of Rumah Seri Kenangan and Rumah Sejahtera in Seremban. Our volunteers helped clean and beautify their homes, bringing festive cheer to these deserving senior citizens.

Sentuhan Kasih Aidilfitri

We conducted Sentuhan Kasih Aidilfitri in Segamat, Kertih and Shah Alam, three (3) areas where our business has a presence. In the spirit of Ramadan, these activations included the donation of basic necessities to improve the lives of families from underserved communities.

Sentuhan Kasih Deepavali

We carried out Sentuhan Kasih Deepavali in Kuantan. Staff volunteers helped to clean and repaint parts of a local school and conducted activities with the school's students.

Sentuhan Kasih Krismas

We contributed essential food items and household necessities to residents at Rumah KIDS, Klang through Sentuhan Kasih Krismas.

Participation in and contribution to:

Orchid Run, Terry Fox Run and Bursa Bull Charge

In 2023, we participated in several charity running events, namely Orchid Run by Petronita, Terry Fox Run by Cancer Research Malaysia and the Bursa Bull Charge by Bursa Malaysia.

COMMUNITY ENGAGEMENT

PLANTING TOMORROW

In 2023, we continued to inculcate sustainability awareness among communities through the following community-based environmental activities:

- Beach Cleaning Programme at Pantai Petak @ Rhu Kudung, Paka
- Planting Tomorrow Beach Cleaning and Recycling Awareness at Pantai Puteri, Melaka
- NAKUDAH Programme (Nampak, Kutip and Riadah) at Pantai Batu Rakit, Terengganu
- Program Cintai Sungai at Kertih, Terengganu
- Program Hijaukan Bumiku at Sultan Zainal Abidin University Malaysia (UniSZA)
- Turtle Conservation Program at Masjid Tanah, Melaka

Further details can be found in sub-section titled "Our Environmental-Related CSR Efforts" within the Environmental Management section of this Report

Systemising Employee Volunteerism

We encourage our employees to volunteer for our community-based activities. Through the myCareerX platform, they can easily view and sign up for projects and volunteering teams. This facilitates a culture of volunteerism, contributing to the holistic development of our people and availing additional resources to support local community development.

In 2023, one (1) of our employees volunteered to be a speaker for the Program on Energy Sustainability & Transition and Insight for Graduate Engineers (PRESTIGE) conducted by the Malaysian Gas Association (MGA) on 11 December 2023 with attendance from selected Senarai UniversitI Awam (IPTA) and Senarai Institusi Pengajian Tinggi Swasta (IPTS) students.

In addition, one (1) of our employees volunteered to give a career talk at UniSZA, which was participated in by 57 IPTA students. The objective of this talk was to create awareness on the importance of education amongst students and motivate them to fulfil their potential.

In addition to our own community-based activities, we also support our employees should they wish to participate in:

- Voluntary public service through participation in NGO-led initiatives
- Recreational activities such as sports
- Participation in local bodies such as Jabatan Sukarelawan Malaysia (RELA) and Jabatan Pertahanan Awam Malaysia (JPA3)
- Councils and societies such as Majlis Kanser Nasional (MAKNA) and The National Autism Society of Malaysia (NASOM)

Should an employee be invited to serve on a local body or as an appointed or elected club official, he or she is required to obtain approval from his or her Head of Department, in consultation with the HR department, immediately upon being so appointed or elected and must be able to balance the required duties of the position with his or her full-time employment.

COMMUNITY ENGAGEMENT

MOVING FORWARD

In 2024, we will continue to support key long-term initiatives under Yayasan PETRONAS including Back to School (BTS) and Sentuhan Kasih while embarking on initiatives in the Planting Tomorrow pillar, including tree planting, beach cleaning and biodiversity protection, that are closely aligned with our environmental sustainability focus areas.

OUR PERFORMANCE

Group Donations/Investments Made to Registered Not-For-Profit Organisations

Our investments in not-for-profit organisations is a testament to our understanding of the interconnectedness between business success and community prosperity. They also reflect our commitment to social responsibility, where the well-being of communities is intertwined with the success and longevity of our business.

In line with this commitment, we have made the following contributions to registered not-for-profit organisations over the past three (3) years:

Year	Not-for-Profit Organisation	Total Donation
2021	PETRONITA	RM 10,000
2022	Cancer Research Malaysia	RM 10,000
2023	**PETRONITA**	**RM3,760**
	Cancer Research Malaysia	**RM 10,000**
	Rumah KIDS	**RM 17,968**
	Yayasan Hijau Malaysia	**RM 29,190**

RESPONSIBLE GOVERNANCE

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BUSINESS ETHICS AND TRANSPARENCY

We uphold the highest standards of conduct across our operational presence

WHY IT MATTERS

As reflected in our Shared Values of Loyalty, Integrity, Professionalism and Cohesiveness, business ethics and transparency is a foundation of how we do business. By upholding the highest standards of conduct across our operational presence, we can strengthen relationships with our stakeholders, drive workforce retention through higher levels of employee satisfaction and unlock new avenues for economic value creation. These positive outcomes are crucial as we navigate through evolving market dynamics and seek to capitalise on the opportunities brought about by the global energy transition.

At the same time, we understand the negative ramifications of any incidents of unethical business conduct. As the nation's leading gas infrastructure and centralised utilities company, failure to meet our high ethical standards would severely impact our reputation and brand equity, eroding the trust that our stakeholders have in us and impairing our ability to maintain the business relationships that are central to achieving our growth and value creation objectives.

OUR APPROACH

A Robust Policy Framework

Our approach to business conduct and ethics is guided by the PETRONAS Code of Conduct and Business Ethics (CoBE), which applies to all employees, directors and third parties within the Group.

The CoBE is, in turn, supported by other key policies and guidelines, with our full policy suite detailed below.

