

STEADFAST. ADVANCING SUSTAINABLY.

PETRONAS CHEMICALS GROUP BERHAD | SUSTAINABILITY REPORT 2023



PETRONAS



STEADFAST. ADVANCING SUSTAINABLY.

“Steadfast. Advancing Sustainably.” encapsulates the essence of our mission – a fusion of relentless dedication, innovative and sustainable progress. This tagline signifies our unwavering commitment to excellence, especially under challenging circumstances, through the continuous evolution of our chemical products. Our resilience is interwoven with a spirit of innovation, as we expand to include environmentally conscious solutions. By embodying this tagline, our firm resolve, ethical practices and investment in cutting-edge technologies not only navigate us through the immediate challenges but also illuminate our path towards a prosperous and sustainable future.

Dear Stakeholders,

At PETRONAS Chemicals Group Berhad, creating value for stakeholders is achieved through our Sustainability Agenda, covering Economic, Environmental and Social pillars. Governance is an all-encompassing factor in the agenda.

The Company values the importance of transparency, accountability and responsibility, which are essential for building and maintaining trust.

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NAVIGATION ICONS

Material Matters

- | | |
|--|--|
|  Innovation & Product Stewardship |  Environmental Stewardship |
|  Business Strategy & Financial Resilience |  Human Rights |
|  Circular Economy |  Safety & Health |
|  Supply Chain Management |  Talent Management & Well-Being |
|  Cybersecurity & Digitalisation |  Community Engagement |
|  Climate Change |  Corporate Governance |

Key Stakeholder Groups

- | | |
|---|---|
|  Employees |  Customers |
|  Suppliers & Vendors |  Business Partners |
|  Shareholders & Investment Community |  Government & Regulators |
|  Communities |  Media |

BASIS OF THIS REPORT

INTEGRATED REPORTING APPROACH

PETRONAS Chemicals Group Berhad (PCG or the Group) ranks among the largest companies listed on Bursa Malaysia Main Market. In line with our commitment to good governance and transparent communication, we focus on delivering comprehensive and balanced performance reports for our stakeholders, partners and communities we engage in. This commitment is encapsulated in PCG's Sustainability Report 2023, which also include discussions on sustainability and future prospects, providing stakeholders with a clear vision of our direction in the short, medium and long-term.

OUR REPORTING BOUNDARIES

This Integrated Report (IR) covers the reporting period of 1 January 2023 to 31 December 2023, unless otherwise stated. Information presented relates to the risks, opportunities and outcomes of activities in the Group, comprising our subsidiaries, joint operation, joint ventures and associates.

Strategy, including key strategic trade-offs

R Read more on pages 50 to 61 in the Integrated Report

Business model, including value created for stakeholders

R Read more on pages 50 to 51 in the Integrated Report

External environment, including sustainability-driven initiatives

R Read more on pages 42 to 44 in the Integrated Report

Stakeholder interests, including our responses

R Read more on pages 45 to 58 in the Integrated Report

Financial reporting boundary

Covers our operating subsidiaries, joint operation, joint ventures and associates.

Non-financial reporting boundary

Covers our operating subsidiaries, joint operation, joint ventures and associates where we have management responsibility.

Time horizons

Short-term

Navigating short-term performance expectations against long-term value creation within three years, currently set for 2026

Medium-term

Navigating medium-term performance expectations against long-term value creation within six years period, currently set for 2030

Long-term

Navigating long-term performance expectations against long-term value creation beyond six year period, currently set for 2050, which aligns with our commitment to achieving Net Zero Carbon Emissions (NZCE) by 2050

OUR APPROACH TO DELIVERING IMPACT IS GUIDED BY



We have prioritised 13 of the 17 SDGs where we believe we have the greatest ability to deliver meaningful impact through our core business.

R This is best represented on page 49 in the Integrated Report and the alignment to our Material Matters can be found on pages 34 to 39 in the Sustainability Report.

BASIS OF THIS REPORT

OUR REPORTING SUITE

PCG is a global integrated chemicals enterprise, bolstered by a strong network of stakeholders. The confidence these stakeholders place in PCG is vital to our long-term sustainability. In our efforts to build upon this trust, we are committed to offering clear insights into our business direction, strategic approaches and performance, while also clearly identifying our material risks.



Integrated Report 2023 (IR)

The objective of PCG's IR is to provide our stakeholders with a thorough and balanced assessment of both financial and non-financial performance. By reading this report, stakeholders will gain a better understanding of our business operations, sustainability initiatives, performance metrics, governance, risk management and future prospects. This report demonstrates our commitment to transparency and aims to bolster the trust and confidence of our stakeholders. Within the governance section, we provide comprehensive coverage of our Corporate Governance activities via the Corporate Governance Overview Statement, Nomination and Remuneration Committee Report, Board Audit Committee Report, Board Sustainability and Risk Committee Report and the Statement on Risk Management and Internal Control.

Financial Report 2023 (FR)

Our FR includes the Directors' Report, Audited Financial Statements and Independent Auditors' Report. The report offers comprehensive financial information to our shareholders, investors, analysts and other relevant parties.

Sustainability Report 2023 (SR)

PCG's SR details our performance in Economic, Environmental, Social and Governance (EESG) contexts. The report describes our initiatives and their outcomes that are aimed at creating positive and sustainable impacts for all our stakeholders.

KEY FRAMEWORKS APPLIED

	IR	FR	SR
Integrated Reporting Framework (IRF) by Value Reporting Foundation (VRF) (previously known as International Integrated Reporting Council)	•		
Malaysian Code on Corporate Governance (MCCG)	•		
Main Market Listing Requirements (MMLR) issued by Bursa Malaysia	•	•	•
Companies Act 2016 (CA 2016)	•	•	
Malaysian Financial Reporting Standards (MFRS)	•	•	
IFRS Accounting Standards	•	•	
Corporate Governance Guide - 4 th Edition issued by Bursa Malaysia	•		
Global Reporting Initiative (GRI) Universal Standards 2021			•
FTSE4Good Bursa Malaysia Index's Environmental, Social and Governance (ESG) indicators			•
IPIECA Sustainability Reporting Guidance for the Oil and Gas Industry - 4 th Edition, 2020			•
Dow Jones Sustainability Indices (DJSI)			•
The United Nations Sustainable Development Goals (UNSDGs)			•

INDEPENDENT COMBINED ASSURANCE STATEMENT

Assurance for this report is provided by our Board of Directors and supported by independent assurance by KPMG PLT and Deloitte PLT.

R Read more on pages 115 to 119 for the Independent Auditors' Report in the Financial Report

R Read more on pages 84 to 85 for the Independent Limited Assurance Report

INDEPENDENT LIMITED ASSURANCE STATEMENT

Deloitte PLT provided assurance on non-financial indicators for Malaysian manufacturing sites. The assurance is limited to environment, occupational health and safety data, as listed in the following eight indicators:

1. Scope 1 Greenhouse Gas (GHG) Emissions
2. Scope 2 GHG Emissions
3. Total Non-Renewable Energy Consumption
4. Total Municipal Water Supplies (or from other water utilities)
5. Total Weight of Nitrogen Oxides (NOx) and Sulfur Oxides (SOx) Emissions
6. Effluent Pollution Loading - Chemical Oxygen Demand (COD)
7. Lost Time Injury Frequency (LTIF)
8. Tier 1 Process Safety Event (T-1 PSE)

KPMG Sweden has provided limited assurance over selected environmental and occupational health and safety disclosures for Perstorp Group.

MATERIALITY

The information in the report focuses on issues that are most material to our business operations and stakeholders. Our approach to identifying, prioritising and confirming these material matters involves a comprehensive four-step materiality assessment process.

FEEDBACK

PCG is committed to constantly enhancing the quality of our reports and we greatly value input from our stakeholders. If you have any questions or suggestions, please contact the following:

Name : Zaida Alia Shaari
Position : Head of Investor Relations
Email : petronaschemicals_ir@petronas.com

FORWARD-LOOKING STATEMENTS

This report includes several forward-looking statements relating to future performance. These projections and forecasts are grounded in present assumptions and conditions, which are subject to change and therefore carry some uncertainty. Numerous factors might lead to actual outcomes that may vary from those expressed or implied in these forward-looking statements.

BOARD RESPONSIBILITY STATEMENT

The Board acknowledges its responsibility in upholding the integrity of this Sustainability Report. The Board believes that this report addresses all the issues that are material to the Group's ability to create value and fairly reflects PCG's integrated performance. This report has been prepared with reference to the Global Reporting Initiative Universal Standards 2021 and received the Board's approval on 26 February 2024.

DATUK IR. (DR.) ABDUL RAHIM HASHIM

MAZUIN ISMAIL

Chairman

Managing Director/
Chief Executive Officer

MESSAGE FROM LEADERSHIP

DEAR STAKEHOLDERS,

In 2023, the world continued to face socio-economic uncertainties that were heightened by geopolitical tensions, sluggish economic recovery and rising inflation rates. As nations navigated through these challenges, climate change continued to demand immediate global attention as evidenced by yet another hottest year on record.

This underscores the urgent need for greater efforts to curb the acceleration of global temperature rise as reiterated most recently during the 2023 United Nations Climate Change Conference or Conference of the Parties of the UNFCCC (COP28). The increasing global temperature is accelerating climate change, leading to adverse effects on the economy, livelihoods and communities worldwide. These effects are further intensified by geopolitical tensions and economic challenges.

PCG recognises the urgency of climate change and has continued to step up our actions to mitigate its impacts, including resilience against climate risk. We continue to drive our Sustainability Agenda which aims to balance economic imperatives with social and environmental impacts.

Mazuin Ismail

*Managing Director/Chief
Executive Officer (MD/CEO)*

**Datuk Ir. (Dr.)
Abdul Rahim
Hashim**

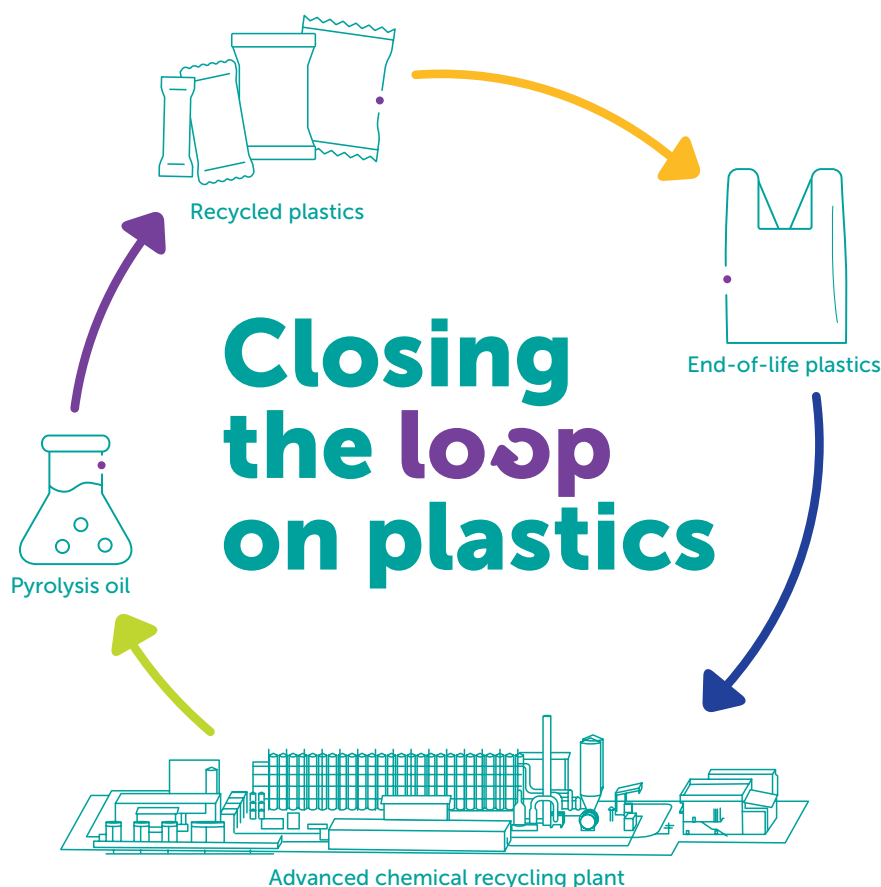
Chairman



MESSAGE FROM LEADERSHIP

SUSTAINABLE VALUE CREATION

The chemical industry plays a vital role in developing technologies and sustainable solutions that support the transition to a low carbon economy. Through research, innovation and advanced material development, we can contribute actively in advancing the transition to a low carbon and circular economy. The shift to a circular economy has created many opportunities for PCG, including partnerships with various stakeholders in Malaysia's plastics industry. These collaborations have led to the Final Investment Decision (FID) to build an advanced chemical recycling plant in Pengerang, Johor, to promote plastic recycling and foster an ecosystem conducive for plastic circularity.



Following the acquisition of Perstorp Group (Perstorp) in 2022, we have continued to grow our sustainable product portfolio through the launch of five new International Sustainability & Carbon Certification (ISCC PLUS) certified products.

Moreover, our recent attainment of the ISCC PLUS Trader scope will enable us to further chart growth opportunities. We continue to conduct feasibility study on Project Air, which aims to produce sustainable methanol to unlock greater opportunities for sustainable value creation, while contributing to our decarbonisation efforts.

Additionally, we have built partnerships with technology providers, research institutions and governmental organisations to jointly develop solutions for waste reduction, resource efficiency and sustainable product development.

SAFEGUARDING THE ENVIRONMENT

We remain guided by our Net Zero Carbon Emissions 2050 Roadmap to continue identifying and implementing greenhouse gas (GHG) emission reduction across our operations. This includes exploring the use of low carbon process and technology within our assets, and implementing measures to increase the percentage of renewables within our energy mix. In 2023, we achieved an overall GHG emission reduction of more than 146,000 tCO₂e through flare reduction and efficiency improvement measures. The emission reduction was also due to our subscription to Tenaga Nasional Berhad's Green Electricity Tariff scheme for all our plants that are connected to the grid.

Further to that, we enhanced our climate risk assessments by expanding the scope and depth of our physical risk assessments. We also updated our transition and climate risk opportunities using latest climate, energy and economic data released by the Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA). These efforts were conducted to enhance our sustainability and climate risk management disclosures. They also improved our alignment with the recommendations of the Taskforce on Climate-Related Financial Disclosures (TCFD). Overall, these assessments helped PCG's Management to identify material climate-related risks and opportunities in managing their impacts on PCG's business and operations.

In managing water and wastewater, we are implementing a strategic climate adaptation plan to address future water stress issues to ensure business sustainability. This includes conducting water availability assessment at water-stressed locations, utilising the World Research Institute water risk atlas. We successfully deployed wastewater process condensate recovery at PETRONAS Chemicals Methanol Plant 2, with execution underway for condensate and site stream filter at PETRONAS Chemicals Methanol Plant 1. We have also worked with a potential alternative water supplier, undertook detailed studies on utilising technology to reduce wastewater discharge for freshwater withdrawal optimisation at PETRONAS Chemicals MTBE and PETRONAS Chemicals Fertiliser Kedah.

MESSAGE FROM LEADERSHIP

POSITIVE SOCIAL IMPACT

A just transition recognises that the social and economic implications of a transition away from carbon intensive activities into a low carbon economy must be accounted to mitigate potential adverse social impacts on the workforce, supply chain and broader community. Embedding just transition considerations into pathways towards a low carbon economy is complex yet crucial to address the needs of stakeholders. It requires consistent enhancements and social consensus through dialogues to align goals and pathways towards a sustainable future.



In 2023, PCG initiated proactive measures to reach out to various stakeholder groups to inculcate sustainability among business and supply chain partners. This included rolling out sustainability-related trainings for suppliers and vendors as well as organising a sustainability-themed forum for our joint venture partners. The initiative garnered their commitment to strive for GHG emission reduction and comply with globally recognised human rights standards. This is in line with our efforts to drive compliance to the Contractor's Code of Conduct on Human Rights by addressing gaps identified in previous assessments. We also strive to instill sustainable action and decision making across PCG to realise a strategic shift and just transition towards a low carbon economy. This involved building sustainable leadership and management through various internationally accredited programmes and in-house training initiatives.

Building on prior efforts in social impact programmes for local communities, we extended PCG's flagship educational programme, Be Green, to Indonesia and Thailand to raise awareness on the proper use of plastics and the importance of 3R (reduce, reuse, recycle). Domestically, we intensified our efforts on Plastics, Sustainability & You Education (PSYE) modules and Be Green. This entailed significantly increasing the number of programmes held with schools and local communities, and the amount of plastic waste collected compared to the previous year. As a result of the expansion of Be Green, we collected over 120 tonnes of recyclable waste. Overall, our community investment, which amounted to nearly RM3 million, benefited more than 170,000 individuals in 2023.



PCG expands its Be Green programme to Thailand.

MESSAGE FROM LEADERSHIP

STRENGTHENING ETHICS AND INTEGRITY

At PCG, sustainability governance starts from the top and is cascaded across the organisation, thus ensuring decisions are made judiciously, and fostering accountability and transparency across the business. The Board and the Senior Management regularly discuss and deliberate matters related to sustainability and its broader implications on PCG's business and investment decisions. Additionally, the Board oversees the implementation of PCG's Sustainability Agenda and long-term strategy, ensuring PCG's shift to a low carbon economy considers the social, economic and environmental impacts on all stakeholders.

Upholding integrity remains a priority in PCG and we maintain a zero tolerance approach to bribery and corruption. Our recent implementation of the first Anti-Bribery Management Systems (ABMS), which is aligned with the MS ISO 37001 International ABMS Standard, reflects the Group's commitment to stemming bribery and corruption in all its business activities.

Our continuous improvement in sustainability governance and disclosures is evidenced by our improvement in the FTSE4Good Bursa Malaysia index. Moreover, we maintained our position in the Dow Jones Sustainability Indices (DJSI) World Index and Emerging Market Index for the chemicals sector for the third consecutive year, solidifying our status among the Top 10% Companies in this category. Our international subsidiaries have also continued to elevate their sustainability performance in the 2023 EcoVadis assessment. Perstorp attained a Gold rating while BRB attained a Silver rating, placing them at Top 5% and 25% respectively in the industry.

MOVING FORWARD

Amidst economic and geopolitical uncertainties that will persist into the future, the urgency of climate action remains constant, and will be at the forefront of sustainability commitment. We recognise that difficult decisions and trade-offs need to be made. To navigate these challenges, sustainability will remain a key topic in Board and Management level to enable PCG to move forward in supporting a transition to a low carbon economy that is just and equitable.

As we progress our circular economy agenda, we will continue to drive GHG emission reduction across our operations and invest in the decarbonisation of our assets. We will strive to keep up with the latest developments of climate reporting frameworks, including the International Sustainability Standards Board standards to improve sustainability risk management and elevate climate resilience.

We remain committed to environmental stewardship, aiming to scale up water and waste management initiatives and expand our efforts in nature and biodiversity conservation. Equally, we will continue to engage with our partners and stakeholders to enhance human rights management across our operations and supply chain, while delivering positive social impact to our stakeholders.

ACKNOWLEDGEMENTS

Our path to value creation owes much to the invaluable participation and feedback from our internal and external stakeholders. We would like to extend our heartfelt appreciation to the Board for their insightful guidance on sustainability matters. The Group's gratitude also goes to the Management and its committed employees for their dedication to PCG's sustainability journey. Creating long-term positive impacts is a collaborative endeavour, and as such, on behalf of PCG, we thank all our external stakeholders for their unwavering support in making the Group's sustainability journey a reality.



OVERVIEW OF PCG

PETRONAS Chemicals Group Berhad (PCG) stands as the chemical arm of PETRONAS and as Malaysia's premier integrated chemical manufacturer. Our operations span the production, marketing, and distribution of a wide variety of chemical products. PCG marked its significant milestone by going public on 26 November 2010. Through our commitment to Operational Excellence and Commercial Excellence, we have risen to become a prominent integrated chemical producer in Southeast Asia. Our global presence extends across 19 manufacturing sites located in Malaysia, the Netherlands, Sweden, Singapore, Germany, Italy, China, the USA, and Canada. The Group's dedication to Growth Delivery Excellence has been pivotal in our expansion into specialty chemicals sectors, ensuring our business is future-ready. In pursuit of our goal to be 'The Preferred Chemical Company Providing Innovative Customer Solutions', we are dedicated to generating positive outcomes across economic, environmental, and social spheres. Central to our strategy is sustainability, guiding us towards our ambition to achieve Net Zero Carbon Emissions (NZCE) by 2050.

OUR PURPOSE

A progressive energy and solutions partner enriching lives for a sustainable future

OUR VISION

To be the preferred chemical company providing innovative customer solutions

At PCG, we define our purpose beyond the traditional business boundaries, focusing on catalysing a sustainable future through environmental stewardship, social responsibility, and economic growth. We strive to not only meet immediate needs but also to pave the way for long-term sustainability, leveraging advanced technologies and sustainable practices to exceed the highest standards of operational excellence and contribute positively to the global environmental effort. Our vision as the preferred chemical company is underpinned by our commitment to providing innovative solutions that are designed with resilience and adaptability in mind, preparing us and our stakeholders for the challenges and opportunities of an evolving world.

Our approach integrates innovation into our core, aiming to deliver solutions that not only meet current demands but also anticipate future needs, ensuring our adaptability and resilience. This dedication extends to our workforce and societal engagement, where we foster a culture of growth and achievement, driving positive change beyond our industry. As we look to the future, PCG is committed to creating lasting values that harmonise prosperity with environmental stewardship, leading with forward-thinking solutions that benefit not just our stakeholders but society as a whole, reinforcing our role as leaders in the journey towards a sustainable future.

OUR SHARED VALUES

Our shared values are deeply embedded in our culture to ensure we operate with integrity at all times while contributing to the well-being of people in every nation where we have presence.

LOYALTY

Loyal to corporation

INTEGRITY

Honest and upright

PROFESSIONALISM

Strive for excellence

COHESIVENESS

United, trust and respect for each other

DRIVEN BY OUR STRATEGY

FIRST-PRONG

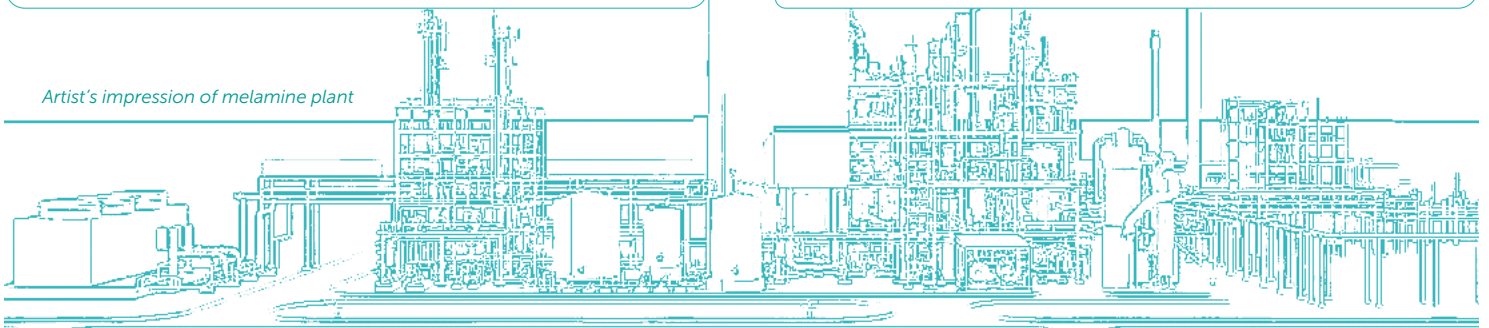
Sustain strength in basic petrochemicals through Operational Excellence & Commercial Excellence in Maximising Cash Generation from existing business

Two-Pronged Strategy

SECOND-PRONG

Selectively diversify into derivatives, specialty chemicals and solutions through Growth Delivery Excellence via Expanding Core & Stepping-out opportunities

Artist's impression of melamine plant



OVERVIEW OF PCG

MARKET CAPITALISATION:
AS AT 31 DECEMBER 2023

RM57.3 billion

PRODUCTION CAPACITY:

15.4 million tpa

10-YEAR CONSTITUENT
OF
FTSE4GOOD
BURSA MALAYSIA INDEX

TOTAL ASSETS BASE:

RM60.2 billion

ONE OF THE
LARGEST
INTEGRATED CHEMICALS
PRODUCERS IN
SOUTHEAST ASIA

LISTED AS
TOP 10% COMPANIES
FOR THREE CONSECUTIVE
YEARS IN THE DOW JONES
SUSTAINABILITY INDICES
(DJSI) FOR WORLD AND
EMERGING MARKETS
(CHEMICALS INDUSTRY)

OUR EXPERTISE

Manufacturing

Our **19 world-class chemical manufacturing sites** worldwide produce a range of commodities and specialty chemicals that are used by customers in various sectors - from agriculture to automotive and packaging to personal care - to manufacture items that enhance our daily lives.

Commercial

We market and sell integrated chemical solutions, including specialty products and chemical derivatives. **Through innovative products and solutions**, we deliver best-in-class commercial value to our customers globally.



Commodities



Olefins & Derivatives



Fertilisers & Methanol



Specialties

OUR STRENGTHS AS A SUSTAINABLE BUSINESS

Economic

- Integrated manufacturing facilities and infrastructure with world-class Health, Safety and Environment (HSE) standards and plant performance
- Strong customer relationships with diversified product portfolio across the globe to meet current and future needs
- Attractive dividend policy
- Reputable industry and market leaders
- Strong network of strategic alliances via long-standing and robust relationships with partners
- Asset growth and portfolio expansion into derivatives and specialty chemicals
- Commitment to sustainable investments
- Strong returns and capacity to fund future growth

Environmental

- Implementation of NZCE 2050 Roadmap and climate risk management
- Internationally recognised for environmental management practices
- Commitment to environmental protection and biodiversity conservation

Social

- Skilled talent pool with right competencies and leadership traits
- Diverse and inclusive workforce for a progressive work environment

Governance

- International recognition on sustainable business practices
- Commitment to high standards of corporate governance and business ethics
- Transparency, continuity and timeliness in corporate disclosures to enable informed investment decisions

SUSTAINABILITY APPROACH

We consistently strive to integrate sustainability into the core of our business, incorporating Economic, Environmental, Social and Governance (EESG) considerations into our decision-making and operations. Fundamental to who we are, we believe that sustainable business practices are essential for the long-term success of our company, our stakeholders and the planet. We remain committed to facilitating the transition to a low carbon economy through our Net Zero Carbon Emissions (NZCE) 2050 Roadmap and Circular Economy focus.



We are guided by PETRONAS' Four Sustainability Lenses in driving sustainability in PCG. Our sustainability strategy is based on a keen understanding of sustainability trends and issues, risks and opportunities while meeting stakeholder expectations.

Our Sustainability Agenda is anchored on the key pillars of EESG and is instrumental in driving our sustainability efforts on key focus areas impacting PCG and our stakeholders and it is aligned with 13 of the 17 UN Sustainable Development Goals (UNSDGs) where we believe we have the best ability to deliver meaningful impact.

We continuously pursue alignment with internationally-recognised best practices and standards as evidenced by our continual inclusion in DJSI World and Emerging Markets indices (Chemicals Industry), as well as improvement in our FTSE4Good score. We have initiated efforts to assess and align with International Financial Reporting Standards (IFRS) S1 and S2 to enhance how we manage and disclose sustainability as well as climate-related risk and opportunities.

R For more information on PCG's Sustainability Strategy, please refer to page 18.

PCG SUSTAINABILITY AGENDA

SUSTAINABILITY AT THE CORE

ECONOMIC	ENVIRONMENTAL	SOCIAL
Business Sustenance & Green Initiatives	Environmental Stewardship & Resources Efficiency	Social Responsibility
Operational Excellence	Net Zero Carbon Emissions	Human Rights
Commercial Excellence	Environmental Stewardship	Talent Management & Well-Being
Growth Delivery Excellence	Biodiversity Conservation	Social Impact

GOVERNANCE

SUSTAINABILITY SCORECARD

E Economic

<p>Production Volume</p> <p>10.4[^] million tonnes</p> <p>2022: 10.2 million tonnes</p>	<p>Sales Volume</p> <p>9.6^{^*} million tonnes</p> <p>2022: 8.3^{^*} million tonnes</p>	<p>Plant Utilisation (PU)</p> <p>85%</p> <p>2022: 89%</p>
<p>Order Fulfilment Reliability</p> <p>95%</p> <p>2022: 95%</p>	<p>Number of new products</p> <p>20[^] products</p> <p>2022: 15 products</p>	<p>Number of Co-created Solutions</p> <p>22 solutions</p> <p>2022: 12 solutions</p>



E Environmental

ENERGY

Renewable Energy

134,401 MWH

Initiative started in 2023

Energy Consumed

100.38 million GJ

2022: 104.90 million GJ

WATER

Freshwater Withdrawal Intensity

5.46[^] m³/tonne

2022: 3.89 m³/tonne

CONSERVATION

Mangrove trees planted

5,700 trees

2022: 3,550 trees

EMISSIONS

GHG Emissions (Overall - Market Based)

7.33[^] million tCO₂e

2022: 7.43[^] million tCO₂e

GHG Emissions (Malaysian Operations - Market Based)

6.97 million tCO₂e

2022: 7.05 million tCO₂e

GHG Emissions Intensity (Overall - Market Based)

0.71[^] tonne CO₂e/tonne

2022: 0.69[^] tonne CO₂e/tonne

Reduction of GHG Emissions

146,100 tonne CO₂e

2022: 55,000 tonne CO₂e

WASTE

Hazardous Waste 3R

76%

2022: 77%



S Positive Social Impact

World-Class Safety Performance

0.09 Lost Time Injury Frequency (LTIF)

2022: 0.17

Diverse nationalities representation in senior leadership

18%[^]

2022: 16%

Women in Senior Leadership

31%[^]

2022: 29%

Social Impact Initiatives Reached

More than 170,000[^]

community members reached

2022: >75,000 people

calculation methodology for the number of community reached that benefitted from our programme has been restated as per alignment with Yayasan PETRONAS



[^] Including BRB Group and Perstorp Group
^{*} Including Pengerang Integrated Complex (PIC)

MEMBERSHIPS AND ASSOCIATIONS

ASSOCIATIONS	PCG'S CONTRIBUTION
Methanol Institute (MI)	<ul style="list-style-type: none"> Board Member advocating for cleaner feedstocks, i.e. methanol for marine fuel and fuel cells Chairperson for Product Stewardship Committee to drive safe handling and promotion of sustainable methanol
International Fertilizer Association (IFA)	<ul style="list-style-type: none"> Producing sustainable fertiliser to increase PCG's energy efficiency and meeting CO₂e emission targets Active participation through quarterly Board meetings to drive the industry towards sustainability efforts in agriculture, as well as in the production of ammonia and fertilisers Leveraging IFA's Green Fertilisers platform as an advocator for Stabilised Nitrogen Fertiliser (SNF) and Enhanced Efficiency Fertiliser (EEF) products
Malaysian Plastics Manufacturers Association (MPMA)	<ul style="list-style-type: none"> PCG is a part of MPMA's delegation in meetings with Malaysia's Ministry of Natural Resources, Environment and Climate Change and related agencies MPMA promoted Separation at Source (SAS) and 3R via the MPMA Green Truck at PCG Be Green events throughout Malaysia PCG is the first signatory to Operation Clean Sweep (OCS) in Malaysia, launched by MPMA in Kertih, Terengganu
Malaysian Petrochemicals Association (MPA)	<ul style="list-style-type: none"> Held the leading position of the President of MPA Council from 2020-2024 Advocated for advancement of sustainability goals across the industry
Fertilizer Industry Association of Malaysia (FIAM)	<ul style="list-style-type: none"> Contributing as a member in the standardisation of fertilisers vocabulary, jargon and terms to match international standards
MVO Nederland (CSR Netherlands)	<ul style="list-style-type: none"> Contributing as a member in identifying CSR risks in international supply chains and sustainable business opportunities
Innovation and Chemical Industries in Sweden (IKEM)	<ul style="list-style-type: none"> Contributing as member in finding industrial solutions to global social challenges under various topics such as climate transition, labour market, environmental assessment and plastic recycling
Chemical Industries Council of Malaysia (CICM)	<ul style="list-style-type: none"> Through its membership in CICM Responsible Care programme, PCG advocates for improving safety and environment performance across the industry
European Chemical Industry Council (CEFIC)	<ul style="list-style-type: none"> Contributing as member in providing sustainable, safe and resource efficient solutions to meet the challenges for future generations

Sustainability Index Representation



FTSE4Good

Bursa Malaysia
FTSE4GOOD Index

Member of

**Dow Jones
Sustainability Indices**

Powered by the S&P Global CSA

Dow Jones
Sustainability Indices

AWARDS AND RECOGNITIONS

Our dedication and relentless contributions to the industry in 2023 earned us various awards and recognitions. Ranging from silver to gold and platinum, these accolades reflect our commitment to delivering long-term value for our stakeholders through innovating sustainable products and solutions for our customers.

CICM Responsible Care Awards 2021/2022

Gold Awards

- Community Awareness and Emergency Response Code for PC EPE, PC Ammonia and PC LDPE
- Process Safety Code for PC EPE
- Product Stewardship Code for PC EPE
- Employee Health and Safety Code for PC LDPE and PC Ammonia

Silver Awards

- Distribution Code for PC EPE
- Process Safety Code for PC LDPE and PC Ammonia
- Environmental Protection Code for PC LDPE and PC Ammonia

Prime Minister's Hibiscus Award 2021/2022

Exceptional Achievement Award in Environmental Performance for PC Polyethylene and PC Ammonia

Green Port Award System (GPAS)

Green Port Certification in Sustainability (ESG) category by APSN Council for KPSB

Malaysian Society for Occupational Safety and Health (MSOSH) Award 2022

Grand Awards for PC LDPE and PC Ammonia

Institut Kimia Malaysia (IKM) Award 2023

Laboratory Excellence Award for PC OGD

Royal Society for the Prevention of Accidents (RoSPA) Awards 2023

Gold Awards for PC Ethylene, PC Polyethylene, PC FK and PC LDPE

Asian Downstream Awards (ADS)

Sustainable Plant of the Year in PC EPE Waste Management for PC EPE

Annual Report Competition (ARC) Awards International 2023

Grand Winner

- Best of Malaysia
- Best Cover Design
- Best of Financial Data

National Annual Corporate Reports Award (NACRA) 2023

Platinum Award for Best Sustainability Reporting
Silver Award for Excellence Awards

Australasian Reporting Awards (ARA) 2023

Gold Award for Integrated Report
Silver Award for Sustainability Reporting



To view the full list of our Awards and Recognitions, please scan the QR code.

