

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

Petroleum Nasional Berhad (PETRONAS) is a global energy and solutions company. Recognised as one of the largest corporations in the world, included in the Fortune Global 500® ranking, we have a total of 46,884 employees with a global reach spanning over 100 countries.

As the custodian of Malaysia’s national oil and gas resources, PETRONAS explores, produces and delivers energy, both hydrocarbons and renewables, to ensure the security of energy supply for Malaysia and our customers around the globe. We have four core businesses – Upstream, Gas + New Energy (in June 2022, Gas + New Energy has become two separate businesses – Gas business and GENTARI), Downstream, and Project Delivery and Technology. PETRONAS is also the largest petrochemical producer in Southeast Asia. The Group delivers petrochemical products such as olefins, polymers, fertilisers, methanol and other basic chemicals and derivative products.

We have also recently unveiled a new entity in 2022 – Gentari Sdn. Bhd. ("GENTARI"), a company focused on delivering integrated net-zero carbon solutions. GENTARI by 2030 aims to:

1. Build renewable energy capacity of 30-40 GW
2. Supply up to 1.2 mtpa of hydrogen to achieve scale as a low carbon hydrogen producer
3. Support the electric vehicle (EV) ecosystem by capturing 10% market share (circa 25,000 charging points based on current estimates) across key markets in Asia Pacific

Driven by our passion for innovation to serve a lower carbon energy future, every step takes us closer to attaining our aspiration of net zero carbon emissions by 2050 (NZCE 2050). In upholding our commitment as a responsible and conscientious player in the global energy sector, sustainability remains a core consideration for what we do and how we operate. We are committed to growing our business responsibly, positively contributing to society and the environment.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Reporting year	January 1 2021	December 31 2021	Yes	Please select

C0.3

(C0.3) Select the countries/areas in which you operate.

- Argentina
- Australia
- Azerbaijan
- Belgium
- Brazil
- Canada
- Chad
- China
- Egypt
- Germany
- India
- Indonesia
- Iraq
- Italy
- Malaysia
- Mexico
- Myanmar
- Netherlands
- Oman
- Singapore
- South Africa
- South Sudan
- Spain
- Turkmenistan
- Viet Nam

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

MYR

C0.8

(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, another unique identifier, please specify (Registration number under the Companies Commission of Malaysia (CCM))	197401002911 (20076-K)

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Name of the position(s) and/or committee(s)	Reporting line	Responsibility	Coverage of responsibility	Frequency of reporting to the board on climate-related issues
Chief Executive Officer (CEO)	<Not Applicable>	Both assessing and managing climate-related risks and opportunities	<Not Applicable>	Quarterly

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

	Provide incentives for the management of climate-related issues	Comment
Row 1	Yes	The Nomination and Remuneration Committee reviewed and endorsed the establishment of Top Management Performance Measurement ("TMPM") and enhancement of Top Management Incentive Plan i.e. Short-Term and Long-Term Incentive Plans to encourage desired leadership behaviours to successfully deliver PETRONAS' long-term ambition, which includes the incorporation of the Environmental (including climate change), social and governance indicators with weightage of 20 per cent into the Top Management's Long-Term Incentive Plan.

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Market	Uncertainty in market signals
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Primary potential financial impact

Other, please specify (Our financial performance is impacted by the volatility of commodity prices, change in customer preferences, fluctuations in exchange rates and the general macroeconomic outlook.)

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

- Our core business is predominantly in oil and gas. Hence, our financial performance is highly influenced by commodity price volatility, which is generally determined by the supply and demand in the market. The prolonged COVID-19 pandemic and its adverse effects on the global economy have substantially influenced the fluctuation in commodity prices and customers' demands.
- Other players within the industry also felt the effects of the prolonged pandemic, and indirectly, PETRONAS was impacted by the performance of key counterparties, among others, our vendors, contractors and partners. The impact may extend to contractual specifications, non performance and counterparty obligations. On a bigger scale, this could lead to supply or operational disruptions.
- We have also witnessed a shift in customers' preferences, namely increasing demand for lower-carbon energy sources. The change in customers' preferences and the emergence of cleaner energy sources have intensified competition within the oil and gas industry, indirectly affecting PETRONAS' value chain.
- The Group is exposed to exchange rate volatility as our reporting currency is in Ringgit Malaysia, while some transactions are dealt with in the US Dollar. Our global presence also exposes us to the changes in the value of other currencies and exchange controls imposed by our countries of operations.