Code of Conduct and Business Ethics (CoBE)	Outlines the standards of behaviour and ethical conduct expected of employees of the Group and others carrying out work or services for or on behalf of the Group
PETRONAS Anti-Bribery and Corruption Manual (ABC)	Details clear expectations of employees and third parties with regard to improper solicitation, bribery and other corrupt activities, in line with our zero tolerance policy towards bribery and corruption
PETRONAS Whistleblowing Policy	Provides an avenue for all employees and members of the public to disclose any improper conduct involving an employee of the Group in accordance with the procedures outlined within the policy and to provide protection for employees and members of the public who report such allegations
Directors' Fit and Proper Policy	Outlines the necessary qualities, competencies and experience required of Board members of the Group and our subsidiaries to carry out their duties and responsibilities in an effective manner
Corporate Disclosure Guide	Guides disclosures as well as conduct in dissemination of information in alignment with Bursa Malaysia's Main Market Listing Requirements (MMLR) and Corporate Disclosure Guide (3rd Edition)

Employee Training and Upskilling

To ensure that our employees uphold our high standards in business ethics, we maintain a calendar of information sharing and training sessions throughout the year. These sessions serve as refreshers on our CoBE while also providing updates on evolving norms and industry expectations around integrity and ethics.

In 2023, the following programmes were made available to our employees:

- CoBE Sharing Session: Workplace Culture and Environment
- Industrial Relations for Leaders Programme
- GPU HSSE Integrity Day at GP Santong
- Gas and Power Integrity Day at KL Convention Centre

BUSINESS ETHICS AND TRANSPARENCY

Corruption Risk Assessments

We recognise the importance of managing corruption-related risks in ensuring the integrity of our operations, therefore all the operations in PGB are assessed for corruption-related risks. To enhance oversight of such risks, our comprehensive Corruption Risk Assessment (CRA) was expanded in 2023 to include sustainability and self-regulation processes as new areas where corruption risks may emerge.

* Additional focus areas added to our CRA in 2023.

These key areas are assessed for their susceptibility to both in-bound and out-bound bribery as well as other forms of corruption. This is crucial in maintaining effective oversight and action on the specific risks we may face across our supply chain and business relationships.

BUSINESS ETHICS AND TRANSPARENCY

OUR PERFORMANCE

Communication and Training on Anti-Corruption Policies and Procedures

In line with our approach to anti-corruption and bribery, all of our Board members and employees have been informed of and received training on our anti-corruption policies and procedures. Further to this, all employees, Board members and stakeholders may access our Anti-Bribery and Corruption Manual via our corporate website.

Anti-Corruption Policies and Procedures Communicated	Total	Percentage (%)
Board Members	8	1
All Employees	1,821	99

Received Training on Anti-Corruption Policies and Procedures	Total	Percentage (%)
Board Members	8	1
All Employees	1,821	99

Incidents of Corruption and Remedial Actions

In 2023, we recorded zero confirmed incidents of bribery and corruption, which includes absence of contract terminations or non-renewals with business partners due to violations. There are no ongoing public legal cases against the company or our employees in connection to bribery and corruption.

Legal Action for Anti-Competitive Behaviour, Anti-Trust and Monopoly Practices

During the year under review, there were no incidents of anti-competitive behaviour, violations of anti-trust or violations of monopoly legislation in which PGB was identified as a participant.

Within the context of our industry, there were no legal proceedings reported in 2023 relating to federal pipeline and storage regulations including, but not limited to, those related to rates, pipeline access, price gouging or price fixing.

Political Contributions

During the year under review, there were no political contributions made by PGB.

MOVING FORWARD

In our efforts to improve our stance on business ethics and transparency, we will continue to invest in various training sessions that target employees at all levels of the Group. Specifically, all employees will continue to be availed of CoBE refreshers sessions as well as upskilling sessions on specific issues related to business ethics and its related regulations. Meanwhile, we will provide our leaders with training on business ethics in the context of industrial relations, with a view to ensuring that we uphold the highest ethical standards in all our dealings with our employees, whether internally or through third parties such as employee unions.

CYBERSECURITY AND DATA PRIVACY

We are committed to reducing our cyber risk and enhancing our cyber resilience, thus earmarking ourselves as a progressive and trustworthy organisation

WHY IT MATTERS

As the threat landscape evolves and cybercriminals increase in sophistication, cybersecurity has emerged as a critical component of our governance framework.

Our increasing reliance on digital solutions makes it imperative for us to safeguard our assets and the data of our customers against cyber threats. In this digital age, a breach in data integrity or a lapse in cybersecurity can have far-reaching consequences, impacting not just our operational effectiveness but also our reputation. In response, we have implemented purpose-fit technologies and stringent cybersecurity and data privacy policies that reduce our cyber risk and enhance our cyber resilience. Doing so earmarks us as a progressive and trustworthy organisation and safeguards the confidence of our stakeholders.

OUR APPROACH

Comprehensive Policy Guidance

The PETRONAS Enterprise Cybersecurity Governance Framework is a composition of frameworks, standards and guidelines that act together to govern cyber security across PETRONAS, defining clear lines of accountability. The framework was developed based on internationally recognised industry best practices and standards including the NIST Cybersecurity Framework (NIST CSF), ISO 27001, ISA/IEC 62443, ISF-IRAM 2 and NIST 800-30.

For data privacy protection, we have adopted the PETRONAS Corporate Privacy Policy, which sets forth principles and guidelines governing the collection, use, processing and storage of personal data in compliance with the Malaysian Personal Data Protection Act 2010 (PDPA) and the European Union's General Data Protection Regulation (GDPR). The policy is applicable to all PETRONAS employees and third-party service providers who manage personal data on the company's behalf. It mandates the fair and lawful collection and processing of personal data, ensures individuals are informed about the purposes of data collection and their rights, and stipulates the implementation of appropriate security measures to prevent unauthorised access, disclosure or misuse of personal data.