SUSTAINABILITY FRAMEWORK

As PCG always aims to embrace sustainability best practices, we intend to adopt good international practice and reporting standards. Building on the momentum of the publication of our first standalone Taskforce for Climate-related Financial Disclosures (TCFD) report in 2022, we have updated our disclosures and endeavoured to embed TCFD recommendations in the sustainability report.

We embarked on a detailed analysis of the new International Financial Reporting Standards (IFRS) S1 and S2 disclosure standards and enhanced the granularity of our sustainability and climate-related disclosures. We have also identified a roadmap to address gaps in alignment with these standards in the short to medium term.

IFRS S1:

General Requirements for Disclosure of Sustainability-related Financial Information

The main objective of this standard is to disclose all information about sustainability-related risks and opportunities that could reasonably be expected to affect a company's prospects.

IFRS S2:

Climate-related Disclosures

This standard focuses on specific climate-related information to be disclosed.

GOVERNANCE

SUSTAINABILITY AND CLIMATE GOVERNANCE

PCG's sustainability governance prioritises the values of transparency, integrity and accountability when delivering and improving our Sustainability Agenda and Climate Change Strategy. Our unwavering commitment to our values is in tandem with our dedication to addressing the pressing challenges of climate change and other material sustainability topics. Every decision and action by our leadership team carries the weight of its sustainability impact, emphasising our dedication to combating climate change and enabling sustainable development.

Our governance structure comprises the Board, Management and working-level committees to ensure holistic and effective execution of our Sustainability Agenda. The clear delineation of roles and responsibilities enables us to uphold the highest level of integrity and efficiency in our Sustainability Agenda and its implementation.

Our Board of Directors sits at the apex of the governance structure, providing leadership from the top in setting the guiding values and ensuring that sustainability and climate considerations are incorporated into business priorities and decision-making. The Board reviews PCG's sustainability targets, priorities and strategy through the Board Strategic Conversations on sustainability.

The Board ultimately oversees the implementation of PCG's Sustainability Agenda and allocates resources as part of the annual business plans and budget. It reviews PCG's sustainability performance against the targets on a quarterly basis.

This includes overseeing and allocating resources to drive implementation of PCG's Net Zero Carbon Emissions Roadmap and managing progress against GHG emissions targets. The Board's ultimate responsibility in sustainability is reflected in the Board Charter, which is available on PCG's corporate website.

R Read more on PCG Board Charter on our website:
<https://www.petronas.com/pcg/sites/pcg/files/2022-03/Revised%20Board%20Charter%20as%20at%2024022022%20Final.pdf>

The Board is supported by the Board Sustainability and Risk Committee (BSRC) and the Nomination and Remuneration Committee (NRC). The BSRC supports the Board in its oversight role, particularly in ensuring careful consideration of sustainability and climate-related risks and opportunities in decision-making on various aspects, including key growth projects and risk management processes. The BSRC is also responsible for reviewing quarterly sustainable performance and independent assurance of selected non-financial indicators.

At management level, the MD/CEO provides direction and approves decisions pertaining to sustainability. The MD/CEO is supported by the Sustainability and Risk Management Committee (SRMC), which consists of PCG's management committee members who head the various divisions and departments across PCG. The SRMC acts as a platform to ensure that sustainability-related risks and opportunities are considered and deliberated at both enterprise level and business portfolios level. Furthermore, the SRMC endorses the setting of company sustainability targets, reviews sustainability performance against targets on a quarterly basis and provides advice and intervention as and when necessary.

Management also has clear roles and responsibilities in relation to climate change, including overseeing and directing the implementation of NZCE decarbonisation levers. Additionally, the roles include cascading enterprise targets on GHG emissions to operating unit (OPU) level, addressing TCFD recommendations in the management of climate risks and opportunities, and considering carbon footprint assessments and carbon pricing of investment decisions.

SUSTAINABILITY FRAMEWORK

Our Sustainable Development Working Committee (SDWC) was established to facilitate and ensure the implementation of PCG’s sustainability, and climate programmes and initiatives is in accordance with the overall Sustainability Agenda approved by the Board. The SDWC consists of cross-department business focals representing the various business divisions and functions within PCG such as Manufacturing, Commercial, Finance, Strategy and Risk.

The SDWC meets monthly to review implementation progress, address issues and concerns, and facilitate the communication of PCG’s sustainability and climate goals and priorities across the organisation. The SDWC is also tasked with:

Reviewing and endorsing quarterly information that will be reported to the SRMC and BSRC	Monitoring quarterly sustainability performance at the enterprise and OPU level	Driving the implementation of cross-departmental sustainability initiatives, including emissions reduction and enhancement of material matters management
Reviewing annual materiality assessment results to determine PCG’s material topics and focus areas	Reviewing sustainability performance and data for each material matter	Formulating sustainability strategies and monitoring objectives and action plans

The SDWC is supported by the OPU-level sustainability steering committees and working committees to oversee the execution of OPU-level asset decarbonisation efforts. These committees are further supported by PCG’s Sustainability Implementation Network, which facilitates and supports climate action across OPUs through monthly progress reviews, cross-OPU learning and support.










Given the Board’s ultimate responsibility for sustainability, it is crucial for members of the Board to be equipped with the appropriate skills and competencies to oversee strategies designed to respond to sustainability-related risks and opportunities. The Board’s commitment to continuous upskilling reflects its proactive approach in staying informed about the dynamic sustainability and climate landscape. As such, the Board is required to attend at least one training related to sustainability per year.






To ensure effective delivery of PCG’s Sustainability Agenda, the MD/CEO and Senior Management’s sustainability KPIs and targets are linked to remuneration. The sustainability KPIs and targets are aligned with key objectives and goals to be delivered for the year, and cascaded across the organisation, including via common KPIs, also known as team KPIs.

R For more information on the various internal and external sustainability-related trainings, workshops and events, as well as the Board of Directors’ skills and competencies, please refer to Corporate Governance Overview Statement on pages 84 to 109 in the Integrated Report.

SUSTAINABILITY FRAMEWORK

SUSTAINABILITY POLICIES, STANDARDS AND GUIDELINES			
MATERIAL MATTERS	LIST OF POLICIES, STANDARDS AND GUIDELINES	AIM OF POLICIES, STANDARDS AND GUIDELINES	
Climate Change 	The Greenhouse Gas Protocol Corporate Accounting and Reporting Standard	To provide guidance on GHG accounting methodology and standards	
	PETRONAS Technical Standards on Greenhouse Gas (GHG) Emissions Management		
	American Petroleum Institute (API) Compendium of GHG Emissions Methodologies for the Natural Gas and Oil Industry (2021)		
	Taskforce on Climate-related Financial Disclosures		To provide guidance on climate risks management
	PCG Net Zero Carbon Emissions 2050 Roadmap		To guide GHG emissions reduction efforts through identified levers
Environmental Stewardship 	PCG Health, Safety and Environment (HSE) Policy	To iterate PCG's aspiration and commitments to attain and sustain excellence in environmental matters	
	PETRONAS Mandatory Control Framework (MCF)	To strengthen our governance of responsible environmental management	
Innovation & Product Stewardship 	Research & Development (R&D) for PETRONAS Chemicals Group	To provide guidance for the selection and execution of Research & Technology projects through a stage-gate process	
	Product Sustainable Design Guideline	To guide the incorporation of sustainable product criteria into the design and development of innovative product selection	
	PETRONAS Technical Standard (PTS)	To guide product safety and sustainability management	
Circular Economy 	PETRONAS Circular Economy	To set the path towards a circular economy to enable a low waste future, steward natural resources and minimise our carbon footprint, in line with PETRONAS' Circular Economy approach	
	New Plastics Economy (NPE) Communications Plan	To increase public awareness and community outreach on the aims and aspirations of NPE	
Safety & Health 	PCG HSE Policy	To reinforce our commitment to health and safety excellence	
	PETRONAS MCF	To strengthen HSE governance and expedite the implementation of process safety aspects and clearly defined scope of HSE assurance	
Supply Chain Management 	PETRONAS Contractors Code of Conduct on Human Rights (CoCHR)	To strengthen the implementation of PETRONAS Human Rights Commitment and practices across the business value chain	
	PETRONAS Procurement Standard (PPS)	To secure the best value in the procurement of goods and services while upholding good procurement governance	
	Compliance Clauses (Ethics and Anti-Bribery, Anti-Money Laundering, Competition Laws, Personal Data Protection, Sanctions, Human Rights)	To mitigate legal, financial and reputational risks to PETRONAS, which extend to our supply chain	
Community Engagement 	Yayasan PETRONAS Guidelines for Donations	To define the standard procedures and guidelines for donation management	
	Yayasan PETRONAS Guidelines for Programme Development and Execution	To define the standard procedures and guidelines on matters related to the Social Impact programme development and execution	
	PETRONAS Strategic Communications Management System	To provide guidance for the PETRONAS Group on planning, implementing and executing strategic communications activities	

SUSTAINABILITY FRAMEWORK

MATERIAL MATTERS	LIST OF POLICIES, STANDARDS AND GUIDELINES	AIM OF POLICIES, STANDARDS AND GUIDELINES	
Talent Management & Well-Being 	Talent Development for PETRONAS	To provide an enabling environment for employees to self-drive performance and development in order to create and add value to the individual and organisation's growth and sustainability	
	PCG Leadership Development Framework	To create a ready pool of talents that are agile and well-equipped with the necessary skills and experience to thrive in the long term through the right exposure from the early stages of their career	
Corporate Governance 	PETRONAS Anti-Bribery and Corruption Policy & Guidelines (ABC Manual)	To provide guidance on how to deal with improper solicitation, bribery and corruption activities and issues that may arise in the course of business	
	PETRONAS Code of Conduct and Business Ethics (CoBE)	To advance the principles of discipline, good conduct, professionalism, loyalty, integrity and cohesiveness, which are critical to the success and well-being of the PETRONAS Group	
	PETRONAS Whistleblowing Policy	To provide an avenue for stakeholders to disclose any improper conduct in accordance with the procedures, ensuring whistleblowers are protected from any retaliation	
	PCG Risk Policy	To be a risk resilient organisation in achieving business objectives	
	PETRONAS Procurement Standard (PPS)	To secure the best value in procurement of goods and services while upholding good procurement governance	
Business Strategy & Financial Resilience 	PCG Two-Pronged Strategy	To develop a portfolio of derivatives and specialty chemicals while sustaining PCG's strength in basic petrochemicals	
	Production & Operations Management System	To provide the minimum requirements to manage plant operations safely and efficiently	
	Physical Asset Management System	To effectively manage maintenance and physical assets, including the Turnaround Management system	
	Quality Management System	To ensure the effective management of product quality throughout the whole process	
Human Rights 	PETRONAS Human Rights Commitment	To strengthen the implementation of PETRONAS' Human Rights Commitment and practices across the business value chain	
	PETRONAS CoCHR		
	UNGP on Business and Human Rights		To guide business in managing human rights across the value chain
	International Labour Organization Declaration on Fundamental Principles & Rights at Work		
Cybersecurity & Digitalisation 	PETRONAS ICT Principles	To serve as the overarching statements that set out the purpose, commitment, and governance of ICT and records management	
	PETRONAS Enterprise Cybersecurity Governance Framework	To provide a single consolidated view of the frameworks, standards and guidelines required to govern and manage cybersecurity across PETRONAS, with clear lines of accountability	
	PETRONAS Cybersecurity Control Standards	To provide relevant employees, contractors and third parties across the PETRONAS Group of companies with guidance on how to apply cybersecurity control requirements	
	PETRONAS Cybersecurity Risk Management Guidelines	To establish the governing elements and processes to assess, evaluate, treat, monitor and review cybersecurity risk	
	PETRONAS Records Management Standards & Guidelines	To standardise documents classified in accordance to the appropriate document security classification, i.e. secret, confidential, internal and open	

SUSTAINABILITY FRAMEWORK

STRATEGY

At PCG, our sustainability strategy is driven by a solid understanding of industry trends, operating challenges and stakeholder expectations, which is essential to deliver long-term value. Further, we have effectively identified sustainability-related risks and opportunities that could reasonably impact our business model, value chain, strategy, and decision-making processes.

As part of our sustainability strategy, we conduct materiality assessments, and sustainability and climate risk assessments to better identify the risks and opportunities that could impact our business. We review the material matters and risks and opportunities periodically to ensure we remain relevant, as we mitigate risks and capture opportunities for the longevity of our business.

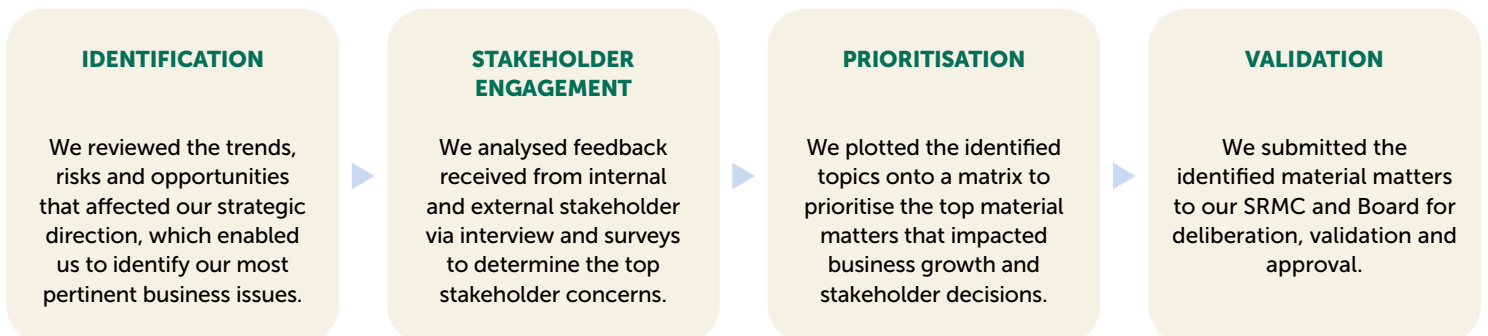
We have also assessed the qualitative basis of the financial impact of climate-related risks and opportunities that have been identified through a scenario analysis with the support of third party expertise. Strategies have been developed to manage the sustainability-related risks and opportunities identified. Moving forward, we aim to assess the resilience of our strategy and business model in relation to these risks.

MATERIALITY ASSESSMENT

Materiality assessments are integral to our sustainability journey, as they enable us to identify and prioritise sustainability trends and topics that are significant to our business and stakeholders. By conducting a materiality assessment, we can determine the risks and opportunities of each material matter and ensure that our sustainability priorities remain relevant and up to date with current industry trends.

In 2023, we conducted a materiality assessment review, which included a limited stakeholder engagements, to ensure that our sustainability efforts remain relevant and aligned with current needs and landscape. We deferred conducting an in-depth materiality assessment, originally planned for 2023 to 2024 to enable us to better plan for comprehensive stakeholder engagement. This was mainly due to the material change in PCG's business and operating landscape following the acquisition of Perstorp. Furthermore, the deferment was also aimed to improve alignment in materiality assessment strategy across the group to address EU's Corporate Sustainability Reporting Directive (CSRD) requirements on double materiality approach.

MATERIALITY REVIEW IN 2023



We ensured comprehensive coverage and relevance for all our material matters by considering relevant factors, such as reporting and expectations for the chemicals industry, sustainability trends, risks and industry peer practices. The material matters were aligned against national and global reporting frameworks such as the Global Reporting Initiative (GRI) Standards and the Bursa Main Market Listing Requirements (MMLR). Sustainability trends from the World Economic Forum and the World Business Council as well as peer-to-peer comparison were also included in the materiality assessment review.

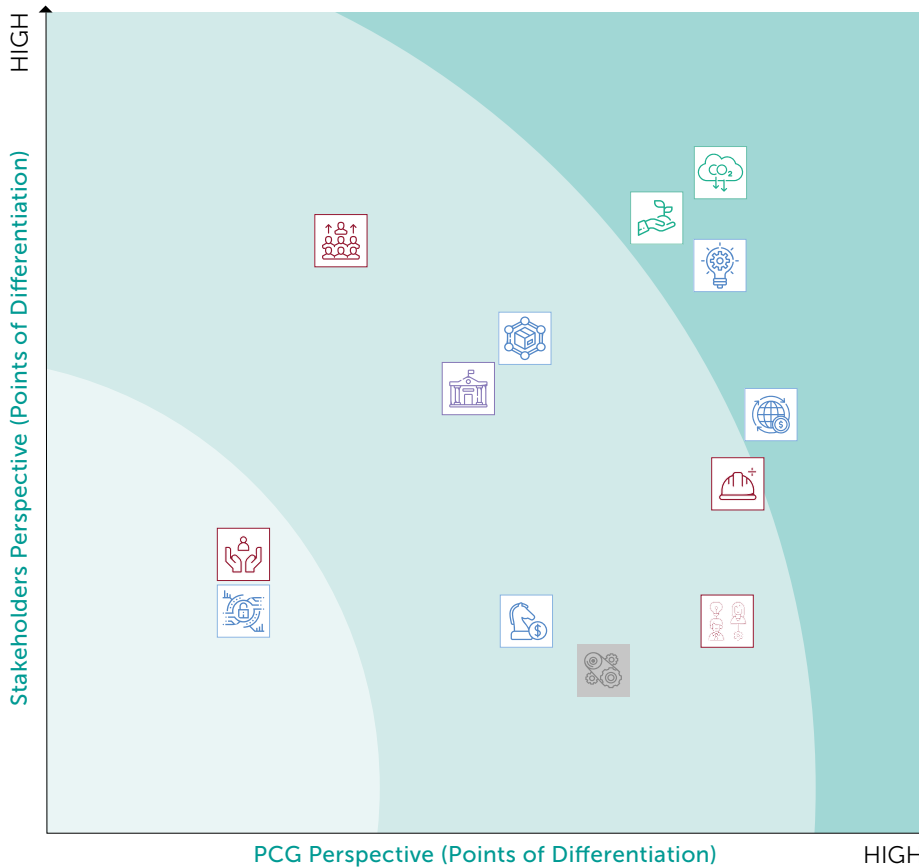
From the identification exercise, we determined that our material topics remain relevant, requiring only minor adjustments for better context and alignment. We then conducted a stakeholder engagement with internal and external stakeholders comprising representatives from PETRONAS, PCG Management Committee, selected investors and customers to identify key topics of concern and relative importance of the identified material topics.

SUSTAINABILITY FRAMEWORK

PCG'S MATERIAL MATTERS 2023

From the prioritisation exercise conducted, there were some movement with regards to the relative importance in PCG's material topics. For example, there were slight increases in the relative importance in Supply Chain Management, and Safety and Health material topics from our perspective. From the external stakeholder perspective, there was an increase in relative importance of Circular Economy, and Safety and Health, as well as a slight decrease of importance in Community Engagement, and Cybersecurity and Digitisation.

- **Points of Differentiation**
Topics where PCG can lead
- **Value Enhancement**
Topics that can add operational value to PCG
- **Value Protection**
Foundation topics for PCG



The materiality matrix impacts value creation in PCG within the three areas according to the colour shades above:

MATERIAL TOPICS UPDATES FOR 2023

- Circular Economy**
Renamed from New Plastics Economy to reflect the broader nature of the subject and in alignment with PETRONAS
- Business Strategy & Financial Resilience**
Renamed from Strategy Purpose & Financial Resilience to enhance clarity of its focus and reflect inclusion of Plant Operations as part of the topic coverage
- Safety & Health**
Renamed from Workplace & OSH to reflect the broader nature of the subject
- Talent Management & Well-Being**
Renamed from Talent Development to reflect the broader nature of the subject and sustainability trend (well-being)

R For more information on how PCG manages the material topics, please refer to Material Management on pages 34 to 39.

Economic

- Innovation & Product Stewardship
- Business Strategy & Financial Resilience
(Previously Strategy Purpose & Financial Resilience)
- Circular Economy
(Previously NPE)
- Supply Chain Management
- Cybersecurity & Digitalisation

Environmental

- Climate Change
- Environmental Stewardship

Social

- Human Rights
- Safety & Health
(Previously Workplace & OSH)
- Talent Management & Well-Being
(Previously Talent Development)
- Community Engagement

Governance

- Corporate Governance
- Plant Operations
(Embedded as part of Business Strategy & Financial Resilience)

SUSTAINABILITY FRAMEWORK

SUSTAINABILITY RISKS AND OPPORTUNITIES

PCG categorises its risks into principal and emerging risks. In the year under review, sustainability risk remains a principal risk. We are cognisant of the need to proactively manage and mitigate sustainability risk to ensure the resilience and longevity of our business. We define sustainability risk as the heightened expectations on material sustainability matters which may not be managed optimally and may impact our business and operations. We have identified various impacts of this risk, including:

Higher operational costs due to the development of costly low carbon technology and increased cost of borrowing

Asset damage due to physical risks such as extreme weather, floods and lightning

Exposure to litigation, penalties and fines

Loss of market share due to shifts in customer preferences

Diminishing interest from investors and other financiers

Reputational damage and loss of stakeholder trust

R For more information on PCG's risk profiling process and our principal and emerging risks, please refer to the SORMIC on pages 122 to 136 and Risk Overview on pages 64 to 70 in the Integrated Report.

Additionally, decarbonisation has been identified as an emerging risk, which will be monitored by the Board and the Management. This risk covers disorderly transition to a low carbon and circular economic system due to factors such as lack of policy, economic viability, rise in carbon prices and lack of talent. We foresee that the impact of this risk to PCG may include:

High cost in doing business, which will affect PCG's profitability and viability of new investments

Failure to keep abreast with industry decarbonisation trends, which might result in loss of market share to competitors

Loss of trust from stakeholders, which could lead to potential litigation due to greenwashing

Competing for funds for decarbonisation efforts and new investments

OPPORTUNITIES

Circular economy is increasingly shaping stakeholder expectations. We anticipate that this will affect our business performance, reputation and long-term growth in a positive manner if we are able to harness the opportunities of circular economy at an early stage. We are cognisant of the effects it has on our business model and value chain. This includes promoting better resource stewardship, unlocking more value for business, minimising our carbon footprint and reducing waste to landfill. Among the opportunities are:

Explore new markets and diversify product applications

Explore cutting-edge technologies and drive innovation

Foster a dynamic and inclusive work environment through Diversity & Inclusion (D&I), talent upskilling and reskilling

R For more information on circular economy initiatives, please refer to Circular Economy on pages 46 to 47.

CLIMATE STRATEGY

We consistently review and update our climate-related risks and opportunities to remain relevant and align with the latest climate change information, frameworks and guidelines. The most recent update of our climate change risk assessment was completed in 2023 which include scenario analysis as required by the IFRS S2. The assessment also included the latest climate, energy and economic data released by the Intergovernmental Panel on Climate Change (IPCC) and the International Energy Agency (IEA). The findings of the climate change risk assessment not only informed us of the material climate-related risks and opportunities but also helped us to fine-tune the response measures for managing the identified risks and opportunities. This chapter explains the latest progress and key findings of our climate scenario analysis in 2023.



Mangrove rehabilitation at Tanjung Surat, Johor.

SUSTAINABILITY FRAMEWORK

APPROACH TO CLIMATE CHANGE RISK ASSESSMENT

TIME HORIZONS AND SCENARIOS

We started with determining the time horizons and scenarios to be used for the scenario analysis. The definitions of short, medium, and long term are intricately linked to PCG’s planning horizons for strategic decision-making. Short-term goals are critical for immediate responsiveness, medium-term objectives guide our alignment with industry trends and global targets, while long-term aspirations shape our transformative journey towards sustainability.

SHORT TERM <i>< 3 years, to be achieved by 2026</i>	MEDIUM TERM <i>To be achieved by 2030</i>	LONG TERM <i>To be achieved by 2050</i>
<p>This horizon is crucial for addressing immediate concerns and responding to rapidly evolving factors such as the implementation of the Carbon Border Adjustment Mechanism (CBAM), which may have significant implications to our export to Europe.</p>	<p>This coincides with the mid-term target periods under the Nationally Determined Contributions (NDCs). This timeframe allows PCG to respond to the anticipated peak in global demand for primary fossil fuels. Our strategic planning for this period is aligned with industry trends and NDC goals.</p>	<p>This aligns with our commitment to achieving Net Zero Carbon Emissions (NZCE) by 2050 and allows us to envision and implement comprehensive sustainability and climate risk mitigation measures. It also allows us to transition to a low carbon and sustainable future. Our long-term planning is integral to achieving these ambitious carbon reduction targets and positioning PCG as a leader in sustainable business practices.</p>

We selected the latest Shared Socioeconomic Pathways (SSPs) published by the Intergovernmental Panel on Climate Change (IPCC) for the physical risk assessment. As for the transition risk assessment, we adopted the Announced Pledges Scenario (APS) and the Stated Policies Scenario (STEPS) developed by the IEA in its World Energy Outlook (WEO) 2023. Both risk assessments also include a below 2°C Paris Agreement scenario to help us better understand our risk exposure.

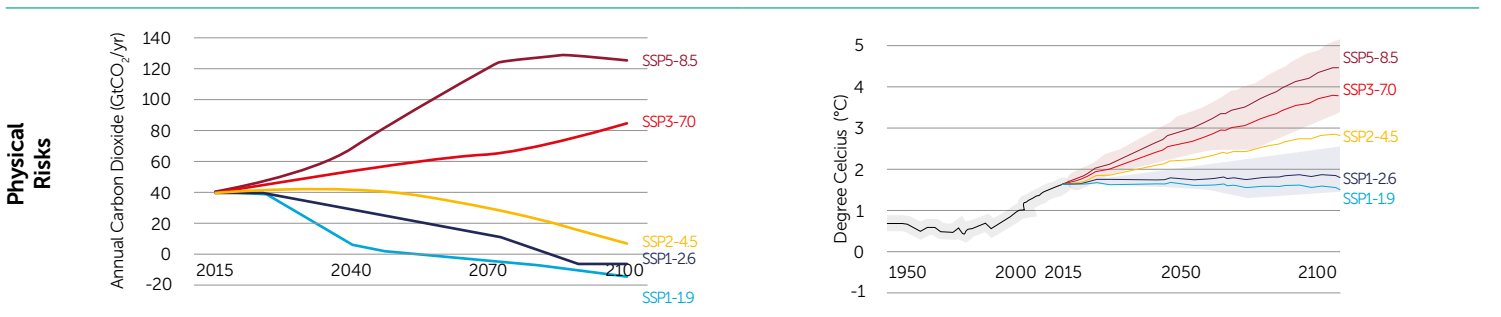
Low-emission scenario <i>(Aligned with the below 2°C Paris Agreement Goal)</i>	High-emission scenario <i>(Business-as-usual without additional mitigation beyond what has been planned)</i>
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SSP1-2.6 is a low emissions scenario that stays below 2°C warming by 2100, aligned to current commitments under the Paris Agreement.

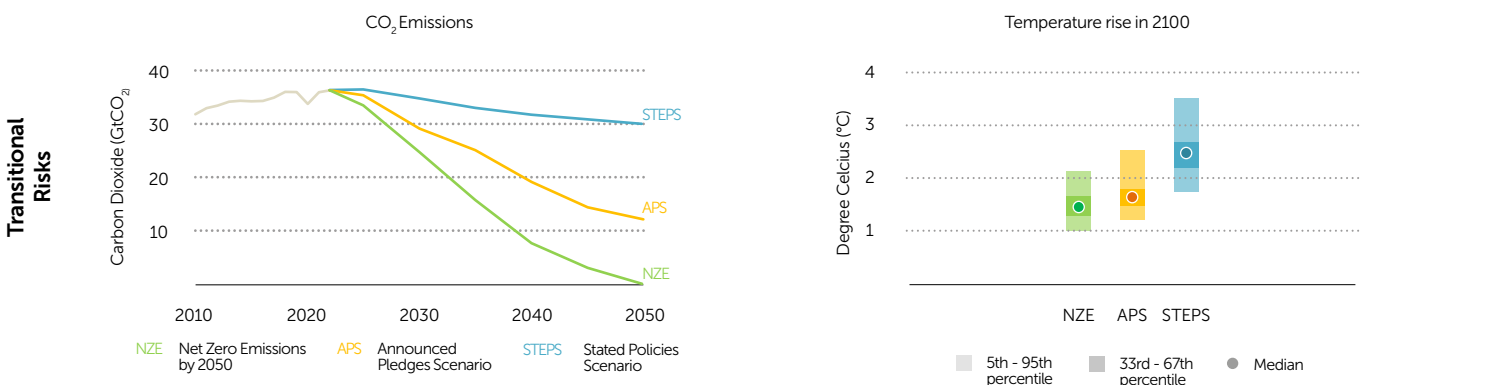
IEA APS (2023) assumes that all climate commitments made by governments, including Nationally Determined Contributions and longer-term net zero targets will be met in full and on time.

SSP5-8.5 is a high emissions scenario, which follows a ‘business-as-usual’ trajectory, assuming no additional climate policy. The selection of this scenario follows TCFD guidance to assess stressed exposure to physical climate change risks.

IEA STEPS (2023) explores existing policies and announced proposed policies. It does not consider additional policy implementation and is most representative of a ‘business-as-usual’ pathway towards 2050.



Source: IPCC ARG WGI Summary for policymakers



Source: IEA (2023), World Energy Outlook 2023, IEA, Paris <https://www.iea.org/reports/world-energy-outlook-2023>

SUSTAINABILITY FRAMEWORK

ASSESSMENT APPROACH

Built upon the previous assessments, we reviewed the latest research papers, industrial publications and climate-related disclosures done by our peers to validate the relevance of our climate-related risks and opportunities. Each risk and opportunity driver was assigned with a scenario indicator, a quantitative metric extracted from the respective database of the external scenarios. We consider how important a factor is for PCG based on how much we expect the indicator assigned to it will change from the baseline situation (present day) to the future scenario. These external inputs, along with PCG's internal assessment of our exposure to each risk and opportunity, allowed us to evaluate and prioritise their significance to PCG's business. This was done by generating categorical risk scores from the assessment.

Once the material risks and opportunities were concluded, we then analysed their implications across PCG's value chain and associated impacts that may affect PCG's financial position. Eventually, the response measures implemented or planned were reviewed against the updated risks and opportunities to identify any gaps that require our attention or areas that need improvement.

CLIMATE-RELATED RISKS AND OPPORTUNITIES AND IMPACTS TO PCG

This section summarises the key findings of the climate change risk assessment in 2023 and associated impacts to PCG. The summary consists of two subsections respectively for physical risks and transition risks and opportunities.

PHYSICAL RISKS

In 2023, we expanded the scope of our physical risk assessment to nine natural hazards, which are related to either acute extreme weather events or a chronic shift in the climate system due to climate change, at our 30 Operating Units (OPUs) at 19 manufacturing sites across the world. The hazards include extreme heat, extreme cold, river flooding, extreme rainfall flooding, coastal flooding, extreme winds and storms, water stress and drought, landslides as well as wildfires.

The assessment results suggested that extreme heat may become our most common concern across most of the sites by 2050. Other hazards that may exhibit a high risk to certain sites include water stress and drought and flooding. On the other hand, extreme cold and landslides will remain at most a low to moderate risk to most sites. Across the 30 OPUs on average, only the risk of extreme heat is expected to increase significantly by 2050 under the high-emission scenario. Water stress and droughts may pose a slightly higher pressure in the future. While other hazards appeared to be of minimal risk to PCG, we are continuously working to review and validate the risks. In the meantime, we have identified and summarised the potential impacts associated with each physical risk.

Summary of the Average Physical Risk Categories to PCG Across 30 Operating Units (OPUs) under Climate Scenarios

Hazard	Baseline	2030		2050	
		SSP1-2.6	SSP5-8.5	SSP1-2.6	SSP5-8.5
Coastal and Offshore	●	●	●	●	●
Extreme Cold	●	●	●	●	●
Extreme Heat	●	●	●	●	●
Extreme Rainfall Flooding	●	●	●	●	●
Extreme Winds and Storms	●	●	●	●	●
Rainfall-Induced Landslides	●	●	●	●	●
River Flooding	●	●	●	●	●
Wildfires	●	●	●	●	●
Water Stress and Droughts	●	●	●	●	●

Legend

Risk score (raw value)	4-10	3-3.99	2-2.99	1-1.99	0-0.99
Risk category	● Very High	● High	● Moderate	● Low	● Limited

SUSTAINABILITY FRAMEWORK

Summary of the Physical Risks and Associated Impacts

Physical Risk

EXTREME HEAT

Category: *Acute or chronic*
Type: *Risk*

Impacted Areas

- PCG operations
- Physical damage
- Health and safety

Potential Financial Impact

CAPEX	↑
OPEX	↑
Revenue	↓

Impact Description

The risk of extreme heat is expected to increase over time at most of our OPUs, given the nature of climate change that is driven by global warming. The impact of extreme heat may include the following:

- Impact on PCG operations:
Energy demand increases; potentially reduced efficiency of heat sensitive equipments
- Impact on physical damage:
A higher chance of causing inadequate heating, ventilation and air conditioning (HVAC), potentially leading to critical control system failure and fire/explosions
- Impact on health and safety:
Heat strokes and dehydration may occur more frequently, particularly during plant turnaround

FLOODING

Category: *Acute*
Type: *Risk*

Impacted Areas

- PCG operations
- Physical damage
- Supply chain
- Health and safety

Potential Financial Impact

CAPEX	↑
OPEX	↑
Revenue	↓

Impact Description

Flooding, caused by different factors (including rise in sea level and high tides, extreme rainfall and river overflow), presents a high and increasing risk to selected OPUs over time under both scenarios. The impact of flooding may include the following:

- Impact on PCG operations:
There could be disruption to plant manning or production planning during flood events or supply chain disruptions
- Impact on physical damage:
Flooding may affect structural integrity of buildings, road access, electric equipments and utilities
- Impact on supply chain:
Road access to the affected assets may be cut off by floods
- Impact on health and safety:
If chemical leakage happens during flood events, it may lead to environmental contamination and human contact with hazardous chemicals

WATER STRESS & DROUGHT

Category: *Acute or chronic*
Type: *Risk*

Impacted Areas

- PCG operations
- Health and safety

Potential Financial Impact

OPEX	↑
Revenue	↓

Impact Description

Risk of water stress and drought is found to be high at several overseas and domestic sites and is expected to remain at a similar level over time under both scenarios. The impact of water stress and drought may include the following:

- Impact on PCG operations:
There could be production delays and downtime as the water available for use reduces. Water cost and competition for water resources may increase
- Impact on health and safety:
Sanitation and hygienic conditions may deteriorate due to water shortage

SUSTAINABILITY FRAMEWORK

EXTREME WINDS & STORMS

Category: Acute
Type: Risk

Impacted Areas

- PCG operations
- Physical damage
- Supply chain
- Health and safety

Potential Financial Impact

CAPEX ↑

OPEX ↑

Revenue ↓

Impact Description

Extreme winds and storms are relevant to most of our Malaysian sites. However, the risk is expected to remain generally low over time under both scenarios. The impact of extreme winds and storms may include the following:

- **Impact on PCG operations:**
There could be forced shutdowns and downtime during storm events or supply chain disruptions
- **Impact on physical damage:**
High-rise structures could be affected due to extreme wind conditions
- **Impact on supply chain:**
Debris and flooding due to extreme winds and storms may block key access routes
- **Impact on health and safety:**
Extreme winds and storms can pose safety concerns. Evacuations may be required

WILDFIRES

Category: Acute
Type: Risk

Impacted Areas

- PCG operations
- Physical damage
- Supply chain
- Health and safety

Potential Financial Impact

CAPEX ↑

OPEX ↑

Revenue ↓

Impact Description

Wildfires present a limited risk at baseline but is likely to intensify over time at several overseas sites under both scenarios. The impact of wildfires may include the following:

- **Impact on PCG operations:**
There could be forced shutdowns and downtime if outdoor activities are affected by dust and smoke. If wildfires directly cause damage to physical structures at the sites, temporary closure for repairs and maintenance may be required
- **Impact on physical damage:**
Direct heat, flames and ignition of flammable chemicals due to wildfires can cause destruction of buildings, equipments and utilities
- **Impact on supply chain:**
Key access routes for site personnel and logistics may be blocked by wildfires or debris
- **Impact on health and safety:**
Heat, potential explosions, flame, smoke and dust particles can pose a threat to health and safety

TRANSITION RISKS AND OPPORTUNITIES

In 2023, we reviewed and reassessed the drivers which may present a risk or opportunity in a low carbon economy to each PCG business segments. A total of 10 drivers were identified for the updated assessment. Using the TCFD terminology, these drivers can be categorised into current and emerging policy and legal frameworks, market, technology and reputation.