Time horizon

Long-term

Likelihood

Virtually certain

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure**Cost of response to risk****Description of response and explanation of cost calculation**

- A review of our Holding Company Units (HCUs) strategies is continuously undertaken in response to the wide-ranging market risks and the corresponding challenges in generating value from our business. We focused on prioritising resources to areas of the highest importance to the organisation and business whilst meeting the expectations of our key stakeholders. We also proactively conduct rigorous efforts to respond to new demands within the core business and growth areas.
- The PETRONAS Financial Policy (PFP) sets the overarching philosophy to become financially resilient over the long term. Supporting the PFP is the PETRONAS Financial Standard (PFS), which outlines high-level principles and requirements to promote efficient capital and liquidity management practices. Relevant supporting guidelines are also in place to guide and ensure the effective implementation of financial management and financial risk management practices. This also enables us to identify financial risk exposures for improved risk management through required reporting to relevant HCUs.
- As part of financial and business risk management, businesses undertake regular monitoring and review of counterparties' performances to identify any critical issues with the key counterparties. Where relevant, specific actions to limit PETRONAS' exposure are undertaken.
- To address the integrated demand and supply chain, digital and strategic initiatives have been outlined. This enables the creation of new demand and optimisation of value within the value chains. The PETRONAS Risk Appetite was also implemented across the Group. Key factors affecting PETRONAS' financial performance and risk appetite, including market risk, are reviewed and monitored regularly to facilitate strategic decision-making, ensure business activities are undertaken within the approved thresholds, and trigger actions promptly.

Comment

We are strengthening our risk management efforts and corresponding disclosures for environmental (including climate change), social and governance (ESG) risks. There is currently a determined effort to embed climate-related risks in PETRONAS' culture and core values, guided by our "Statement of Purpose", which is used as part of context setting for Enterprise Risk Management (ERM). Climate-related risks and opportunities may be determined and identified through the existing ERM process. We endeavour to be consistent with relevant international frameworks and standards, PETRONAS has already expressed public support in adopting the recommendations of the Task force on Climate-related Financial Disclosures (TCFD) and the World Economic Forum's Stakeholder Capitalism Metrics.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Technology	Transitioning to lower emissions technology
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Primary potential financial impact

Other, please specify (Technology is at risk of becoming obsolete, e.g., technological advancements exceeding pace of investment and deployment.)

Climate risk type mapped to traditional financial services industry risk classification

<Not Applicable>

Company-specific description

- We remain dedicated to creating and delivering the best solutions to support the growing requirements of analytics, where trusted data is liberated for valuable insights. Implementing new technologies comes with an inherent set of risks covering adoption, legal and regulatory compliance, cyber security exposure and in-house capabilities.
- Investments in new technology also come with the risks of identified technology being rendered obsolete by newer offerings.
- While we strive to deliver excellence in business operations, there could still be an adverse material impact on the delivery of our strategy and our licence to operate, resulting from ineffective development and deployment of technology and innovation. Inability to develop the right technologies and products in a timely and cost-effective manner, or the development of technologies and products that adversely impact the environment or safety of the people, could damage our financial performance and reputation.

Time horizon

Medium-term

Likelihood

Likely

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure**Cost of response to risk****Description of response and explanation of cost calculation**

Proactive adoption of:

- Improved decarbonisation efforts by managing and reducing GHG emissions of assets
- Advanced Materials to strengthen asset integrity, extend service life and reduce overall carbon footprint
- Driving renewables and supporting growth of hydrogen to fast-track the energy transition
- Progress in production and utilisation of specialty chemicals beyond oil and gas, into everyday consumer products.
- Circular Economy, which aims to repurpose waste into new products

Comment

Moving forward, we will continue to pursue technology and digital advances throughout our value chain to ensure we meet the Group's business goals and achieve our net zero carbon emissions by 2050 aspiration.