In addition to the policy and framework, we have worked with PETRONAS to implement other systems and approaches that strengthen our security and resilience against cyber and data privacy threats. These include:

Cybersecurity Capability Maturity Model (C2M2)

Designed to assess and drive improvements to our cybersecurity maturity level

Security Information and Event Management (SIEM)

Enables the real-time monitoring and detection of cyber threats

Enterprise Risk Management Framework

Outlines processes to identify, assess and remediate vulnerabilities in PETRONAS systems and applications

Cybersecurity Incidence Response Plan (CIRP)

Provides clear actions for our teams to take in order to respond to data breaches in a timely and effective manner

Personal Data Breach Response Plan

Outlines best practices for our teams to adopt in order to minimise negative impacts in the event of a data breach

CYBERSECURITY AND DATA PRIVACY

Active Management and Risk Mitigation

To reduce the risk of data privacy breaches occurring, we have implemented a range of technical and organisational measures that protect personal data from unauthorised access, disclosure and misuse. Where necessary, we also conduct data protection impact assessments to identify emerging data privacy risks, with insights used to inform the improvement of our processes.

Employee Training Programmes

Our employees play a pivotal role in maintaining our strong posture against cybersecurity and data privacy risks. They are responsible for managing our systems and technologies, executing our policies and frameworks and upholding best practices in their day-to-day actions. To empower our people in these areas, we conduct regular awareness trainings which cover the importance of cybersecurity and data privacy and detail the important role they play in protecting our assets. This includes e-learning modules that are accessible to our employees both within and outside our premises.

As of 31 December 2023, 1,725 employees have completed the "Cyber Security and You" modules and assessment via the myLearningX platform, bringing our overall completion rate to 95%.

OUR PERFORMANCE

Formal Training in Human Rights for Security Personnel

PETRONAS Group Security provides our security personnel with formal training in human rights and in specific procedures to safeguard human rights. During the year under review, 63 security personnel attended the formal training.

Incidents of Personal Data Privacy Breaches

In 2023, we recorded zero complaints relating to personal data breaches involving PGB companies.

MOVING FORWARD

With an eye on the ever-evolving cyber risk landscape, we will focus on staying a step ahead by implementing robust security measures and maintaining stringent risk monitoring processes.

In addition to the threat protection measures we already have in place, we will implement new technologies (i.e., installation of facial recognition technology to ensure multi-factor authentication for plant access) as they become available, subject to their alignment with the PETRONAS' Cybersecurity Policy and Enterprise Cybersecurity Governance Framework. At the same time, we will continue to conduct regular security audits and assessments to identify and address potential vulnerabilities that emerge as the risk landscape evolves.

In parallel, we will strive to evolve our employee training programmes in order to keep pace with the changing risk landscape around cybersecurity and data privacy while keeping the security of our assets, network and customer data top-of-mind at all times.

ADDITIONAL INFORMATION

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INDEPENDENT LIMITED ASSURANCE REPORT

INDEPENDENT LIMITED ASSURANCE REPORT

PERFORMANCE DATA TABLE FROM ESG REPORTING PLATFORM

Indicator	Measurement Unit	2021	2022	2023
Governance - Business Ethics and Transparency				
Bursa C1(a) Percentage of employees who have received training on anti-corruption by employee category				
Board of Directors	Percentage	-	-	1.00
Employees	Percentage	-	-	99.00
Bursa C1(b) Percentage of operations assessed for corruption-related risks	Percentage	-	-	100.00
Bursa C1(c) Confirmed incidents of corruption and action taken	Number	-	-	0
Social - Community Engagement				
Bursa C2(a) Total amount invested in the community where the target beneficiaries are external to the listed issuer	MYR	-	-	5,232,621.00
Bursa C2(b) Total number of beneficiaries of the investment in communities	Number	-	-	12
Social - Equal Opportunity, Diversity and Inclusion				
Bursa C3(a) Percentage of employees by gender and age group, for each employee category				
Age Group by Employee Category				
Leadership Committee (PGB LT) Under 30	Percentage	0.00	0.00	0.00
Leadership Committee (PGB LT) Between 30-50	Percentage	70.00	70.00	80.00
Leadership Committee (PGB LT) Above 50	Percentage	30.00	30.00	20.00
Senior Management (SM and GM) Under 30	Percentage	0.00	0.00	0.00
Senior Management (SM and GM) Between 30-50	Percentage	85.00	84.00	86.00
Senior Management (SM and GM) Above 50	Percentage	15.00	16.00	14.00
First Level Management (Manager) Under 30	Percentage	0.00	0.00	0.00
First Level Management (Manager) Between 30-50	Percentage	96.00	98.00	98.00
First Level Management (Manager) Above 50	Percentage	4.00	2.00	2.00
Non-Management (Executive, Non Executive, Secretary and TTS) Under 30	Percentage	12.00	15.00	16.00
Non-Management (Executive, Non Executive, Secretary and TTS) Between 30-50	Percentage	79.00	76.00	75.00
Non-Management (Executive, Non Executive, Secretary and TTS) Above 50	Percentage	9.00	9.00	9.00
Gender Group by Employee Category				
Leadership Committee (PGB LT) Male	Percentage	60.00	70.00	70.00
Leadership Committee (PGB LT) Female	Percentage	40.00	30.00	30.00
Senior Management (SM and GM) Male	Percentage	87.00	87.00	83.00
Senior Management (SM and GM) Female	Percentage	13.00	13.00	17.00
First Level Management (Manager) Male	Percentage	77.00	77.00	75.00
First Level Management (Manager) Female	Percentage	23.00	23.00	25.00
Non-Management (Executive, Non Executive, Secretary and TTS) Male	Percentage	89.00	89.00	89.00
Non-Management (Executive, Non Executive, Secretary and TTS) Female	Percentage	11.00	11.00	11.00
Bursa C3(b) Percentage of directors by gender and age group				
Male	Percentage	60.00	67.00	62.00
Female	Percentage	40.00	33.00	38.00
Under 30	Percentage	0.00	0.00	0.00
Between 30-50	Percentage	20.00	22.00	25.00
Above 50	Percentage	80.00	78.00	75.00

