



LRQA Group Independent Assurance Statement

Relating to Petroliam Nasional Berhad (PETRONAS) Greenhouse Gas (GHG) emissions (Scope 1 and Scope 2) – Limited Level of Assurance using an equity share approach for years 2019-2023

This Assurance Statement has been prepared for Petroliam Nasional Berhad (PETRONAS) in accordance with our contract.

Terms of Engagement

LRQA INSPECTION MALAYSIA SDN. BHD. (LRQA) was commissioned by PETRONAS to provide independent assurance of its greenhouse gas (GHG) emissions inventory in the PETRONAS Integrated Report 2024 (“the Report”) for the years 2019-2023 against the assurance criteria below to a limited level of assurance and materiality of the professional judgement of the verifier using LRQA’s verification procedure that is in accordance with ISO 14064 - Part 3: Specification with guidance for the verification and validation of greenhouse gas statements.

Our assurance engagement covered PETRONAS’ operations and activities for entities globally related to its various business divisions including Upstream¹, Gas, Downstream, KLCC (Property) and MISC Group (Shipping). The engagement required us to verify the GHG emissions from the PETRONAS’ entities using an equity share approach for the years 2019-2023. Our engagement specifically covered the following:

➤ Verifying conformance of the selected datasets with:

- PETRONAS Technical Standards (PTS) 18.72.05 Greenhouse Gas (GHG) Emissions Management, March 2023.
- Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard by the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD) for the GHG emissions data².

Our assurance engagement covered entities listed in Annex B, excluded the data and information of PETRONAS’ suppliers, contractors and any third parties mentioned in the report.

LRQA’s responsibility is only to PETRONAS. LRQA disclaims any liability or responsibility to others as explained in the end footnote. PETRONAS’ responsibility is for collecting, aggregating, analysing and presenting all the data and information within the Report and for maintaining effective internal controls over the systems from which the Report is derived. Ultimately, the Report has been approved by, and remains the responsibility of PETRONAS.

LRQA’s Opinion

Based on LRQA’s approach nothing has come to our attention that would cause us to believe that PETRONAS has not, in all material respects:

- met the requirements of the criteria listed above; and
- disclosed accurate and reliable performance data and information as summarized in Table 1 below.

The opinion expressed is formed on the basis of a limited level of assurance³ and at the materiality of the professional judgement of the verifier.

¹ excludes exploration and decommissioning activities

²<https://www.ghgprotocol.org/corporate-standard>

³ The extent of evidence-gathering for a limited assurance engagement is less than for a reasonable assurance engagement. Limited assurance engagements focus on aggregated data rather than physically checking source data at sites. Consequently, the level of assurance obtained in a limited assurance engagement is lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.



Table 1. Summary of PETRONAS GHG emissions for Scope 1 and Scope 2 emissions using equity share approach for years 2019, 2020, 2021, 2022 and 2023:

Scope	2019 (tCO ₂ e)	2020 (tCO ₂ e)	2021 (tCO ₂ e)	2022 (tCO ₂ e)	2023 (tCO ₂ e)
Scope 1 emissions	51,453,171	46,390,936	43,076,311	45,772,668	45,368,140
Scope 2 emissions	1,215,527	1,130,378	972,134	1,002,743	1,042,301

LRQA's Approach

LRQA's assurance engagements are carried out in accordance with our verification procedure. The following tasks were undertaken as part of the evidence gathering process for this assurance engagement:

- conducting GHG data verification through remote interactions with key personnel from sampled units from operated assets and non-operated joint ventures as in Annex A;
- reviewing processes related to the GHSE's control of GHG emissions data and records of its operational and non-operational joint ventures;
- interviewing relevant employees of the businesses and GHSE responsible for managing GHG emissions data and records;
- assessing PETRONAS' data management systems to confirm they are designed to prevent significant errors, omissions or mis-statements in the Report. We did this by reviewing the effectiveness of data handling procedures, instructions and systems, including those for internal quality control.
- verifying historical GHG emissions data and records at an aggregated level for the years 2019 (base year), 2020, 2021, 2022 and 2023 through:
 - verifying that the GHG emissions data of the operated assets has been
 - aligned with that presented to us under separate engagement for verification at an operational control for 2019-2022 in the previous year and 2023 in the current year;
 - reflected from the various tools being in use by the businesses; for example, S-Insight in use by MISC Group (Shipping); SANGEA and GCON used by Upstream, Gas and Downstream businesses or GHG emissions calculation spreadsheet used by KLCC (Property).
 - verifying that the GHG emissions data presented for non-operated joint ventures have been arrived at through one of the various means that included:
 - GHG emissions data obtained from other credible sources such as external third-party assurance statements or from those submitted to regulator, e.g. Malaysia Petroleum Management (MPM).
 - GHG emissions intensities based on production for one of the years (2019-2023) and applying the intensities to production volumes in other years;
 - adopting GHG emissions intensity of a similar operating plant that is under PETRONAS operational control;
- verifying equity share percentage through references to the previously issued PETRONAS Integrated Report, Audited Financial Statements and the Fact Book issued by Group Finance PETRONAS.
- verifying that the GWPs⁴ used are aligned with IPCC AR4.