C2.4**(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?**

Yes

C2.4a**(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.****Identifier**

Opp1

Where in the value chain does the opportunity occur?

Direct operations

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues through access to new and emerging markets

Company-specific description

Our strategy is to offer cleaner energy solutions than prevail today, in meeting the energy needs and lower carbon aspirations of Malaysia and its global customers via

- 1) Hydrocarbons with a lower carbon footprint and emissions abated;
- 2) renewable energy;
- 3) hydrogen and;
- 4) green mobility solutions.

Time horizon

Long-term

Likelihood

More likely than not

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure**Cost to realize opportunity****Strategy to realize opportunity and explanation of cost calculation**

We aspire to pursue clean energy at an industrial scale, starting with Malaysia and Asia Pacific through

- 1) Define net zero carbon emissions roadmap and implementation plan to improve the greenhouse gas profile of hydrocarbons
- 2) Building renewable energy capacity of 30-40 GW, specifically in solar with added opportunities in wind and battery storage;
- 3) Supply up to 1.2 mtpa of hydrogen and;
- 4) Supporting the electric vehicle (EV) ecosystem by capturing 10% market share (circa 25, 000 charging points based on current estimates) across key markets in Asia Pacific with an anchored presence in Malaysia & India.

Comment**Identifier**

Opp2

Where in the value chain does the opportunity occur?

Upstream

Opportunity type

Resilience

Primary climate-related opportunity driver

Other, please specify (Development and/or expansion of low carbon exploration & production business)

Primary potential financial impact

Reduced indirect (operating) costs

Company-specific description

PETRONAS is undertaking efforts to unlock Malaysia's potential as a regional carbon capture and storage (CCS) solutions hub and exploring opportunities through collaborations in carbon dioxide storage technologies.

Time horizon

Long-term

Likelihood

Very likely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure**Cost to realize opportunity****Strategy to realize opportunity and explanation of cost calculation**

We have formalised our collaborations with customers technology and industry partners to develop carbon capture and storage (CCS) technology as a viable abatement option for our own operations and to unlock Malaysia's potential as a regional carbon capture and storage (CCS) solutions hub. To date, 19 potential storage sites (6 saline aquifers and 13 depleted fields) to offer CCS as an option for carbon management solution have been identified.

Additionally, three agreements were signed to collaborate on CCS technologies as well as CO₂ storage solutions to decarbonise the country's upstream sector and provide CO₂ storage solutions for the region, namely Memorandum of Understanding (MoU) with POSCO International Corporation and POSCO Engineering & Construction Co Ltd, MoU with ExxonMobil Exploration and Production Malaysia Inc.

One such example, is the Kasawari project, which has completed subsurface maturation suited for CCS site, and Conceptual Engineering Design approved in Q4 2021. Once completed, the CCS filed for Kasawari is expected to reduce CO₂ volume emitted via flaring by 76 million metric tonnes with an annual average of 3.7 million metric

tonnes per annum (mtpa).

Comment

Identifier

Opp3

Where in the value chain does the opportunity occur?

Downstream

Opportunity type

Resource efficiency

Primary climate-related opportunity driver

Use of recycling

Primary potential financial impact

Increased revenues through access to new and emerging markets

Company-specific description

New Plastics Economy:

PETRONAS Chemicals Group Berhad (PCG) targets to recover 100 per cent of plastic waste equivalent to its production volume of polymers for the Malaysia market by 2030.

Sustainable Aviation Fuel:

PETRONAS Dagangan Berhad (PDB), the principal marketing arm of PETRONAS partnered with Malaysia Aviation Group to jointly explore potential collaborative opportunities that advance sustainability, including the supply and adoption of Sustainable Aviation Fuel at Kuala Lumpur International Airport (KLIA). On 17 December 2021, Malaysia Airlines, the national carrier of Malaysia, also operated its inaugural flight using sustainable aviation fuel in partnership with Neste and PDB.