PERFORMANCE DATA TABLE FROM ESG REPORTING PLATFORM

Indicator	Measurement Unit	2021	2022	2023
Environment - Mitigating Climate Change				
Bursa C4(a) Total energy consumption	Megawatt	17,686,111.00	18,011,111.00	17,111,111.00
Bursa C11(a) Scope 1 emissions in tonnes of CO2e	Metric tonnes	5,916,446.00	5,754,544.00	5,859,402.00
Bursa C11(b) Scope 2 emissions in tonnes of CO2e	Metric tonnes	74,627.00	49,762.00	49,165.00
Social - Occupational Health and Safety				
Bursa C5(a) Number of work-related fatalities	Number	0	1	0
Bursa C5(b) Lost time incident rate ("LTIR")	Rate	0.09	0.08	0.08
Bursa C5(c) Number of employees trained on health and safety standards	Number	-	-	1,544
Social - Talent Management				
Bursa C6(a) Total hours of training by employee category				
Leadership Committee (PGB LT)	Hours	202	276	834
Senior Management (SM and GM)	Hours	1,073	2,066	3,162
First Level Management (Manager)	Hours	3,993	3,964	9,219
Non-Management (Executive, Non Executive, Secretary and TTS)	Hours	203,820	109,074	177,463
Bursa C6(b) Percentage of employees that are contractors or temporary staff	Percentage	0.20	1.00	0.70
Bursa C6(c) Total number of employee turnover by employee category				
Leadership Committee (PGB LT)	Number	1	1	1
Senior Management (SM and GM)	Number	7	3	3
First Level Management (Manager)	Number	10	2	0
Non-Management (Executive, Non Executive, Secretary and TTS)	Number	118	37	57
Social - Human Rights				
Bursa C6(d) Number of substantiated complaints concerning human rights violations	Number	-	1	0
Social - Suppliers Social Impact				
Bursa C7(a) Proportion of spending on local suppliers	Percentage	-	-	99.00
Governance - Cybersecurity and Data Privacy				
Bursa C8(a) Number of substantiated complaints concerning breaches of customer privacy and losses of customer data	Number	-	-	0
Environment - Ensuring Water Security				
Bursa C9(a) Total volume of water used	Megalitres	3,531.000000	4,063.000000	4,168.000000
Environment - Environmental Management				
Bursa C10(a) Total waste generated	Metric tonnes	2,023.00	2,172.00	3,266.00
Bursa C10(a)(i) Total waste diverted from disposal	Metric tonnes	805.00	1,033.00	2,104.00
Bursa C10(a)(ii) Total waste directed to disposal	Metric tonnes	1,178.00	1,394.00	647.00

Internal assurance | External assurance | No assurance | (*)Restated

GLOBAL REPORTING INITIATIVE (GRI) CONTENT INDEX

GRI CONTENT INDEX	
Statement of Use	Petronas Gas Berhad has reported the information cited in this GRI content index for the period of 1 January 2023 to 31 December 2023 with reference to the GRI Standards.
GRI 1 Used	GRI 1: Foundation 2021

GRI DISCLOSURE	PAGE REFERENCE	REMARKS/OMISSIONS
GRI 2: General Disclosures 2021		
2-1 Organizational details	Integrated Report 2023 > Who We Are, pages 14-19	
2-2 Entities included in the organization's sustainability reporting	Basis of This Report, page 1	
2-3 Reporting period, frequency and contact point	Basis of This Report, page 1	
2-4 Restatements of information	Basis of This Report, page 1	
2-5 External assurance	Basis of This Report, page 1	
2-6 Activities, value chain and other business relationships	Integrated Report 2023 > Our Group Business Activities and Processes, pages 20-23	
2-7 Employees	Sustainability Scorecard, pages 15-17 Integrated Report 2023 > Performance Scorecard-Human Capital, page 10 Governance and Financial Report 2023 > Corporate structure, page 21	
2-8 Workers who are not employees	Sustainability Scorecard, page 15-17 Occupational HSE, pages 107, 116 and 117	
2-9 Governance structure and composition	Sustainability Governance, pages 30-32	
2-10 Nomination and selection of the highest governance body	Integrated Report 2023 > Value Creation Through Good Governance, pages 101 and 105 Governance and Financial Report 2023 > Corporate Governance Overview Statement > Board Appointment Process, pages 30 and 31	
2-11 Chair of the highest governance body	Sustainability Governance, pages 30-32	
2-12 Role of the highest governance body in overseeing the management of impacts	Sustainability Governance, pages 30-32	
2-13 Delegation of responsibility for managing impacts	Sustainability Governance, pages 30-32	
2-14 Role of the highest governance body in sustainability reporting	Sustainability Governance, page 30	
2-15 Conflicts of interest	Human Rights, pages 137 and 139 Integrated Report 2023 > Collective Responsibilities of the Board, page 101 Conflict of Interest/Other Board Appointments, page 105 Governance and Financial Report 2023 > The Board's 2023 Key Focus Areas and Priorities, page 34	
2-16 Communication of critical concerns	Human Rights, page 136	
2-17 Collective knowledge of the highest governance body	Integrated Report 2023 > Value Creation Through Good Governance > Board Skills and Experience Matrix, pages 103-104 Governance and Financial Report 2023 > Board Skills and Experience Matrix, Directors' expertise and industry proficiency assessment, page 3	

