

## LRQA Independent Assurance Statement Relating to PTT Global Chemical Public Company Limited's GHG Report for the FY 2023

#### **Terms of Engagement**

This Assurance Statement has been prepared for PTT Global Chemical Public Company Limited.

LRQA was commissioned by PTT Global Chemical Public Company Limited to assure its GHG Report for the fiscal year 2023(1 January – 31 December 2023) (hereafter referred to as "the Report").

The Report relates to direct GHG emissions and indirect GHG emissions

PTT Global Chemical Public Company Limited 's geographical boundary includes its HO operations located at Rayong, Thailand and other sites located in Thailand only (Annex A). The main activities of the organization are manufacturing for petrochemical, chemical, utility supply and technical service. The GHG emissions have been consolidated using operational control approach.

#### **Management Responsibility**

PTT Global Chemical Public Company Limited's management was responsible for preparing the claim, report and conformity with the criteria of ISO 14064-1:2018 and for maintaining effective internal controls over the data and information disclosed. LRQA's responsibility was to carry out an assurance engagement on the Report in accordance with our contract with PTT Global Chemical Public Company Limited.

Ultimately, the Report has been approved by, and remains the responsibility of PTT Global Chemical Public Company Limited .

#### LRQA's Approach

Our verification has been conducted in accordance with ISO 14064–3:2019, 'Specification with guidance for verification and validation of greenhouse gas statements' to provide limited assurance that GHG data as presented in the Report have been prepared in conformance with ISO 14064–1:2018, 'Specification with guidance at the organizational level for quantification and reporting of greenhouse gas emissions and removals'.

To form our conclusions the assurance engagement was undertaken as a sampling exercise and covered the following activities:

- conducted site visit at the Rayong facilities and reviewed processes related to the control of GHG emissions data and records;
- interviewed relevant staff of the organization responsible for managing GHG emissions data and records; and
- verified historical GHG emissions data and records at an aggregated level for the financial year 2023.

#### Level of Assurance & Materiality

In accordance with our contract agreement, the assurance was conducted at a limited level of assurance at a materiality of 5% at aggregation level. The opinion expressed in this Assurance Statement has been accordingly formed.

 $<sup>^{\,1}</sup>$  other locations in boundary scope has been referred to Table 2 : Annex of locations



#### **LRQA's Opinion**

Based on LRQA's approach nothing has come to our attention that would cause us to believe that the GHG emissions disclosed in the Report as summarized in Table 1 below are not materially correct and that the Report has not been prepared in conformance with ISO 14064–1:2018

#### LRQA's Recommendations

PTT Global Chemical Public Company Limited should:

• GHG emissions data collection and quantification methods should be established for others significant GHG emissions in the downstream activities such as Products transportation and processing of sold products which should be reported cover all types of products.

Opart Charuratana

Opart Charuratana LRQA Lead Verifier

On behalf of LRQA (Thailand) Ltd. No. 252/123, Muang Thai - Phatra Complex Tower B, 26th Floor, Unit 252/123 (C), Ratchadaphisek Road, Huaykwang Sub-district, Huaykwang District, Bangkok, 10310 Thailand