Time horizon

Long-term

Likelihood

More likely than not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

No, we do not have this figure

Potential financial impact figure (currency)

<Not Applicable>

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Cost to realize opportunity

Strategy to realize opportunity and explanation of cost calculation

Through PETRONAS Chemicals Group Berhad (PCG), we aim to spearhead the nation's transition into New Plastics Economy (NPE). This involves collaborating with the Malaysian authorities and relevant stakeholders through the Malaysia Sustainable Plastic Alliance (MaSPA), which complements the actions set out in the Malaysia Roadmap towards zero single-use plastics (2018-2030).

Additionally, PCG has performed a feasibility study with Plastic Energy Ltd to construct a plastic waste to crude naphtha facility in Malaysia. The objective of the study is to bring the technology to Malaysia by turning low quality, mixed plastic waste from landfills into naphtha quality pyrolysis oil. The end product will be used as feedstock for polymer production, enabling PCG to offer certified circular polymer resins.

Through PETRONAS Dagangan Berhad (PDB), we are venturing into the biofuels space through a planned development of a greenfield biorefinery as well as co-processing at existing PETRONAS facilities. The biorefinery is targeted to be ready for start-up in 2025, and will be positioned to supply sustainable aviation fuel with operational flexibility to also produce hydrogenated vegetable oil (HVO) or renewable diesel.

Comment

C3. Business Strategy

C3.1

(C3.1) Does your organization's strategy include a transition plan that aligns with a 1.5°C world?

Row 1

Transition plan

No, but our strategy has been influenced by climate-related risks and opportunities, and we are developing a transition plan within two years

Publicly available transition plan

<Not Applicable>

Mechanism by which feedback is collected from shareholders on your transition plan

<Not Applicable>

Description of feedback mechanism

<Not Applicable>

Frequency of feedback collection

<Not Applicable>

Attach any relevant documents which detail your transition plan (optional)

<Not Applicable>

Explain why your organization does not have a transition plan that aligns with a 1.5°C world and any plans to develop one in the future

We are currently developing a transition plan in our efforts to pursue our purpose to become a progressive energy and solutions partner enriching lives for a sustainable future. We will be releasing more details about our pathway towards our aspiration of reaching net zero carbon emissions by 2050 and how this will lay the foundation for how we develop our business.

Explain why climate-related risks and opportunities have not influenced your strategy

<Not Applicable>

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

Absolute target

C4.1a

(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

Target reference number

Abs 1

Year target was set

2019

Target coverage

Country/region

Scope(s)

Scope 1

Scope 2

Scope 2 accounting method

Location-based

Scope 3 category(ies)

<Not Applicable>

Base year

2017

Base year Scope 1 emissions covered by target (metric tons CO2e)

53010400

Base year Scope 2 emissions covered by target (metric tons CO2e)

589600

Base year Scope 3 emissions covered by target (metric tons CO2e)

<Not Applicable>

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)

53600000

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1

95

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2

99

Base year Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)

<Not Applicable>

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes
95

Target year
2024

Targeted reduction from base year (%)
7.65

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]
49499600

Scope 1 emissions in reporting year covered by target (metric tons CO2e)
43668600

Scope 2 emissions in reporting year covered by target (metric tons CO2e)
131400

Scope 3 emissions in reporting year covered by target (metric tons CO2e)
<Not Applicable>

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)
43800000

% of target achieved relative to base year [auto-calculated]
239.001073066042

Target status in reporting year
Achieved

Is this a science-based target?
No, but we anticipate setting one in the next 2 years

Target ambition
<Not Applicable>

Please explain target coverage and identify any exclusions
The mid-term target of capping greenhouse gas emissions at 49.5 million tonnes of carbon dioxide equivalent (MtCO₂e) by 2024 is for our Malaysia operations only, as 97% of PETRONAS' GHG emissions are from Malaysia operations.

Plan for achieving target, and progress made to the end of the reporting year
<Not Applicable>

List the emissions reduction initiatives which contributed most to achieving this target
GHG emissions reduction in PETRONAS can be clustered into three main areas as below:
o Flare Reduction: Achieved mainly in Upstream operations in Malaysia through flare gas recovery projects and improvements in compressor capacity
o Vent Reduction: Occurred in Upstream operations in Malaysia, mainly from vent-to-flare conversion and vent recovery projects
o Energy Efficiency: Achieved through operational excellence efforts such as optimisation of gas turbine operations and process optimisation initiatives, mainly from Downstream and Gas and New Energy businesses

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?