SUSTAINABILITY FRAMEWORK

The assessment results suggest that most of the transition drivers will only present a limited risk or opportunity for PCG by 2030. The risk of mandatory carbon pricing may be increased slightly by 2030 but intensified significantly by 2050 as all the countries that PCG operates in will have to impose a much higher carbon price than the current level. The Net Zero Carbon Emissions (NZCE) 2050 technologies for chemical production may become another high-risk driver for PCG by 2050 as we will need to deploy significant fund towards technologies such as Carbon Capture, Utilisation and Storage (CCUS) and electrolytic hydrogen.

On the other hand, we also found that low carbon technologies, such as electric, solar photovoltaics and wind turbines present strong opportunities to grow our business as chemical enablers in technological production. Meanwhile, the increase in demand for bio-based and more efficient products may become a moderate opportunity as the market seeks for more low carbon products.

Summary of the Average Transition Risk/Opportunity Categories to PCG Across Three Business Segments

Transition Driver	Type	If the world transitions from STEPS to APS		
		2026	2030	2050
Mandatory carbon pricing	Risk	●	●	●
Carbon border adjustment mechanism (CBAM) and climate-related trade barriers	Risk	●	●	●
Tightening of hydrocarbon supply and rising competition for alternative feedstocks	Risk	●	●	●
Promotion of circular chemicals production	Opportunity	●	●	●
Increase in demand for bio-based and more efficient products	Opportunity	●	●	●
Chemicals as enablers for low carbon energy technologies	Opportunity	●	●	●
Near zero emission technologies for chemicals production	Risk	●	●	●
Energy efficiency and electrification	Opportunity	●	●	●
Tightened access to capital for carbon intensive activities	Risk	●	●	●
Increasing stakeholder scrutiny over climate disclosures	Risk	<i>This driver was not assessed by an external scenario indicator due to the lack of available data from the IEA. However, PCG considers this driver important to our reputation and thus closely monitors the potential risk associated with stakeholder scrutiny.</i>		
Average risk level for PCG Group				●

Legend

Risk/Opportunity score (raw value)	Larger or smaller than ± 0.25	Between ± 0.15 and ± 0.25	Between ± 0.05 and ± 0.15	Between $+ 0.05$ and $- 0.05$
Risk score (raw value)	● High	● Moderate	● Low	● Limited
Opportunity score (raw value)	● High	● Moderate	● Low	● Limited

The assessment summarised above takes into account both PCG’s internal inputs and external scenario data extracted from reputable organisations such as the IEA, etc. This approach allows the results to be more objective and scientifically based, informing us of the broader contexts (such as global and regional market trends) that may come into play. With these findings, we then reviewed the potential implications and financial impacts of these risks and opportunities to our business, and further refined our strategy to manage the risks and prepare for the opportunities. A summary of the transition risks and opportunities and associated impacts is provided.

SUSTAINABILITY FRAMEWORK

Summary of the Transition Risks and Opportunities and Associated Impacts

TRANSITION RISKS AND OPPORTUNITIES

MANDATORY CARBON PRICING

FOR OUR OVERSEAS ASSETS

Category: *Current regulation/Legal*
Type: *Risk*

Impacted Areas

- PCG operations
- Suppliers
- Customers

Potential Financial Impact

OPEX ↑

FOR OUR DOMESTIC ASSETS

Category: *Emerging regulation/Legal*
Type: *Risk*

Impacted Areas

- PCG operations
- Suppliers
- Customers

Potential Financial Impact

OPEX ↑

Impact Description

Among the countries we operate in, India and Malaysia are considering mandatory carbon pricing to expedite decarbonisation. China will expand its Emissions Trading Scheme (ETS) to the chemical sector, and the European Union (EU) will phase out the allowances under EU ETS by 2030. All these imply a higher OPEX for PCG to pay for the emissions. This carbon pricing risk is expected to remain low by 2030 but may intensify by 2050 as the countries need to significantly increase carbon prices to achieve NDC goals and compliance to policies implemented.

CARBON BORDER ADJUSTMENT MECHANISM (CBAM) AND CLIMATE-RELATED REGULATIONS

Category: *Emerging regulation/Legal*
Type: *Risk*

Impacted Area

- Customers

Potential Financial Impact

OPEX ↑

Impact Description

The Carbon Border Adjustment Mechanism (CBAM), initiated by the EU, will price in embedded emissions of imports not covered by a carbon tax or ETS in the country of origin. Our F&M business will be the first to be affected as fertiliser is among the initial sectors concerned by CBAM. However, our fertiliser products have minimal significance in the EU, and thus the risk is considered limited by 2030. PCG's other segments may be affected later too if CBAM expands its scope, although the risk is expected to remain low by 2050.

TIGHTENING OF HYDROCARBON SUPPLY & RISING COMPETITION FOR ALTERNATIVE FEEDSTOCKS

Category: *Market*
Type: *Risk*

Impacted Area

- Suppliers

Potential Financial Impact

OPEX ↑

Impact Description

IEA WEO2023 estimates that all fossil fuels will peak before 2030. While oil demand for petrochemicals continues to increase through 2050 in the STEPS and more than a fifth of natural gas use in industry goes to the production of fertiliser, the overall tightening of hydrocarbon supply can pose pressure on our feedstock and energy sourcing. To cope with this trend, PCG will have to seek other feedstock options, such as bio-sourced materials. However, this will imply a rising competition for alternative feedstocks as well. This driver is expected to remain limited by 2030 but may intensify by 2050.

SUSTAINABILITY FRAMEWORK

PROMOTION OF CIRCULAR CHEMICALS PRODUCTION

Category: **Market**
Type: **Opportunity**

Impacted Areas	Potential Financial Impact						
<ul style="list-style-type: none"> PCG operations Suppliers Customers 	<table border="1"> <tr> <td>CAPEX</td> <td>↑</td> </tr> <tr> <td>OPEX</td> <td>↕</td> </tr> <tr> <td>Revenue</td> <td>↑</td> </tr> </table>	CAPEX	↑	OPEX	↕	Revenue	↑
CAPEX	↑						
OPEX	↕						
Revenue	↑						

Impact Description

Promotion of circular economy has encouraged a shift in customer preferences towards recycled products. PCG is constructing an advanced chemical recycling plant, targeted to begin operations in 2026. While this will induce significant CAPEX and changing OPEX to our cost structure, we are confident of becoming the regional leader and seizing the opportunity from the growing sales of circular products.

INCREASE IN DEMAND FOR BIO-BASED & MORE EFFICIENT PRODUCTS

Category: **Market**
Type: **Opportunity**

Impacted Areas	Potential Financial Impact						
<ul style="list-style-type: none"> PCG operations Suppliers Customers 	<table border="1"> <tr> <td>CAPEX</td> <td>↑</td> </tr> <tr> <td>OPEX</td> <td>↕</td> </tr> <tr> <td>Revenue</td> <td>↑</td> </tr> </table>	CAPEX	↑	OPEX	↕	Revenue	↑
CAPEX	↑						
OPEX	↕						
Revenue	↑						

Impact Description

IEA's Net Zero Roadmap (2023 update) highlighted the role of more efficient fertilisers in mitigating emissions. In addition, its Bio-based Chemicals Report (2020 update) predicts a strong growth for bio-polymer markets and various applications in specialty chemicals. In response to this trend, PCG has several bio-based chemicals projects, including the Bio-Monoethylene Glycol (Bio-MEG) pilot plant. While this will induce CAPEX and change OPEX of our cost structure, it also implies an opportunity for PCG to continue growing the business in a low carbon world by 2050.

CHEMICALS AS ENABLERS OF SUSTAINABLE ENERGY TECHNOLOGIES

Category: **Market**
Type: **Opportunity**

Impacted Area	Potential Financial Impact		
<ul style="list-style-type: none"> Customers 	<table border="1"> <tr> <td>Revenue</td> <td>↑</td> </tr> </table>	Revenue	↑
Revenue	↑		

Impact Description

Plastics play an indispensable role in the global expansion of electric vehicles. Methanol and ammonia may contribute to energy storage and marine fuel as alternatives to hydrogen. Specialty chemicals also support the manufacturing of solar panels and wind turbines. The growing markets of these low carbon energy technologies are driving the demand for various chemicals, generating additional revenues for PCG. We believe the opportunity from this driver will become high to PCG by 2050.

NEAR ZERO CARBON EMISSION TECHNOLOGIES FOR CHEMICALS PRODUCTION

Category: **Technology**
Type: **Risk**

Impacted Area	Potential Financial Impact				
<ul style="list-style-type: none"> PCG operations 	<table border="1"> <tr> <td>CAPEX</td> <td>↑</td> </tr> <tr> <td>OPEX</td> <td>↕</td> </tr> </table>	CAPEX	↑	OPEX	↕
CAPEX	↑				
OPEX	↕				

Impact Description

The main decarbonisation pathways for the chemical sector are CCUS and the use of electrolytic hydrogen, according to IEA. However, both technologies have not reached commercialisation, especially in Southeast Asia where the policy and legal frameworks and supporting infrastructure are not yet in place. As PCG will have to deploy these technologies for our net zero journey, the associated time-factor and cost implications can be significant, thus the risk is considered high by 2050.

SUSTAINABILITY FRAMEWORK

ENERGY EFFICIENCY AND ELECTRIFICATION

Category: **Technology**
Type: **Opportunity**

Impacted Area	Potential Financial Impact
<ul style="list-style-type: none"> PCG operations 	<div style="background-color: #4CAF50; color: white; padding: 2px; display: inline-block;">CAPEX</div> ↑
	<div style="background-color: #FFC107; color: white; padding: 2px; display: inline-block;">OPEX</div> ↓

Impact Description

Compared to CCUS and electrolytic hydrogen, energy efficiency improvement and electrification are less costly and relatively more mature mitigation measures. The gain from energy savings (OPEX) may outweigh the investment cost (CAPEX) but is expected to remain limited by 2050.

TIGHTENED ACCESS TO CAPITAL FOR CARBON INTENSIVE ACTIVITIES

Category: **Reputation**
Type: **Risk**

Impacted Area	Potential Financial Impact
<ul style="list-style-type: none"> PCG operations 	<div style="background-color: #9C27B0; color: white; padding: 2px; display: inline-block;">Cost of capital</div> ↑

Impact Description

The Securities Commission Malaysia unveiled the Principles-based Sustainable and Responsible Investment Taxonomy for the Malaysian Capital Market (SRI Taxonomy). The EU also has a more detailed EU Taxonomy. These are expected to shift funding away from carbon intensive activities. PCG thus may face tightened access to capital for our hydrocarbon-based production. However, as we have been shifting our focus towards lower-carbon activities, we believe this risk will remain low to PCG by 2050.

INCREASING STAKEHOLDER SCRUTINY OVER CLIMATE DISCLOSURES

Category: **Reputation**
Type: **Risk**

Impacted Areas	Potential Financial Impact
<ul style="list-style-type: none"> PCG operations Customers 	<div style="background-color: #FFC107; color: white; padding: 2px; display: inline-block;">OPEX</div> ↑
	<div style="background-color: #FF9800; color: white; padding: 2px; display: inline-block;">Valuation</div> ↓

Impact Description

Over the past two decades, ESG and climate reporting has increased in transparency and importance. Stakeholder scrutiny has intensified as greenwashing becomes a concern. Companies will have to enhance governance and comply with more stringent reporting obligations which may incur additional OPEX. Failing to do so will then affect the valuation of the company. PCG is actively engages and seeks feedback from stakeholders, particularly on risk/opportunities and material matters.

SUSTAINABILITY FRAMEWORK

RESPONSE MEASURES AGAINST CLIMATE-RELATED RISKS AND OPPORTUNITIES

Having gained further clarity on our risks and opportunities relating to climate change and low carbon economy transition, we have reviewed and enhanced the implementation of response measures to improve our resilience against those risks while preparing ourselves for the opportunities.

PHYSICAL RISKS

Embedding the effects of climate change in our Hazard and Effect Management Processes (HEMP)

We recognise climate change as an overarching risk to our business continuity, and therefore progressively review the adequacy of our climate-related safeguards and mitigations within our HEMP, emergency response and business continuity plan. Through our HEMP, we regularly conduct facilities risk assessments which encompass other extreme weather events such as extreme heat, lightning and rising sea levels. The paragraphs below highlight our dedicated efforts in managing the most material physical risks identified.

Managing water stress through environmental stewardship

Water is crucial to PCG's operations. To further understand the potential impact of the changes in freshwater availability, PCG conducted detailed water availability projection exercise to assess future freshwater availability against project demand between 2021 to 2050. We continue to drive water use efficiency and seek alternate sources of water within regions we operate that are water stressed.

R For more information on our efforts, please refer to Environmental Stewardship on pages 60 to 65.

Strengthening our resilience to flooding via enhanced collaboration and preparedness

We have collaborated with the Malaysian Meteorological Department to keep abreast the weather forecast of areas where we operate. We have established a Flood Operation Committee to ensure business continuity and provide necessary assistance to the affected employees. We are also part of the Natural Disaster Operation Committee of the East Coast region. The integrated committee handles crises in the East Coast caused by natural disasters, including floods.

To this end, we have established flood preparedness and monitoring, and collaborated with our logistics service provider to find alternative routes to deliver our products to customers. This also includes fatigue management and vehicle fitness to ensure the safety of our people.

Implementing Safe Work Practices to reduce health and safety impacts from heat stress

Global warming will lead to more extreme and frequent temperature rise events. We apply a high standard consistent with the PETRONAS Group for managing the risk of heat stress to our staff who are exposed to increasing temperatures during outdoor activities.

The Guidelines on Safe Work Practices for working in the heat are put in place to ensure the safety of our employees while sustaining the operations. Our Safe Work Practices include rotating tasks and jobs, optimising work schedule and implementing frequent rest and water breaks, especially if heavy work is involved.

In addition, we are exploring to leverage advanced technology such as drones and robots for autonomous surveillance and inspection, e.g. drone surveillance can reduce prolonged exposure to the heat.

SUSTAINABILITY FRAMEWORK

TRANSITION RISKS AND OPPORTUNITIES

Developing business strategy and financial resilience to carbon pricing risk

Having established PCG's Net Zero Carbon Emissions (NZCE) 2050 Roadmap in 2021, we are now implementing emission reduction initiatives through flare reduction, energy efficiency improvement and renewable energy purchase.

We have assessed the carbon footprint of our products to identify hotspots and better enable us to prepare for assessment and mitigation of the carbon pricing impact on our product portfolio. We have also scrutinised the carbon emissions of our growth plans and identified opportunities and pathways to reduce GHG emissions.

R For more information on our approach and efforts, please refer to *Climate Change* on pages 56 to 59.

Growing our business with circular economy and bioeconomy

To benefit from the opportunities presented by circular products, our growth strategy involves the adoption of a circular economy into our sustainable portfolio. We have progressed in the New Plastics Economy (NPE) strategy through the Final Investment Decision (FID) to construct an advanced chemical recycling plant in Pengerang, Johor. The plant will benefit Malaysia's plastics value chain beyond closing the loop of the plastics life cycle by creating an ecosystem that promotes the transition to a circular economy. We collaborated with feedstock suppliers and pre-treatment tollers, accelerated the development of innovative waste recovery and segregation technology and infrastructure in support of the plant, but most importantly, it will effectively address plastic pollution.

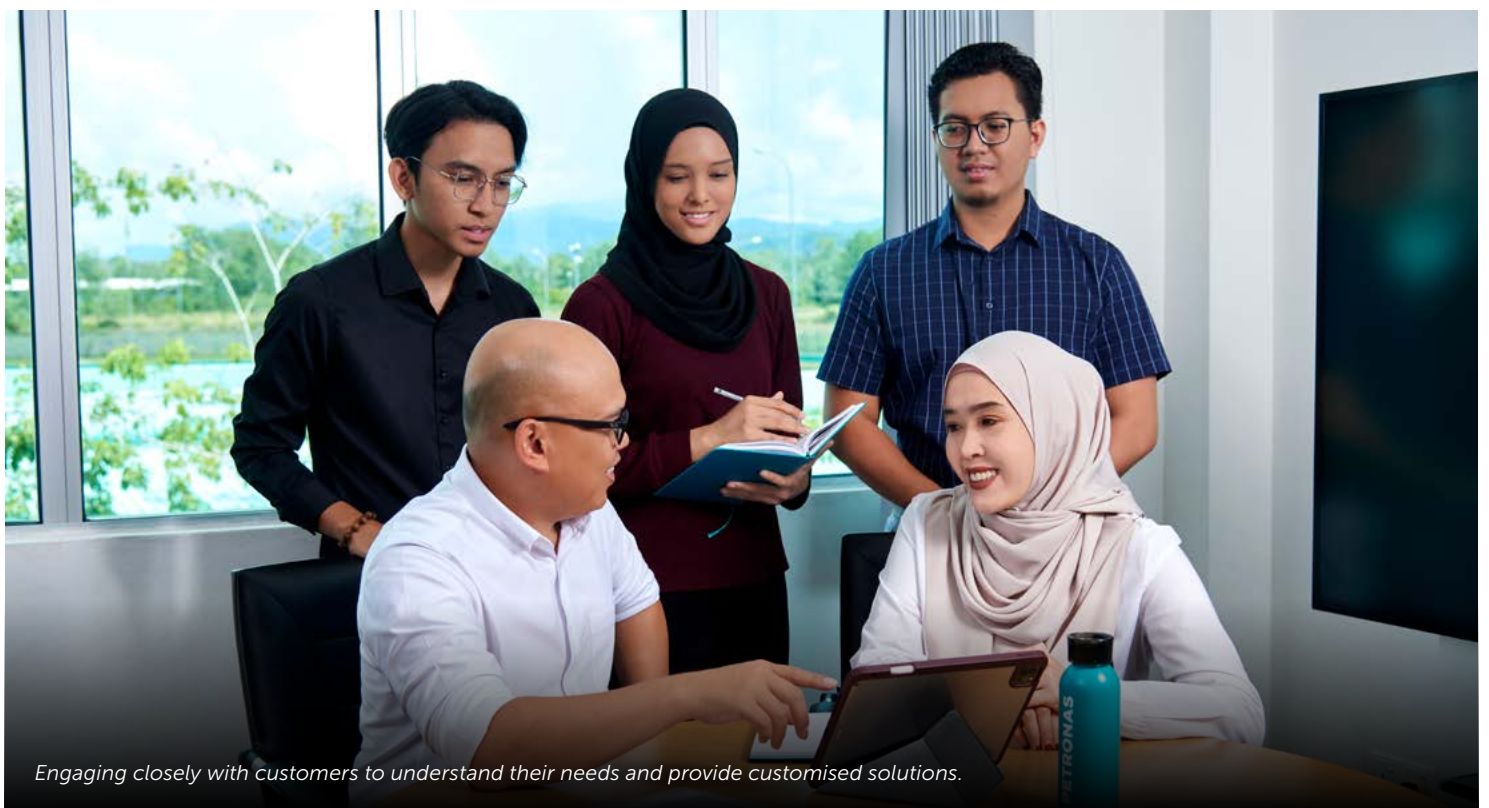
In addition, we believe that bioeconomy plays an important role in supporting the world's decarbonisation journey and we are establishing a bio-based portfolio for example emollient esterification capability via a pilot plant-simulator reactor. With this facility, we can start developing new formulations and expand PCG's offering in the bio-based personal care space.

R For more information on our approach and efforts, please refer to *Circular Economy* on pages 46 to 47 and the *Business Strategy & Financial Resilience* on pages 44 to 45.

Meeting the market demand through innovation and product stewardship

Finally, seeing the market demand for chemicals that enable the low carbon transition, we are growing our sustainable product offerings through product R&D and co-creation with customers. Our specialty chemicals adopt a Finite Material Neutral approach in developing ISCC PLUS certified products that support customer demands for sustainable products. To ensure sustainable growth of our business, PCG continues to actively conduct assessments and venture capital investments of various opportunities to diversify feedstock for a sustainable portfolio and create optionality for growth through Research and Technology (R&T), which among others, looks at converting biomass into differentiated value-added chemicals.

R For more information, please refer to *Innovation & Product Stewardship* on pages 40 to 43.



Engaging closely with customers to understand their needs and provide customised solutions.

SUSTAINABILITY FRAMEWORK

RISK MANAGEMENT

We have embedded effective risk management processes across our business and throughout the value chain by including risks and opportunities related to sustainability and climate change, as these are fundamental to business resilience and stakeholder trust. We identify, assess, prioritise and monitor all risks that could impact our business, including inherent risks. This process remains the same as the process used in our previous reporting period.

R For more information on our risk management framework, please refer to Statement on Risk Management and Internal Control (SORMIC) on pages 122 to 136 in PCG's Integrated Report.

SUSTAINABILITY RISK MANAGEMENT

Sustainability risks are integrated into our overall risk management process, which includes identification, assessment, prioritisation and monitoring mechanisms. This allows us to identify and prioritised key risks based on the following considerations:

The complexity, hazards and integrated nature of our manufacturing process

The market environment and cyclical nature of the chemicals industry

Material sustainability topics identified by stakeholders through the materiality assessment

PCG's growth agenda

Other external events that pose a significant impact on our business sustainability

We assess whether a risk poses a substantive financial or strategic impact on PCG's business operations by evaluating the likelihood and impact of each risk. The impact of a risk is measured against qualitative and quantitative measurements, whereby a risk is considered substantive when there is a reduction of more than 8% in Profit Before Tax (PBT) and requires intervention from the MD/CEO and/or Board of Directors. The assessment helps us to determine the level of each risk, whether it is low, medium, high or very high. The identified risks, including sustainability risk, are mapped onto PCG's Corporate Risk Profile (CRP), which is presented to the Board and BSRC, on a quarterly basis.

The risk assessment is supported by our risk appetite and determines our risk response. This includes risk management controls and procedures such as:

Mitigating or reducing the risk with appropriate controls and mitigation plans

Accepting the risk without any further action

Transferring the risk

Avoiding or forgoing the activity that gives rise to the risk

Sustainability risk has been identified as as a high risk comparable to Project Execution, Health, Safety and Environment, Strategic Investment, and Cybersecurity.

R For more information on principal risks and risk movement matrix, please refer to pages 64 to 70 in the Integrated Report.

R For more information on risk management process in the SORMIC, please refer to page 125 in the Integrated Report.

SUSTAINABILITY FRAMEWORK

CLIMATE RISK MANAGEMENT

As climate change is universal, we have adopted a holistic approach to manage climate-related risks and their interrelations with our strategy. Physical and transition risks are proactively and regularly assessed using the scenario analysis as stated below:

STEP 1 The range of climate scenarios is defined and the climate-related risk and opportunity drivers that are relevant to the business are identified.

STEP 2

- In line with PCG's Enterprise Risk Management framework, an internal evaluation of likelihood and impact from all risk and opportunity drivers is conducted based on risk appetite. This is then mapped into the Corporate Risk Profile (CRP)
- A qualitative scenario analysis is further conducted by integrating the external scenario data from organisations such as the Intergovernmental Panel on Climate Change and International Energy Agency. These organisations have developed the most advanced and established climate and energy models that explore the plausible future of our changing climate and economy
- A scenario indicator (or proxy) is identified from the external datasets for each risk and opportunity driver. It indicates the changing pressure from these climate-related risks and opportunities in the future. This technique strengthens the robustness and objectiveness of our risk assessment. Based on the qualitative findings, a more detailed quantitative impact analysis using the financial modeling technique is then conducted for selected drivers which are identified as potentially material to PCG's business
- A risk will be considered substantive if the expected impact exceeds a reduction of more than 8% in Profit Before Tax (PBT). This requires intervention from the MD/CEO and/or Board of Directors, enabling us to prioritise climate-related risks and opportunities based on their potential significance to our business sustainability

STEP 3 Strategic response measures are identified and developed to enhance our resilience to the material risks and amplify our capabilities to seize opportunities.

STEP 4 The climate-related risk management steps outlined above are reviewed on an annual basis to include the latest information and monitoring mechanisms.

SUSTAINABILITY FRAMEWORK

METRICS AND TARGETS

We apply specific metrics to measure the impact of our sustainability and climate-related material matters. These metrics also guide our climate mitigation and management strategies.

The basis of selection for the metrics used is in line with Bursa Malaysia's Sustainability Reporting Guide (3rd Edition) and the relevant GRI Topic Standards. We utilise definitions from PETRONAS Technical Standards and internal procedures, as well as internationally recognised standards when there were no applicable GRI standards listed for specific material matters.

In the year under review, we restated our base year emissions due to the acquisition of Perstorp in October 2022. The recalculation complied with the GHG Protocol's Corporate Accounting and Reporting Standard. Following the restatement, we are reviewing our short term targets and will consider the changes in PCG's business and operating environment resulting from the acquisition.

R For more information on Metrics and Targets, refer to Basis of This Report on pages 2 to 3, Performance Data on pages 86 to 87, and GRI Content Index on pages 88 to 92.

R For more information on calculation methodology and standards used, refer to Sustainability Policies, Standards and Guidelines on pages 16 to 17.



MATERIAL TOPICS SUMMARY

In order to aid better understanding of our material matters, we have mapped them based on their impacts to PCG and our stakeholders, identified opportunities and PCG's response to each material matter.

	IMPACT TO PCG	IMPACT TO STAKEHOLDERS	OPPORTUNITIES	
ECONOMIC	INNOVATION & PRODUCT STEWARDSHIP	Maintaining PCG's competitive edge fosters meaningful relationships with customers, thereby retaining customer loyalty. We will be able to deliver customer-centric solutions, enhance competitiveness and advanced products that are sustainable, meeting safety regulations.	Addressing customer needs and pain points through products that are innovative, safe and sustainable will enable customers to grow their business while advancing their sustainability journeys.	<ul style="list-style-type: none"> Expanding our sustainable product line to enable both PCG and our customers to attract new markets, propel innovations and build business resilience Forming common-objective alliances with customers, vendors and other stakeholders Strategically position innovation labs for better customer access
	SUPPLY CHAIN MANAGEMENT	Thriving business opportunities, strengthening connections to build trust and confidence among stakeholders elevate supply reliability, enhancing our capabilities while minimising risks.	Effective supply chain management creates a resilient network, meeting stakeholder demands for quality, reliability and sustainability. By integrating Environmental, Social and Governance (ESG) elements into procurement, we support stakeholders in managing environmental and social risks, fostering transparency and collaboration.	<ul style="list-style-type: none"> Building strong partnerships with suppliers and vendors to enhance downstream supply and increase productivity Suppliers and vendors with the expertise and skills will contribute towards a high HSE performance Incorporating ESG elements into suppliers screening and selection
	BUSINESS STRATEGY & FINANCIAL RESILIENCE	Enabling sustainable growth and operational excellence while minimising operational disruptions and increase competitive advantage, leading to financial stability and greater value creation.	Our Two-Pronged Strategy supported by EESG pillars ensures long-term benefit and increases confidence of investors by fortifying operational excellence, growing our specialty chemicals portfolio, strengthening sustainable investment opportunities aimed at mitigating increased risks and costs.	<ul style="list-style-type: none"> Strengthening our strategies and finances to increase our stakeholders' trust in us Having strong business fundamentals is key to attracting investment and funding for projects Achieving operational excellence through digitalisation and solid partnerships with feedstock, utilities and chemical suppliers, as well as resolving issues to improve plant reliability
	CYBERSECURITY & DIGITALISATION	Strengthening business growth and investor confidence while building stakeholder trust will protect the Company's reputation while reducing exposure to cyber risks, which could lead to legal consequences.	Stakeholders' confidence are elevated through PCG's pursuit of robust integrated digitalisation, resilient cybersecurity commitments and investment in digital infrastructure, to protect our reputation and reduce exposure to cyber risks.	<ul style="list-style-type: none"> Providing cybersecurity assurance of a secure and sustainable business environment to nurture stakeholders' trust Digitalisation enables better control and management, thus improving quality of services and deliverables



MATERIAL TOPICS SUMMARY

STAKEHOLDER GROUPS AFFECTED

PCG'S RESPONSE TO THE MATTER

SDGs



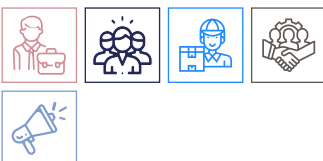
- Driving research and development into innovative and sustainable product development
- Expanding global network of innovation labs to co-create and tailor solutions to customers
- Pursuing extended producer responsibility and adopting a life-cycle view in product development and risk management



- Incorporating ESG criteria into supplier screening and selection
- Undertaking supplier engagement and assessment on ESG risk and compliance
- Supporting supplier capability development and industry collaboration towards a sustainable supply chain



- Driving the execution of our Two-Pronged Strategy via three strategic thrusts and integrating EESG components into our growth levers
- Prioritising projects that offer strategic benefits as well as immediate positive value impact, and identifying sustainable technology to facilitate portfolio expansion in sustainable products
- Enhancing reliability programmes through identification of plant threats, aligning Asset Life Study (ALS) results with maintenance strategies and executing reliability projects, bolstered by digital solutions across the Group's operations
- Aligning operations by establishing various platforms where all stakeholders at every level can convene, collaborate and synchronise their activities across the value chain, thereby mitigating the impacts of external challenges on plant operations



- Adoption of Secure by Design approach for all digital projects to mitigate implementation risks
- Driving compliance towards Enterprise Cyber Security Governance Framework through awareness building and periodic audits/tests (Human Firewall)
- Enabling full utilisation and system-wide assurance by identifying suitable digital tools via Cybersecurity Business Impact Assessment (BIA) and Legal & Regulatory Assessment (CSBIA-LRA), Third Party Assurance, Cybersecurity Business Risk Assessment (CSBRA) and by decommissioning legacy systems



MATERIAL TOPICS SUMMARY

		IMPACT TO PCG	IMPACT TO STAKEHOLDERS	OPPORTUNITIES
<p>ECONOMIC</p> <p>ENVIRONMENTAL</p> <p>SOCIAL</p>	CIRCULAR ECONOMY	Enabling PCG to take the leading position in advancing circular economy within the industry while mitigating the environmental and social impacts derived from PCG's products will reduce impacts to our reputation and spur business sustainability.	Our customers can benefit from improved product quality, satisfaction and access to sustainable options. Moreover, regulatory compliance is facilitated, aiding in the achievement of environmental goals. The circular economy creates job opportunities, promotes inclusivity and aligns economic activities with environmental and social objectives, fostering a more sustainable and resilient future.	<ul style="list-style-type: none"> • Converting plastic wastes into circular feedstock to improve our resources and create new business opportunities • Enables PCG to develop other new opportunities in circular carbon and bio-solutions as viable alternatives to fossil-based products • Positions PCG at the forefront of Malaysia's circular economy
	CLIMATE CHANGE	Reducing the Company's carbon footprint and strengthening our climate resilience will minimise climate risks that can impact our business and financial stability.	Transitioning towards low carbon solutions and managing the carbon footprint will bring long-term benefits to stakeholders, unearth growth opportunities for low-emissions products and services, while preserving our planet.	<ul style="list-style-type: none"> • Transitioning towards low carbon solutions market to allow us to meet future demands • Improving our energy efficiency to ensure better performance and cost savings • Enables PCG to continue delivering products and solutions that have low or no impact to the environment
	ENVIRONMENTAL STEWARDSHIP	Reducing PCG's environmental footprint will prevent financial loss, regulatory fines, disruptions in operations and reputational damage.	Ensuring continued availability of natural resources, safe and healthy environment for the communities and future generations.	<ul style="list-style-type: none"> • Avoiding, minimising, restoring and offsetting impacts to biodiversity • Reducing waste and managing our resources to reduce operational costs and dependencies on shared resources with community • Environmental initiatives to draw interest from investors and provide more avenues for capital
	SAFETY & HEALTH	Ensuring human capital is protected while boosting employee morale and productivity will minimise regulatory, legal and reputational risks and reduce operational costs due to workplace accidents and injuries.	Strengthen investors' confidence and sustain the trust factors among stakeholders by creating a healthy and safe work environment at all operational sites for our employees and workers, and the local communities we operate.	<ul style="list-style-type: none"> • Prioritising health and safety to attract and retain top talents in the industry • Create a profile that reflects high integrity, performance and value • Creating a safe environment by reducing workplace incidents, improving overall productivity

Key Stakeholder Groups



Employees



Customers



Suppliers & Vendors



Business Partners

MATERIAL TOPICS SUMMARY

STAKEHOLDER GROUPS AFFECTED

PCG'S RESPONSE TO THE MATTER

SDGs



- Achieved Final Investment Decision (FID) to chemically recycle plastic wastes to produce feedstocks for sustainable plastics
- Establishing strategic collaborations with waste concessionaires and technology providers to transform the landscape of plastic recycling ecosystem in Malaysia
- Advanced other circular solution projects and implemented circular operations particularly in water recovery and waste reduction initiatives



- Ensuring our climate-related risks and opportunities are well-managed through effective implementation of climate-related initiatives including, but not limited to, driving GHG emissions reduction across all assets via implementation of PCG's Net Zero Carbon Emissions (NZCE) Roadmap



- Driving responsible use of water and hazardous waste management by adopting a circular approach within our operations
- Undertaking a Biodiversity & Ecosystem Service (BES) risk profiling process to identify biodiversity and ecosystem services risks



- Inculcating a culture of HSE excellence by enforcing a robust HSE framework
- Ensuring we reach our HSE goals through programmes such as Felt Leadership, Focused Learning (Learning from Incidents) and Balance of Consequence
- Improving our HSE practices via the Mandatory Control Framework



MATERIAL TOPICS SUMMARY

	IMPACT TO PCG	IMPACT TO STAKEHOLDERS	OPPORTUNITIES	
SOCIAL	COMMUNITY ENGAGEMENT	Constant engagement with the local community provides knowledge and insights to support informed decisions that benefit all stakeholders, upholding PCG's reputation as a reasonable and caring organisation.	Enable PCG to address diverse community needs as part of our corporate duty to contribute to society, nurturing trust and promoting community well-being.	<ul style="list-style-type: none"> Build strong relationship with local communities, fostering goodwill and trust that can lead to increase brand loyalty Create positive social impact within the community that we operate
	TALENT MANAGEMENT & WELL-BEING	Boosting employee morale and productivity while ensuring right manning level, robust succession planning, and development capabilities.	A high performance workplace will enable PCG to deliver long-term value to investors and stakeholders, and create a positive workplace culture for employees.	<ul style="list-style-type: none"> Developing future-ready talents with agile and innovative mindsets
	HUMAN RIGHTS	Enhance PCG's reputation, employee morale and productivity while mitigating regulatory, legal and reputational risks.	Respecting human rights will boost working conditions and livelihoods of people and communities interacting with and reliant on PCG's business.	<ul style="list-style-type: none"> Protecting the rights of those we employ to draw top quality talents Enforcing human rights practices to emphasise our role as a responsible corporate citizen Cultivating an inclusive and positive work culture to create a more agile and creative work environment that delivers superior results
GOVERNANCE	CORPORATE GOVERNANCE	Enabling strong and effective corporate governance which is embedded in our operations to fortify credibility and trust while minimising risks to protect our stakeholders' interests and prioritise long-term value creation.	Employing good governance builds credibility among stakeholders and fosters trust while improve risks management credibility, strengthening stakeholders' interests in our organisation.	<ul style="list-style-type: none"> Business transparency to enable us to execute business plans and strategies efficiently Practising good governance to instil a high-performance work culture

R For more information on Stakeholder Engagement, please refer to pages 45 to 48 in the Integrated Report.