LRQA reference: BGK00001075

Dated: 25 Jun. 24



P959 Product Procedure



# Table 1. Summary of PTT Global Chemical Public Company Limited, GHG Emissions Inventory / Report 2023

| Scope of GHG emissions  | Tonnes CO₂e<br>Y2021 | Tonnes CO₂e<br>Y2023 |  |  |  |
|---|----------------------|----------------------|--|--|--|
| Direct GHG emissions (Category 1)   | 6,522,577            | 6,129,439            |  |  |  |
|   |                      |                      |  |  |  |
| Indirect GHG emissions from imported energy (Category 2)                            |                      |                      |  |  |  |
| Location Based  | 2,063,605            | 1,809,055            |  |  |  |
| Market Based  | 2,029,650            | 1,827,679            |  |  |  |
|   |                      |                      |  |  |  |
| Indirect GHG emissions from transportation (Category 3)                             |                      |                      |  |  |  |
| Upstream Transport  | 560,586              | 635,699              |  |  |  |
| <ul> <li>Downstream Transport (only Polymer products)</li> </ul>                    | 40,138               | 30,873               |  |  |  |
| Indirect GHG emissions from products used by an organization                        |                      |                      |  |  |  |
| (Category 4)  |                      |                      |  |  |  |
| Capital goods   | 581,050              | 181,796              |  |  |  |
| <ul> <li>Purchased goods and services</li> </ul>                                    | 6,087,267            | 7,372,455            |  |  |  |
| <ul> <li>Fuel and energy related activities</li> </ul>                              | 1,031,996            | 1,174,140            |  |  |  |
| Indirect GHG emissions associated with the use of products from                     |                      |                      |  |  |  |
| the organization (Category 5)   | 2,501,051            | 2,532,062            |  |  |  |
| <ul> <li>Processing of sold products (only Polymer products)</li> </ul>             | 24,266,496           | 26,904,998           |  |  |  |
| Used of sold products   | 604,053              | 1,022,415            |  |  |  |
| End of life treatment of sold products  | 1,574,065            | 1,625,081            |  |  |  |
| Investment  |                      |                      |  |  |  |
| Location based and Market based are terminologies from Annex E of ISO 14064-1:2018. |                      |                      |  |  |  |
|   |                      |                      |  |  |  |

#### This Assurance Statement is subject to the provisions of this legal section:

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### Table 2 : Annex of Locations

| No. | Name                           | Business Unit       | Location  |
|-----|--------------------------------|---------------------|---|
| 1   | GC 1 (RO)                      | Office building     | 59, Ratniyom Road, Noenphra, Mueang Rayong, Rayong 21150, Thailand.   |
| 2   | GC 2 (OLE 1)                   | Olefins             | 14, I-1 Road, Tambol Maptaphut, Amphur Mueang Rayong,   |
| 3   | GC 2 (UT)                      | Utilities           | Rayong 21150, Thailand.   |
| 4   | GC 2 (HDPE 1)                  | Polymers            | -   |
| 5   | GC 2 (OLE 4)                   | Olefins             | -   |
| 6   | GC 2 (HGP)                     | Olefins             | -   |
| 7   | GC 3 (OLE 2)                   | Olefins             | 9. I-4 Road, Map Ta Phut Industrial Estate, Map Ta Phut,  |
|     |                                |                     | Mueang Rayong, Rayong 21150, Thailand.  |
| 8   | GC 4 (ARO 1)                   | Aromatics           | 4, I-2 Road, Map Ta Phut Industrial Estate, Map Ta Phut,  |
| 0   |                                | Aramatian           | Mueang Rayong, Rayong 21150, Thailand.  |
| 9   | GC 5 (ARU Z)                   | Aromatics           | Mantanhut District Rayong 21150 Thailand  |
| 10  | GC 6 (REF)                     | Refinery            | 8 I-8 Road Man Ta Phut Industrial Estate Man Ta Phut  |
| 10  |                                | iterinery           | Mueang Rayong, Rayong 21150, Thailand.  |
| 11  | GC 7 (BTF)                     | Jetty & Buffer Tank | 19 Rong Pui Road, Map Ta Phut, Mueang Rayong, Rayong  |
|     |                                | Farm                | 21150, Thailand.  |
| 12  | GC 8 (ATF)                     | Tank Farm           | 11, I-4 Road, Map Ta Phut Industrial Estate,  |
| 13  | GC 9 (LAB)                     | Lab Center          | 24/9, Pakorn Songkrorat Road, Map Ta Phut, Mueang   |
|     |                                |                     | Rayong, Rayong 21150, Thailand  |
| 14  | GC 11 (OLE 3)                  | Olefins             | 8 Padaeng Road, Maptaphut Amphur Mueng Rayong,  |
| 15  | GC 11 (LDPE)                   | Polymers            | Rayong 21150, Thailand.   |
| 16  | GC 11 (LLDPE)                  | Polymers            |   |
| 17  | GC 12 (HDPE2)                  | Polymers            | 8, I-10 Road, Map Ta Phut Industrial Estate, Map Ta Phut,   |
| 10  |                                | EO Basad            | Muang Rayong, Rayong 21150, Thailand.   |
| 10  | GC 10 (LO/LG)                  | LO-Daseu            | Phut Amphur Muang Rayong, Rayong 21150, Thailand  |
| 19  | GC 16 (EA)                     | EO-Based            |   |
| 20  | GGC (Plant I)                  | Green Chemicals     | 8, Pakornsongkhrorat Road, Map Ta Phut, Muang Rayong,<br>Rayong 21150, Thailand.                            |
| 21  | GCME                           | Office building     | 22/2 Pakornsongkoraj Rd. T.Maptaput, A.Mueang, Rayong   |
| 22  |                                | Office building     | 21150, Thailand.  |
| 22  | NPC SAE                        | Office building     | Amphur Muang Rayong, Rayong 21150, Thailand   |
| 23  | GC 17 (GC Stryrenics)          | Polymers            | 7 I-1 Rd., Map Ta Phut Industrial Estate, Map Ta Phut.  |
| 20  |                                | i otymers           | Muang Rayong, Rayong 21150, Thailand.   |
| 24  | ENCO (Head Office)             | Office building     | 555/1 Energy Complex, Building A, 14th-18th Floor,<br>Vibhavadi Rangsit Road, Chatuchak, Chatuchak, Bangkok |
| 25  | GC 18 (Phenol I & II)          | Phenol              | 9 Soi G9 Hemaraj eastern Industrail Eastern   |
| 26  | GC 18 (BPA)                    | Phenol              | Pakornsongkrohraj,Rd Map Ta Phut Rayong 21150,  |
|     |                                |                     | Thailand.   |
| 27  | GC 13 (INNO)                   | Innovation building | 83/9-10 Moo 5, Tambon Thap Ma, Muang Rayong, Rayong 21000 Thailand.   |
| 28  | GC Corporate (Scope 1)         | Corporate           | Bangkok and Rayong  |
| 29  | GC14 (Maintenance<br>Workshop) | Office building     | 32 Rong Pui Road, Map Ta Phut, Mueang Rayong, Rayong<br>21150 Thailand.                                     |
| 30  | GCMTPA                         | Polymers            | 8 Pakorn Songkhraorat Road, Tambon Map Ta Phut<br>Amphur Muang Rayong, Rayong 21150, Thailand               |