Observations and recommendations were provided to PETRONAS management, intended for internal use only. These do not affect our opinion.

LRQA's Standards, Competence and Independence

LRQA implements and maintains a comprehensive management system that meets accreditation requirements for ISO 14065 Greenhouse gases – Requirements for greenhouse gas validation and verification bodies for use in accreditation or other forms of recognition and ISO/IEC 17021 Conformity audit – Requirements for bodies providing audit and certification of management systems that are at least as demanding as the requirements of the International Standard on Quality Control and comply with the Code of Ethics for Professional Accountants issued by the International Ethics Standards Board for Accountants.

LRQA ensures the selection of appropriately qualified individuals based on their qualifications, training and experience. The outcome of all verification and certification audits is then internally reviewed by senior management to ensure that the approach applied is rigorous and transparent.

⁴ Global Warming Potentials



We conducted gap analyses in previous years for PETRONAS on their methodology of reporting Scope 1 and Scope 2 GHG emissions under equity share and Scope 3 Category 11 (GHG emissions from sold products) for 2019-2022. The verification audits are the only work undertaken by LRQA for PETRONAS and as such does not compromise our independence or impartiality.

Signed

Dated: 30 April 2025

A handwritten signature in black ink, appearing to read 'K. Deshmukh', is written over a horizontal line.

Ketan Deshmukh

LRQA GROUP LIMITED Lead Verifier

On behalf of LRQA INSPECTION MALAYSIA SDN. BHD., Level 25, Naza Tower, Platinum Park, No.10, Persiaran KLCC, 50088 Kuala Lumpur

LRQA GROUP LIMITED reference: KLR00000809

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The English version of this Assurance Statement is the only valid version. LRQA GROUP LIMITED assumes no responsibility for versions translated into other languages.

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Annex A

List of Sampled Sites		
Business Divisions	Operated Assets	Non-operated Joint Ventures
Upstream	<ul style="list-style-type: none"> Block PM309 PSC Balingian PSC Block SK8 PSC (Continuation) Irong Cluster PSC SB SSGP Canada NMJV Turkmenistan Block 1 PSC Vietnam Block 102 & 106 PSC 	<ul style="list-style-type: none"> 2008 PSC Block PM8 PSC (Extension) Block PM3 CAA PSC Kebabangan Cluster PSC Batang Field PSC Block SK309 PSC Deepwater Block K PSC Deepwater Block J PSC Brazil BM-C-36 & EM III Indonesia Jabung Indonesia Natuna Sea A
Gas	<ul style="list-style-type: none"> Gas Processing Kerteh (PETRONAS Gas Berhad) PETRONAS Floating LNG 1 (L) Ltd PETRONAS Floating LNG 2 (L) Ltd Malaysia LNG Sdn Bhd Malaysia LNG Dua Sdn Bhd Malaysia LNG Tiga Sdn Bhd PETRONAS LNG 9 Sdn Bhd 	<ul style="list-style-type: none"> GLNG Operations Pty Ltd Kimanis Power Sdn Bhd Trans Thai-Malaysia (Thailand) Limited
Downstream	<ul style="list-style-type: none"> PETRONAS Chemicals Fertiliser Kedah Sdn Bhd PETRONAS Chemicals LDPE Sdn Bhd PETRONAS Chemicals Ammonia Sdn Bhd PETRONAS Chemicals Derivatives Sdn Bhd PETRONAS Chemicals Olefins Sdn Bhd PETRONAS Chemicals Glycols Sdn Bhd PRPC Utilities and Facilities Sdn Bhd 	<ul style="list-style-type: none"> BASF PETRONAS Chemicals Sdn Bhd PS Pipeline Sendirian Berhad Pengerang Terminals (Two) Sdn Bhd