R For more information on SDG Targets Alignment, please refer to pages 100 to 101.

Key Stakeholder Groups



Employees



Customers



Suppliers & Vendors



Business Partners

MATERIAL TOPICS SUMMARY

STAKEHOLDER GROUPS AFFECTED

PCG'S RESPONSE TO THE MATTER

SDGs



- Supporting communities through the three focus areas of the PCG Social Impact Strategy, namely Environment, Education and Community Well-Being and Development



- Implementing robust succession planning and accelerating efforts to recruit talents with niche competencies to support our operations and propel growth
- Investing in capability development for employees with relevant technical and soft skills through integrated development to deliver business results
- Providing employees with benefits and frequent engagement to keep employees motivated and connected



- Embedding the PETRONAS' Human Rights Commitment, as underscored by the UN's Guiding Principles on Business and Human Rights, within contracts and agreements
- Driving awareness and capability building on human rights management among employees and contractors
- Monitoring the implementation of the Diversity & Inclusion framework against targets to promote a more inclusive and equitable society



- Ensuring that our operations comply with the Malaysian Code on Corporate Governance (MCCG) and other regulations relevant in markets where we operate
- Increasing the diversity and representation of the Independent Directors of the Board
- Ensuring our compliance to PETRONAS' Code of Conduct and Business Ethics (CoBE) and reinforcing CoBE through regular training



INNOVATION & PRODUCT STEWARDSHIP

WHY IT MATTERS

As an integrated chemicals company, we recognise the pivotal role of chemical products in supporting our lifestyle and serving as catalysts for the energy transition. Our in-depth understanding of product chemistry and application technology drives us to innovate, unlocking the full potential of chemicals in solving sustainable challenges. Likewise, innovation is integral to producing safer and sustainable products to reduce the impact on the environment.

We focus on continuous innovation as this enables us to address customer needs, a key component of good Customer Relationship Management (CRM). This strengthens our competitive advantages and reinforces our vision to be "The Preferred Chemical Company Providing Innovative Customer Solutions". This is why we continue to accelerate innovation pipelines, leveraging on a broad range of technologies to co-create high-performance solutions across our value chain.

We recognise that the future generation is dependent on our actions today. This is why we place a key emphasis on strong product stewardship that goes beyond regulatory compliance. Amidst the increasingly complex product regulatory landscape, adopting a life-cycle on product design and development allows us to prioritise the creation of safe and sustainable products, effectively managing product risk and regulatory compliance across the value chain.

KEY HIGHLIGHT

CIRCULAR CARBON - CARBON DIOXIDE (CO₂) UTILISATION

Perstorp initiated Project Air, an ongoing feasibility study that focuses on the utilisation of recovered CO₂ together with biogas and green hydrogen to produce sustainable methanol.

Perstorp secured funding of EUR 97 million from the European Union Innovation Fund to construct the first-of-a-kind, large-scale production facility.

This could potentially reduce carbon dioxide emissions by up to 500,000 tonnes per year.



PCG researchers are constantly exploring ways to develop and enhance products, driven by innovation and sustainability.

OUR APPROACH

We remain dedicated towards innovating products and solutions from the customers lens to address customers' pain-points and support their business needs. Driven by our Two-Pronged Strategy, we emphasise creating market-focused solutions that are resilient to changing trends. Our strong product research and development allows us to create application technology and deliver high-value product applications that minimise our impact on the environment.

In addition, our specialty chemicals' business and sustainability goals hinge on robust innovation across various functions. From application teams tackling customer needs to Intellectual Property (IP) teams protecting breakthroughs, as well as technology scouting to unlock new solutions, we strive to ensure we can stay ahead of the curve to deliver sustainable solutions that meet market requirements. We are also embarking on a new initiative to establish an innovative hub in Malaysia that will provide the right tools and environment to integrate future capabilities and foster new development.

Driven by a strong commitment to sustainability, we are unlocking our aims to eliminate the use of finite resources via a Finite Material Neutral initiative through Perstorp. This entails a comprehensive transition from virgin fossil raw materials and energy to renewable, recycled, or reclaimed alternatives at all Perstorp's production sites. To achieve this ambitious goal, the key areas of focus include sourcing 100% renewable,

INNOVATION & PRODUCT STEWARDSHIP

recycled, or reclaimed materials, improving energy efficiency with renewable sources, minimising water footprint and implementing waste reduction and recycling measures, besides using reclaimed or recycled catalysts. This holistic approach demonstrates our initial steps toward a cleaner future and responsible resource management.

Central to our innovation and product stewardship is our commitment to improve safety and sustainability. We are a signatory of Responsible Care®, which reaffirms our commitment to the safe management of chemicals throughout their lifecycle. As part of our goal to deliver safer and more sustainable products, we conduct systematic reviews on existing and upcoming products to optimise benefits to customers and stakeholders while lowering health and environment impact. We assess raw materials for potentially hazardous substances, prioritise design criteria and identify opportunities to improve product safety and sustainability across the product value chain.

Emphasis is also placed on fulfilling regulatory requirements throughout our value chain. Internally, we are governed by clear work processes that promote continuous improvements to stay competitive, agile and resilient, while also adhering to existing laws, regulations and guidelines in the regions where we operate. We proactively monitor national and regional statutory chemical-related regulations, including legislative developments, to help us meet and go beyond regulatory compliance needs to enable us to continue serving customers with quality products. This means working closely with regulators to build mutual understanding as well as business continuity for our business entities and customers.

PROGRESS AND IMPACT

INNOVATION

SUSTAINABLE PRODUCT DEVELOPMENT

- Developed 20 new products for customer demand and market needs, which include:
 - Perstorp made a significant stride towards sustainability with six new pro-environmental products designed to reduce the carbon footprint and supports sustainable sourcing of renewable raw material
 - BRB continued to vary their product offerings and has launched 11 new products to serve different end markets
 - PCML commercialised and enhanced products, Ethonas SF401, an engineered spacer fluid in oil-based mud drilling activities that enhances wettability and is environmentally friendly and cost-effective. Ethonas SF401 is classified as readily biodegradable and non-toxic to aquatic microorganism product
- Advanced key growth and innovation projects geared towards sustainability value creation, i.e.
 - Achieved Final Investment Decision (FID) to build an advanced chemical recycling plant to produce feedstocks for sustainable plastics
 - Achieved key milestones in our research and technology into the development of bio-based products
 - Progressed feasibility study into the production of sustainable methanol via Project Air
- Expanded the innovation ecosystem across PCG, i.e.
 - Embarked on the establishment of an advanced innovation hub for specialty chemicals in Malaysia
 - Received the International Sustainability and Carbon Certification (ISCC PLUS) Trader scope that allows PCG to trade any sustainable products (bio, circular or renewables), as a step towards creating new growth opportunities for our commodity portfolio
 - Expanded Perstorp's ISCC PLUS footprint; ISCC PLUS certification was conducted at site Sayakha, and Perstorp Japan and Toledo as traders with storage
 - Undertook, via Perstorp, eight new trademarks and 12 new patent applications
- Conducted detailed LCA studies to establish the product's carbon footprint via the cradle-to-gate approach, which enabled us to determine methods to further reduce carbon emission impact
- Adhered to safer chemical principles throughout the product lifecycle by conducting detailed review to reduce or avoid the use of Chemicals of Concern (CoC), minimising our impact on human health and the environment

INNOVATION & PRODUCT STEWARDSHIP

PROGRESS AND IMPACT (CONTINUED)

CUSTOMER RELATIONSHIP MANAGEMENT

- Remained responsive to customer feedback, ensuring positive customer experiences
 - Continued to execute effective customer engagement by improving responsiveness to customer requests, as well as increase our product and application knowledge based on key learnings from the previous Customer Satisfaction Survey (CSS) in business and sales support
 - Introduced Customer Portal to pilot customers for trial implementation
 - Conducted regular technical exchanges with associates and customers to impart knowledge and guidance on our products and applications to maximise customer benefits
 - Provided 249 technical solutions for commodities segment customers, covering home care, industrial, institutional cleaning and packaging
- Addressed customer complaints
 - for example, address seal failure at the customer warehouse which caused product spillage. Replaced the sealing bar at the bagging operation to prevent recurrence

R For more information on Customer Portal, please refer to page 54.

REGULATORY COMPLIANCE

- Carried out rigorous screenings of our product portfolio via regular risk reviews to identify the presence of substances of concern/very high concern and necessary mitigations on identified products
- Continuously monitored legislative developments and regulatory lists such as Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), Rotterdam Convention Annex III list (Prior Informed Consent Substances), California Proposition list as well as other emerging regulations to ensure our products complied with the local regulatory requirements in the markets we serve
- Implemented third-party contractor assessments at three contractor locations to ensure alignment with PCG's HSE assessments and product safety
- Continuously performed hazard assessments to ensure accurate representation of existing information, identify areas for improvement and eliminate hazard concerns
- Conducted assessments on all Dangerous Goods Activity to ensure compliance to all local and international regulations



A FELT Leadership Engagement session on regulatory compliance.

PRODUCT STEWARDSHIP

- We remain committed to shared responsibility in ensuring the safe handling of chemical materials throughout our value chain
- Continuously engaged with our stakeholders to address concerns and improve understanding on product safety and risk management issues, working in collaboration with relevant industries, communities, government, special interest groups and multiple chemical industry trade associations
- Established a global emergency response number, supported by a leading international service provider, with expertise in local languages to ensure relevant support is provided
- Addressed specific requirements by port authorities in China, requiring additional classification and pictograms for a certain substance which is not in harmony with worldwide Globally Harmonised System of Classification and Labelling of Chemicals (GHS). This is done to prevent any disruption to customers
- Continued to support the use of GHS hazard classification to meet the various requirements of every country that adopts this system to ensure legal compliance
- Provided accurate product safety information on product hazards and risk mitigation and published our safety data sheets (SDS) at <https://sds.petronas.com.my> for ease of access by our customers and the general public

INNOVATION & PRODUCT STEWARDSHIP

OUR ACHIEVEMENTS



Held **14 product stewardship seminars and technical seminars**, attended by **981 people** from four countries for commodities business



Perstorp held **8 trade shows, technical conferences, and customer events and 7 webinars and white paper presentations** that reached **more than 2,500** people globally

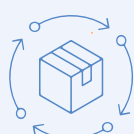


258 substances were ranked based on PCG's newly developed substance portfolio prioritisation tool



20 new/enhanced products developed in 2023, such as:

- Eviron™ T100, Neeture™ N100, Valeric acid, Pro 100, 2-EHA Pro 100, 2-EH Pro 100 and Nbal Pro 25 are recent additions to Perstorp's Pro-Environment portfolio has 100% renewable content achieved through traceable mass balance
- BRB Products include:
 - Akasil Antifoam SD 10, Akasil Antifoam SD 20, Akasil Antifoam SD 30 and BRB Sempure 357N for food application
 - BRB SG 270 for cosmetic application, CSL 463, CSL 464 for paint & coatings application
 - Petrolad 7078, Petrolad 9330, Petrolad 8830, Viscotech 6073LR for automotive application



We completed **LCA for all key products** produced in Malaysia



Delivered **22** co-created solutions, which include:

- Development of heavy-duty liquid detergent with 70% high Renewable Carbon Index (RCI) for alternative green-based industrial cleaning solutions, e.g. hospitals, hotels, and others
- Development of green-based wetting agent for textile cleaning with RCI 75%
- Qualifying LL0209AP for medium to heavy duty stretch film which requires a strong holding force with sharp protruded corners/edges for industrial packaging
- Qualifying AMT9255F for blown film in different Blow Up Ratio (BUR) and at various formulations across machine capacity

R Read more on Segmental Review on pages 22 to 31 and Commercial Excellence on pages 56 to 58 in the Integrated Report.

Innovation and Product Stewardship	2021	2022	2023
Number of new/enhanced products	16	15	20
Number of co-created application solutions*	16	12	22
Number of technical solutions*	301	283	249
Number of product stewardship and technical seminars*	12	13	14
Customer Feedback	2021	2022	2023
Customer satisfaction survey* (score)	3.5	3.5	3.5
Customer feedback (no. of complaints)*	23	9	25
Product Delivery to Customers	2021	2022	2023
Order Fulfilment Reliability (OFR) (%)*	87	95	95
Total Vehicle Accident Rate (TVAR)*	0.20	0.08	0.08

* Commodity business. Efforts ongoing to streamline the calculation methodology for remaining performers indicators.

BUSINESS STRATEGY & FINANCIAL RESILIENCE

WHY IT MATTERS

The execution of our strategy is a cornerstone in maintaining financial resilience and sustainable growth.

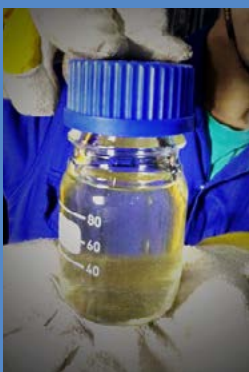
It enables PCG to strengthen its business fundamentals, weather external challenges such as shifts in economic landscapes, geopolitical instabilities, climate change and fluctuations in supply and demand that may impact its ability to create value. Ensuring a robust strategy that shapes our business operations and growth towards financial resilience allows us to continue providing sustainable solutions and value creation to our stakeholders.

Best practices such as the International Sustainability Standards Board (ISSB) inaugural standards - International Financial Reporting Standards (IFRS) S1 and S2, foster transparency and accountability. They enable stakeholders to have a clear view on how sustainability and climate-related risks and opportunities are addressed. This is essential in maintaining stakeholder trust and ensuring that the organisation is well-positioned to navigate the evolving global energy and sustainability landscape.

KEY HIGHLIGHT

BIO-BASED EMOLLIENT

- Collaborated with PETRONAS Research Sdn Bhd to develop a bio-based emollient which is intended for product applications in personal care industry
- Achieved first drop from pilot plant in December 2023



Strategising for sustainable growth.

OUR APPROACH

We remain guided by our Two-Pronged Strategy through three strategic thrusts - Operational Excellence, Commercial Excellence and Growth Delivery Excellence and supported by PCG's Sustainability Agenda covering Economic, Environment and Social pillars, underpinned by good Governance.

Our resilience, built over years of Operational Excellence and Commercial Excellence, has culminated in a world-class performance and a steadily expanding market reach, positioning us well to pursue our growth agenda.

We focus on developing our portfolio of derivatives and specialty chemicals to meet changing market needs. To ensure long-term growth, we execute our Sustainability Agenda through innovative solutions that maximise social and environmental value.

To strengthen sustainability and investment opportunities, we continuously improve plant operations, maximising value through best netbacks and new product solutions. We will strive to accelerate the integration of sustainability and digitalisation into our operations and enhance project delivery to improve growth outcomes. We also explore and assess sustainability-related technologies and products to support our circular economy agenda, lower our carbon footprint and complement our expanding portfolio.

BUSINESS STRATEGY & FINANCIAL RESILIENCE

To mitigate climate risks and reduce its impacts on our business operations and value creation, we are stepping up climate action to adapt to climate change. This includes adopting a holistic approach that covers various aspects, from assessing and mitigating our operations' impact on climate change to verify carbon pricing into our growth projects. We propose an approach that will be guided by the new ISSB Standards (IFRS S1 and S2) which warrant more robust reporting in view of the changing sustainability reporting landscape as well as other frameworks related to climate science and national policies.

PROGRESS AND IMPACT

SUSTAINABLE GROWTH

- Concluded the Final Investment Decision (FID) to construct an advanced chemical recycling plant in Pengerang, Johor. The plant will be an added advantage to Malaysia's plastics value chain through promoting the transition to a circular economy by closing the loop of the plastics life cycle
- Achieved FID to fully acquire the Maleic Anhydride (MAN) plant in Gebeng, Pahang, from BASF PETRONAS Chemicals Sdn. Bhd. (BPC), and to upgrade and rejuvenate the facilities to produce refined MAN for the production of unsaturated polyester resins (UPR), paints and food flavouring
- Constructed a pilot plant to produce bio-based emollient to diversify PCG's bio-based offerings in personal care
- Continued with customer validation and product quality improvement for Bio-Monoethylene Glycol
- Continued to assess and evaluate potential disruptive technologies from start-up companies for partnerships and investments

ENHANCE OPERATIONAL EFFECTIVENESS

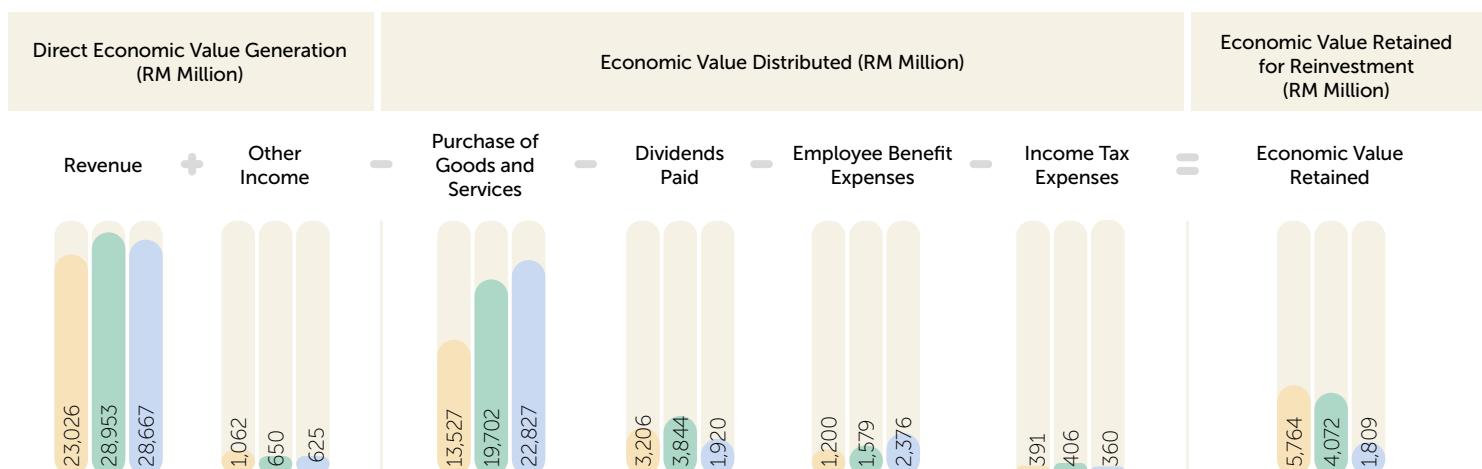
- Reduced greenhouse gas (GHG) emissions by more than 146,000 tCO₂e and reduced costs from manufacturing assets by driving greater operational efficiency and managing climate-related risks
- Drive carbon reduction initiatives across all assets through operational optimisation, e.g. flare reduction initiative and energy efficient measures as well as increasing the amount of renewable energy that we used
- Subscribed to Tenaga Nasional Berhad's Green Electricity Tariff and Sarawak Energy Berhad's Renewal Energy Certificate

FINANCIAL RESILIENCE

- Strategically allocated financial resources to support identified sustainability initiatives, for example by directing capital towards projects aligned with sustainability goals
- Bolstered our internal monitoring and tracking mechanisms for investments and expenditures related to sustainability activities
- Internal carbon pricing is part of project FID's package to ensure the viability of growth project under future carbon tax implementation
- Incorporated carbon abatement plan as part of project FID's package, for example, identifying carbon reduction opportunities through process optimisation and internal electricity generation for our advanced chemical recycling plant and MAN plant

OUR ACHIEVEMENTS

2021 2022 2023



CIRCULAR ECONOMY

WHY IT MATTERS

As the global population increases, the amount of waste is also on the rise. PCG recognises the urgency of waste reduction, and the critical role circular economy plays in driving sustainable ecosystems. We are cognisant that the chemicals industry in general consumes large amounts of resources and is a major producer of waste emissions.

Therefore, it is vital for us to continue driving the shift from the current linear economy model of Take, Make and Dispose, towards a circular economy model that closes the loop. This will not only regulate our consumption of natural resources but also help shape a future with less waste, stewarding natural and finite resources and minimising our carbon footprint. It also allows us to create value by complementing PCG's commodities portfolio while supporting new growth opportunities.

As increasingly stringent legislations and new government policies continue to push for the restriction or ban of single use plastics, PCG as a major plastics producer within the region will help spur the value chain growth of the plastics industry in Southeast Asia in a more sustainable manner. This is in support of the Malaysia Plastics Sustainability Roadmap 2021 – 2030 that was developed by the Ministry of Natural Resources, Environment and Climate Change.

KEY HIGHLIGHT

ADVANCED CHEMICAL RECYCLING PLANT

- Achieved Final Investment Decision (FID) for an advanced chemical recycling plant in Pengerang, Johor, utilising Plastic Energy's patented Thermal Anaerobic Combustion (TAC) Technology
- The plant will be able to convert 33,000 tpa of end-of-life plastics to produce pyrolysis oil, which can be further processed to produce circular plastic products
- This project will contribute towards PCG's Sustainability Agenda to recover plastic waste while closing the loop in plastic circularity



Collaborating to advance our plastics circularity agenda.

OUR APPROACH

We remain committed towards reducing our climate impact while improving resilience and capitalising on opportunities unlocked from a circular economy. PCG has adopted the following to further deliver its sustainability portfolio:

- Circular carbon by transforming carbon dioxide into value-added products
- Waste to product by converting waste to other products, creating new revenue streams
- Bio-solutions by innovating sustainable/bio-based products as viable alternatives to fossil-based products

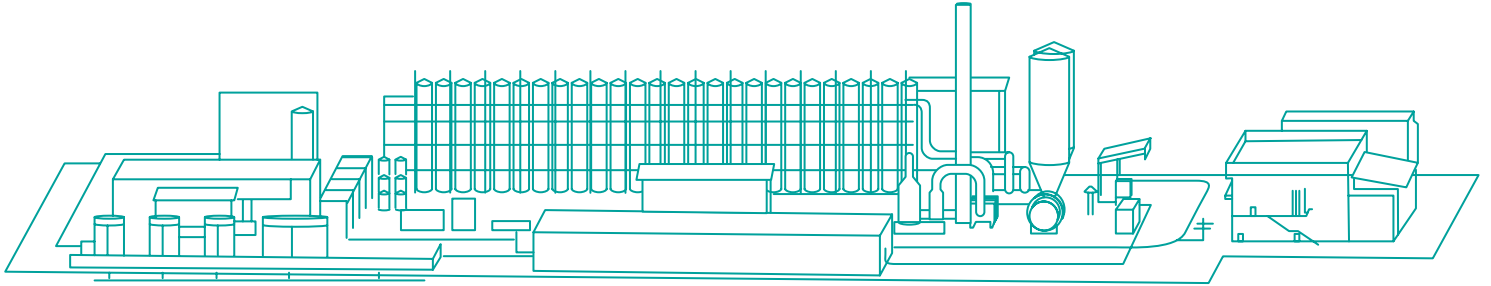
We recognise that collaborations are key in our transition towards a circular economy and realising our New Plastics Economy (NPE) Agenda. We are a member of the Plastics Sustainability Working Group, which allows us to engage with government agencies, industry and non-governmental organisations to drive collective action to manage Malaysia's plastic waste issues.

We will continue forming collaborations to identify new innovative technologies for feasible and effective recyclability of plastic materials, unlocking value in plastics previously regarded as difficult to turn into valuable renewable materials. In this regard, greater attention will be given to creating strategic partnerships to develop effective waste recovery systems and technologies that would solidify the nation's plastic circularity ecosystem. We will continue to invest to bring upon real change in this space and to change mindsets through education and social awareness. This will include more campaigns to promote behavioural and cultural changes through Reduce, Reuse and Recycle (3R) education.

PCG aims to drive circularity across the business and support the larger ecosystem through the implementation of initiatives that goes beyond plastics. For instance, Perstorp's Project Air focuses on CO₂ utilisation. We also strive for solutions that support a more circular ecosystem in our operations, particularly in water and waste management, which is further described in Environmental Stewardship.

CIRCULAR ECONOMY

PROGRESS AND IMPACT



ADVANCING PLASTICS CIRCULARITY

- Started Engineering, Procurement and Construction (EPC) activities for the advanced chemical recycling plant in Malaysia, turning end-of-life plastic waste into naphtha-like pyrolysis oil, which can be further processed to produce certified circular polymers
- Continued to actively conduct assessments of recycling projects to enhance the plastic waste management ecosystem in Malaysia as well as various opportunities to diversify feedstock for a sustainable portfolio from customers' lenses (sustainable product demand)
- Collaborated with feedstock suppliers and pre-treatment tollers, accelerating the development of innovative waste recovery/segregation technology and infrastructure to support capital projects in this space and most importantly, address plastic pollution

CIRCULAR SOLUTIONS

- Introduced Akestra™ that enhances the heat resistance characteristics of recycled polyethylene terephthalate (PET), increases recycled material content and promotes circularity
 - Endorsed by the Tray Circularity Evaluation Platform (TCEP) of the Technical Committee of PETCORE Europe
 - Aligned with the US FDA and EU standards for direct food contact with its secure and environmentally responsible choice for circular packaging

CIRCULAR OPERATIONS

- Established water recovery initiatives to optimise water usage and minimise freshwater intake at our production facilities
- Continued to minimise waste by diverting waste to landfills through increasing the 3R rate for identified waste



Scan for more information on our efforts at promoting circularity among students and local communities.

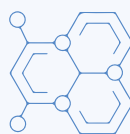
OUR ACHIEVEMENTS



Achieved

FID

for the construction of a 33,000 tpa advanced chemical recycling plant



Akestra™ 100 and Akestra™ 110

for heat-resistant PET tray production without negatively impacting European PET recycling compliance. These products enhance recycled PET's heat resistance, enable increased recycled material content, and promote circularity



SUPPLY CHAIN MANAGEMENT

WHY IT MATTERS

Adopting sustainable practices in supply chain management generates positive impacts across the economic, environment and our communities, as it serves as a critical ecosystem that integrates suppliers, vendors, investors and customers.

Implementation of sustainable practices promotes trust and confidence, enhancing supply reliability and reputation, which are all evident in our commitment to create value for stakeholders. Efficient supply chain management increases profitability through efforts such as optimisation of inventory and consolidation of deliveries. This provides PCG a competitive edge against market competitors.

Key elements such as ensuring reliable feedstock and services from suppliers and vendors enable us to meet customer needs. Any disruptions in our supply chain will interrupt our ability to meet expectations and ultimately expose us to various risks including operational, financial and reputational.

KEY HIGHLIGHT

GREEN PORT AWARD SYSTEM (GPAS)

Kertih Port Sdn. Bhd. (KPSB) has been awarded with GPAS for its commitment to sustainability and environmental responsibility. Endorsed by APEC Port Services Network (ASPN) Council, The GPAS programme is a green evaluation system for ports in the APEC region to promote the sustainable development of the APEC port industry.



KPSB recognised for its commitment to sustainable efforts.

OUR APPROACH

We implement high standards of integrity in procurement processes and activities to ensure good governance within our supply chain management. Our robust procurement processes, from vendor selection to awarding tenders, are aligned with the PETRONAS Procurement Standard and established procedures, which references various documents including PETRONAS Anti-Bribery and Corruption Policy & Guidelines (ABC Manual). Furthermore, within our specialty chemicals segment, Perstorp performs bi-annual evaluations on existing large suppliers using environmental and social criteria.

SUPPLY CHAIN MANAGEMENT

Throughout the licensing, bidding, contracting, and execution stages, adherence to, among others, Health, Safety and Environment (HSE), technical, and Code of Conduct and Business Ethics (CoBE) is crucial. As part of our assessment process, vendors are required to complete a "Know Your Counterparty" (KYC) self-declaration questionnaire. We also performed KYC 6 online screening, both of which are part of due diligence screening, a measure introduced in 2020 to improve due diligence and minimise potential risks associated with third-party engagements. This includes assessing vendors' technical capabilities and Environmental, Social and Governance (ESG) practices such as HSE, cybersecurity policies and regulatory compliance, among others. Failure to comply with social and environmental requirements may result in termination based on the terms and conditions of the contract. A formal grievance mechanism has also been instituted to enable internal and external stakeholders to report misconduct. All grievances are investigated and resolved with site-specific arrangements.

Strong working relationships and open communication are essential in driving a sustainable supply chain ecosystem. We maintain close relationships within our supply chain environment in advancing sustainability within the industry. This is conducted through collaborative multi-stakeholder efforts and partnerships with industry and trade associations. Among our efforts are supporting vendors capability development, conducting vendor assessments, and engagements, incorporating sustainability criteria in contracts and adopting the EcoVadis framework.

PROGRESS AND IMPACT

CORPORATE LIABILITY

- Carried "Third Party Risk Assessment" (TPRM) using TPRM tools which consists of KYC questionnaires, and compliance with PETRONAS' Compliance Clauses. This is to ensure that all suppliers, vendors and joint venture partners meet PETRONAS' standards of integrity

HEALTH AND SAFETY

- Implemented standardised HSE best practices throughout PCG, including during turnaround
- Reinforce Contractors HSE Management through improvement of contractors' HSE accountability
- Strengthen compliance on Driver, Vehicle and Journey management with effective mitigation

R For more information, please refer to Safety & Health on pages 68 to 71.

HUMAN RIGHTS

- Enforced the PETRONAS Contractors Code of Conduct on Human Rights (CoCHR) and HSE requirements during the selection of vendors
- Require all PCG vendors to register in Group Procurement's onboarding system prior to being listed in the bidder's list. During the onboarding process, vendors are expected to adhere to PETRONAS CoCHR
- Held CoCHR assessments to identify gaps and enhance compliance towards achieving the goal of zero violations to human rights. Improved labour and working conditions for the workers contributing to Malaysia's Oil & Gas Services and Equipments (OGSE) industry
- Based on compliance assessment conducted in 2023, there was no presence of child labour, however we found that some contractors retained foreign workers' passports. This red flag on forced labour practices have been corrected and all passports were returned to the passport bearers
- Ensured our supply chain's human rights (which include vendors) adheres to regulatory requirements and recognised industry standards. Minimised reputational risks and maintained PCG's license to operate by respecting human rights in its operations

R For more information, please refer to Human Rights on pages 66 to 67.