GLOBAL REPORTING INITIATIVE (GRI) CONTENT INDEX

GRI DISCLOSURE	PAGE REFERENCE	REMARKS/OMISSIONS
GRI 2: General Disclosures 2021		
2-18 Evaluation of the performance of the highest governance body	Governance and Financial Report > Roles of Nomination and Renumeration Committee (NRC), page 30 Board appointment process, page 31 Integrated Report > Collective Responsibilities of the Board, page 101	
2-19 Remuneration policies	Governance and Financial Report 2023 > Directors' Remuneration, page 42	
2-20 Process to determine remuneration	Governance and Financial Report > PETRONAS Remuneration Philosophy and Guiding Principles, page 43	
2-21 Annual total compensation ratio	Governance and Financial Report > Key Management Personnel Compensation, page 162	
2-22 Statement on sustainable development strategy	Foreword by the Chairman of the Board Sustainability and Risk Committee, pages 4-7 Managing Director/Chief Executive Officer's Statement on Sustainability, pages 8-13	
2-23 Policy commitments	Human Rights, pages 131-133 Business Ethics and Transparency, page 153	
2-24 Embedding policy commitments	Human Rights, pages 131-133 Business Ethics and Transparency, page 153	
2-25 Processes to remediate negative impacts	Human Rights, pages 134-136, 138	
2-26 Mechanisms for seeking advice and raising concerns	Human Rights, pages 134-137 Business Ethics and Transparency, page 153	
2-27 Compliance with laws and regulations	Sustainable Value Creation, page 37 Environmental Management, pages 71 and 73 Ensuring Water Security, page 80 Human Rights, page 138 Business Ethics and Transparency, page 155	
2-28 Membership associations	Mitigating Climate Change, page 40 Integrated Report 2023 > Membership in Associations in Profile of Board and Leadership Team, pages 107, 116, 117 Governance and Financial Report 2023 > Membership in Associations in Profile of Board and Leadership Team, pages 7, 16, 17 and 40	
2-29 Approach to stakeholder engagement	Engaging Our Stakeholders, pages 25-28	
2-30 Collective bargaining agreements	Human Rights, page 138	
GRI 3: Material Topics 2021		
3-1 Process to determine material topics	Determining Our Material Matters, page 20	
3-2 List of material topics	Determining Our Material Matters, pages 21-24	
3-3 Management of material topics	Across all topics as listed below	

GLOBAL REPORTING INITIATIVE (GRI) CONTENT INDEX

GRI DISCLOSURE	PAGE REFERENCE	REMARKS/OMISSIONS
SUSTAINABLE VALUE CREATION		
GRI 201: Economic Performance 2016		
201-1 Direct economic value generated and distributed	Minimum Wage Compliance and Local Recruitment Efforts, page 37 Aligning with PETRONAS Standards and Legal Requirements, page 143	
201-2 Financial implications and other risks and opportunities due to climate change	Mitigating Climate Change, pages 43-45	
201-3 Defined benefit plan obligations and other retirement plans	Talent Management, pages 128-129 Governance and Financial Report > Directors' Benefits, page 92 Material Accounting Policies > Employee Benefits, page 120	
201-4 Financial assistance received from government		No financial assistance received from government in 2023
GRI 202: Market Presence 2016		
202-1 Ratios of standard entry level wage by gender compared to local minimum wage	Minimum Wage Compliance and Local Recruitment Efforts, page 37 Aligning with PETRONAS Standards and Legal Requirements, page 143	
202-2 Proportion of senior management hired from the local community	Sustainable Value Creation, page 37	
GRI 203: Indirect Economic Impacts 2016		
203-1 Infrastructure investments and services supported	Sustainable Value Creation, page 36	
203-2 Significant indirect economic impacts	Sustainable Value Creation, page 36	
MITIGATING CLIMATE CHANGE		
GRI 305: Emissions 2016		
305-1 Direct (Scope 1) GHG emissions	Mitigating Climate Change, pages 49-50	
305-2 Energy indirect (Scope 2) GHG emissions	Mitigating Climate Change, page 49	
305-4 GHG emissions intensity	Mitigating Climate Change, page 51	
305-5 Reduction of GHG emissions	Mitigating Climate Change, page 52	
305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	Environmental Management, page 72	
ENERGY MANAGEMENT		
GRI 302: Energy 2016		
302-1 Energy consumption within the organization	Energy Management, pages 56-59	
302-3 Energy intensity	Energy Management, pages 54-59	
302-4 Reduction of energy consumption	Energy Management, pages 56, 58	
302-5 Reductions in energy requirements of products and services	Energy Management, pages 54-59	

GLOBAL REPORTING INITIATIVE (GRI) CONTENT INDEX

GRI DISCLOSURE	PAGE REFERENCE	REMARKS/OMISSIONS
ENVIRONMENTAL MANAGEMENT		
GRI 301: Materials 2016		
301-1 Materials used by weight or volume	Not Applicable	Our products comprise sales gas, steam, electricity and LNG, and do not require the use of packaging
301-2 Recycled input materials used	Not Applicable	Our products comprise sales gas, steam, electricity and LNG, and do not require the use of packaging
301-3 Reclaimed products and their packaging materials	Not Applicable	Our products comprise sales gas, steam, electricity and LNG, and do not require the use of packaging
GRI 306: Waste 2020		
306-1 Waste generation and significant waste-related impacts	Environmental Management, pages 61, 65 and 66	
306-2 Management of significant waste-related impacts	Environmental Management, pages 64-67	
306-3 Waste generated	Environmental Management, pages 65, 68	
306-4 Waste diverted from disposal	Environmental Management, pages 65, 68	
306-5 Waste directed to disposal	Environmental Management, pages 65, 68	
ENSURING WATER SECURITY		
GRI 303: Water and Effluents 2018		
303-1 Interactions with water as a shared resource	Ensuring Water Security, pages 84-90	
303-2 Management of water discharge-related impacts	Environmental Management, pages 76-77 Ensuring Water Security, pages 84-85	
303-3 Water withdrawal	Ensuring Water Security, pages 86-88	
303-4 Water discharge	Ensuring Water Security, pages 86-88	
303-5 Water consumption	Ensuring Water Security, page 87	
BIODIVERSITY IMPACTS		
GRI 304: Biodiversity 2016		
304-1 Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	Biodiversity Impacts, page 88	
304-2 Significant impacts of activities, products and services on biodiversity	Biodiversity Impacts, page 93	
304-3 Habitats protected or restored	Environmental Management, page 76 Biodiversity Impacts, pages 94-95	
304-4 IUCN Red List species and national conservation list species with habitats in areas affected by operations	Biodiversity Impacts, page 89	