List of Sampled Sites		
Business Divisions	Operated Assets	Non-operated Joint Ventures
MISC Group	<ul style="list-style-type: none"> MISC Berhad AET DP Shuttle II Pte Ltd AET Inc. Limited AET Shuttle Tankers II Pte Ltd AET Singapore One Pte Ltd Atenea Services S.A. Polaris LNG One Pte. Ltd. Puteri Mutiara Satu (L) Pte. Ltd. Seri Camellia (L) Private Limited Malaysia Marine and Heavy Engineering Sdn. Bhd. 	
KLCC (Property)	<ul style="list-style-type: none"> Gas District Cooling (M) Sdn Bhd Gas District Cooling (Putrajaya) Sdn Bhd KLCC Urusharta Sdn Bhd 	<ul style="list-style-type: none"> Impian Bebas Sdn Bhd Kuala Lumpur Convention Centre Sdn Bhd Suria KLCC Sdn Bhd

Annex B

Business	List of OPU/Companies
Upstream*	PETRONAS Carigali Sdn. Bhd.
	Vestigo Petroleum Sdn. Bhd.
	PETRONAS Carigali (Turkmenistan) Sdn. Bhd.
	PETRONAS Carigali Vietnam Limited
	PETRONAS Carigali (Ketapang) Limited
	PETRONAS Energy Canada Limited
	PETRONAS Carigali International Ventures Sdn. Bhd.
Gas	Malaysia LNG Sdn. Bhd.
	Malaysia LNG Dua Sdn. Bhd.
	Malaysia LNG Tiga Sdn. Bhd.
	PETRONAS LNG 9 Sdn. Bhd.
	PETRONAS Floating LNG 1 (L) Ltd.
	PETRONAS Floating LNG 2 (L) Ltd.
	PETRONAS Gas Berhad
	Regas Terminal (Sg.Udang) Sdn. Bhd.
	Pengerang LNG (Two) Sdn. Bhd.
	Gas Malaysia Bhd.
	GLNG Operations Pty Ltd.
	GLNG Upstream Operations Pty Ltd.
	Kimanis Power Sdn. Bhd.
	Pengerang Gas Solutions Sdn. Bhd.
	PT Transportasi Gas Indonesia
	The Egyptian LNG Company S.A.E
	Trans Thai-Malaysia (Malaysia) Ltd.
	Trans Thai-Malaysia (Thailand) Ltd.
Downstream	ASEAN Bintulu Fertiliser Sdn. Bhd.
	Engen Limited
	Malaysian Refining Company Sdn. Bhd.
	PETRONAS Chemicals Aromatics Sdn. Bhd.
	PETRONAS Chemicals Ethylene Sdn. Bhd.
	PETRONAS Chemicals Fertiliser Kedah Sdn. Bhd.
	PETRONAS Chemicals Fertiliser Sabah Sdn. Bhd.
	PETRONAS Chemicals LDPE Sdn. Bhd.
	PETRONAS Chemicals Ammonia Sdn. Bhd.
	PETRONAS Chemical Methanol Sdn. Bhd.
	PETRONAS Chemicals MTBE Sdn. Bhd.
	PETRONAS Chemicals Olefins Sdn. Bhd.
	PETRONAS Chemicals Glycols Sdn. Bhd.
	PETRONAS Chemicals Derivatives Sdn. Bhd.
	PETRONAS Chemical Polyethylene Sdn. Bhd.
	PETRONAS Dagangan Berhad

Business	List of OPU/Companies
Downstream (continued)	PETRONAS Trading Corp.
	PETRONAS NGV Sdn. Bhd.
	PETRONAS Lubricants International Sdn. Bhd.
	PETRONAS Penapisan (Terengganu) Sdn. Bhd.
	PRPC Utilities and Facilities Sdn. Bhd.
	BASF PETRONAS Chemicals Sdn. Bhd.
	Engen Limited (non-operated subsidiary)
	Idemitsu Styrene Monomer Sdn. Bhd.
	Ineos PCG Acetyls Sdn. Bhd.
	IOT Management Sdn. Bhd.
	Kertih Terminals Sdn. Bhd.
	Malaysian NPK Fertilizer Sdn. Bhd.
	Pengerang Terminals (Two) Sdn. Bhd.
	PS Pipeline Sdn. Bhd.
	PS Terminal Sdn. Bhd.
	Tanjung Manis Oil Terminal Management Sdn. Bhd.
MISC Group	AET Bermuda One Limited
	AET Brasil Servicos Maritimos Ltd.a
	AET DP Shuttle II Pte. Ltd.
	AET DP Shuttle Pte. Ltd.
	AET DP Shuttle Tankers Sdn. Bhd.
	AET Inc. Limited
	AET Labuan One Pte. Ltd.
	AET Lightering Services LLC
	AET MCV Alpha L.L.C.
	AET MCV Beta L.L.C.
	AET Offshore Services Inc.
	AET Petroleum Tanker (M) Sdn. Bhd.
	AET Product Tankers Sdn. Bhd.
	AET Sea Shuttle AS
	AET Sea Shuttle II AS
	AET Shuttle Tankers II Pte. Ltd.
	AET Shuttle Tankers III Pte. Ltd.
	AET Shuttle Tankers Sdn. Bhd.
	AET SINGAPORE ONE PTE. LTD.
	AET Tankers (Suezmax) Pte. Ltd.
	AET Tankers Pte. Ltd.
	AET Tankers VLCC II Sdn. Bhd.
	AET Tankers VLCC III Pte. Ltd.
	AET Tankers VLCC IV Pte. Ltd.
	AET Tankers VLCC Pte. Ltd.
	AET UK Limited
	Asia LNG Transport Sdn. Bhd.