SUPPLY CHAIN MANAGEMENT

PROGRESS AND IMPACT (CONTINUED)

SUSTAINABLE SUPPLY CHAIN

- PCG benefits from the following supply chain sustainability efforts by PETRONAS Group Procurement:
 - PETRONAS activity outlook
 - o Impart messaging to signal and infuse readiness for the vendors towards energy transition
 - ESG maturity assessment baseline
 - o Issuance of OGSE Survey to PETRONAS active vendors to gain insights and assess vendors' ESG maturity
 - Collaboration with industry stakeholders
 - o Multiple series of collaboration sessions with industry stakeholders, e.g., Malaysian Petroleum Resources Corporation, Bank Negara, Ministry of Finance, Malaysian Oil, Gas & Energy Services Council, to synergise and align with efforts to rally OGSE vendors towards sustainability readiness and enabling the right ecosystem
 - Sustainability disclosure platform
 - o PETRONAS signed a Memorandum of Collaboration with Bursa Malaysia to push forward ESG corporate governance adoption and practices through Bursa Malaysia's Centralised Sustainability Intelligence Platform. The platform will allow PETRONAS' public-listed vendors to calculate their carbon emissions impact and disclose standardised and common ESG data, amongst others
 - Green financing
 - o Promote collaboration to increase the reachability of Financial Institutions (FIs) and relevant government authorities to financially support vendors to encourage greater diversification and adoption of clean energy business, in alignment with our Sustainability Agenda
- Incorporated technical requirements which supports sustainability initiatives in relevant tenders
- Continued collaborating with Malaysian Plastics Manufacturers Association (MPMA) to drive adoption of Operation Clean Sweep (OCS), and the plastic industries signature programme to reduce plastic resin loss to the environment. Having become the first producer in Malaysia to voluntarily sign-up for OCS in 2022, we rolled out the programme to our logistics providers to continue efforts to reduce plastic loss during product handling and transport
- In July 2023, PETRONAS Chemicals Marketing (Labuan) Ltd (PCML) received the International Sustainability and Carbon Certification (ISCC PLUS) Trader scope that allows PCG to trade any sustainable products (bio, circular or renewables) and feedstocks
- Conducted sustainability upskilling programme for PCG's vendors to inculcate awareness on sustainability and greenhouse gas (GHG) emissions accounting
- Continued to source Roundtable on Sustainable Palm Oil (RSPO) certified palm oil feedstock to grow sales of RSPO certified Fatty Alcohol Ethoxylates (FAE) product range certifications

SUPPORTING MALAYSIA-BASED VENDORS

- Enhanced local participation via PETRONAS Vendor Development Programme (VDP), a structured programme that aims to shape Malaysia-based vendors to be technically competent with world standard capabilities
- Sustainability capability uplift
 - Organised a series of engagements with vendors in collaboration with SME Corp. Malaysia with the intent to uplift vendors' ESG capability

DIGITALISATION

- In March 2023, we completed the digitalisation process of our raw materials procurement tool, Raw Material Information Request (RAWMIR) via the E-CHEMS platform. This platform features a comprehensive procurement function with digital tools and technologies, which enables chemical suppliers to access automated dispatch process and greater ease to obtain product health and environment safety related data on our procured raw materials

SUPPLY CHAIN MANAGEMENT

OUR ACHIEVEMENTS



Renewed about
40 Chemical Weapons Convention (CWC) Export Permits

allowing the export of 17,000 MT of scheduled Class 2 chemicals



Conducted
sustainability awareness training
for 14 vendors



Implementation of
Operation Clean Sweep (OCS)

at all polymer plants and supported two of PCG's logistic partners to be OCS certified



Sent out
442 customer declarations

and responded to queries on product safety, end-use, information on presence of hazardous substances, and confirmation to Halal and Kosher certifications. A total of **16 declarations** were also made to specific customers on our products' carbon footprint



PCML obtained the **International Sustainability and Carbon Certification (ISCC PLUS)**
Trader scope



Training Programmes conducted for VDP vendor:

- Knowledge Sharing Session on IECEx Certification (Explosive Atmosphere) by SIRIM
- Knowledge Sharing Session on Tax Compliance and Zakat by Association of Chartered Certified Accountants (ACCA)
- Knowledge Sharing Session on Confined Space by National Institute of Safety and Health (NIOSH)
- Enterprise Lifecycle Scoring Assessment (ELSA) by Centre for Entrepreneur Development and Research (CEDAR)



Perstorp and BRB received
Gold and Silver awards
on EcoVadis respectively



KPSB is the first port to be awarded **GPAS** amongst all PETRONAS ports

Vendors	2021	2022	2023
Total number of vendors	1,603	1,738	1,967
Malaysia-based vendors (%)	77	80	82
Total number of Malaysia-based vendors under PETRONAS VDP	13	12	12
Total procurement spending for Malaysia-based business sourced from Malaysia-based vendors (%)	66	70	87

CYBERSECURITY & DIGITALISATION

WHY IT MATTERS

At PCG, we continue to accelerate digital and technology enhancements to improve integration across the business and operations. This enables us to be more agile, flexible, efficient and productive, ultimately delivering world-class services to our customers, thus enhancing our competitive edge. The ability to gain a more holistic view on the business empowers us to scale up, create new business models and generate new revenue streams, all aligned with our goal of achieving Operational Excellence and Commercial Excellence.

However, digitalisation has also led to a heightened risk of cybersecurity breaches and attacks. We are aware of the escalating number of cybersecurity threats, with cyber criminals targeting customers, employees and even partners via a variety of techniques, namely phishing, targeted ransom and cyber warfare. In fact, 73% of board members from the manufacturing and retail sectors across different industries are aware that they may face a major cyber attack in the next 12 months. This provides assurance to our stakeholders while increasing our cybersecurity maturity and resilience.

Breaches to PCG's cybersecurity systems may cause disruptions to our digitally integrated system. This may expose the Group to legal, financial and reputational risks, leading to reputational damage and loss of trust. Therefore, while we continue to expand our digital capabilities, we continue to invest in improving our cybersecurity defence systems to protect our data, information and assets from cyber attacks, information leakages and information security breaches.



Always on guard to monitor and act on potential cybersecurity threats.

OUR APPROACH

PCG recognises that maintaining an integrated digital system and strong cybersecurity measures are crucial for business continuity and sustainability. We have a robust governance framework in place known as the Enterprise Cyber Security Governance Framework (ECSGF), which protects our data and systems from cyber threats and intrusions. Built on industry best practices and standards, ECSGF safeguards our systems and data from disruptions, especially when we conduct vulnerability, legal and regulatory assessments on behalf of the business. Security assessments are also conducted by our ISO 27001 certified cybersecurity service provider.

We continue to strengthen our infrastructure so that our digital ecosystem not only remains resilient and reliable, but also meets our evolving needs. We have in place a Downstream Digital Framework that accelerates implementation of the Downstream Operational Excellence Result 2 (OER2) at all PCG manufacturing plants. This is further augmented by the digital Enterprise Optimiser that allows faster data-driven decision-making processes and the PETRONAS Integrated Vision for Operational Excellence Transformation (PIVOT) which drives the best value for molecules.

CYBERSECURITY & DIGITALISATION

As agility is a key factor throughout our operations and business, digitalising our systems and processes allows us to leverage on a wider range of tools and platforms to enhance efficiency, improve uptime and reduce monitoring time. PCG operationalises Asset Performance Management to improve monitoring of plant operations and efficiency, as well as store crucial plant data for enhanced decision making. The use of drone technology has also enabled the safe monitoring of our equipment and operations at elevated locations during turnaround.

In light of this, we have taken a proactive position to continuously strengthen PCG's cybersecurity system and framework across our operations and plants to mitigate and reduce cyber threats and cyber breaches. We also recognise the importance of improving employees' awareness on cybersecurity and digitalisation trends, as this will help them remain alert against potential scams and threats. To encourage behavioural change, we have introduced educational programmes, including compulsory modules on social engineering scams and cybersecurity assaults. In 2023, 95% of employees passed the Cybersecurity Assessment compared to 99% in 2022 due to the shorter duration given for the assessment, between November to December, as compared to August to November in 2022.

Employees receive monthly phishing advisories to stay vigilant against the latest threats, along with updates on their completion status in cybersecurity training. The management team are provided updates on PCG's cybersecurity performance on a monthly basis. Regular phishing tests are carried out to ensure employees remain cautious at all times while a yearly review of phishing tests is conducted to maintain compliance behaviour of the human firewall.

PROGRESS AND IMPACT

ASSET PERFORMANCE MANAGEMENT (APM)

- Implemented the APM strategy to monitor, maintain and optimise physical assets to improve their reliability, efficiency, and overall performance. APM contributes significantly to enhancing asset reliability through various means:
 - **Condition Monitoring**
 - Continuously collect real-time data on the condition of assets through early detection capability
 - Enables proactive maintenance before a failure occurs
 - **Optimised Maintenance**
 - Accelerated the move away from traditional, reactive maintenance practices to more proactive and predictive approaches
 - Minimised the likelihood of failures, enhancing overall asset reliability
 - **Risk Management**
 - Assesses and quantifies risks associated with asset performance
 - Identifies and mitigates risks to minimise the likelihood of failure, enhancing overall asset reliability
 - **Data-Driven Decision Making**
 - Yields actionable insights by leveraging data
 - Empowers decision-makers to make informed choices on maintenance, performance improvements and investments, contributing to overall reliability enhancement
 - **Root Cause Analysis**
 - Enables comprehensive root cause analysis to understand reasons for failure
 - Implements corrective actions to prevent similar issues, enhancing asset reliability

PLANT OPERATIONS INTEGRATED TOOLS (POINT)

- Implemented POINT, a web-based application for plant operators to streamline day-to-day activities within the Operate Facility Work Process (OFWP) under the OER2 journey
- Comprising five modules (eMANNING, eTASK, eGTASK, eLOG, and eIDEA), POINT enhances work processes and tasks execution. Accessible via web and mobile application, it offers the following features and benefits:
 - eMANNING module: Plans or records manning of shifts, workgroup schedules and individual assignments
 - eTASK/eGTASK module: Plans, schedules and executes tasks and sub-tasks
 - eLOG module: Consolidates digital log to record day-to-day operational activities
 - eIDEA module: Consolidates improvement ideas and monitors their execution through a structured workflow
 - Leverages automated log search functionality to enhance accessibility and retrieval

CYBERSECURITY & DIGITALISATION

PROGRESS AND IMPACT (CONTINUED)

PLANT FACING ANALYTICS (PFA)

- Leveraged Plant Facing Analytics (PFA) to enhance equipment reliability:
 - **Condition-Based Maintenance**
 - Performs maintenance based on real-time equipment conditioning, monitoring key indicators and performance metrics
 - Schedules maintenance precisely when needed to minimise downtime and extend equipment lifespan
 - **Failure Prediction**
 - Predicts component/system failures based on historical and current data, enabling proactive issue resolution
 - Enhances overall reliability by minimising disruptions through timely maintenance interventions
 - **Optimised Maintenance Strategies**
 - Optimises maintenance strategies by identifying critical components needing attention
 - Targeted approach to efficient resource allocation, focusing on areas with the most significant impact on equipment reliability
 - **Data-Driven Decision Making**
 - Analyses extensive sensor data to enable informed decision-making
 - Provides actionable insights, empowering maintenance teams to make data-driven decisions for improved reliability
 - **Reduced Unplanned Downtime**
 - Predicts and prevents equipment failures to reduce unplanned downtime
 - Crucial for continuous operations in industries, minimising disruptions, increasing productivity, and improving overall equipment reliability
 - **Improved Asset Performance**
 - Focuses on detecting and preventing failures but also on optimising equipment performance
 - Identifies improvement opportunities, enhancing overall performance and reliability of assets

CYBERSECURITY INITIATIVES

- Improved Information Technology (IT) and Operational Technology (OT) cyber resilience with the adoption of PETRONAS Enterprise Cyber Security Governance Framework
- Implemented training and education programmes such as one-to-one focus sessions to improve employee awareness and safety
- Carried out regular phishing tests to measure employees' maturity and effectiveness levels
- Improved and maintained good cybersecurity performance
- Conducted company-wide cybersecurity reporting
- Monitored governance and assurance effectiveness for cybersecurity

PETRONAS360 CUSTOMER PORTAL (P360)

- Rolled out our new digital initiative, P360, to pilot customer in November 2023. P360 enables customers to access their own self-service portal to view their transaction details with PCG, account statements and check on real-time delivery status through integration with Customer Delivery Excellence (CDEx). In addition, it offers access to online spot volume offers, viewing products, downloading product regulatory sheets, and sending enquiries and feedback to PCG

CYBERSECURITY & DIGITALISATION

OUR ACHIEVEMENTS



Zero complaints received
from outside parties and regulatory bodies



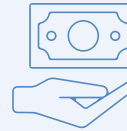
Zero cyber incidents
that led to breaches
(very high and high severity) recorded



89% of employees completed
22 new modules and **95%** passed the
cybersecurity assessment

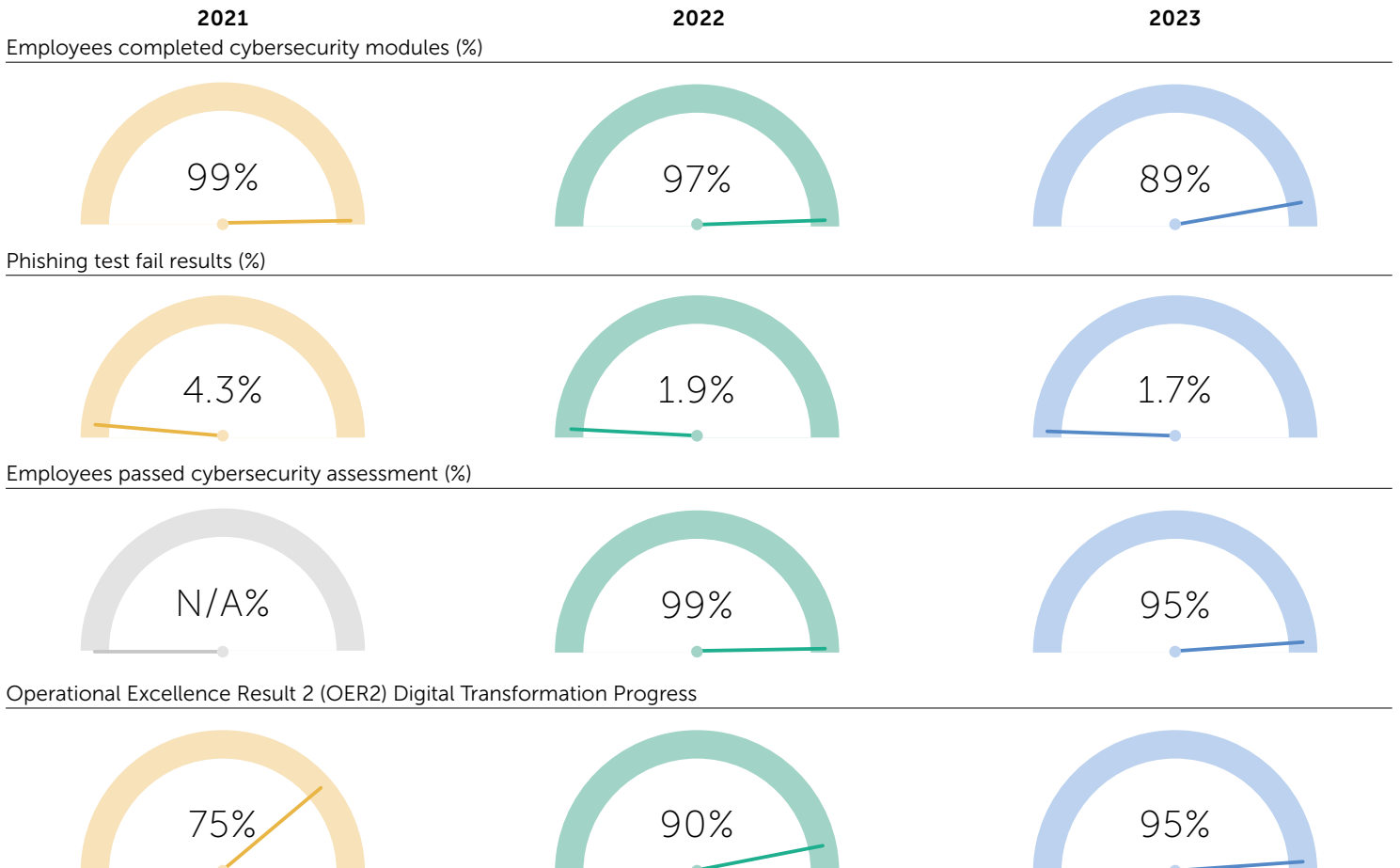


**Zero business critical
system downtime**



More than **RM7.5** million
realised from Plant Facing Analytics

CYBERSECURITY AND DIGITALISATION PROGRESS



CLIMATE CHANGE

WHY IT MATTERS

Climate change continues to leave its devastating effects on the planet, which have resulted in significant impacts on the global environment, social and economic systems, leading to added pressures on nature and humanity in general.

There were severe weather events such forest fires that swept through Canada while parts of America, Europe and Asia experienced extreme flooding and natural disasters. Whereas in Malaysia, we experienced heatwaves, excessive rain and floods which disrupted the lives and livelihoods of those affected. According to the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report, with nature under pressure, the global community will need to mobilise and scale up solutions to deliver a sustainable future for all.

Tackling climate change is an important part of PCG's business and growth strategy, as it enables us to continue delivering products and solutions that have minimal to no impact on the environment, as we transition to a low carbon economy. Climate change presents physical and transitional risks that will negatively impact our business operations and supply chain, driving up costs and ultimately impact our profitability and ability to deliver long-term value to customers and stakeholders.

Amid uncertainties surrounding carbon policy, maturity of low carbon technology, demand for products, and high costs, meticulous planning and execution of decarbonisation efforts across our assets are essential in enabling a seamless transition to low carbon manufacturing.

KEY HIGHLIGHT

KERTIH SITE-WIDE ENERGY REVIEW (SER)

- A comprehensive operational optimisation study conducted to identify opportunities for flare reduction and energy efficiency improvement, such as:
 - Utilising tail gas from PC Olefins as fuel gas at PC Aromatics, thereby reducing natural gas import
 - Rebalanced turbine operations at PC Olefins for optimised steam consumption



Tackling climate change is important to PCG.

OUR APPROACH

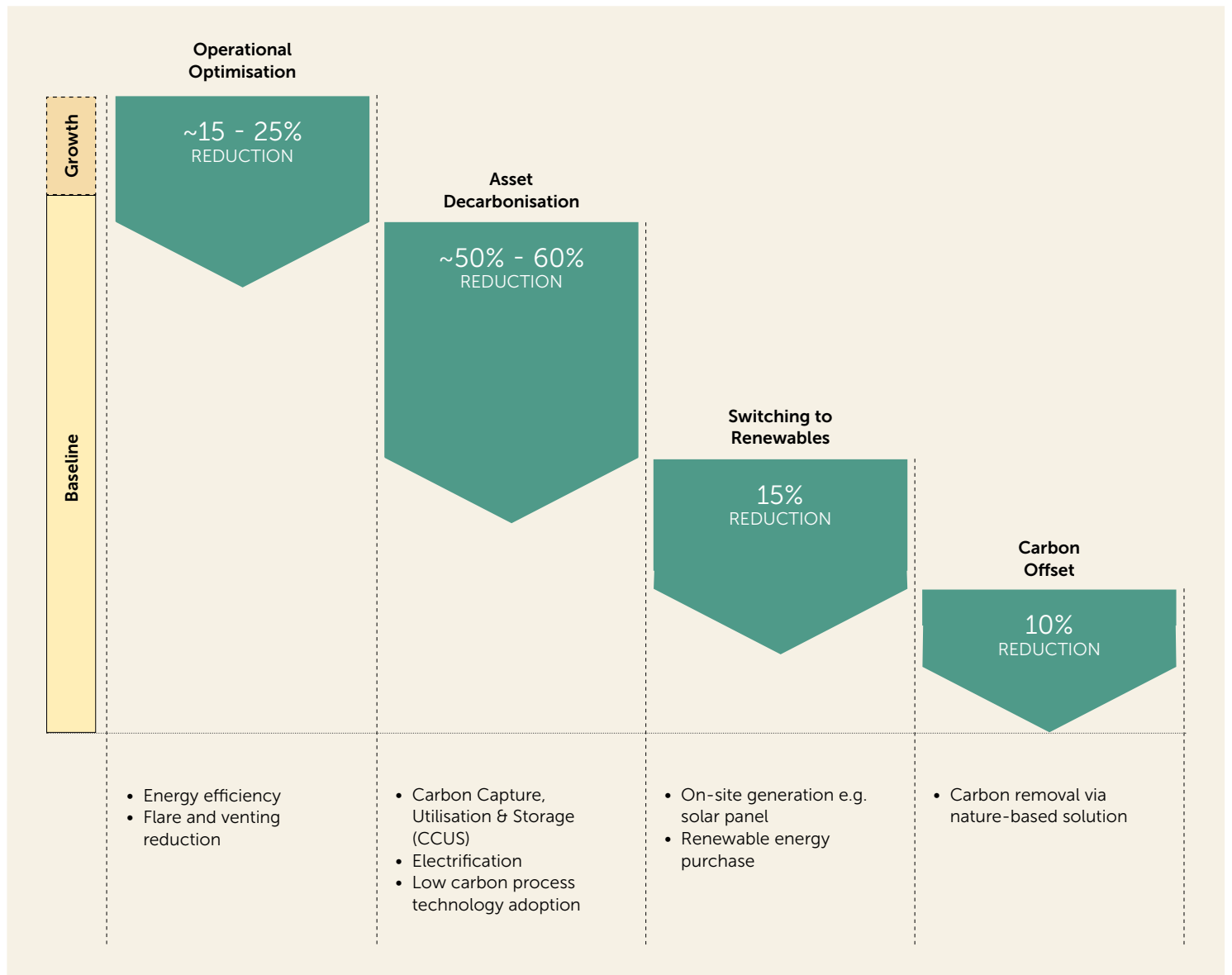
Our approach to climate change management is centered on our Net Zero Carbon Emissions (NZCE) 2050 Roadmap, where we aim to achieve net zero emissions by 2050 for Scope 1 and Scope 2 greenhouse gas (GHG) emissions across all our operating assets. Our priority in the mid-term is to achieve our 2030 target of 20% reduction in GHG emissions against our 2019 baseline via the identified levers. For the short-term, we aim to maximise efforts in flare reduction and energy efficiency improvement, as well as increasing renewables within our energy mix. In the mid to long-term, we will explore and invest in low carbon process technology and other decarbonisation solutions.

We undertake climate risk assessments to better identify the risk and opportunities that could impact our business to identify, and put in place mitigation and adaptation strategies that would improve PCG's climate resilience. Building on the momentum from our inaugural Taskforce on Climate-Related Financial Disclosures (TCFD) report published in 2022, we have continued to enhance disclosures of climate related risks, we have broadened the assessment of physical risks to include our international assets and updated our transition risks.

R For more information on our climate strategy, please refer to *Climate Strategy* on page 20.

CLIMATE CHANGE

In 2023, we made some changes to our GHG reporting approach to reflect the changes in our operating environment and business. In addition to full-year GHG emissions reporting in 2023, we have also restated our GHG emission for previous years to reflect this. Furthermore, we adopted dual GHG emissions reporting and accounting, consisting of market-based and location-based emissions to reflect the purchase of bundled Renewable Energy Credits (REC) to reduce our Scope 2 market-based emissions. For the year under review, a recalculation of our base year emissions was carried out as a result of the acquisition of Perstorp in October 2022 to be in line with the methodology set by the GHG Protocol's Corporate Accounting and Reporting Standards.



We initiated enhancement of fugitive methane accounting accuracy from Level 1 to Level 3, by accounting for emission sources from all components including pumps, valves and connectors. We further undertook measures and initiatives to reduce fugitive methane emissions in line with PETRONAS' commitment to United Nations Environment Programme (UNEP)'s Oil and Gas Methane Partnership 2.0 (OGMP2.0).

We recognise the importance of Scope 3 emissions, which represent the value chain emissions from our business. In 2023, PCG completed Scope 3 emissions baselining for all relevant categories under the scope. From the baselining exercise, we determined our material categories for our Scope 3 GHG emission and are working towards progressive disclosures and identifying emission reduction opportunities across the value chain.

CLIMATE CHANGE

PROGRESS AND IMPACT

NZCE ROADMAP IMPLEMENTATION

- Implementation of Kertih SER identified opportunities, among others:
 - Utilisation of tail gas of an olefins plant by nearby aromatic plants with improved control scheme (PCARO-PCO)
 - Rebalancing of turbine operations to optimise steam consumption at olefins plant (PCO)
- Flaring and venting optimisation through enhanced operation control
 - C5 minimised flaring at PC MTBE
 - CO₂ venting optimisation at PC Fertiliser Sabah
- Adopting digital transformation for live monitoring and automation to enhance energy consumption and GHG emission performance
- Reducing market-based scope 2 emission of assets by using renewable energy sources
 - Subscription to Green Electricity Tariff (GET) for plants purchasing power from Tenaga Nasional Berhad (TNB) for PC Fertiliser Kedah, PC MTBE and PC EPE
 - Subscription to bundled REC from Sarawak Energy Berhad (SEB) for ABF
- Assessing brown field modification for low carbon fuel sources
 - Ongoing assessment and study for low carbon technology adoption at non-Kertih Integrated Petrochemical Complex (KIPC) plants
 - Ongoing project evaluation of integrated decarbonisation options for KIPC plants

CLIMATE RISK MANAGEMENT

- Conducted International Financial Reporting Standards (IFRS) S1 and S2 alignment study to identify gaps and adoption roadmap and improve granularity of climate risk assessments
 - PCG's climate physical risk was revised and conducted at asset level, incorporating the latest climate data released by the IPCC
 - PCG's transition risk was also reviewed and revised using scenario analysis, and energy and economic data by the International Energy Agency (IEA)

Scope 1 and Scope 2, GHG Emissions	2021	2022	2023
Scope 1 GHG emission (mil tonne CO₂e)	5.98	5.95	5.96
Malaysia (Commodity)	5.66	5.70	5.74
International (Specialty)	0.32	0.25	0.22
Scope 2 GHG emission, Location based (mil tonne CO₂e)	1.48	1.48	1.47
Malaysia (Commodity)	1.33	1.35	1.33
International (Specialty)	0.15	0.13	0.14
Scope 2 GHG emission, Market based (mil tonne CO₂e)	1.48	1.48	1.38
Malaysia (Commodity)	1.33	1.35	1.24
International (Specialty)	0.15	0.13	0.14
Total GHG Emissions, Location based (mil tonne CO₂e)	7.47	7.43	7.43
Malaysia (Commodity)	7.00	7.05	7.07
International (Specialty)	0.47	0.38	0.36
Total GHG Emissions, Market based (mil tonne CO₂e)	7.47	7.43	7.33
Malaysia (Commodity)	7.00	7.05	6.97
International (Specialty)	0.47	0.38	0.36
GHG Intensity (tonne CO₂e/tonne)	0.65	0.69	0.71
Malaysia (Commodity)	0.67	0.71	0.73
International (Specialty)	0.43	0.43	0.45

CLIMATE CHANGE

Energy	2021	2022	2023
Energy Consumed (mil GJ)	102.27	104.90	100.38
Energy Consumed (MWh)	28,408,333	29,138,889	27,883,333
Energy Intensity (GJ/tonne)	15.76	17.08	16.84

Notes:

- Scope 1 - direct GHG emissions sources from our manufacturing sites that we have operational control, such as combustion, flaring, venting, and fugitive emissions, which consists of CH₄, CO₂ and N₂O
- Scope 2 - indirect GHG emissions sources from our manufacturing sites that we have operational control that resulted from consumption of purchased energy from a third-party, such as electricity and steam
- Calculation methodology is based on the 2021 edition of Compendium of Greenhouse Gas Emissions Methodologies for the Natural Gas and Oil industry, issued by American Petroleum Institute (API)

OUR ACHIEVEMENTS



Achieved GHG emissions reduction of **146,100 tCO₂e**

Energy efficiency
19,400 tCO₂e

Flaring/venting reduction
32,200 tCO₂e

Renewables (REC)
94,500 tCO₂e



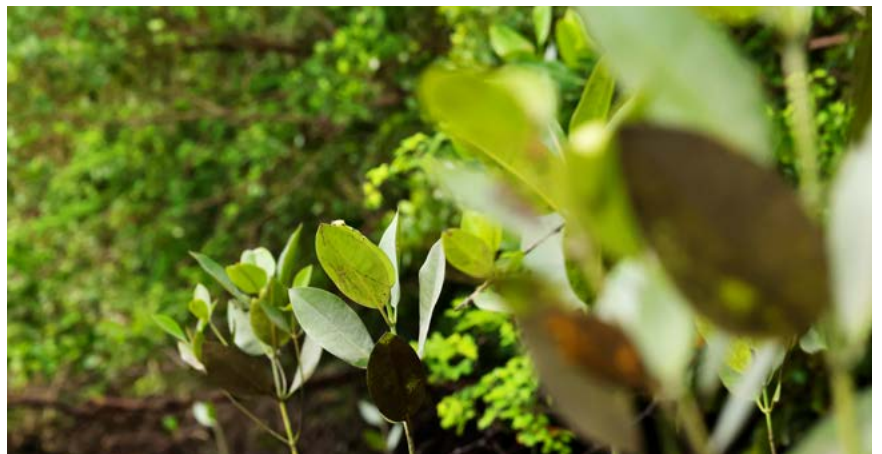
Purchased
134,401 MWh
of renewable energy via
bundled RECs



Conducted
**10 scenario
analysis for
transition risks**
using latest climate and
energy data



Completed physical risk assessment
for **30 operating units**
across **19 manufacturing
sites** globally



ENVIRONMENTAL STEWARDSHIP

WHY IT MATTERS

As a chemicals manufacturer, our business relies on energy, water and other finite resources. Therefore, it is vital for us to exercise prudence in resource consumption to prevent conflicts within the local communities where we operate.

Additionally, efficient management of the waste generated by our operations is essential to prevent environmental pollution, which is key for maintaining our licence to operate. Improper waste management practices across our supply chain may have adverse impacts on our business, such as increased transportation costs, potential legal issues related to waste disposal and damaged relationships with environmentally conscious partners. As we operate in various regions and aspire to grow responsibly, we aim to protect the biodiversity and mitigate any harm on the local ecological systems surrounding our operations.

Environmental stewardship is also important in demonstrating the recognition of physical climate-related risks such as water availability, which can directly impact our operations. Employing best practices in managing our environmental footprint will enable us to contribute to the relevant UN SDGs, which seek to create a sustainable future for all. Furthermore, it ensures that we comply with local regulatory requirements and recognised industry standards.



Our engineers conducting water tests to meet environmental standards.

OUR APPROACH

We ensure that we comply with all applicable environmental regulations across all our locations and remain guided by our environmental standards. We consistently raise the standards of our practices by adopting international standards, frameworks and guidelines. The majority of our overall operations were ISO 14001:2015 certified, further strengthening PCG's credibility, high standards and commitment to environmental management systems.

Going beyond compliance, we have strengthened our environmental stewardship by adopting the circular economy approach. This involves transforming waste generated from our facilities, including air emissions, discharges and hazardous/non-hazardous waste into resources or repurposing them to avoid waste to landfills, which emits methane or harm the surrounding natural environment.

Additionally, all our operations have been integrated with digitalisation, allowing us to minimise consumption of paper and waste generation.

ENVIRONMENTAL STEWARDSHIP

WATER AND WASTEWATER MANAGEMENT

We strive for efficient water consumption and wastewater management throughout our processes at our plants. Our water stewardship initiatives are governed by PETRONAS Technical Standards, local regulatory standards and other relevant frameworks that provide direction for protecting water resources. Water availability is closely monitored in water stressed regions as it has been identified as one of the critical physical climate risks that might impact our operations and the surrounding community where we operate.

WASTE MANAGEMENT

At PCG, we transform raw materials and natural resources into essential products and solutions that improve lives and support the transition to a low carbon economy. Therefore, we remain committed to improving our resource use efficiency and fostering circularity throughout our value chain.

Our waste management approach is driven by our aspirations to transition into a circular economy. Our use of non-renewable raw materials, including precious metals and chemicals as a catalyst for certain processes, has the potential to increase waste generation and depletion of finite resources.

BIODIVERSITY

Our approach towards biodiversity is guided by PETRONAS' Position on Nature and Biodiversity, focusing on activities aimed at conserving and rehabilitating ecosystems and habitats. We proactively manage the potential impacts surrounding biodiversity and ecosystem services through the adoption of the PETRONAS Technical Guideline on Biodiversity and Ecosystem Services (BES) Management, which outlines specific steps to identify and mitigate the impact of our operations on nature and biodiversity.

Since 2005, we have implemented the ecoCare programme, involving the reforestation of the ecologically sensitive mangrove habitat along Sungai Kertih, Terengganu. We have also established the Environmental Education Centre (EEC), a resource centre to promote awareness and understanding among teachers, students, the community and our environment.