GLOBAL REPORTING INITIATIVE (GRI) CONTENT INDEX

GRI DISCLOSURE	PAGE REFERENCE	REMARKS/OMISSIONS
OCCUPATIONAL HEALTH AND SAFETY		
GRI 403: Occupational Health and Safety 2018		
403-1 Occupational health and safety management system	Occupational Health and Safety, page 98	
403-2 Hazard identification, risk assessment, and incident investigation	Occupational Health and Safety, pages 104-105 and 108	
403-3 Occupational health services	Occupational Health and Safety, page 105	
403-4 Worker participation, consultation, and communication on occupational health and safety	Occupational Health and Safety, pages 107-100 and 110-111	
403-5 Worker training on occupational health and safety	Occupational Health and Safety, page 112	
403-6 Promotion of worker health	Occupational Health and Safety, pages 113-114	
403-7 Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	Occupational Health and Safety, pages 115-116	
403-8 Workers covered by an occupational health and safety management system	Occupational Health and Safety, page 119	
403-9 Work-related injuries	Occupational Health and Safety, page 119	
403-10 Work-related ill health	Occupational Health and Safety, page 121	
TALENT MANAGEMENT		
GRI 401: Employment 2016		
401-1 New employee hires and employee turnover	Talent Management, pages 125-127	
401-2 Benefits provided to full-time employees that are not provided to temporary or part-time employees	Talent Management, page 128	
401-3 Parental leave	Talent Management, page 127	
GRI 404: Training and Education 2016		
404-1 Average hours of training per year per employee	Talent Management, page 128	
404-2 Programs for upgrading employee skills and transition assistance programs	Talent Management, pages 123-124 and 129	
404-3 Percentage of employees receiving regular performance and career development reviews	Talent Management, page 129	
HUMAN RIGHTS		
GRI 408: Child Labor 2016		
408-1 Operations and suppliers at significant risk for incidents of child labor	Human Rights, page 138	
GRI 409: Forced or Compulsory Labor 2016		
409-1 Operations and suppliers at significant risk for incidents of forced or compulsory labor	Human Rights, page 138	
GRI 411: Rights of Indigenous Peoples 2016		
411-1 Incidents of violations involving rights of indigenous peoples	Human Rights, page 138	

GLOBAL REPORTING INITIATIVE (GRI) CONTENT INDEX

GRI DISCLOSURE	PAGE REFERENCE	REMARKS/OMISSIONS
SUPPLIER SOCIAL IMPACTS		
GRI 204: Procurement Practices 2016		
204-1 Proportion of spending on local suppliers	Supplier Social Impacts, page 141	
GRI 414: Supplier Social Assessment 2016		
414-1 New suppliers that were screened using social criteria	Supplier Social Impacts, page 141	
414-2 Negative social impacts in the supply chain and actions taken	Supplier Social Impacts, page 141	
EQUAL OPPORTUNITY, DIVERSITY AND INCLUSION		
GRI 405: Diversity and Equal Opportunity 2016		
405-1 Diversity of governance bodies and employees	Equal Opportunity, Diversity and Inclusion, pages 144-145	
405-2 Ratio of basic salary and remuneration of women to men	Aligning with PETRONAS Standards and Legal Requirements, page 147	No detailed ratio breakdown
COMMUNITY ENGAGEMENT		
GRI 413: Local Communities 2016		
413-1 Operations with local community engagement, impact assessments, and development programs	Community Engagement, pages 151-155	
BUSINESS ETHICS AND TRANSPARENCY		
GRI 205: Anti-corruption 2016		
205-1 Operations assessed for risks related to corruption	Business Ethics and Transparency, page 154	
205-2 Communication and training about anti-corruption policies and procedures	Business Ethics and Transparency, page 155	
205-3 Confirmed incidents of corruption and actions taken	Business Ethics and Transparency, page 155	
GRI 206: Anti-competitive Behavior 2016		
206-1 Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	Business Ethics and Transparency, page 155	
CYBERSECURITY AND DATA PRIVACY		
GRI 410: Security Practices 2016		
410-1 Security personnel trained in human rights policies or procedures	Cybersecurity and Data Privacy, page 158	
GRI 418: Customer Privacy 2016		
418-1 Substantiated complaints concerning breaches of customer privacy and losses of customer data	Cybersecurity and Data Privacy, page 158	

TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES (TCFD) CONTENT INDEX

GOVERNANCE

Disclose the organisation's governance around climate-related risks and opportunities.

TCFD RECOMMENDED DISCLOSURES	PAGE REFERENCE
a) Describe the board's oversight of climate related risks and opportunities	Governance and Financial Report, pages 66-68
b) Describe management's role in assessing and managing climate related risks and opportunities	Governance and Financial Report, pages 66-68

STRATEGY

Disclose the actual and potential impacts of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning where such information is material.