Net-zero target(s)
Other climate-related target(s)

C4.2b

(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.

Target reference number

Oth 1

Year target was set

2019

Target coverage

Company-wide

Target type: absolute or intensity

Absolute

Target type: category & Metric (target numerator if reporting an intensity target)

Other, please specify	Other, please specify (Increase renewable energy capacity to 3,000MW by 2024)
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Target denominator (intensity targets only)

<Not Applicable>

Base year

2019

Figure or percentage in base year

10

Target year

2024

Figure or percentage in target year

3000

Figure or percentage in reporting year

851

% of target achieved relative to base year [auto-calculated]

28.1270903010033

Target status in reporting year

Underway

Is this target part of an emissions target?

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

Please explain target coverage and identify any exclusions

This is a mid-term target to increase renewable energy capacity to 3,000 MW by 2024.

Plan for achieving target, and progress made to the end of the reporting year

PETRONAS introduced GENTARI to accelerate the adoption and commercialisation of integrated net zero carbon solutions. The new entity aims to deliver a suite of renewable energy, hydrogen and green mobility solutions that are safe, responsible, cost-optimised and emissions-abated.

GENTARI has a dedicated team focusing on the supply, distribution and retail of cleaner energy. By elevating the progress that PETRONAS has achieved to date under its existing New Energy business and building on partnerships with next generation energy and technology providers, GENTARI will benefit from the immediate capacity and resources to pursue cleaner energy at an industrial scale, starting with Malaysia and Asia Pacific.

List the actions which contributed most to achieving this target

<Not Applicable>

C4.2c

(C4.2c) Provide details of your net-zero target(s).

Target reference number

NZ1

Target coverage

Company-wide

Absolute/intensity emission target(s) linked to this net-zero target

Abs1

Target year for achieving net zero

2050

Is this a science-based target?

No, but we anticipate setting one in the next 2 years

Please explain target coverage and identify any exclusions

We are currently developing a transition plan in our efforts to pursue our purpose to become a progressive energy and solutions partner enriching lives for a sustainable future. We will be releasing more details about our pathway towards our aspiration of achieving net zero carbon emissions by 2050 and how this will lay the foundation for business development.

Do you intend to neutralize any unabated emissions with permanent carbon removals at the target year?

Unsure

Planned milestones and/or near-term investments for neutralization at target year

<Not Applicable>

Planned actions to mitigate emissions beyond your value chain (optional)

We will be releasing more details about our pathway towards net zero carbon emissions by 2050 and how this will lay the foundation for business development.

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative category & Initiative type

Other, please specify	Other, please specify (Flare reduction, including flare gas recovery and compressor capacity improvements; Vent reduction, including vent-to-flare conversion and vent recovery; Energy efficiency; including gas turbine operations optimisation and process optimisation)
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Estimated annual CO2e savings (metric tonnes CO2e)

17500000

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

Investment required (unit currency – as specified in C0.4)

Payback period

Please select

Estimated lifetime of the initiative

Please select

Comment

C5. Emissions methodology

C5.1

(C5.1) Is this your first year of reporting emissions data to CDP?

Yes

(C5.2) Provide your base year and base year emissions.

Scope 1

Base year start

January 1 2017

Base year end

December 31 2017

Base year emissions (metric tons CO2e)

55878500

Comment

The base year covers GHG emissions from Malaysia and international operations.

Scope 2 (location-based)

Base year start

January 1 2017

Base year end

December 31 2017

Base year emissions (metric tons CO2e)

621500

Comment

The base year covers GHG emissions from Malaysia and international operations.

Scope 2 (market-based)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 1: Purchased goods and services

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 2: Capital goods

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 4: Upstream transportation and distribution

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 5: Waste generated in operations

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 6: Business travel

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 7: Employee commuting

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 8: Upstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 9: Downstream transportation and distribution

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 10: Processing of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 11: Use of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 12: End of life treatment of sold products

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 13: Downstream leased assets

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 14: Franchises

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3 category 15: Investments

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (upstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (downstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

C5.3

(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

American Petroleum Institute Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry, 2009

IPCC Guidelines for National Greenhouse Gas Inventories, 2006

IPIECA's Petroleum Industry Guidelines for reporting GHG emissions, 2nd edition, 2011

ISO 14064-1

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO2e?