PROGRESS AND IMPACT

WATER AND WASTEWATER MANAGEMENT

Wastewater discharge, Chemical oxygen demand (COD), (tonne)	2021	2022	2023
Overall PCG	182.2	215.0	227.8
Malaysia (Commodity)	171.4	204.2	219.4
International (Specialty)	10.8	10.8	8.5

Recorded **227.8** tonnes of COD in wastewater discharge

COD intensity (tonne/kilotonne)	2021	2022	2023
Overall PCG	0.02	0.02	0.02

Registered **56.5** mil m³ of freshwater withdrawal

Freshwater withdrawal (mil m ³)	2021	2022	2023
Overall PCG	63.7	62.7	56.5
Malaysia (Commodity)	38.5	39.0	37.7
Water Stress	10.6	10.6	10.5
Non Water Stress	27.9	28.5	27.2
International (Specialty)	25.2	23.6	18.8

Freshwater withdrawal intensity (m ³ /tonne)	2021	2022	2023
Overall PCG	5.6	5.8	5.5
Malaysia (Commodity)	3.7	3.9	4.0
International (Specialty)	23.3	26.8	23.4

- Implemented a strategic climate adaptation plan to address future water stress issues to ensure business sustainability
 - Conducted water availability assessment at two locations in water stressed areas, completing the assessment coverage. The outcomes led to the establishment of a collaborative roadmap involving Malaysian stakeholders to address the issues related to water stress
 - Utilised World Research Institute (WRI) water risk atlas – Aqueduct in the initial phase
 - Executed climate change assessment under three scenarios (2030 and 2050), namely Inter-Sectoral Impact Model Intercomparison Project shared socio-economic pathways (SSP) 1-2.6, SSP 3-7.0, and SSP 5-8.5
- Successfully deployed Wastewater Process Condensate Recovering at PC Methanol
- Studied alternative water sources such as ocean and reclaimed sewage to reduce competition for freshwater with communities, thereby improving water access for our plants in water stressed areas
- Continuous implementation of best practices with regards to water management and optimisation. In 2023, we further developed a detailed study on utilising technology to reduce wastewater discharge and fresh water, thereby improving environmental protection at identified water stressed areas. We observed the regulatory requirements for pollutant discharge
- Studying real time wastewater monitoring system in Kertih, Terengganu, adhering to internal control limits that are more stringent than regulatory requirements enabling quicker response and intervention

ENVIRONMENTAL STEWARDSHIP

PROGRESS AND IMPACT (CONTINUED)

WASTE MANAGEMENT

Recycled and recovered **24,190** tonnes
of hazardous waste

Hazardous waste generation (kilotonne)	2021	2022	2023
Overall PCG	97.0	88.8	80.6
Malaysia (Commodity)	26.0	29.2	30.4
International (Specialty)	71.0	59.6	50.2

Hazardous waste underwent 3R (kilotonne)	2021	2022	2023
Overall PCG	20.4	23.4	24.2
Malaysia (Commodity)	19.7	22.3	23.1
International (Specialty)	0.71	1.04	1.07

Hazardous waste final disposal (kilotonne)	2021	2022	2023
Overall PCG	76.5	64.9	54.7
Malaysia (Commodity)	6.25	6.55	5.63
International (Specialty)	70.1	58.4	49.1

Hazardous waste 3R rate (%)	2021	2022	2023
Malaysia (Commodity)	76%	77%	76%

- Identified specific waste streams requiring implementation of Reduce, Reuse and Recycle (3R) approach and continued to reduce waste generation at source
- Actively collaborated with 3R facilities to identify recoverable waste and suitable treatments to divert waste from landfills and final disposal
- Upscaled storage and packaging requirements through infrastructure improvements to enhance waste management, segregation, spillage and non-compliance
- Conducted strict tender processes and evaluations through site visits to ensure reliability and competency of appointed third-party waste management contractors
- Established periodic assurance programmes with contractors to ensure compliance with legislative requirements and contractual obligations
- Improved waste management practices throughout our supply chain, promoting downstream waste recovery ecosystem to increase number of players capable of waste management
- Contributed to cost avoidance initiatives, in support of PCG's circular economy aspirations by reducing the cost of treatment and selling recovered precious metals

ENVIRONMENTAL STEWARDSHIP

AIR EMISSIONS

- Completed installation of low Nitrogen Oxides (NOx) gas turbine engines with De-NOx technology to reduce NOx pollutant emissions to the atmosphere well below regulatory limits at our PC Fertiliser Kedah facility
- Carbon monoxide catalytic converter for the gas turbine at our PC Methanol facility, aimed at reducing carbon monoxide pollutant emissions

Reduced Sulfur Oxides (SOx) emissions to **0.16** kilotonne

Air emissions, NOx (kilotonne)	2021	2022	2023
Overall PCG	25.2	18.7	22.0
Malaysia (Commodity)	25.1	18.5	21.8
International (Specialty)	0.17	0.15	0.12

Air emissions, SOx (kilotonne)	2021	2022	2023
Overall PCG	0.27	0.19	0.17
Malaysia (Commodity)	0.27	0.19	0.16
International (Specialty)	<0.01	<0.01	<0.01

Air emissions intensity (tonne/kilotonne)	2021	2022	2023
Overall PCG	2.22	1.74	2.14
Malaysia (Commodity)	2.44	1.88	2.31
International (Specialty)	0.17	0.18	0.16

BIODIVERSITY

- Based on past BES risk profiling and risk assessment practices, we support the BES risk profiling for PETRONAS' international assets including PCG assets globally. The exercise was also part of the implementation of PETRONAS' Position on Nature and Biodiversity in managing nature and biodiversity risk
- As a result of the profiling, assets identified as Very High and High risk to nature and biodiversity will be further assessed through BES Risk Assessment (BESRA) in 2024. Biodiversity Action Plan (BAP) will also be developed for implementation to mitigate the risk
- We have continued our mangrove rehabilitation efforts in Tanjung Surat, Johor. We have also strengthened our partnership with the Malaysian Nature Society's to restore the EEC ecoCare biodiversity and rehabilitation centre

ENVIRONMENTAL STEWARDSHIP

OUR ACHIEVEMENTS



ISO 14001:2015 Environmental Management Systems certified facilities:
12 operating units in Malaysia
8 operating units in BRB and Perstorp



5,700 mangrove trees planted in 2023



ZERO non-compliance to environmental policies, rules and regulations



PETRONAS Chemicals Ethylene & Polyethylene won **Sustainable Plant of The Year award** at the Asian Downstream Summit (ADS) for waste management initiatives

KEY HIGHLIGHT

- PETRONAS Chemicals Ethylene & Polyethylene (PC EPE), a subsidiary of PCG located in Kertih, Terengganu won Sustainable Plant of the Year Award at the Asian Downstream Summit (ADS)
- PC EPE implemented a waste minimisation journey covering hazardous and non-hazardous waste in collaboration with recycling facilities that convert waste into products for others
- Objectives for PC EPE's Waste Management Journey
 - To reduce the amount of waste sent for final disposal
 - To achieve waste recycling rate above 85% for hazardous waste
 - To instil recycling culture among staff

PC EPE's Waste Minimisation Journey

For Hazardous Waste

Establishment of hazardous waste recycling contracts with approved recyclers by authority based on waste characteristics

2019

Conducted assurance process at recycling facilities

2020

Explored and engaged potential recyclers for other hazardous waste codes

2021

Renewal of hazardous waste recycling contracts with approved recyclers by authority

2022

For Non-Hazardous Waste

First introduction of plastic recycling initiatives at PC EPE in January 2019

Collaboration with PCG on fostering 3R values accompanied with 5S methodology (Sort, Set in order, Shine, Standardise, Sustain) and initiated the Housekeeping Programme in support of the New Plastics Economy

Introduction of other recyclable materials such as aluminium, paper and scrap metal

Introduction of PC EPE Food Waste Recycling programme

Introduction of PC EPE Recycling Reward for quarterly leaderboard

ENVIRONMENTAL STEWARDSHIP

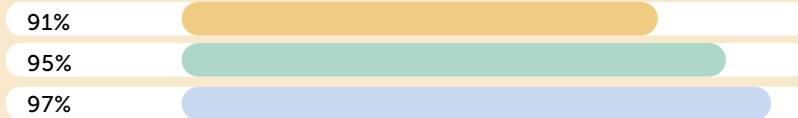
Methodology

For Hazardous Waste

- 1 Identified hazardous waste based on established criteria at process area
- 2 Conducted Suitability Study and Acceptance Test of facility
- 3 Established contract with specialised partners for hazardous waste management
- 4 Transported the hazardous waste to the approved facility and conducted monthly monitoring and reporting
- 5 Conducted assurance process at approved facility for compliance checking

Hazardous waste, 3R (%)

2021 2022 2023 Results



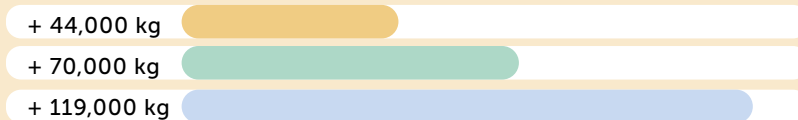
From 2021 to 2023, PC EPE has achieved more than 90% recycling rate for hazardous waste for three years in a row.

For Non-Hazardous Waste

- 1 Introduced the non-hazardous waste recycling initiative to educate staff on proper waste segregation
- 2 Practiced the 3R values when managing non-hazardous waste
- 3 Established contract for non-hazardous waste collectors certified by local authorities
- 4 Performed waste collection periodically and provided rewards to encourage staff participation

Non-hazardous waste, 3R (kg)

2021 2022 2023 Results



For Non-Hazardous Waste, PC EPE has collected a total of recyclable waste worth approximately over 70,000kg in 2022 and 119,000kg in 2023.

Conclusion

- Maintained an outstanding recycling rate exceeding 90% for scheduled waste consistently over the past three years
- Continuously elevated the collection of non-hazardous waste for three consecutive years
- Empowered staff to embrace a recycling ethos, effectively contributing towards the reduction of overall environmental carbon footprint

HUMAN RIGHTS

WHY IT MATTERS

Respect for human rights is integral to how we manage our business and the way we work. Every individual must be accorded with dignity, fairness, respect and equality, regardless of their gender, religion or race.

Respecting human rights allows us to build trust with our employees, consumers, suppliers and communities, and provides us our license to operate. On the other hand, our inability to maintain this across our operations and supply chain could expose PCG to regulatory, legal and reputational risks.



Ensuring safe working conditions at all times.

OUR APPROACH

Guided by the PETRONAS Human Rights Commitment, we uphold internationally recognised human rights throughout our operations, in compliance with the PETRONAS Code of Conduct and Business Ethics (CoBE) and all relevant legal requirements, including the United Nations Guiding Principles on Business and Human Rights (UNGP BHR). This commitment, outlined in the PETRONAS CoBE, is applicable to all employees, including third parties that perform works or services on PETRONAS premises.

PETRONAS' Contractors Code of Conduct on Human Rights (CoCHR) mandates contractors and suppliers to respect internationally recognised human rights principles and comply with PETRONAS' CoBE and all relevant legal requirements. We expect our contractors and suppliers to adhere to PETRONAS' CoCHR principles: freedom of labour, prevention of child labour, wages and benefits, working hours, grievance mechanisms, non-discrimination, freedom of association, humane treatment, and foreign and migrant workers.

To manage potential social risk in our business activities through relationships with partners and contractors, we have conducted due diligence to minimise

KEY HIGHLIGHT

PETRONAS' COCHR KEY PRINCIPLES

- Freedom of Labour
- Prevention of Child Labour
- Wages and Benefits
- Working Hours
- Establish Grievance Mechanism
- Non-discrimination
- Freedom of Association
- Humane Treatment
- Foreign and Migrant Workers

HUMAN RIGHTS

and mitigate any social risk that might arise from our operations. There are four main elements that were assessed, i.e. labour and working conditions, responsible security, community well-being and supply chain management. We have also established a mechanism to address grievances by internal and external stakeholders to enable them to raise complaints freely and obtain effective and transparent resolutions.

Workers and employees have the right to raise their complaints freely without fear of discrimination, harassment or abuse. Employees can raise grievances through their trade union representative, line manager and/or their human resource representatives. We also require our suppliers to establish their own grievance mechanisms for their workforce. All grievances will be investigated and provided with timely and fair remedies when needed.

We also advocate our non-executive employees to participate in workers' unions, exercising their right to defend their economic and social interests. This collective bargaining process is led by PETRONAS' Group Industrial Relations, together with unions and management representatives.

Further to that, we foster a culture of care, inclusion and safety towards the local communities and stakeholders in the areas where we operate.

PROGRESS AND IMPACT

HUMAN RIGHTS

- **Labour and Working Conditions**

- Implemented HSE Management System (HSE MS) to ensure employees and contractors' safety

R For more details, please refer to Safety & Health on pages 68 to 71.

- Freedom of Association and Collective Bargaining

- Conducted regular engagement sessions between our unions (comprising *Kesatuan Kakitangan PETROLIAM NASIONAL BERHAD* and *Kesatuan Pekerja-Pekerja OPTIMAL Chemicals (M) Sdn. Bhd.*) and the Management to address and discuss union matters, encompassing:
 - o Collective agreement provisions and implementation matters; and
 - o Terms and conditions for non-executives, which are not stated in the collective agreement

- Diversity & Inclusion (D&I)
 - o Focused D&I programmes in four key areas – gender, multinational, age and culture

R For more details, please refer to Talent Management & Well-being on pages 72 to 77.

- **Security**

Security personnel at our operating units in Malaysia are managed by the PETRONAS Auxiliary Police. To promote human rights awareness among security personnel and avoid inappropriate use of force and human rights violations, all of PETRONAS' Auxiliary Police received training on human rights policy and procedures conducted by PETRONAS Group.

- **Supply Chain**

- Embedded PETRONAS' CoCHR requirements into contract documents and ensure compliance by conducting audit and compliance assessment

- Increase awareness among contractors and suppliers on human rights management through a series of engagement and awareness sessions

R For more details, please refer to Supply Chain Management on pages 48 to 51.

- **Community Well-being**

- Conducted Social Risk Assessment (SRA) throughout our projects and operations to ensure we could identify, assess and mitigate any social and human rights risk which may affect the communities and other stakeholders where we operate

- Establish grievance mechanisms to provide a platform for stakeholders, including surrounding communities, to lodge grievances. All grievances received are addressed systematically and effectively

- **Engagements**

- In 2023, we conducted three engagement sessions with contractors and operating units (OPUs) to raise awareness on human rights management in PCG

- During the PCG Joint Venture (JV) Forum on 11-12 September 2023, we rallied a commitment from all JV companies to adhere to internationally recognised human rights standards

OUR ACHIEVEMENTS

Union Members	2021	2022	2023
Percentage of union members out of total support staff (%)	75	89	85
Percentage of total employees covered by collective bargaining agreements (%)	38	48	55

SAFETY & HEALTH

WHY IT MATTERS

A strong Health, Safety and Environment (HSE) culture at the workplace is deeply rooted in our business and spans across our value chain. HSE is an important aspect in all our decisions and actions, as it has potential impact on our licence to operate, strengthens investor confidence and sustains the trust of stakeholders. Therefore, it is our responsibility to create a healthy and safe work environment at all operational sites for our employees and workers, as this improves their physical, emotional and mental well-being.

When employees and workers feel protected, it improves their overall well-being and morale, provides higher job satisfaction, enhances productivity levels and drives excellence among our workforce. More importantly, they will feel empowered to raise concerns on possible risks or hazards, and work together towards effective, long-term solutions. This in turn safeguards the community and the environment.

KEY HIGHLIGHT

PCG HSE PARTNERSHIP PLEDGE

- Recognising the importance of a strong partnership among stakeholders to achieve HSE excellence, PCG brought 13 of its contractor companies to pledge their commitment and compliance to health and safety requirements
- With end in mind to create a physically and psychologically safer working environment, PCG provided opportunities for contractors to revitalise leadership and ownership on HSE by driving agreed commitments/pledges towards strengthening HSE implementation for the respective organisations



PCG is committed to strong HSE Excellence.

OUR APPROACH

PCG regards HSE excellence as a core value and productivity driver, not a burden. In order to achieve best-in-class HSE performance throughout all operations, we develop PCG's HSE Strategy and Initiatives, anchored to our three key pillars - Culture, Compliance and Competency.

SAFETY & HEALTH

PCG HSE STRATEGY

PCG continues to focus on several areas, namely to drive culture, compliance and competency, as this is fundamental to achieving PCG’s “Strive for Zero, Zero is Possible” goal.



SUSTAINING BEST-IN-CLASS HSE PERFORMANCE

CULTURE	COMPLIANCE	COMPETENCY
Reinforce leadership roles and instil personal accountability at all levels in amplifying generative culture	Intensify efforts to strengthen compliance with established HSE systems and procedures	Intensify human, assets and systems capability in driving HSE excellence
OWNERSHIP	<i>Leaders are role models and everyone has strong ownership over HSE, as we believe HSE creates value and is good for business</i>	
COURAGEOUS	<i>We feel safe to intervene when we see unsafe conditions and behaviours, and welcome such intervention from our co-workers</i>	
MINDFUL	<i>We are conscious about HSE in what we do because it is the right thing to do, not because somebody is watching</i>	
INTERDEPENDENT	<i>We look out for each other because potential risks and errors are always at the top of our minds, and because nobody has all the answers</i>	

HSE GOVERNANCE

All operational sites are driven by legal requirements that includes HSE committee, which consists of management and employee representatives, enabling compliance towards health and safety regulatory measures.*

The roles and responsibilities of the HSE committee include:

- To assist in the development of safety and health rules as well as a safe system of work
- To conduct studies and provide recommendations on trends pertaining to accidents, near-miss accidents, dangerous occurrences, occupational poisoning or occupational diseases, which occur at the place of work
- To report any unsafe or unhealthy condition or practices at the workplace to the employer and work together to develop recommendations for corrective actions
- To review safety and health policies at the place of work and make recommendations to the employer for any revisions

Managing HSE remains high on our agenda at PCG and we adhere to high standards of regulatory compliance to mitigate the impact on people, environment, assets and reputation. Our management committee has oversight of HSE matters which are discussed at various platforms, including the PCG Board of Directors, Management Committee (MC), Sustainability and Risk Management Committee (SRMC), Manufacturing Leadership Team (MLT) and PCG HSE network. Similarly, the HSE risk at all sites is also a key priority and this is managed through proper hazard identification, risk assessments and risk controls. HSE at our international operations is governed by the respective country’s requirements. PCG remains in compliance with various laws and regulations.

Our strong HSE strategy and goals ensure best-in-class HSE performance to achieve our “Strive for Zero, Zero is Possible” aspiration. At the same time, it instils a Generative HSE Culture within our organisation and throughout our operations. PCG’s HSE Management System (HSE MS) is embedded in every aspect of our business and at every level to minimise disruptions and improve operational efficiency. We implement process safety management to prevent major accidents hazards, especially those associated to highly hazardous chemicals at our workplace.

* International operational sites are governed by their respective country’s requirements.

SAFETY & HEALTH

PROGRESS AND IMPACT

CULTURE

As part of our focus to build a generative culture, we continued to undertake initiatives to achieve HSE excellence:

- Enhanced and sustained FELT Leadership Engagement programmes via Leaders' Reach Out (LRO), FELT Leadership Engagement, Open Mic sessions and more
- Fortified Focused Learning where lessons learnt from major incidents were shared and discussed with strong emphasis on compliance to procedure, to prevent incident recurrence
- Heightened Process Safety Implementation and Culture:
 - Implementation of effective analysis and prevention on Process Safety First Line Assurance
 - Institutionalised compliance on the '8 Golden Rules on Process Safety' (8GRPS) focusing on structured 8GRPS communication and the development of a Process Safety Field Guide, incorporating 8GRPS on Process Safety Observation
- Launched PCG HSE Partnership Pledge 2023 programme for all PCG contractors and stakeholders to:
 - Engage with the top management of all main contractors and relevant authorities to strengthen partnerships with PCG and establish strong HSE commitment among the stakeholders
 - Revitalise leadership commitment (PCG and contractors) on HSE excellence and improve accountability;
 - Promote a Generative HSE Culture

PCG HSE Partnership Pledge 2023

Our Commitment

Established the "Strive for Zero, Zero is Possible" programme

Set up the Safety Community of Practice

Conducted FELT Leadership Engagement by top leaders

Established the Grievance Management System

- Further strengthened contractor management via leadership engagement with employees and contractors to promote two-way discussions on expectations, issues and encourage feedback
- Continued to encourage leaders to promote MESTIfit4Health initiatives, MIND-A-CARE ambassador programmes (mental health) and Fatigue Remedy & Sleep Hygiene (FReSH) 2.0 (sleep hygiene) to improve employees' overall well-being

COMPLIANCE

We scaled up initiatives and activities to integrate safety measures and strengthen HSE compliance throughout our business and operations.

- Standardised turnaround HSE best practices throughout PCG in four key areas:
 - Enhanced contract management with the introduction of the abridged turnaround main contractors contract, revived contract ownership and revisited the penalty and reward scheme
 - Strengthened screening of contractors' HSE personnel
 - Improved site compliance by introducing dedicated site surveillance team, creating impactful site messages and strengthening digital surveillance
 - Adopted HSE best practices to minimise housekeeping issues
- Strengthened contractors' HSE management by improving HSE accountability levels to circumvent potential violations and enhance safety management:
 - Conducted assessments for selected contractors on HSE management
 - Embedded PETRONAS Contractor HSE Mentorship Programmes 2.0 across PCG's Operating Units (OPUs)
 - Established relevant KPIs for identified contractors management and incorporated them under the contractors' HSE plan
- Adopted Electronic Permit To Work 2.0 (ePTW+ 2.0) as a single digital PTW platform which included:
 - Enhanced PTW management by providing real time analytics and reporting which resulted in faster permit applications and approvals, including improvements on Safe System of Work site compliances
 - Streamlined best practices through a single PTW workflow
 - Standardised certificates and hazards registered in alignment with the Hazard and Effect Management Process (HEMP)
 - Improved site compliance by utilising the related infrastructure.
 - Strengthened PTW compliance through a vetted list of signatories with required documentations
 - Implemented toolbox talk with acknowledgements from work leader and workers
 - Ensured the relevant supplementary certificates were completed
 - Successfully piloted this system at PC Methanol with the system going live in December 2023
- Completed Noise Risk Assessment, Chemical Health Risk Assessment and chemical exposure monitoring at our facilities
- Continued to strengthen compliance on Journey Management through effective mitigation efforts:
 - Implemented HSE digital tools to register all drivers, fleets and equipment, enable in-vehicle monitoring system, and monitor driving and journey compliance
 - Continuously engaged with all hauliers on FReSH 2.0
- Heightened compliance to Operating Procedure (OP) and Management of Change (MOC) to manage process hazards effectively and prevent process safety incidents
- Introduced several measures to heighten safety and address Tier-1 Process Safety Event (Major LOPC):
 - Included potential failure mechanisms in the following documents
 - o Equipment Reliability Strategy (ERS) for pressure vessels;
 - o Hazard & Effect Register (HER); and
 - o Critical Activity Catalogue (CAC)
 - Developed internal guideline for torquing method

SAFETY & HEALTH

- Strengthened readiness on emergency response to cater to worst case scenario
 - Evaluated and reviewed PETRONAS Technical Standards and Guidelines, e.g. specifications, recommended Inspection, Testing and Preventive Maintenance (ITPM)
 - Reviewed and updated Emergency Response Plan (ERP) procedures and emergency manual
 - Included Hazardous Material (HAZMAT) response functional drill in existing drill plan for every group after having completed the required training

COMPETENCY

To realise a Generative HSE Culture, we focused on strengthening HSE capability development programmes as well as embedded HSE values among our stakeholders.









- Continued to carry out the Road Transport Operational Guideline modules, personnel upskilling and coaching for leadership management, vehicle management and journey management to ensure effective safe product deliveries
- Continued to drive PETRONAS Group HSE Training Matrix to ensure HSE competency training for each target group, as required by PETRONAS and regulators, are covered across PCG's operations

HAZARD IDENTIFICATION

Identifying hazards at the workplace and across our operation sites is vital in mitigating health and safety risk. We identify and manage hazards using several platforms;

- Applying HEMP in reducing risk to As Low as Reasonably Practicable (ALARP) through identification and assessment of HSE hazards that are likely to exist throughout the life cycle of a project/facility
- Utilising Health, Safety, Security and Environment Integrated Risk Assessment (HIRA) as a one stop center for all risk assessment tools that will enable optimisation and standardisation of risk assessment. One of the tools under HIRA is Hazard Identification (HAZID) which identifies hazards associated with a given activity or facility
- Unsafe Act Unsafe Condition (UAUC) intervention and reporting is part of the hazard identification platform for the workers to intercept and correct unsafe acts and unsafe conditions. PCG leverage on HSE UAUC online system by PETRONAS Group HSE which encourage workers and employees to report on any unsafe acts and unsafe conditions efficiently. The UAUC system also provides the capability of predictive analysis in mitigating and preventing potential recurring HSE incidents

OUR ACHIEVEMENTS

 <p>ISO 45001:2018 Occupational Health and Safety Management Systems certified facilities: 11 operating units in Malaysian operations</p>	 <p>Fatalities 0</p>	 <p>Major Fire 0</p>
 <p>Best-In-Class LTIF</p>	 <p>Total Recordable Occupational Illness Frequency 0</p>	
 <p>HSE incidents affecting communities 0</p>	 <p>Fines and summons from authorities 0</p>	

Safety & Health	2021	2022	2023
Fatalities (Number of Cases)	0	0	0
Tier- 1 Process Safety Event	1	1	1
Lost Time Injury Frequency (Number of LTIs per Million man-hours)	0.07	0.17	0.09
Lost Time Injury (Number of Cases)	2	4	2
Total Recordable Case Frequency (Number of TRCs per Million man-hours)	0.28	0.50	0.24
Total Recordable Case (Number of cases)	8	12	6
Total Recordable Occupational Illness Frequency (Number of Occupational Illness per Million man-hours)	0.09	0.00	0.00

* Data covers Malaysian operations and BRB Group.

TALENT MANAGEMENT & WELL-BEING

WHY IT MATTERS

At PCG, we recognise the importance of building a highly-skilled and productive workforce as this fosters resilience and allows us to execute our strategic priorities. We need to ensure efficient talent management and employee well-being, which will support our business strategy, as we seek to grow our business while strengthening our position in the chemicals industry. This involves providing learning and development programmes for our employees, which is crucial for our capability building to achieve sustainability transformation.

We are also committed to improving our employee well-being, recognising its significance is not only in talent retention but also in enhancing morale and fostering a conducive work environment. This will enhance productivity across our operations, accelerate growth and futureproof our business.



Employee well-being is a priority to PCG.

OUR APPROACH

We continue to provide robust talent solutions to ensure continuous talent supply and competent workforce for PCG, leveraging PETRONAS' Employee Value Proposition namely Trust, Grow and Reward.

In light of our expanding specialty chemicals portfolio, we remain committed towards cultivating a resilient, engaged and high-performing team capable of navigating uncertainties given the challenging macro-environment currently. We consistently focus on constructing a robust talent pipeline to meet business needs, reinforcing succession planning to ensure business continuity and fostering a cohesive workplace culture that embraces diverse talents.

At PCG, we unlock our employees' potential and provide a wide range of opportunities to drive their career aspirations, guided by the PETRONAS Learning and Development Framework. We strive to empower our employees through our training programmes, assessments and learning platforms to expand their skillsets, knowledge and capabilities to enhance agility while facing current challenging and evolving demands of work. To encourage a culture of continuous learning and improve our talent pipeline, we provide our employees with access to different types of learning programmes including blended learning approach (physical and virtual trainings), digital self-learning platforms, coaching and mentoring and on-the-job training as specified in employee's development plan.

We prioritise the overall well-being of our employees by offering a wide

TALENT MANAGEMENT & WELL-BEING

range of support that addresses the welfare needs of our employees, as this helps in safeguarding their physical as well as mental health. We also encourage employees to reach out for psychological safety support to minimise the likelihood of developing mental health conditions. We have implemented various proactive measures such as flexible work arrangements, leave and a multitude of employee benefits. Further to that, we remain guided by our Diversity and Inclusion (D&I) statement to promote diversity and inclusion at the workplace and maintain a zero tolerance approach towards all forms of discrimination regardless of age, ethnicity, gender, nationality, religion and culture.

PROGRESS AND IMPACT

EMPLOYEE WELL-BEING

Work Flexibility

Implementation of flexibility at work to nurture work-life balance such as Flexible Working Hours (FWH), Compressed Work Week (CWW), connectivity assistant and flexible attire at work.

Special Needs Children's Benefits

- Offers financial assistance to employees to cover the treatment expenses related to their children's needs

Employee Facilities

Facilities to provide conducive working environment for employees to feel supported and empowered to perform at their best, such as PETRONITA Crèche (childcare centre), nursing rooms and recreational facilities.

Employee Appreciation

- PCG Long Service Award (LSA), an annual event recognising 486 employees and retirees
- Appreciation Lunch with PCG MD/CEO where 48 young executives received recognition for their notable achievements and performance
- Family Appreciation Day aimed to strengthen bonds and relationships among employees and their families
- Festival celebrations to celebrate multicultural employees i.e. *Hari Raya*, Chinese New Year, Christmas, Gawai Festival, etc

Special Leaves

Special leaves to accommodate employees needs such as maternity and paternity leave, Leave Without Pay (LWP) and compassionate leave.

Transition Assistance Programmes

- Career Transition Offers (CTO) is a compensation package offered to assist affected employees in preparing for re-employment, early retirement or entrepreneurship

Clubs and Associations

Various clubs and associations are available for all employees to support common interests, such as *Kelab Sukan dan Rekreasi PETRONAS (KRSP)*, *PETRONITA*, *Badan Kebajikan Islam PETRONAS (BAKIP)* and *Koperasi Kakitangan PETRONAS Berhad (KOPETRO)*.

EMPLOYEE ENGAGEMENT

PCG Townhall

- Conducted annually and led by PCG's MD/CEO to provide business updates, prior year's performance and forthcoming direction. Acts as a platform for employees to interact with the management via a question-and-answer session
 - 843 employees participated in-person and virtually for PCG Townhall
 - Achieved 99% satisfaction from survey respondents regarding the overall event experience

Open Mic Session

- Conducted to facilitate sharing of insights on building a learning culture between internal and external leaders through this knowledge sharing platform
- Seven Open Mic sessions were held, focusing on climate governance for business sustainability

PETRONAS Dot

- An avenue designed to establish dialogues, encourage communication and enable quicker, simpler access to exciting content, news and updates across the organisation

HR&You

- Platform for employees to connect with personnel from agencies related to remuneration, services and benefits



Scan for more information on our employee benefits and well-being.

TALENT MANAGEMENT & WELL-BEING

PROGRESS AND IMPACT (CONTINUED)

EMPLOYEE WELLNESS

PCG Employee Wellness Programme

- The establishment of 5-year Employee Wellness Roadmap focuses on social, physical and mental health to protect the overall health and well-being of our employees
 - Social Health
 - o Conducted Diversity and Inclusion Awareness Programme
 - Physical Health
 - o Implemented MOVE Right Initiatives which include the establishment of the PCG Walking Challenge and Preventive Health Screening
 - Mental Health
 - o Continued to create "Mind-A-Care" Awareness to employees and leaders through programmes such as Mind-A-Care, C.A.R.E for Managers and Leaders Reach Out

Preventive Health Screening

- A medical screening entitlement for employees aged 30 years and above to encourage employees to care for their health

Employee Assistance Programme (EAP)

- The EAP provides personal consultation and digital coaching through the myFriend platform to support employees in dealing with issues that may adversely impact their health, work performance and well-being

DEVELOPMENT PROGRAMMES

Internship Programme

PETRONAS' Internship Opportunity Programme is a platform designed to offer internship opportunities to undergraduates that satisfy PETRONAS' internship criteria. It offers first-hand experience in the oil and gas environment and provides learning opportunities before entering the workforce.

Graduate Employability Enhancement Scheme (GEES)

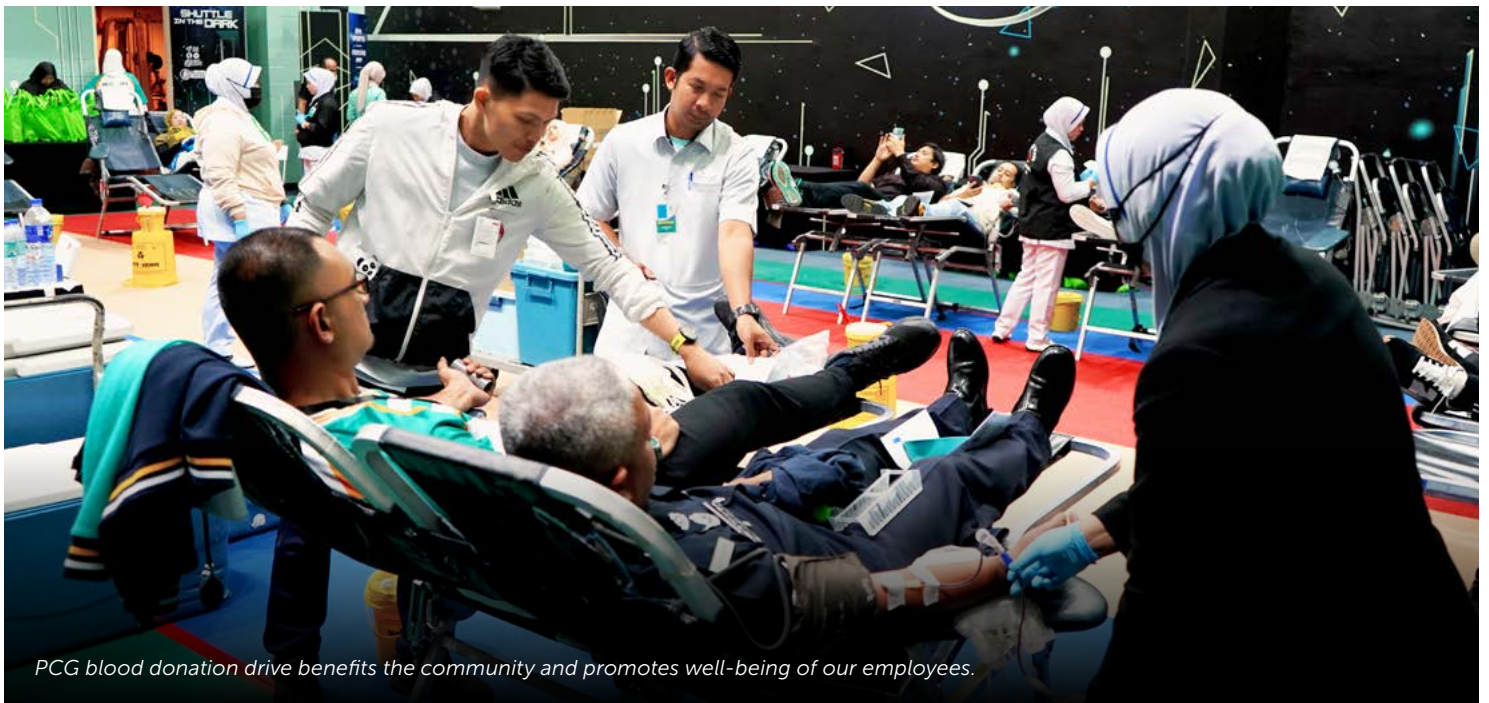
PETRONAS supports the Professional Training and Education for Growing Entrepreneurs (PROTÉGÉ)-Ready To Work initiative through its GEES. GEES aims to enhance employability of new graduates to obtain long term employment or to set up their own businesses via a one-year experiential training programme.

Technical Enrichment Programme (TEP)

A collaboration effort with Institut Teknologi Petroleum PETRONAS (INSTEP) to provide a 10-month pre-employment programme, comprising of Competency Based Assessment (CBA) modules based on PETRONAS' standard. This is to support the growth requirements and succession planning for technicians and operators.

Superior Managed Assessment (SMA)

SMA is a structured competency conversation for technical talent, managed and conducted by selected superiors in developing a competent workforce. It empowers superiors to manage their talents' competency levels by reviewing, tracking and analysing their development via an 'Anywhere, Anytime, Anyway' approach.



PCG blood donation drive benefits the community and promotes well-being of our employees.

TALENT MANAGEMENT & WELL-BEING

PETRONAS Competency-based Assessment System (PECAS)

PECAS is an assessment process to measure competency of technicians and operators' knowledge, skill and attitude against the required PETRONAS standards. The assessment process will be done via a computerised PETRONAS Competency-based Assessment System (e-PECAS). The current PECAS will be further improved to the Enhanced PECAS (PECAS+) in supporting futureproofed workforce and enhance the value of technicians and operators' skills and competencies.

PCG Acceleration and Enrichment Programme for Managers (PACE4M)

A customised programme designed for newly-appointed managers to strengthen their human resource and leadership competencies. It is aimed at empowering, enabling and producing agile managers, in line with PCG's talent aspirations.

Leadership Development in Action (LDA)

Continuous implementation of LDA for potential leaders. Selected talents were coached by an assigned trainer and involved in cross-functional assignments/projects for a defined period.

Employee Performance Management (EPM)

Overall employee performance is objectively assessed and differentiated based on performance and demonstration of PETRONAS Cultural Belief (PCB) behaviours. A performance conversation takes place between employees and their managers where regular feedback is provided throughout the cycle based on agreed-upon goals.

Succession Planning

Aims to ensure each key position in PCG has sufficient successors for a sustainable leadership pipeline supported by talent development. Identified talent were assessed based on leadership and functional competencies to be further developed to ensure readiness for higher roles. This will minimise risk associated with leadership transition and ensure continuity in delivering business priorities.

Sustainability Fulfillment Programmes

At PCG, we are committed to develop our employees to support the implementation of PCG Sustainability Agenda. In 2023, we sent employees for sustainability short programmes at internationally recognised institutions, professional certification courses, sustainability forum and workshops.