TCFD RECOMMENDED DISCLOSURES	PAGE REFERENCE
a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term	Mitigating Climate Change, pages 43-45
b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning	Mitigating Climate Change, pages 43-45
c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario	Mitigating Climate Change, pages 42-45

RISK MANAGEMENT

Disclose how the organization identifies, assesses and manages climate-related risks.

TCFD RECOMMENDED DISCLOSURES	PAGE REFERENCE
a) Describe the organization's processes for identifying and assessing climate related risk	Mitigating Climate Change, page 42
b) Describe the organization's processes for managing climate related risks	Mitigating Climate Change, page 46

METRICS AND TARGETS

Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities, where such information is material.

TCFD RECOMMENDED DISCLOSURES	PAGE REFERENCE
a) Disclose the metrics used by the organization to assess climate related risks and opportunities in line with its strategy and risk management process	Mitigating Climate Change, page 48
b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks	Mitigating Climate Change, pages 49-50
c) Describe the targets used by the organization to manage climate related risks and opportunities and performance against targets	Mitigating Climate Change, pages 40-44

GLOSSARY

Abbreviation	Meaning/Definition
4R	Reduce Reuse Recycle Recover
ABC	Anti-Bribery and Corruption Manual
ABR	Accountability and Behaviour Reinforcement
ABRC	Accountability and Behavior Reinforcement Committee
AGT	Authorised Gas Tester
AI	Artificial Intelligence
ALARP	As Low As Reasonably Practicable
APBSP	Anugerah Penarafan Bintang Sasasran Penting
API	American Petroleum Institute
APPKN	Anugerah Keselamatan Kebakaran Nasional
AR6	Sixth Assessment Report
ASU	Air Separation Unit
AWQM	Automated Water Quality Management
BAC	Board Audit Committee
BAP	Biodiversity Action Plan
BES	Biodiversity and Ecosystem Services
BESRA	Biodiversity and Ecosystem Services Risk Assessments
BNM	Bank Negara Malaysia
BRC	Board Risk Committee
BRICS	Barrier Risk Centralized Solution
BSRC	The Board Sustainability and Risk Committee
BTA	Malaysia's Building Trust Awards
BTS	Back to School
C2M2	Cybersecurity Capability Maturity Model
CAP	Corrective Action
CCRM	Climate Change Risk Management Framework
CCS	Carbon Capture and Storage
CCUS	Carbon Capture, Utilisation and Storage
CEFS	PETRONAS Central Emergency and Fire Services
CEMS	Continuous Emissions Management System
CFA	Carbon Footprint Assessments
CHRA	Chemical Health Risk Assessment
CIMAH	Control of Major Accidents Hazards
CIRP	Cybersecurity Incidence Response Plan
CLO	Community Liaison Officer
CMIS	Crisis Management Information System
CoCHR	Code of Conduct on Human Rights
COD	Chemical Oxygen Demand

Abbreviation	Meaning/Definition
CRA	Corruption Risk Assessment
CTO	Career Transition Option
CTS	Career Transition Services
CV	Curriculum Vitae
CVC	Continued Value Creation
DI	Diversity and Inclusion
DoE	Department of Environment
DOSH	Department of Occupational Safety and Health's
EAI	Environmental Aspect Impact
EAP	Early Adopter Programme
EIA	Environmental Impact Assessment
EIA	Environmental Aspect and Impact Assessment
ELMS	Energy and Loss Management System
ELSO	Early Leaving Service Option
EMP	Environmental Management Plan
EMS	Environmental Management System
EPF	Malaysia's Employees' Provident Fund
ePTW+ 1.0	Enhanced e-Permit to Work Plus
ERT	Emergency Response Team
eSWIS	Electronic Scheduled Waste Information System
Ex-RM	External Risk Management
FELDA	Federal Land Development Authority
FMS	Fatigue Management System
FRIM	Forest Research Institute of Malaysia
FSU	Floating Storage Unit
GBF	Global Biodiversity Framework
GDPR	General Data Protection Regulation
GEES	Graduate Employability Enhancement Scheme
GET	Green Electricity Tariff
GHG	Greenhouse Gas
GHSE	Group Health, Safety, and Environment
GHV	Gas Heating Value
GISG	Gebeng Industrial Group
GM	Grievance Manager
GPA	Gas Processing Agreements
GPP	Gas Processing Plant
GPU	Gas Processing and Utilities
GRI	Global Reporting Initiative
GTC GPU	Technical Centre
GTOP	Gas Transmission Optimisation
GTR	Gas Transportation and Regasification

GLOSSARY

GLOSSARY

Abbreviation	Meaning/Definition
GWP	Global Warming Potential
HANS	Hari Alam Sekitar Negara
HAZID	Hazard Identification
HEMP	Hazard and Effect Management Process
HIRA	Hazard Identification and Risk Assessment
HRA	Health Risk Assessment
HSE	Health, Safety and Environment
HSSE	Health, Safety, Security and Environment
IBAT	Integrated Biodiversity Assessment
IBR	Incentive Based Regulation
IDC	International Data Corporation
IER	Industrial Effluent Regulation
IETS	Industrial Effluent Treatment System
IFP	Integrity Focal Persons
IFRS	International Financial Reporting Standards
IGC	Internal Gas Consumption
IHOH	Integrated Health and Occupational Health
IKM	Institut Kimia Malaysia
INED	Independent Non-Executive Directors
INSTEP	Institut Teknologi Petroleum PETRONAS
IP	Injured Person
IPCC	The Intergovernmental Panel on Climate Change
IPIECA	International Petroleum Industry Environmental Conservation Association
IPL	Independent Protection Layers
iREMOTE	Integrated Remote and Monitoring System
ISO	International Organisation for Standardisation
ISSB	International Sustainability Standards Board
ITDIS	Integrated Turnaround Digital Solution
IUCN	International Union for Conservation of Nature
JHA	Job Hazard Analysis
JPKK	Village Development and Safety Committee
KAPENAS	Kesatuan Kakitangan Petroliam Nasional Berhad
KBA	Key Biodiversity Areas
KGRP	Kelab Golf and Rekreasi PETRONAS
KIC	Kerteh Interplant Clinic
KIPC	Kertih Integrated Petrochemical Complex
KKM	Kementerian Kesihatan Malaysia
KPI	Key Performance Indicators
LCA	Life Cycle Analysis
LDAR	Leak Detect and Repair