| 31 | TPRC               | Polymers        | 18, Soi G-2 Pakorn Songkhraorat Road, Tambon Map Ta   |
|----|--------------------|-----------------|---|
|    |                    |                 | Phut Amphur Muang Rayong, Rayong 21150, Thailand      |
| 32 | GGC (Plant II)     | Green Chemicals | 199/1 Moo 2, Khao Sok, Nong Yai,                      |
|    |                    |                 | Chon Buri 20190, Thailand                             |
| 33 | GC 19 (GC Oxirane) | EO-Based        | 12 Soi G-4 Pakorn Songkhraorat Road, Tambon Map Ta    |
|    |                    |                 | Phut Amphur Muang Rayong, Rayong 21150, Thailand      |
| 34 | GCP (GC Polyols)   | Polymers        | 9 Soi G-14 Pakorn Songkhraorat Road, Tambon Map Ta    |
|    |                    |                 | Phut Amphur Muang Rayong, Rayong 21150, Thailand      |
| 35 | GC Estate          | Office building | 888 Sukhumvit Road 20, Huai Pong, Amphur Muang Rayong |
|    |                    |                 | 21150, Thailand                                       |
| 36 | Envicco            | PCR Polymers    | P433+XQ7 GC Estate Rd, Ban Chang, Ban Chang District, |
|    |                    |                 | Rayong 21130, Thailand                                |
| 37 | GC 15 (GC Campus)  | Office building | 66 National Highway 363 Road, Nernpra Sub-District,   |
|    |                    |                 | Muang Rayong District, Rayong, Thailand 21150         |