Examples of certification and programmes include:

- i) University of Cambridge Business Sustainability Management
- ii) MIT Management Business Sustainability Strategy: Technology & Management
- iii) IMD Winning Sustainability Strategies
- iv) Yale Corporate Sustainability Management: Risk, Profit and Purpose
- v) Green Project Management Certification
- vi) Global Reporting Initiative (GRI)
- vii) Bursa Malaysia - Introduction to Sustainability

We also conducted internal capability development programmes and leveraged e-learning modules to provide basic sustainability awareness at all levels. Moving forward, we are rolling out a structured and customised programme to ensure continuity in upskilling efforts across the organisation, as well as expand capability development across the leadership and functional dimensions.

DIVERSITY & INCLUSION (D&I)

D&I Initiatives and Programmes

- Focus was given on Psychological Safety and Conscious Inclusion topics in 2023, with the aim of increasing awareness and leadership upskilling through various platforms. This initiative is led by the Chief Financial Officer as the Project Champion with 21 talents appointed as programme ambassadors
- D&I programmes were tailored in collaboration with PETRONAS Leadership Centre (PLC) to cultivate a caring culture at the workplace. Among the initiatives conducted during the roll out were:
 - Conversation and Engagement through leaders' sharing, forum and open mic sessions
 - Communication and Promotion by ensuring consistent flow of information were showcased through intranet postings and email blasts on healthy and dynamic work culture
 - Training and Upskilling through a targeted group of leaders who were given opportunities to equip themselves with skills and tools in create an inclusive environment within teams and supply chain

TALENT MANAGEMENT & WELL-BEING

OUR ACHIEVEMENTS



100% talent fulfillment for **Specialty Chemicals division**, to support PCG's growth strategy



41 critical positions

identified and approved for succession planning



100% assessment completion

for performance review



Sponsored

75 graduates through TEP

in collaboration with INSTEP to support business and growth requirements



56 talents

participated in leadership programmes i.e. PACE4M and LDA



30% of total employees

progressed to new portfolio and roles for career enhancement and development



RM43.4 million

invested in employee training and development



11 average training man-days per employee



518 total new hires across PCG



Strong talents drive our business forward.

TALENT MANAGEMENT & WELL-BEING

Number of Employees	2021	2022	2023
Total Number of Employees	4,585	6,288	6,465

Employee Turnover	2021	2022	2023
Employee Turnover Rate (%)	1.9	3.0	1.3

Capability Development	2021	2022	2023
Average amount spent per Full Time Equivalent (FTE) on training and development (RM Thousand)	1.6	5.6	9.7
Total investment in employee training and development (RM Million)	6.9	24.4	43.4
Average training per employee (man-days)	3.0	10.2	11.1

PETRONAS D&I Statement with Targets				
Focus Area	Long-Term Aspiration	2022 (%)	2023 (%)	Target 2026 (%)
Gender	Women in senior leadership			
	<ul style="list-style-type: none"> Providing opportunities for women representatives in senior leadership positions to ensure diversity of perspectives and ideas in decision making 	29	31	30
Multinational	Representation of diverse nationalities in senior leadership			
	<ul style="list-style-type: none"> Building and having qualified local nationals to fill the majority of the decision-making positions in every country we operate in and having readily available local talent to take up leadership roles globally 	16	18	20
Age	Enable space for idea generation from young talents			
	<ul style="list-style-type: none"> Creates an innovation-led organisation where young talents feel empowered, involved, connected and inspired to contribute new ideas and constantly explore new ways of doing things 	20	21	30
Culture	Differences in perspectives are respected and valued			
	<ul style="list-style-type: none"> Creates an environment where people feel safe and confident to speak up and put different views across to foster creativity and innovation 	3 rd Quartile POCS Results (D&I Module)	3 rd Quartile POCS Results (D&I Module)	4 th Quartile POCS Results (D&I Module)



Focusing on diversity & inclusion at our HR&U event.

COMMUNITY ENGAGEMENT

WHY IT MATTERS

At PCG, our unwavering commitment to delivering positive impact on the communities we serve is embodied in the PCG Community Engagement and Social Impact Programmes.

Fostering trust and empowering communities through impactful initiatives allow us to generate long-lasting effects on the well-being of the local communities where we operate. Our dedication to addressing diverse community needs underscores our commitment to social development and sustainable community support. It is our corporate duty to contribute to society, nurturing trust and promoting community well-being even in challenging circumstances.



Be Green's first foray in Thailand.

KEY HIGHLIGHT

EXPANDED BE GREEN BEYOND MALAYSIA FOR THE FIRST TIME

Embarked to Indonesia via a partnership with University of Indonesia (UI), facilitated by our subsidiary, PT PCM Kimia Indonesia.

Initiated in Thailand via a collaboration with TerraCycle Thai Foundation to clean up a section of the Lat Phrao Canal, together with students from Klong Song Kratiam School, Wat Lad Prao School and Satri Witthaya School.

OUR APPROACH

PCG has taken a hands-on approach for our social impact programmes as we want to make a positive impact in the lives of the communities where we operate. Our community engagement programmes are anchored on three focus areas of the PCG Social Impact Strategy, namely Environment, Education, and Community Well-being and Development.

To strengthen our integration into these communities, we also collaborate and engage in partnerships with non-governmental organisations (NGOs) and local government agencies as this ensures our programmes are tailored to different needs of the community. We encourage our employees to volunteer for our social impact programmes to cultivate a workforce that cares to make meaningful contributions to the communities.

COMMUNITY ENGAGEMENT

PROGRESS AND IMPACT

BE GREEN AND PLASTIC, SUSTAINABILITY AND YOU EDUCATION (PSYE)

- Nationwide initiative:
 - Organised PCG's Be Green initiatives and waste management competition in collaboration with the Ministry of Education, local authorities and waste collectors in areas where we operate, including Klang Valley, Labuan, Gebeng, Gurun, Kertih, Bintulu, and Sipitang. Additionally, an MoU was established between PCG and Cenviro for waste management and recycling initiatives in central regions such as Putrajaya, Kuala Lumpur and Selangor
 - Beach cleaning activities were conducted in collaboration with local NGO Geng Plastic Ija in Terengganu, with volunteers cleaning beaches in Pantai Rantau Abang, Dungun, Terengganu
- International activation:
 - PCG's premier Be Green activation in Jakarta and Bangkok

Jakarta, Indonesia:

Hosted a plogging activity in conjunction with Jakarta's Car Free Day in collaboration with a local NGO, KamiBox, with over 100 in attendance, including members of the Malaysian Embassy, local partners, surrounding communities and students

Hosted an engaging and educational session with students from UI, covering various topics including the PSYE module. We also provided 20 recycling bins around the campus to enable a culture of sustainability and the practice of Reduce, Reuse and Recycle (3R)

Bangkok, Thailand:

Worked with over 80 students from Klong Song Kratiem School, Wat Lad Prao School and Satri Witthaya School to further clean up a section of the Lat Phrao Canal. This initiative, which resulted with the removal of about 4,000kg of ocean bound plastics from the canal, was organised by our subsidiary PCM (Thailand) Co. Ltd and our partner, TerraCycle Thai Foundation. We also taught the students on the importance of recycling and instilled in them the values of sustainability

MANGROVE CONSERVATION AND REHABILITATION

- Signed a new partnership with the Malaysian Nature Society (MNS) to restore the Environmental Education Centre (EEC) ecoCare and to uplift the centre to become a prominent mangrove conservation, rehabilitation and biodiversity centre
- We collaborated with PETRONAS Refinery and Petrochemical Corporation (PRPC) and *Persatuan Sahabat Hutan Bakau Pulau Tanjung Surat* for the planting of 9,000 mangrove trees in Tanjung Surat, Johor for the year 2022 until 2023

SAFE HANDLING OF CHEMICALS FOR SCHOOL (SHOC4School)

- Aimed to increase awareness of safety in handling chemicals, this programme exposes students to basic first aid and the necessary lab safety procedures
- Contributed safety kits for safe chemical management to local school students where we operate, such as Labuan, Gebeng, Gurun, Kertih, Bintulu and Sipitang

INTERNATIONAL OPERATIONS

Perstorp, Sweden:

Perstorp operates a technical college locally, educating 90 students annually in subjects such as technic, industrial technic, and electric and energy.

Stenungsund, Sweden:

Attracted over 60,000 visitors at the local science centre, which is a collaboration between Perstorp, local neighbouring chemical companies and the local community to foster interest in chemistry among children and students.

OUR ACHIEVEMENTS



Over **120 tonnes** of recyclable waste collected from our Be Green programme



Reached out to more than **11,000** students, teachers and individuals via ecoCare



In 2023, we invested nearly **RM3 million** and benefited more than **170,000*** community members



5,700 mangrove trees planted in 2023

* calculation methodology for the number of community reach that benefited from our programmes has been revised in 2023 per alignment with Yayasan PETRONAS.

CORPORATE GOVERNANCE

WHY IT MATTERS

Strong and effective corporate governance is integral to the organisation's business as it protects the interest of stakeholders and sustainability of the organisation over the long-term. At PCG, we remain committed to upholding an effective and robust governance system by ensuring integrity, compliance, transparency and accountability.

With the rising pressure across the markets and increasingly competitive economy, corporate governance has emerged as the cornerstone in developing strategy. Employing good governance builds credibility among stakeholders, fosters trust and at the same time, improves risk management capabilities, all of which strengthens stakeholders' interest in our organisation. Our ability to adopt strong governance best practices also ensures timely and transparent disclosures. Therefore, we continue to prioritise long-term value creation as this will benefit PCG and our stakeholders, delivering long lasting and meaningful relationships.



PCG Board plays a pivotal role in ensuring highest levels of governance.

OUR APPROACH

At PCG, we adhere to the Main Market Listing Requirements (MMLR) and the Malaysian Code of Corporate Governance. Our corporate governance framework has been designed to ensure decisions are made in the best interests of all our stakeholders. It is anchored on robust processes, effective internal controls, risk management and strong leadership team.

We remain guided by PETRONAS' Integrity Compliance Framework and PETRONAS' Code of Conduct and Business Ethics (CoBE). In addition, we comply with relevant guidelines in the countries where we have a presence. Our Board of Directors plays a key role in setting the appropriate standards, drives accountability as well as encourage an ethical and transparent corporate culture.

CORPORATE GOVERNANCE

PROGRESS AND IMPACT

CORPORATE GOVERNANCE FRAMEWORK

- PCG commenced its Anti-Bribery Management Systems (ABMS) journey in Malaysia in 2023 and adopted the MS ISO 37001 International ABMS Standard to facilitate the implementation, maintenance and enhancement of our anti-bribery compliance programme to prevent, detect and respond to occurrences of corrupt practices with our organisation
- Part of the process of achieving the ABMS included implementing Corruption Risk Assessment (CRA) and adopting PETRONAS procedures and guidelines. It also included developing 10 key objectives with KPIs, focusing on raising awareness on integrity through initiatives such as engagement sessions, obtaining ISO 37001 and reviewing the CRA annually

CAPABILITY AND COMPETENCY

- Board members attended sustainability training and conferences to enhance their knowledge on corporate governance. These included a conversation series on sustainability, transparency and disclosure by the IFRS, as well as refresher training on governance, risk and compliance

R For more information on Board of Directors' training and capability development, please refer to *Induction and Training* on pages 96 to 99 in the *Integrated Report*.

INTEGRITY CAMPAIGN

- Held a knowledge-sharing initiative to create awareness of the relevant laws related to integrity, which benefited employees in the following areas:

- Enabled employees to share learning experiences and knowledge of lessons learnt
- Improved employee understanding of PETRONAS' Integrity Compliance Framework and CoBE
- Encouraged employees to contribute to a workplace that is free from any element of conflict of integrity

COMMITMENT TO INTEGRITY

In cementing our commitment to integrity in 2023, a comprehensive initiative was implemented where all directors signed the Integrity Pledge while employees were mandated to submit asset declarations. Concurrently, the Anti-Bribery and Corruption (ABC) Policy was also revised, demonstrating PETRONAS' steadfast commitment to upholding the highest standards of integrity and ethical conduct across its operations. PCG also appointed an integrity focal person.

These measures were done in accordance with Section 17A of the Malaysian Anti-Corruption Commission Act (2009), which was amended by Malaysian Anti-Corruption Commission (MACC) in April 2018. This amendment introduces corporate liability on companies, where companies will be held accountable for lapses in preventing bribery and corruption. Based on these legislation changes, the enforcement of Section 17A took effect on 1 June 2020.

CORPORATE GOVERNANCE

PROGRESS AND IMPACT (CONTINUED)

As a commercial organisation, PCG is exposed to corporate liability pursuant to Section 17A of the Malaysian Anti-Corruption Commission Act (2009). Therefore, our primary recourse to protect the organisation was to adopt the Prime Minister Office's (PMO) Guidelines on Adequate Procedures. These guidelines are anchored on five TRUST principles:



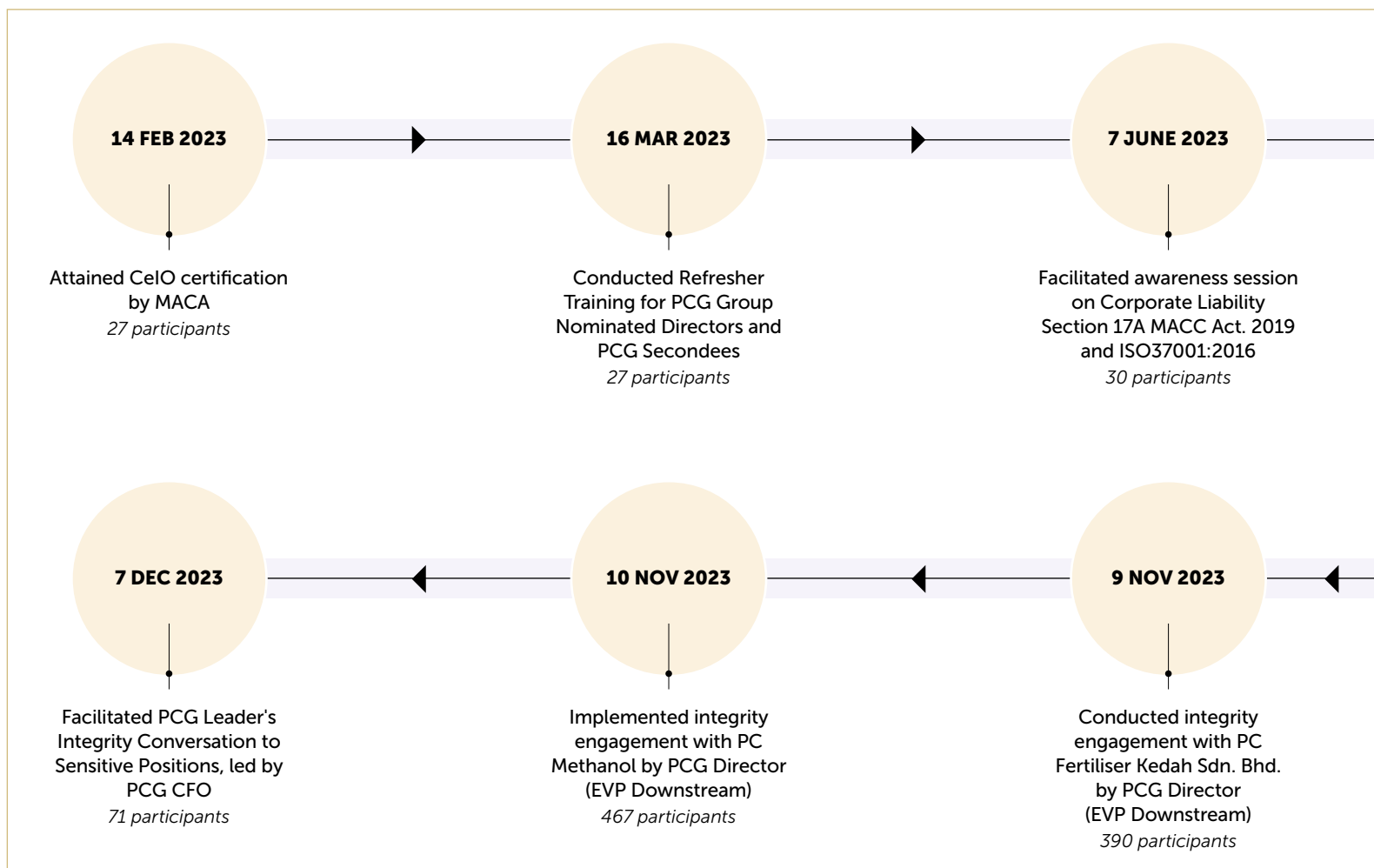
In a proactive response to these regulatory imperatives, PCG initiated the process to obtain ABMS ISO 37001:2016 certification for the PCG Corporate Office in 2023. This undertaking was designed to elevate the implementation of Adequate Procedures, which is rooted in the TRUST principles. The comprehensive process involved a thorough review and enhancement of documents, including manuals and guidelines, with the objective of identifying, preventing and effectively addressing instances of corrupt practices within the organisation.

Following this, PCG completed the ABMS audit and obtained certification from SIRIM in February 2024. This certification represents PCG's stringent implementation, maintenance and continuous enhancement of its anti-bribery compliance programme.

INTEGRITY CAMPAIGN AND UPSKILLING

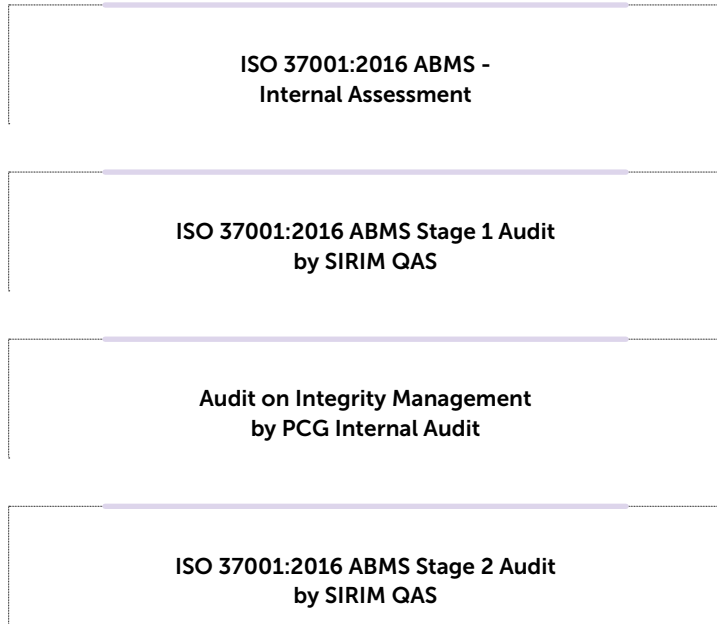
Throughout the year, numerous campaigns, training sessions, engagement and communication initiatives were conducted as part of our ongoing efforts to heighten awareness and nurture a culture of integrity within PCG.

Key activities included:



CORPORATE GOVERNANCE

Further to this, PCG also undertook Integrity Management audit and assurance activities as outlined below:



These initiatives yielded substantial benefits for PCG employees:

- Provided a platform for employees to exchange learning experiences and lessons learnt
- Deepened employees' comprehension of PETRONAS' Integrity Compliance Framework, CoBE and ABMS
- Motivated employees to actively foster a workplace culture that is free from integrity disputes

OUR ACHIEVEMENTS



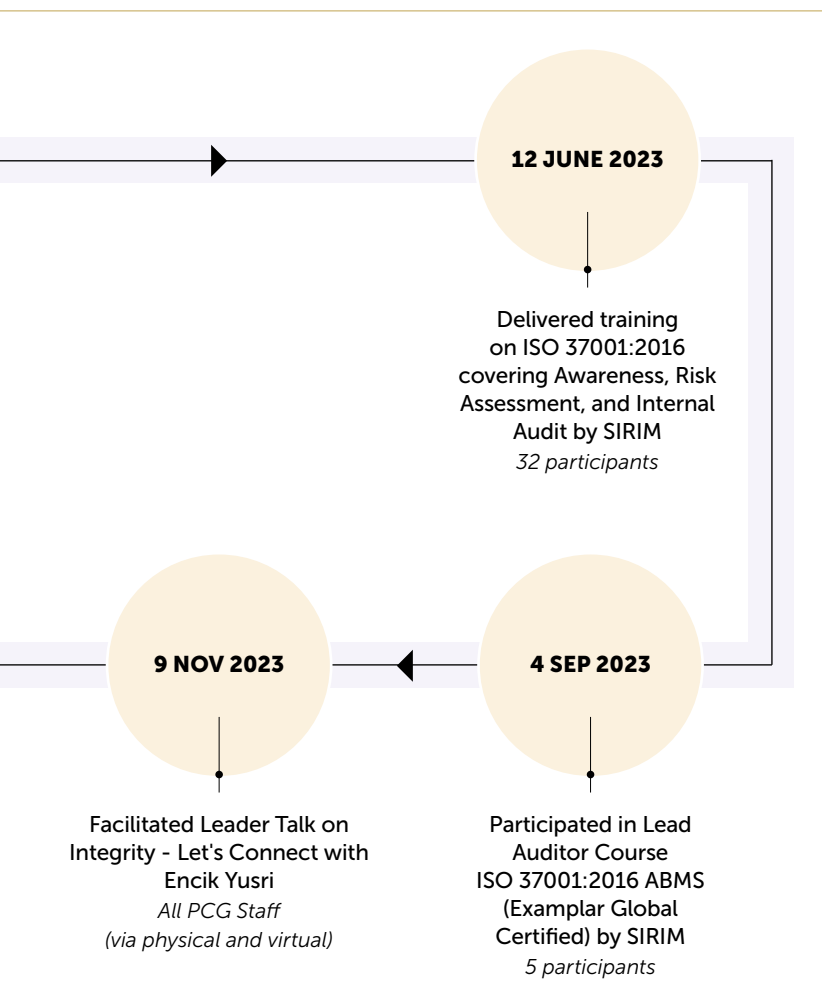
MyLearning: CoBE
4,303 participants



Managing Industrial Relations at workplace
More than 350 participants



Industrial Relations for Leaders Programme (IR4)
410 participants



12 JUNE 2023

Delivered training on ISO 37001:2016 covering Awareness, Risk Assessment, and Internal Audit by SIRIM
32 participants

9 NOV 2023

Facilitated Leader Talk on Integrity - Let's Connect with Encik Yusri
All PCG Staff (via physical and virtual)

4 SEP 2023

Participated in Lead Auditor Course ISO 37001:2016 ABMS (Exemplar Global Certified) by SIRIM
5 participants

INDEPENDENT LIMITED ASSURANCE REPORT

TO THE BOARD OF DIRECTORS OF PETRONAS CHEMICALS GROUP BERHAD

REGISTRATION NO: 199801003704 (459830-K)
(INCORPORATED IN MALAYSIA)

INDEPENDENT PRACTITIONER'S LIMITED ASSURANCE REPORT ON PETRONAS CHEMICALS GROUP BERHAD'S INTEGRATED REPORT FOR THE YEAR ENDED 31 DECEMBER 2023

We have been engaged by PETRONAS Chemicals Group Berhad ("PCG") to perform an independent limited assurance engagement on selected sustainability indicators (collectively, the "Subject Matter Information") as reported by PCG in its Integrated Report for the year ended 31 December 2023 (the "Integrated Report 2023") for all subsidiaries in Malaysia.

Limited Assurance Conclusion

Based on the procedures we have performed as described under the "Summary of the work we performed as the basis of our assurance conclusion" and the evidence we have obtained, nothing has come to our attention that causes us to believe Subject Matter Information contained in the PCG's Integrated Report 2023, has not been prepared, in all material respects, in accordance with the Applicable Criteria.

Subject Matter Information

The Subject Matter Information reported in the PCG's Integrated Report 2023 on which we provide limited assurance, consists of:

Material Matter	Applicable Criteria	Selected Disclosures
Environmental (All manufacturing subsidiaries in Malaysia)		
GRI 305: Emissions 2016	GRI 305-1 Direct (Scope 1) GHG emissions	• Scope 1 GHG emission (million tonnes CO ₂ e): 5.74
	GRI 305-2 Energy indirect (Scope 2) GHG emissions	• Scope 2 GHG emission, Location based (million tonnes CO ₂ e): 1.33 • Scope 2 GHG emission, Market based (million tonnes CO ₂ e): 1.24
	GRI 305-7 Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions	• Air emissions, NOx (kilotonne): 21.8 • Air Emissions, SOx (kilotonne): 0.16
GRI 302: Energy 2016	GRI 302-1 Energy consumption within the organisation	• Total energy consumption within the organisation (million GJ): 100.38
GRI 303: Water and Effluents 2018	GRI 303-3 Water withdrawal	• Freshwater withdrawal (million m ³): 37.7
	GRI 303-4 Water discharge	• Chemical Oxygen Demand (COD), (tonne): 219.4
Social (All subsidiaries in Malaysia)		
GRI 403: Occupational Health and Safety 2018	GRI 403-9 Work-related injuries	• Lost Time Injury Frequency (Number of lost time injuries per million man-hours): 0.09
Tier-1 Process Safety Event (All manufacturing subsidiaries in Malaysia)		
ANSI/API recommended practice 754	ANSI/API recommended practice 754 Process Safety Performance Indicators for the Refining and Petrochemical Industries	• Number of Tier-1 Process Safety Event(s) occurred: 1

We do not express an assurance conclusion on information in respect of earlier periods included in, linked to, or from the Integrated Report 2023, or any other information accompanying the said document.

Applicable Criteria

The Subject Matter Information needs to be read and understood together with the Applicable Criteria, which PCG is exclusively responsible for selecting and applying.

The Applicable Criteria used for the reporting of the Subject Matter Information are as follows:

- The Global Reporting Initiative ("GRI") Universal Standards 2021 disclosures;
- The American Petroleum Institute ("API") Recommended Practice 754, Process Safety Performance Indicators for the Refining and Petrochemical Industries, Third Edition 2021; and
- PCG's internal sustainability reporting policies and procedures by which the Subject Matter Information's data is collected, collated, and consolidated internally. (collectively known as "Applicable Criteria").

INDEPENDENT LIMITED ASSURANCE REPORT

Independence and Quality Management

We have complied with the independence and other ethical requirements of the By-Laws (on Professional Ethics, Conduct and Practice) of the Malaysian Institute of Accountants ("MIA") and the International Ethics Standards Board for Accountants' International Code of Ethics for Professional Accountants (including International Independence Standards), which is founded on fundamental principles of integrity, objectivity, professional competence and due care, confidentiality and professional behaviour.

Our firm applies International Standard on Quality Management 1 ("ISQM1"), which requires the firm to design, implement and operate a system of quality management including policies or procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Management's Responsibilities

Management of PCG is responsible for:

- Selecting or establishing the suitable Applicable Criteria for preparing the Subject Matter Information;
- Preparing the Subject Matter Information included in the Integrated Report 2023 in accordance with the Applicable Criteria; and
- Designing, implementing, and maintaining internal control over information relevant to the preparation of the Subject Matter Information that is free from material misstatement, whether due to fraud or error.

Our Responsibilities

Our responsibility is to form a conclusion whether, based on the procedures performed, anything has come to our attention that causes us to believe Subject Matter Information contained in the PCG's Integrated Report 2023, has not been prepared, in all material respects, in accordance with the Applicable Criteria. We conducted our engagement in accordance with the approved standard for assurance engagement in Malaysia: International Standard on Assurance Engagements 3000 (Revised) Assurance Engagements other than Audits or Reviews of Historical Financial Information ("ISAE 3000 (Revised)"). That standard requires that we plan and perform this engagement to obtain limited assurance about whether the Subject Matter Information is free from material misstatement.

A limited assurance engagement undertaken in accordance with ISAE 3000 (Revised) involves assessing the suitability in the circumstances of PCG's use of the Applicable Criteria as the basis for the preparation of the Subject Matter Information, assessing the risks of material misstatement whether due to fraud or error, responding to the assessed risks as necessary in the circumstances, and evaluating the overall presentation of Subject Matter Information. A limited assurance engagement is substantially less in scope than a reasonable assurance engagement in relation to both the risk assessment procedures, including an understanding of internal control, and the procedures performed in response to the assessed risks.

Our engagement will include such procedures as we consider necessary in the circumstances, including, but not limited to:

- Evaluating the suitability in the circumstances of PCG's use of the Applicable Criteria, as the basis for preparing the Subject Matter Information;
- Through inquiries, obtained an understanding of PCG's control environment, processes and information systems relevant to the preparation of the Subject Matter Information. Our procedures did not include evaluating the design, implementation or operating effectiveness of control activities;
- Evaluating whether PCG's methods for developing estimates are appropriate and had been consistently applied. Our procedures did not include testing the data on which the estimates were based and we did not separately develop our own estimates against which to evaluate PCG's estimates;
- Testing a number of selected items to or from supporting records, as appropriate;
- Performing analytical procedures by comparing the expected targets to actual emissions or consumption, and by comparing current period to prior period, and made inquiries of management to obtain explanations for any significant differences we identified; and
- Considering the presentation and disclosure of the Subject Matter Information.

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for, a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had we performed a reasonable assurance engagement. Accordingly, we do not express a reasonable assurance opinion about whether the Subject Matter Information report has been prepared, in all material respects, in accordance with the Applicable Criteria.

Inherent Limitations

The absence of a commonly used generally accepted reporting framework or a significant body of established practice on which to draw to evaluate and measure the Subject Matter Information allows for different, but acceptable, measurement techniques that can affect comparability between entities and over time.

Consequently, the Subject Matter Information needs to be read and understood together with the Applicable Criteria and Section 1, set out in the "Basis of This Report" of the Integrated Report 2023, which PCG has used to prepare the Subject Matter Information.

Restriction on Use

This report is made solely to the Board of Directors of PCG in accordance with the terms of our engagement. Our work has been undertaken for the purpose of providing a limited assurance conclusion on the Subject Matter Information. As a result, this report may not be suitable for another purpose. We consent to the inclusion of this report in the PCG's Integrated Report 2023 to be disclosed on the website of PCG at <https://www.petronas.com/pcg/>, to assist the Board of Directors in responding to their governance responsibilities by obtaining an independent limited assurance report on the Subject Matter Information for 2023.

We do not accept or assume responsibility to anyone other than the Board of Directors of PCG for our work, for this limited assurance report, or for the conclusions we have reached.



DELOITTE PLT (LLP0010145-LCA)
Chartered Accountants (AF 0080)

26 Feb 2024

PERFORMANCE DATA

Indicator	Measurement Unit	2021	2022	2023
Innovation and Product Stewardship				
Bursa C8(a) Number of substantiated complaints concerning breaches of customer privacy and losses of customer data	Number	-	-	0
Bursa (Supply chain management)				
Bursa C7(a) Proportion of spending on local suppliers	Percentage	66.00	70.00	87.00
Climate Change				
Bursa C4(a) Total energy consumption	Megawatt	28,408,333.00	29,138,889.00	27,883,333.00
Bursa C11(a) Scope 1 emissions in tonnes of CO2e	Metric tonnes	5,984,727.00	5,949,058.00	5,958,648.00
Bursa C11(b) Scope 2 emissions in tonnes of CO2e	Metric tonnes	1,480,406.00	1,482,709.00	1,375,353.00
Environmental Stewardship				
Bursa C9(a) Total volume of water used	Megalitres	63,720.000000	62,660.000000	56,460.000000
Human Rights				
Bursa C6(d) Number of substantiated complaints concerning human rights violations	Number	-	-	0
Safety & Health				
Bursa C5(a) Number of work-related fatalities	Number	0	0	0
Bursa C5(b) Lost time incident rate ("LTIR")	Rate	0.07	0.17	0.09
Talent Management & Well-Being				
Bursa C3(a) Percentage of employees by gender and age group, for each employee category				
Age Group by Employee Category				
Management Under 30	Percentage	-	0.00	0.00
Management Between 30-50	Percentage	-	13.00	13.00
Management Above 50	Percentage	-	3.00	3.00
Non-Management Under 30	Percentage	-	10.00	11.00
<div style="display: flex; justify-content: space-between; align-items: center;"> Internal assurance External assurance No assurance (*)Restated </div>				

Indicator	Measurement Unit	2021	2022	2023
Non-Management Between 30-50	Percentage	-	67.00	65.00
Non-Management Above 50	Percentage	-	7.00	8.00
Gender Group by Employee Category				
Management Male	Percentage	-	12.00	9.00
Management Female	Percentage	-	4.00	4.00
Non-Management Male	Percentage	-	71.00	70.00
Non-Management Female	Percentage	-	13.00	17.00
Bursa C5(c) Number of employees trained on health and safety standards	Number	-	-	4,287
Bursa C6(a) Total hours of training by employee category				
Management	Hours	-	26,228	41,485
Non-Management	Hours	-	238,436	305,759
Bursa C6(b) Percentage of employees that are contractors or temporary staff	Percentage	-	-	8.00
Bursa C6(c) Total number of employee turnover by employee category				
Management	Number	3	11	11
Non-Management	Number	39	57	44
Community Engagement				
Bursa C2(a) Total amount invested in the community where the target beneficiaries are external to the listed issuer	MYR	-	-	2,727,125.69
Bursa C2(b) Total number of beneficiaries of the investment in communities	Number	295,000	75,442	171,715
Corporate Governance				
Bursa C1(a) Percentage of employees who have received training on anti-corruption by employee category				
Management	Percentage	-	100.00	99.00
Non-Management	Percentage	-	99.00	95.00
<div style="display: flex; justify-content: space-between; align-items: center;"> Internal assurance External assurance No assurance (*)Restated </div>				

PERFORMANCE DATA

Indicator	Measurement Unit	2021	2022	2023
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
Bursa C3(b) Percentage of directors by gender and age group				
Male	Percentage	78.00	67.00	62.00
Female	Percentage	22.00	33.00	38.00
Under 30	Percentage	0.00	0.00	0.00
Between 30-50	Percentage	0.00	0.00	0.00
Above 50	Percentage	100.00	100.00	100.00

Note:

- The performance data table above is generated from the custom template of Bursa's ESG reporting platform
- Indicators labeled "n/a" signifies that the information is not available due to first time reporting, in accordance with Bursa MMLR
- As PCG strives to improve the inclusiveness of its disclosure, data boundaries for the above table is as follows:
 - Data is representing PCG+BRB+Perstorp: Indicators C2(b), C3(b), C6(b), C9(a), C11(a), C11(b)
 - Data is representing PCG+BRB: Indicators C3(a), C5(a), C5(b)
 - Data is representing PCG only: C1(a), C1(b), C1(c), C2(a), C4(a), C5(c), C6(a), C6(c), C6(d), C7(a), C8(a)
- For indicator C3(a), data is inclusive of Perstorp for gender group in 2023
- For indicator C9(a), data is for water withdrawal. For further information, refer to Environmental Stewardship on pages 60 to 65
- For indicator C11(b), data is for market based emissions. For further information, refer to Climate Change on pages 56 to 59

Internal assurance

External assurance

No assurance

(*)Restated

GRI CONTENT INDEX

GRI UNIVERSAL STANDARDS 2021

Statement of Use	PETRONAS Chemicals Group Berhad has reported the information cited in this GRI content index for the period 1 January to 31 December 2023 with reference to the GRI Standards.
GRI 1 Used	GRI 1: Foundation 2021

GRI DISCLOSURE	GRI DISCLOSURE DESCRIPTION	PAGE NUMBER	REMARKS/OMISSIONS
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GRI 2: General Disclosures 2021

The organisation and its reporting practices

2-1	Organisational details	8-9	
2-2	Entities included in the organisation's sustainability reporting	2, 8	
2-3	Reporting period, frequency and contact point	2-3	
2-4	Restatements of information	11, 33, 57, 86-87	
2-5	External assurance	84, 85	

ACTIVITIES AND WORKERS

2-6	Activities, value chain and other business relationships	8-9	
2-7	Employees	77, 86-87	
2-9	Governance structure and composition	15	Refer to Corporate Governance Overview Statement in PCG's Integrated Report 2023
2-10	Nomination and selection of the highest governance body	-	Refer to Corporate Governance Overview Statement in PCG's Integrated Report 2023.
2-11	Chair of the highest governance body	-	Refer to Corporate Governance Overview Statement in PCG's Integrated Report 2023.
2-12	Role of the highest governance body in overseeing the management of impacts	14-15	
2-13	Delegation of responsibility for managing impacts	14-15	
2-14	Role of the highest governance in sustainability reporting	14-15	
2-15	Conflicts of interest	-	Refer to Corporate Governance Overview Statement in PCG's Integrated Report 2023.
2-16	Communication of critical concerns	17, 70	Refer to PETRONAS Whistleblowing Policy.
2-17	Collective knowledge of the highest governance body	81	Refer to Corporate Governance Overview Statement in PCG's Integrated Report 2023.
2-18	Evaluation of the performance of the highest governance body	-	Refer to Corporate Governance Overview Statement in PCG's Integrated Report 2023.