Abbreviation	Meaning/Definition
LDAR	Leak Detection Active Repair
LNG	Liquefied Natural Gas
LOPA	Layer of Protection Analysis
LOPC	Loss of Primary Containment
LPA	Loss Prevention Asia
LT	The Board and Leadership Team
LTI	Lost Time Injury
LTIR/LTIF	Lost Time Incident Rate/Frequency
MACC	Malaysian Anti-Corruption Commission
MARS	Monitoring and Reporting System
MBKT	Kuala Terengganu City Council
MCCG	Malaysian Code on Corporate Governance
MCF	Mandatory Control Framework
MD/CEO	Managing Director/Chief Executive Officer
MFRS	Malaysian Financial Reporting Standards
MGA	Malaysian Gas Association
MMLR	Main Market Listing Requirements
MNS	Malaysian Nature Society
MoC	Management of Change
MSR	Management System Review
MTC	Medical Treatment Case
N2	Nitrogen
NADMA	National Disaster Management Agency
NCOSH	National Council for Occupational Safety and Health
NEDA	New Electricity Dispatch Arrangement
NEP	National Energy Policy
NETR	National Energy Transition Roadmap
NFPS	National Fire Protection Association
NGO	Non-governmental organisations
NINED	Non-Independent Non-Executive Directors
NOK	Next of Kin
NOx	Nitrous Oxide
NPBD	National Policy on Biological Diversity
NPI	Net Positive Impact
NRA	Noise Risk Assessment
NRC	Nomination and Remuneration Committee
NZCE 2050	Net Zero Carbon Emissions 2050
OE	Operational Excellence
OEM	Original Equipment Manufacturer
OEMS	Operational Excellence Management System
OGMP 2.0	Oil and Gas Methane Partnership

Abbreviation	Meaning/Definition
OHSMS	Occupational Health and Safety Management System
OSHA 1994	Occupational Safety and Health Act 1994
OSHPoP	OSH Principle of Prevention
OTAM	Operational Technology Asset Management
PAIP	Pengurusan Air Pahang Berhad
PASR	Pre-Activity Safety Review
PCFK	PETRONAS Chemicals Fertiliser Kedah
PDC	People Development Committee
PDPM	Personal Data Protection Management System
PEMS	Predictive Emission Monitoring System
PGU	Peninsular Gas Utilisation
PDR	Product Delivery Reliability
PHA	Process Hazard Analysis
PMHA	Prime Minister's Hibiscus Awards
PNB	Permodalan Nasional Berhad
PPIC	PETRONAS Petroleum Industry Complex
PRBI	PETRONAS Risk Based Inspection
PRESTIGE	Program on Energy Sustainability and Transition and Insight for Graduate Engineers
PRM	PETRONAS Resiliency Model
PSM	Process Safety Management
PSS	Plant State Suite
PSV	Pressure Safety Valve
PTS	Petronas Technical Standard
PTW	Permit-to-Work
PwC	PricewaterhouseCoopers
QRA	Quantitative Risk Assessment
RA	Risk Assessment
RCA	Root Cause Analysis
RCC	Risk and Compliance Committee
RCFA	Root Cause and Failure Analysis
RGTP	Regas Terminal Pengerang
ROW	Right-of-Way
RS	Risk Statement
RTOT	Real Time Operational Technology
RWC	Restricted Work Case
SASB	Sustainability Accounting Standards Board
SCPD	Safety Critical Protective Device
SEC	Specific Energy Consumption
SHOC	Safe Handling of Chemicals
SID	Senior Independent Director
SIEM	Security Information and Event Management

Abbreviation	Meaning/Definition
SIM	Social Impact Management
SIMOP	Simultaneous Operations Assessment
SIMS	Structure Integrity Management System
SOC	Centralised Security Operation Center
SORMIC	Statement on Risk Management and Internal Control
SOx	Sulphur Oxide
SR	Self-Regulatory
SRA	Social Risk Assessments
SRC	The Sustainability and Risk Committee
SVC	Sustainable Value Creation
SWC	Sustainability Working Committee
TARA	Turnaround Risk Assessment
TBR	Team-based Reward
TCFD	Task Force on Climate-Related Financial Disclosures
TNB	Tenaga Nasional Berhad
TNFD	Task Force on Nature-related Financial Disclosures
TOR	Terms of Reference
TPM	Testing and Preventive Maintenance
TTS	Technical Trade Specialist
UAUC	Unsafe Act, Unsafe Condition
UMT	University Malaysia Terengganu
UNGP	United Nations Guiding Principles
UniSZA	Universiti Sultan Zainal Abidin
UNSDG	United Nations Sustainable Development Goals
UOC	Unified Operation Centre
USECHH	Use and Standard of Exposure Chemical Hazardous to Health
USM	Universiti Sains Malaysia
VOC	Volatile Organic Compound
VPS	Virtual Pipeline System
WAPS	Water Practices
WBC	Whistleblowing Committee
WBCSD	World Business Council for Sustainable Development
WBS	Whistleblowing Secretariat
WCS	Work Control Sheet
WEF	World Economic Forum
WFH	Work-From-Home
WL	Work Leader
WRI	World Resources Institute
XPRESS	Express Registration for External Service Suppliers

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