Business	List of OPU/Companies
MISC Group (continued)	Atenea Services S.A.
	Eaglestar Marine B.V.
	Eaglestar Marine India Pte. Ltd.
	Gas Asia Terminal (L) Pte. Ltd.
	Hendham Enterprises Ltd.
	Magellan X Holdings (L) Pte. Ltd.
	Malaysia Marine and Heavy Engineering Holdings Berhad
	Malaysia Marine and Heavy Engineering Sdn. Bhd.
	Malaysian Maritime Academy Sdn. Bhd.
	MHS Integrated Engineering Sdn. Bhd.
	MISC Agencies (Netherlands) B.V.
	MISC Berhad
	MISC Maritime Services Sdn. Bhd.
	Odley Worldwide Inc.
	Oldson Ventures Ltd.
	Polaris LNG One Pte. Ltd.
	Polaris LNG Two Pte.Ltd.
	Portovenere and Lerici (Singapore) Pte. Ltd.
	Puteri Delima (L) Pte. Ltd.
	Puteri Delima Satu (L) Pte. Ltd.
	Puteri Delima Sdn. Bhd.
	Puteri Firus Satu (L) Pte. Ltd.
	Puteri Intan (L) Pte. Ltd.
	Puteri Intan Satu (L) Pte. Ltd.
	Puteri Intan Sdn. Bhd.
	Puteri Mutiara Satu (L) Pte. Ltd.
	Puteri Nilam (L) Pte. Ltd.
	Puteri Nilam Satu (L) Pte. Ltd.
	Puteri Nilam Sdn. Bhd.
	Puteri Zamrud (L) Pte. Ltd.
	Puteri Zamrud Satu (L) Pte. Ltd.
	Puteri Zamrud Sdn. Bhd.
	Seri Camar (L) Pte. Ltd.
	Seri Camellia (L) Pte. Ltd.
	Seri Cemara (L) Pte. Ltd.
	Seri Cempaka (L) Pte. Ltd.
	Seri Cenderawasih (L) Pte. Ltd.
	Seri Elbert (Singapore) Pte. Ltd.
	Seri Emei (Singapore) Pte. Ltd.
	Seri Emory (Singapore) Pte. Ltd.
	Seri Emperor (Singapore) Pte. Ltd.
	Seri Erlang (Singapore) Pte. Ltd.
	Seri Everest (Singapore) Pte. Ltd.

Business	List of OPU/Companies
MISC Group (continued)	Sungai Udang Port Sdn. Bhd.
	Twyford International Business Corp.
	Zangwill Business Corp.
	Akudel S.A.
	Cawerty S.A.
	Diamond LNG Shipping 5 Pte. Ltd.
	Diamond LNG Shipping 6 Pte. Ltd.
	FPSO Ventures Sdn. Bhd.
	Gumusut-Kakap Semi-Floating Production System (L) Limited
	Malaysia Vietnam Offshore Terminal (L) Ltd.
	Zascu S.A.
KLCC (Property)	Gas District Cooling (M) Sdn. Bhd.
	Gas District Cooling (Putrajaya) Sdn. Bhd.
	Gilang Cendana Sdn. Bhd.
	KLCC Parking Management Sdn. Bhd.
	KLCC Urusharta Sdn. Bhd.
	Putrajaya Bina Sdn. Bhd.
	Putrajaya Holdings Sdn. Bhd.
	Putrajaya Management Sdn. Bhd.
	Kuala Lumpur Convention Centre Sdn. Bhd.
	Metro Kemasik Sdn. Bhd.
	Putrajaya Holdings Sdn. Bhd.
	Suria KLCC Sdn. Bhd.

**Note: For Upstream, verification done for GHG emissions based on participating interest of PETRONAS Upstream listed entities in their respective operated and non-operated Production Sharing Contracts (PSCs)*