GRI CONTENT INDEX

GRI DISCLOSURE	GRI DISCLOSURE DESCRIPTION	PAGE NUMBER	REMARKS/OMISSIONS
2-19	Remuneration policies	-	Refer to Corporate Governance Overview Statement in PCG's Integrated Report 2023.
2-20	Process to determine remuneration	-	Refer to Corporate Governance Overview Statement in PCG's Integrated Report 2023.
2-22	Statement on sustainable development strategy	4-7	
2-23	Policy commitments	16-17	
2-24	Embedding policy commitments	14-15, 51, 75, 81	Refer also to Corporate Governance Overview Statement in PCG's Integrated Report 2023.
2-25	Processes to remediate negative impacts	16-17, 49, 67, 70	PCG is guided by its robust policies and guidelines to ensure that all its operations, products and services adhere to all the relevant laws and regulations. PCG also constantly engages with its stakeholders to identify and meet their needs, and has put in place a grievance mechanism for suppliers, vendors and the local community, as well as a global emergency hotline network for its customers and stakeholders. In addition, it has an Unsafe Act, Unsafe Condition (UCUA) initiative for workers to raise concerns about unsafe acts and condition.
2-26	Mechanisms for seeking advice and raising concerns	17	Refer to PETRONAS Whistleblowing Policy.
2-27	Compliance with laws and regulations	64, 81-82	
2-28	Membership associations	12	
STAKEHOLDER ENGAGEMENT			
2-29	Approach to stakeholder engagement	-	Refer to Stakeholder Engagement in PCG's Integrated Report 2023.
2-30	Collective bargaining agreements	67	
GRI 3: Material Topics 2021			
3-1	Process to determine material topics	18-19	
3-2	List of material topics	19, 34-39	
Standard Disclosures			
ECONOMIC: SUSTAINABLE VALUE CREATION			
MATERIAL MATTER: INNOVATION & PRODUCT STEWARDSHIP			
3-3	Management approach	40-41	
GRI 417: Marketing and labelling			
417-1	Requirements for product and service information and labelling	42	

GRI CONTENT INDEX

GRI DISCLOSURE	GRI DISCLOSURE DESCRIPTION	PAGE NUMBER	REMARKS/OMISSIONS
MATERIAL MATTER: BUSINESS STRATEGY & FINANCIAL RESILIENCE			
3-3	Management approach	44-45	
GRI 201: Economic Performance 2016			
201-1	Economic value generated, distributed and retained	45	
MATERIAL MATTER: CIRCULAR ECONOMY			
3-3	Management approach	46-47	
MATERIAL MATTER: SUPPLY CHAIN MANAGEMENT			
3-3	Management approach	48-49	
GRI 204: Procurement Practices 2016			
204-1	Proportion of spending on local suppliers	51	
308: Supplier Environmental Assessment 2016			
308-2	Negative environmental impacts in the supply chain and action taken	48-49	
GRI 414: Supplier Social Assessment 2016			
414-2	Negative social impacts in the supply chain and actions taken	48-49	
MATERIAL MATTER: CYBERSECURITY & DIGITALISATION			
3-3	Management approach	52-53	
GRI 418: Customer Privacy 2016			
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	55	
ENVIRONMENTAL: SAFEGUARDING THE ENVIRONMENT			
MATERIAL MATTER: CLIMATE CHANGE			
3-3	Management approach	56-57	
GRI 201: Economic Performance 2016			
201-2	Financial implications and other risks and opportunities due to climate change	22-30, 58	
GRI 302: Energy 2016			
302-1	Energy consumption within the organisation	59, 86-87	
302-3	Energy Intensity	59	
GRI 305: Emissions 2016			
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GOVERNANCE			
27 (a) (i)	How responsibilities for sustainability-related risks and opportunities are reflected in the terms of reference, mandates, role descriptions and other related policies applicable to that body(s) or individual(s)	Sustainability and Climate Governance	14
27 (a) (ii)	How the body(s) or individual(s) determined whether appropriate skills and competencies will be developed to oversee strategies designed to respond to sustainability-related risks and opportunities	Sustainability and Climate Governance	15
27 (a) (iii)	How and how often the body(s) or individual(s) is informed about sustainability-related risks and opportunities	Sustainability and Climate Governance	15
27 (a) (iv)	How the body(s) or individual(s) takes into account sustainability-related risks and opportunities when overseeing the entity's strategy, its decisions on major transactions and its risk management processes and related policies, including whether the body(s) or individual(s) has considered trade-offs associated with those risks and opportunities	Sustainability and Climate Governance	15
27 (a) (v)	How the body(s) or individual(s) oversees the setting of targets related to sustainability-related risks and opportunities, and monitors progress towards those targets, including whether and how related performance metrics are included in remuneration policies	Sustainability and Climate Governance	14
27 (b) (i)	Whether the role is delegated to a specific management-level position or management-level committee and how oversight is exercised over that position or committee	Sustainability and Climate Governance	14
27 (b) (ii)	Whether management uses controls and procedures to support the oversight of sustainability-related risks and opportunities and, if so, how these controls and procedures are integrated with other internal functions	Sustainability and Climate Governance	14
STRATEGY			
30 (a)	Describe the sustainability-related risks and opportunities that could reasonably be expected to affect the entity's prospects	Sustainability Strategy, Sustainability Risks	20
32 (a)	A description of the current and anticipated effects of sustainability-related risks and opportunities on the entity's business model and value chain	Sustainability Strategy, Sustainability Risks	20
33 (a)	How the entity has responded to, and plans to respond to, sustainability-related risks and opportunities in its strategy and decision-making	Material Matters	19
33 (c)	Trade-offs between sustainability-related risks and opportunities that the entity considered (for example, in making a decision on the location of new operations, an entity might have considered the environmental impacts of those operations and the employment opportunities they would create in a community)	Material Matters	19

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IFRS S1 INDICATOR	IFRS S1 INDICATOR DESCRIPTION	SECTION	PAGE NUMBER
RISK MANAGEMENT			
44 (a) (i)	The processes and related policies the entity uses to identify, assess, prioritise and monitor sustainability-related risks, including information about the inputs and parameters the entity uses (for example, information about data sources and the scope of operations covered in the processes)	Sustainability Risk Management	31
44 (a) (iii)	How the entity assesses the nature, likelihood and magnitude of the effects of those risks (for example, whether the entity considers qualitative factors, quantitative thresholds or other criteria)	Sustainability Risk Management	31
44 (a) (iv)	Whether and how the entity prioritises sustainability-related risks relative to other types of risk	Sustainability Risk Management	31
44 (a) (v)	How the entity monitors sustainability-related risks	Sustainability Risk Management	31
44 (a) (vi)	Whether and how the entity has changed the processes it used compared with the previous reporting period	Sustainability Risk Management	31
44 (c)	The extent to which, and how, the processes for identifying, assessing and prioritizing and monitoring sustainability-related risks and opportunities are integrated into and inform the entity's overall risk management process	Sustainability Risk Management	31
METRICS AND TARGETS			
50 (a)	How the metric is defined, including whether it is derived by adjusting a metric taken from a source other than IFRS Sustainability Disclosure Standards and, if so, which source and how the metric disclosed by the entity differs from the metric specified in that source	Sustainability Policies and Guidelines	16-17
50 (b)	Whether the metric is an absolute measure, a measure expressed in relation to another metric or a qualitative measure (such as red, amber, green – or RAG – status)	Material Matters Chapters	40-83
50 (c)	Whether the metric is validated by a third party and, if so, which party	Independent Limited Assurance Report	84-85
51 (a)	The metric used to set the target and monitor progress towards reaching the target	Talent Management & Well-Being	77
51 (b)	The specific quantitative or qualitative target the entity has set or is required to meet	Material Matters Chapters	40-83
51 (c)	The period over which the target applies	Talent Management & Well-Being	77
51 (f)	Performance against each target and an analysis of trends or changes in the entity's performance	Performance Data	86-87

IFRS S2 CONTENT INDEX

IFRS S2 INDICATOR	IFRS S2 INDICATOR DESCRIPTION	SECTION	PAGE NUMBER
GOVERNANCE			
6 (a) (i)	<p>6(a) The governance body(s) (which can include a board, committee or equivalent body charged with governance) or individual(s) responsible for oversight of climate-related risks and opportunities. Specifically, the entity shall identify that body(s) or individual(s) and disclose information about:</p> <p>How responsibilities for climate-related risks and opportunities are reflected in the terms of reference, mandates, role descriptions and other related policies applicable to that body(s) or individual(s)</p>	Sustainability and Climate Governance	14
6 (a) (ii)	How the body(s) or individual(s) determined whether appropriate skills and competencies will be developed to oversee strategies designed to respond to climate-related risks and opportunities;	Sustainability and Climate Governance	15
6 (a) (iii)	How and how often the body(s) or individual(s) is informed about climate-related risks and opportunities;	Sustainability and Climate Governance	14
6 (a) (iv)	How the body(s) or individual(s) takes into account climate-related risks and opportunities when overseeing the entity's strategy, its decisions on major transactions and its risk management processes and related policies, including whether the body(s) or individual(s) has considered trade-offs associated with those risks and opportunities;	Sustainability and Climate Governance	14
6 (a) (v)	How the body(s) or individual(s) oversees the setting of targets related to climate-related risks and opportunities, and monitors progress towards those targets (see paragraph 33-36), including whether and how related performance metrics are included in remuneration policies (see paragraph 29(g))	Sustainability and Climate Governance	14
6 (b) (i)	<p>Disclose information about management's role in the governance processes, controls and procedures used to monitor, manage and oversee climate-related risks and opportunities, including information about</p> <p>Whether the role is delegated to a specific management-level position or management-level committee and how oversight is exercised over that position or committee;</p>	Sustainability and Climate Governance	14
6 (b) (ii)	Whether management uses controls and procedures to support the oversight of climate-related risks and opportunities and, if so, how these controls and procedures are integrated with other internal functions	Sustainability and Climate Governance	14
STRATEGY			
10 (a)	<p>An entity shall disclose information that enables users of general-purpose financial reports to understand the climate-related risks and opportunities that could reasonably be expected to affect the entity's prospects. Specifically, the entity shall:</p> <p>Describe climate-related risks and opportunities that could reasonably be expected to affect the entity's prospects;</p>	Climate Strategy	22-28
10 (b)	Explain, for each climate-related risk the entity has identified, whether the entity considers the risk to be a climate-related physical risk or climate-related transition risk;	Climate Strategy	22-28
10 (c)	Specify, for each climate-related risk and opportunity the entity has identified, over which time horizons—short, medium, or long term—the effects of each climate-related risk and opportunity could reasonably be expected to occur;	Climate Strategy	22 & 25

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IFRS S2 INDICATOR	IFRS S2 INDICATOR DESCRIPTION	SECTION	PAGE NUMBER
10 (d)	Explain how the entity defines 'short term', 'medium term' and 'long term' and how these definitions are linked to the planning horizons used by the entity for strategic decision making.	Climate Strategy	21
13 (a)	An entity shall disclose information that enables users of general purpose financial reports to understand the current and anticipated effects of climate-related risks and opportunities on the entity's business model and value chain. Specifically, the entity shall disclose: A description of the current and anticipated effects of climate-related risks and opportunities on the entity's business model and value chain	Climate Strategy	23-24 & 26-28
13 (b)	A description of where in the entity's business model and value chain sustainability-related risks and opportunities are concentrated (for example, geographical areas, facilities and types of assets)	Climate Strategy	22
14 (a)(i)	Disclose information about how the entity has responded to, and plans to respond to, climate-related risks and opportunities in its strategy and decision-making, including how the entity plans to achieve any climate-related targets it has set and any targets it is required to meet by law or regulation. Specifically, the entity shall disclose information about: Current and anticipated changes to the entity's business model, including its resource allocation, to address climate-related risks and opportunities (for example, these changes could include plans to manage or decommission carbon-, energy- or water-intensive operations; resource allocations resulting from demand or supply-chain changes; resource allocations arising from business development through capital expenditure or additional expenditure on research and development; and acquisitions or divestments);	Climate Strategy	29-30
14 (a)(ii)	Current and anticipated direct mitigation and adaptation efforts (for example, through changes in production processes or equipment, relocation of facilities, workforce adjustments, and changes in product specifications);	Climate Strategy	29-30
14 (a)(iii)	Current and anticipated indirect mitigation and adaptation efforts (for example, through working with customers and supply chains);	Climate Strategy	29-30
14 (a)(iv)	Any climate-related transition plan the entity has, including information about key assumptions used in developing its transition plan, and dependencies on which the entity's transition plan relies;	Climate Strategy	30
14 (a)(v)	How the entity plans to achieve any climate-related targets, including any greenhouse gas emissions targets, described in accordance with paragraphs 33–36.	Climate Strategy	30
15 (b)	The anticipated effects of climate-related risks and opportunities on the entity's financial position, financial performance and cash flows over the short, medium and long term, taking into consideration how climate-related risks and opportunities are included in the entity's financial planning (anticipated financial effects).	Climate Strategy	23-24 & 26-28

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IFRS S2 INDICATOR	IFRS S2 INDICATOR DESCRIPTION	SECTION	PAGE NUMBER
16 (c)(i)	Specifically, an entity shall disclose quantitative and qualitative information about how the entity expects its financial position to change over the short, medium and long term, given its strategy to manage climate-related risks and opportunities, taking into consideration: Its investment and disposal plans (for example, plans for capital expenditure, major acquisitions and divestments, joint ventures, business transformation, innovation, new business areas, and asset retirements), including plans the entity is not contractually committed to; and	Climate Strategy	29-30
16 (d)	An entity shall disclose quantitative and qualitative information about How the entity expects its financial performance and cash flows to change over the short, medium and long term, given its strategy to manage climate-related risks and opportunities (for example, increased revenue from products and services aligned with a lower-carbon economy; costs arising from physical damage to assets from climate events; and expenses associated with climate adaptation or mitigation).	Climate Strategy	23-24 & 26-28
21 (b)	Provide qualitative information about those financial effects, including identifying line items, totals and subtotals within the related financial statements that are likely to be affected, or have been affected, by that climate-related risk or opportunity; and	Climate Strategy	23-24 & 26-28
22 (b)(i) (1)	how and when the climate-related scenario analysis was carried out, including information about the inputs the entity used, including: which climate-related scenarios the entity used for the analysis and the sources of those scenarios;	Climate Strategy	21
22 (b)(i) (2)	whether the analysis included a diverse range of climate-related scenarios;	Climate Strategy	21
22 (b)(i) (3)	whether the climate-related scenarios used for the analysis are associated with climate-related transition risks or climate-related physical risks;	Climate Strategy	21
22 (b)(i) (4)	whether the entity used, among its scenarios, a climate-related scenario aligned with the latest international agreement on climate change;	Climate Strategy	21
22 (b)(i) (5)	why the entity decided that its chosen climate-related scenarios are relevant to assessing its resilience to climate-related changes, developments or uncertainties;	Climate Strategy	21
22 (b)(i) (6)	the time horizons the entity used in the analysis; and	Climate Strategy	21
22 (b)(i) (7)	what scope of operations the entity used in the analysis (for example, the operating locations and business units used in the analysis);	Climate Strategy	22 & 24-25
22 (b)(ii) (1)	the key assumptions the entity made in the analysis, including assumptions about: climate-related policies in the jurisdictions in which the entity operates;	Climate Strategy	26-28
22 (b)(ii) (2)	macroeconomic trends;	Climate Strategy	26-28

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IFRS S2 INDICATOR	IFRS S2 INDICATOR DESCRIPTION	SECTION	PAGE NUMBER
22 (b)(ii) (3)	national- or regional-level variables (for example, local weather patterns, demographics, land use, infrastructure and availability of natural resources);	Climate Strategy	26-28
22 (b)(ii) (4)	energy usage and mix; and	Climate Strategy	26-28
22 (b)(ii) (5)	developments in technology; and	Climate Strategy	26-28
22 (b)(iii)	the reporting period in which the climate-related scenario analysis was carried out (see paragraph B18).	Climate Strategy	20
RISK MANAGEMENT			
25 (a) (i)	The processes and related policies the entity uses to identify, assess, prioritise and monitor climate-related risks, including information about: the inputs and parameters the entity uses (for example, information about data sources and the scope of operations covered in the processes);	Climate Risk Management	32
25 (a) (ii)	whether and how the entity uses climate-related scenario analysis to inform its identification of climate-related risks;	Climate Risk Management	32
25 (a) (iii)	how the entity assesses the nature, likelihood and magnitude of the effects of those risks (for example, whether the entity considers qualitative factors, quantitative thresholds or other criteria);	Climate Risk Management	32
25 (a) (iv)	whether and how the entity prioritizes climate-related risks relative to other types of risk;	Climate Risk Management	32
25 (a) (v)	how the entity monitors climate-related risks; and	Climate Risk Management	32
25 (a) (vi)	whether and how the entity has changed the processes it uses compared with the previous reporting period;	Climate Risk Management	32
25 (b)	the processes the entity uses to identify, assess, priorities and monitor climate-related opportunities, including information about whether and how the entity uses climate-related scenario analysis to inform its identification of climate-related opportunities; and	Climate Risk Management	32
25 (c)	the extent to which, and how, the processes for identifying, assessing, prioritising and monitoring climate-related risks and opportunities are integrated into and inform the entity's overall risk management process.	Climate Risk Management	32
METRICS AND TARGETS			
29 (a)(i) (1)	An entity shall disclose information relevant to the cross-industry metric categories of: greenhouse gases—the entity shall Disclose its absolute gross greenhouse gas emissions generated during the reporting period, expressed as metric tonnes of CO ₂ equivalent (see paragraphs B19–B22), classified as: Scope 1 greenhouse gas emissions;	Climate Change	58
29 (a)(i) (2)	Scope 2 greenhouse gas emissions; and	Climate Change	58
29 (a)(ii)	measure its greenhouse gas emissions in accordance with the Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (2004) unless required by a jurisdictional authority or an exchange on which the entity is listed to use a different method for measuring its greenhouse gas emissions (see paragraphs B23–B25);	Climate Change	57





IFRS S2 CONTENT INDEX

IFRS S2 INDICATOR	IFRS S2 INDICATOR DESCRIPTION	SECTION	PAGE NUMBER
29 (a)(iii) (1)	disclose the approach it uses to measure its greenhouse gas emissions (see paragraphs B26–B29) including: the measurement approach, inputs and assumptions the entity uses to measure its greenhouse gas emissions;	Climate Change	57
29 (a)(iii) (3)	any changes the entity made to the measurement approach, inputs and assumptions during the reporting period and the reasons for those changes;	Climate Change	57
33 (a)	An entity shall disclose the quantitative and qualitative climate-related targets it has set to monitor progress towards achieving its strategic goals, and any targets it is required to meet by law or regulation, including any greenhouse gas emissions targets. For each target, the entity shall disclose: the metric used to set the target (see paragraphs B66–B67);	Climate Change	56-59
33 (b)	the objective of the target (for example, mitigation, adaptation or conformance with science-based initiatives);	Climate Change	56-59
33 (c)	the part of the entity to which the target applies (for example, whether the target applies to the entity in its entirety or only a part of the entity, such as a specific business unit or specific geographical region);	Climate Change	56-59
33 (d)	the period over which the target applies;	Climate Change	56-59
33 (e)	the base period from which progress is measured;	Climate Change	56-59
33 (f)	any milestones and interim targets;	Climate Change	56-59
33 (g)	if the target is quantitative, whether it is an absolute target or an intensity target; and	Climate Change	56-59
33 (h)	how the latest international agreement on climate change, including jurisdictional commitments that arise from that agreement, has informed the target.	Climate Change	56-59
34 (c)	the metrics used to monitor progress towards reaching the target; and	Climate Change	56-59
36 (a)	For each greenhouse gas emissions target disclosed in accordance with paragraphs 33–35, an entity shall disclose: which greenhouse gases are covered by the target. which greenhouse gases are covered by the target.	Climate Change	56-59
36 (b)	whether Scope 1, Scope 2 or Scope 3 greenhouse gas emissions are covered by the target.	Climate Change	56-59
36 (c)	whether the target is a gross greenhouse gas emissions target or net greenhouse gas emissions target. If the entity discloses a net greenhouse gas emissions target, the entity is also required to separately disclose its associated gross greenhouse gas emissions target (see paragraphs B68–B69).	Climate Change	56-59
36 (e) (i)	the entity's planned use of carbon credits to offset greenhouse gas emissions to achieve any net greenhouse gas emissions target. In explaining its planned use of carbon credits the entity shall disclose information including, and with reference to paragraphs B70–B71: the extent to which, and how, achieving any net greenhouse gas emissions target relies on the use of carbon credits;	Climate Change	57

SDG TARGETS ALIGNMENT

UNSDG	UNSDG TARGETS	MATERIAL MATTERS
	2.a Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries.	
	3.4 By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being. 3.9 By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination.	   
	4.7 By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.	 
	6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally. 6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity.	 
	7.a By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology.	
	8.2 Achieve higher levels of economic productivity through diversification, technological upgrading and innovation, including through a focus on high-value added and labour-intensive sectors. 8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation, in accordance with the 10-Year Framework of Programmes on Sustainable Consumption and Production, with developed countries taking the lead. 8.7 Take immediate and effective measures to eradicate forced labour, end modern slavery and human trafficking and secure the prohibition and elimination of the worst forms of child labour, including recruitment and use of child soldiers, and by 2025 end child labour in all its forms. 8.8 Protect labour rights and promote safe and secure working environments for all workers, including migrant workers, in particular women migrants, and those in precarious employment.	      
	9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities. 9.b Support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for, inter alia, industrial diversification and value addition to commodities.	     

SDG TARGETS ALIGNMENT

UNSDG	UNSDG TARGETS	MATERIAL MATTERS
	<p>11.4 Strengthen efforts to protect and safeguard the world’s cultural and natural heritage.</p> <p>11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management.</p>	
	<p>12.2 By 2030, achieve the sustainable management and efficient use of natural resources.</p> <p>12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.</p> <p>12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.</p> <p>12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle.</p>	
	<p>13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.</p> <p>13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.</p>	
	<p>14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.</p> <p>14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.</p>	
	<p>15.1 By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements.</p> <p>15.5 Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species.</p> <p>15.a Mobilize and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems.</p>	
	<p>16.2 End abuse, exploitation, trafficking and all forms of violence against and torture of children.</p> <p>16.5 Substantially reduce corruption and bribery in all their forms.</p> <p>16.6 Develop effective, accountable and transparent institutions at all levels.</p>	

GLOSSARY OF TERMS, ABBREVIATIONS AND ACRONYMS

ABBREVIATION	FULL-TERM/DEFINITION
3R	Reduce, Reuse and Recycle
5S	Sort, Set in order, Shine, Standardise, Sustain
8GRPS	8 Golden Rules on Process Safety
ABC Manual	Anti-Bribery and Corruption Policy & Guidelines
ABMS	Anti Bribery Management Systems
ABR	Accountability and Behaviour Reinforcement
ADS	Asian Downstream Awards
ALS	Asset Life Study
API	American Petroleum Institute
APM	Asset Performance Management
APS	Announced Pledges Scenario
ARA	Australasian Reporting Awards
ARC	Annual Report Competition Awards
BAKIP	Badan Kebajikan Islam PETRONAS
BAP	Biodiversity Action Plan
BES	Biodiversity & Ecosystem Service
BESRA	BES Risk Assessment
Bio-MEG	Bio-Monoethylene Glycol
BUR	Blow Up Ratio
BRB	BRB Group
BSRC	Board Sustainability and Risk Committee
CA 2016	Companies Act 2016
CAC	Critical Activity Catalogue
CAPEX	Capital Expenditures
CBAM	Carbon Border Adjustment Mechanism
CCS	Customer Satisfaction Survey
CCUS	Carbon Capture, Utilisation and Storage
CDP	Carbon Disclosure Project
CEFIC	European Chemical Industry Council
CICM	Chemical Industries Council of Malaysia
CO ₂	Carbon Dioxide
CoBE	Code of Conduct and Business Ethics
CoC	Chemicals of Concern
CoCHR	PETRONAS Contractors Code of Conduct on Human Rights
COD ₁	Chemical Oxygen Demand
COD ₂	Commercial Operation Date
COP28	United Nations Climate Change Conference or Conference of the Parties of the UNFCC
CRA	Corruption Risk Assessment
CRM	Customer Relationship Management
CRP	Corporate Risk Profile
CSBIA-LRA	Cybersecurity Business Impact Assessment (BIA) and Legal & Regulatory Assessment
CSBRA	Cybersecurity Business Risk Assessment
CSR Netherlands	MVO Nederland
CTO	Career Transition Offers
CWW	Compressed Work Week
D&I	Diversity & Inclusion
DJSI	Dow Jones Sustainability Indices
ECSGF	Enterprise Cyber Security Governance Framework

ABBREVIATION	FULL-TERM/DEFINITION
EEC	Environmental Education Centre
EEF	Enhanced Efficiency Fertiliser
EESG	Economic, Environmental, Social and Governance
ELSA	Enterprise Lifecycle Scoring Assessment
EPC	Engineering, Procurement and Construction
ERS	Equipment Reliability Strategy
ESG	Environmental, Social and Governance
ETS	Emissions Trading Scheme
EU	European Union
F&M	Fertilisers & Methanol
F4P	Fit For Purpose
FAE	Fatty Alcohol Ethoxylates
FIAM	Fertilizer Industry Association of Malaysia
FID	Final Investment Decision
FR	Financial Report
FTE	Full Time Equivalent
FWH	Flexible Working Hours
FWO	Flexible Work Options
GEES	Graduate Employability Enhancement Scheme
GET	Green Electricity Tariff
GHG	Greenhouse Gas
GHS	Globally Harmonised System of Classification and Labelling of Chemicals
GJ	Gigajoules
GPAS	Green Port Award System
GRI	Global Reporting Initiative
HER	Hazard & Effect Register
HEMP	Hazard and Effect Management Processes
HIRA	Health, Safety, Security and Environment Integrated Risk Assessment
HSE	Health, Safety and Environment
HSEMS	HSE Management System
HVAC	Heating, ventilation and air-conditioning
IA	Initial Acceptance
IEA	International Energy Agency
IFA	International Fertilizer Association
IFRS	International Financial Reporting Standards
IIRF	International Integrated Reporting Framework
IKEM	Innovation and Chemical Industries in Sweden
IKM	Institut Kimia Malaysia Awards
IPCC	Intergovernmental Panel on Climate Change
ISCC PLUS	International Sustainability & Carbon Certification
IPIECA	International Petroleum Industry Environmental Conservation Associations'
IR	Integrated Report
ITPM	Inspection, Testing and Preventive Maintenance
JCP	Job Competency Profile
JV	Joint Venture
KOPETRO	Koperasi Kakitangan PETRONAS Berhad
KPI	Key Performance Indicators
KSRP	Kelab Sukan dan Rekreasi PETRONAS
KYC	Know Your Counterparty

GLOSSARY OF TERMS, ABBREVIATIONS AND ACRONYMS

ABBREVIATION	FULL-TERM/DEFINITION	ABBREVIATION	FULL-TERM/DEFINITION
LCA	Life Cycle Assessment	SRA	Social Risk Assessment
LDA	Leadership Development in Action	SRMC	Sustainability and Risk Management Committee
LEFW	Leaving Earlier From Work	SSP	Shared Socioeconomic Pathways
LSA	Long Service Award	SRI Taxonomy	Principles-Based Sustainable and Responsible Investment Taxonomy for the Malaysian Capital Market
LRO	Leaders' Reach Out	STEPS	Stated Policies Scenario
LTAR	Lost Time Accident Rate	SWA	Stop Work Authority
LTI	Lost Time Injury	PCG	PETRONAS Chemicals Group Berhad
LTIF	Lost Time Injury Frequency	PC EPE	PETRONAS Chemicals Ethylene & Polyethylene
LWP	Leave Without Pay	PECAS	PETRONAS Competency-based Assessment System
MAH	Major Accidents Hazards	Perstorp	Perstorp Group
MC	Management Committee	PETRONAS MCF	PETRONAS Mandatory Control Framework
MCCG	Malaysian Code on Corporate Governance	PETRONAS MFT30	PETRONAS Moving Forward Together 2030
MFRS	Malaysian Financial Reporting Standards	PDP	Personal Development Plan
MI	Methanol Institute	PLC	PETRONAS Leadership Centre
MLT	Manufacturing Leadership Team	PPS	PETRONAS Procurement Standard
MMLR	Main Market Listing Requirements	PROTEGE	Professional Training and Education for Growing Entrepreneurs
MNS	Malaysian Nature Society	PTS	PETRONAS Technical Standard
MOC	Management of Change	R&D	Research & Development
MPA	Malaysian Petrochemicals Association	R&T	Research & Technology
MPMA	Malaysian Plastics Manufacturers Association	RAWMIR	Raw Material Information Request
MSOSH	Malaysian Society for Occupational Safety and Health Awards	RoSPA	Royal Society for the Prevention of Accidents Awards
NACRA	National Annual Corporate Reports Award	T-1 PSE	Tier 1 Process Safety Event
NDC	Nationally Determined Contributions	TA	Turnaround
NHW	Non-Hazardous Waste	TAC	Thermal Anaerobic Combustion
NPE	New Plastics Economy	TCEP	Tray Circularity Evaluation Platform
NRC	Nomination and Remuneration Committee	TCFD	Taskforce on Climate-Related Financial Disclosures
NRECC	Ministry of Natural Resources, Environment and Climate Change	TEP	Technical Enrichment Programme
NOx	Nitrogen Oxides	TNB	Tenaga Nasional Berhad
NZCE	Net Zero Carbon Emissions	Tpa	Tonne per annum
O&D	Olefins & Derivatives	TPRM	Third Party Risk Assessment
OCS	Operation Clean Sweep	TRC	Total Recordable Case
OER2	Downstream Operational Excellence Result 2	TVAR	Total Vehicle Accident Rate
OFR	Order Fulfilment Reliability	UAUC	Unsafe Act, Unsafe Condition
OFPW	Operate Facility Work Process	UNEP	United Nations Environment Programme
OGSE	Oil & Gas Services and Equipments	UNGP BHR	United Nations Guiding Principles on Business and Human Rights
OP	Operating Procedure	UNSDGs	The United Nations Sustainability Development Goals
OPEX	Operating Expenditures	VDP	PETRONAS Vendor Development Programme
OPUs	Operating Units	VRF	Value Reporting Foundation
PFA	Plant Facing Analytics	WEO	World Energy Outlook
POINT	Plant Operation Integrated Tools	WRI	World Research Institute
PRCS	PETRONAS Retirement Contribution Scheme		
SDWC	Sustainable Development Working Committee		
SEB	Sarawak Energy Bhd		
SER	Sitewide Energy Review		
SHOC4School	Safe Handling of Chemicals for School		
SNF	Stabilised Nitrogen Fertiliser		
SORMIC	Statement on Risk Management and Internal Control		
SOx	Sulfur Oxides		
SR	Sustainability Report		

PCG's Sustainability Report 2023 has been produced in line with our theme: **Steadfast. Advancing Sustainably.** We considered the environmental impact of each decision made in the publication of this report. From the materials used and acquired to the design concept and production - everything is intentional.



OPTIMAL PRODUCTION

- The production and printing of all reports followed the FSC® certified chain of custody
- The Governance section into the Integrated Report to reduce the usage of four-colour print for the Financial Report
- The cover is printed on FSC® certified Monalisa White 280 gsm paper, while inside pages are printed on FSC® certified Vincent Extra White 160 gsm paper
- A soy-based ink was used for a more sustainable approach



MINIMALIST PRESENTATION

- The entirety of the report is presented in a straightforward and structured package, with simple design elements



SIMPLICITY IN DESIGN

- Consciously minimising sizes of photographic images and other graphic representation (such as graphs, charts and diagrams) where possible



PRINTED SUSTAINABLY

- The full report was produced using carbon-neutral press machines and eco-friendly materials certified with an ISO 14001 environmental management system in line with minimising environmental impact



CONCISE LANGUAGE

- The concepts are encapsulated in a concise and articulate manner, focusing on the presentation of the content beyond just words





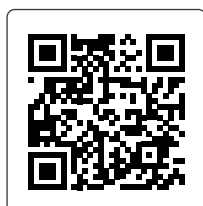
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