Reporting year

Gross global Scope 1 emissions (metric tons CO2e)

45064400

Start date

January 1 2021

End date

December 31 2021

Comment

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We have operations where we are able to access electricity supplier emission factors or residual emissions factors, but are unable to report a Scope 2, market-based figure

Comment

We are able to access electricity supplier emission factors or residual emission factors only in some of our international locations, and 97% of our Scope 1 and 2 emissions are from Malaysia operations. Therefore, we are not reporting a Scope 2 market-based figure given the magnitude of the emissions are considered insignificant for now.

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Reporting year

Scope 2, location-based

135600

Scope 2, market-based (if applicable)

<Not Applicable>

Start date

January 1 2021

End date

December 31 2021

Comment

C6.5

(C6.5) Account for your organization's gross global Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Please select

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Capital goods

Evaluation status

Please select

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status

Please select

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Upstream transportation and distribution

Evaluation status

Please select

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Waste generated in operations

Evaluation status

Please select

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Business travel

Evaluation status

Please select

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Employee commuting

Evaluation status

Please select

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Upstream leased assets

Evaluation status

Please select

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Downstream transportation and distribution

Evaluation status

Please select

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Processing of sold products

Evaluation status

Please select

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Use of sold products

Evaluation status

Please select

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

End of life treatment of sold products

Evaluation status

Please select

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Downstream leased assets

Evaluation status

Please select

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Franchises

Evaluation status

Please select

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Investments

Evaluation status

Please select

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Other (upstream)

Evaluation status

Please select

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

Other (downstream)

Evaluation status

Please select

Emissions in reporting year (metric tons CO2e)

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Please explain

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

47.9

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

Metric denominator

barrel of oil equivalent (BOE)

Metric denominator: Unit total

Scope 2 figure used

Location-based

% change from previous year

27

Direction of change

Decreased

Reason for change

This GHG intensity number is for Upstream operations in Malaysia only. Upstream business has been diligently completing GHG emission reduction initiatives from 2013 after the establishment of PETRONAS Carbon Commitments. With the completion of the reduction initiatives, Upstream GHG emissions have reduced leading to reduced GHG intensity.

Intensity figure

0.67

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

Metric denominator

metric ton of product

Metric denominator: Unit total

Scope 2 figure used

Location-based

% change from previous year

1.5

Direction of change

Increased

Reason for change

This GHG intensity number is for our petrochemicals operations in Malaysia only. Petronas Chemicals Group Berhad has reduced 0.08 MtCO2e since 2018. In 2021, our GHG emissions was 0.1 MtCO2e lower than 2020, whilst we have a lower plant utilisation rate in 2021 compared to 2020. This resulted in an increase of GHG intensity to 0.67 from 0.66.

Intensity figure

0.018

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

Metric denominator

barrel of oil equivalent (BOE)

Metric denominator: Unit total

Scope 2 figure used

Location-based

% change from previous year

5

Direction of change

Decreased

Reason for change

This GHG intensity number is for our refineries operations in Malaysia only. The decrease in intensity is achieved through energy efficiency emissions reduction projects, e.g., through gas turbine operations optimisation.

C7. Emissions breakdowns

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Decreased

C8. Energy

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertook this energy-related activity in the reporting year
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	No
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	Yes

C8.2a

(C8.2a) Report your organization's energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	Please select			
Consumption of purchased or acquired electricity	<Not Applicable>			
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>		<Not Applicable>	
Total energy consumption	<Not Applicable>			

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

- Yes, our suppliers
- Yes, our customers/clients
- Yes, other partners in the value chain

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?

- No, and we do not plan to introduce climate-related requirements within the next two years

C16. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

C16.1

(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Executive Vice President and Group Chief Financial Officer	Chief Financial Officer (CFO)

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	I understand that my response will be shared with all requesting stakeholders	Response permission
Please select your submission options	Yes	Public

Please confirm below

I have read and accept the applicable Terms