

## FORM OF CONFIRMATION NOTICE

### Confirmation Notice for the sale and purchase of [■] Cargoes for delivery during the period [■] to December 2028

In accordance with the results of a competitive tender (PLL/IMP/LNGT56), Seller was selected as the “selected bidder” and, pursuant to the Master (Delivered Ex-ship) LNG Sale and Purchase Agreement (the "MSPA" or “Master Agreement”) dated \_\_\_\_\_, between Pakistan LNG Limited (“Buyer”) and \_\_\_\_\_ (“\_\_\_\_\_”), Buyer and \_\_\_\_\_ agree upon the following sale and purchase of LNG on this \_\_\_\_\_ day of [ ], 2022].

#### 1. Source of LNG

- (a) The Seller shall communicate to Buyer in writing the location of the Loading Port and/or identity of Seller’s Facilities and the loading date for each Cargo as soon as practicable after the relevant Delivery Window has been communicated to the Seller in accordance with paragraph 5 of this Confirmation Notice but in no case later than thirty (30) days prior to the first day of the relevant final Delivery Window.
- (b) For the avoidance of doubt, Seller shall be able to claim protection under Clause 16.1 of the MSPA for Seller’s Facilities and/or Loading Port the identity of which is to be notified to Buyer under paragraph 1(a) of this Confirmation Notice as long as and to the extent that such Seller’s Facilities and/or Loading Port are not, or are not likely to be, affected by a notice under Clause 16.4 of the MSPA at the time their identity is so notified to Buyer.

#### 2. LNG Carrier

- (a) Seller shall confirm to Buyer in writing the final identity, dimensions and capacity of the LNG Carrier and that it is compatible with the Discharge Port and the Receiving Facilities as soon as practicable after the execution of this Confirmation Notice but in no case later than five (5) days prior to departure of that LNG Carrier from the Loading Port.
- (b) Seller shall provide to Buyer all forms and information as required by the Discharge Port and the Receiving Facilities, relating to the LNG Carrier and confirm to Buyer that the LNG Carrier is compatible with the Discharge Port and the Receiving Facilities as soon as practicable after each Delivery Window has been communicated in accordance with paragraph 5 of this Confirmation Notice but in no case later than twenty-one (21) days prior to the first day of the relevant final Delivery Window, unless the LNG delivery for the relevant Cargo causes that LNG Carrier to call at the Discharge Port and the Receiving Facilities for the first time in which case the relevant information shall be notified to Buyer in



writing no later than thirty (30) days prior to the first day of the relevant final Delivery Window.

### 3. Discharge Port and Receiving Facilities

- (a) Subject to paragraph 3(c) and 3(d) below, Discharge Port shall be Port Qasim, Karachi, Pakistan.
- (b) Subject to paragraph 3(c) and 3(d) below, the Receiving Facilities shall be the FSRU-based LNG receiving terminal operated by Pakistan Gas Port Consortium Limited.
- (c) The Buyer may by written notice prior to the first day of the relevant final Delivery Window request the Seller to deliver a Cargo to another LNG receiving facility, within Pakistan, and, provided such receiving facility complies with the provisions of Clause 9.2 of MSPA, the Seller shall not withhold its consent to such request. The Buyer hereby confirms that the Receiving Facility at Port Qasim operated by Engro Elengy Terminal (Private) Limited complies with the provisions of 9.2 of the MSPA. Any incremental costs and any costs savings on account of the diversion will be to Buyer's account/benefit. For the avoidance of doubt, it is acknowledged that there will be no incremental costs in case of delivery to the Engro Elengy Terminal (Private) Limited LNG receiving facility.
- (d) In addition to the foregoing, the Buyer may at any time and from time to time request diversion to any other discharge port outside Pakistan, the operational modalities of which shall be agreed upon between the Parties on case to case basis. Any cost in relation to and profit resulting from such diversion will be shared equally between the Parties.

### 4. Quantities

#### 4.1 Contract Quantities

- (a) Subject to paragraph 4.2 below, Seller shall deliver, and Buyer shall take [forty-eight (48)] / [seventy-two (72)] <sup>1</sup>Cargoes in the period of [forty-eight (48)] / [seventy-two (72)] consecutive calendar months. The initial delivery date for the commencement of deliveries of such Cargoes ("**Start Date**") is expected to be January 2023. The actual Start Date will be notified by the Buyer to the Seller on the date of award. The Start Date shall not in any event be earlier than 1 January 2023 or later than 30 January 2025.
- (b) The quantity of LNG in each Cargo to be sold and purchased under this Confirmation Notice is 140,000 m<sup>3</sup>, with operational tolerance of -2% to +5%.

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<sup>1</sup> To be selected by PLL on the award date

- (c) The approximate energy content comprising the Estimated Contract Quantity for each Cargo is 3,200,000 MMBtu +/- 5%.
- (d) The Parties may mutually agree on a case to case basis, for delivery of a Cargo with quantity of LNG higher than the operational tolerance mentioned above.
- (e) For avoidance of any doubt, the Seller shall ensure that the LNG volume (m<sup>3</sup>) requirements as enumerated above are complied with for every Cargo to be delivered under a Transaction.
- (f) Subject to paragraph 4.2 below, the number of Cargoes to be sold and purchased under this Confirmation Notice is [forty-eight (48)] / [seventy-two (72)]<sup>2</sup>.

#### 4.2 Deferred Quantity

- (a) Notwithstanding the provisions of Clause 4 of the MSPA, the Buyer has the right not to purchase and take one (1) Cargo of LNG in each calendar year during the term of this Confirmation Notice provided that it gives the Seller notice of such intention at least one hundred and twenty (120) day prior to the Delivery Window or if the Delivery Window has not yet been fixed one hundred and twenty (120) day prior to the estimated period in which the Delivery Window for that month is to occur (as provided in Paragraph 5 below) (“**Deferred Quantity**”). In the event the Buyer gives the required notice of deferment of any Cargo, then, subject to Clause 4.2(c) below, and so long as there is no outstanding Deferred Cargo, the Seller shall be obliged to accept such request without any charge or penalty to the Buyer. If the Buyer gives less than the required notice, the Seller shall review the request in good faith and determine in its sole discretion whether to accept such request. Where the Deferred Cargo right is exercised, PLL shall not be required to pay for such Deferred Quantity.
- (b) PLL may, at any time, on one hundred and twenty (120) days written notice to the Seller schedule deliveries of any Cargo comprised in the Deferred Quantity. Provided that if PLL does give such notice the Seller shall be obliged to deliver the relevant Cargo comprised in the Deferred Quantity within the Delivery Window requested by PLL.
- (c) Deferred Quantity rights shall not be exercised by PLL in the last year of the term of this Confirmation Notice.

#### 5. Delivery Programme and Delivery Windows

- (a) For each calendar year during which Cargo deliveries will be undertaken under this Confirmation Notice, one (1) Cargo will be delivered in each calendar month

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<sup>2</sup> To be selected by PLL on the award date

of the relevant calendar year, subject to the provisions regarding Deferred Quantity as provided in paragraph 4.2 above.

- (b) Not Used
- (c) The Buyer shall nominate the five (5) day range for Cargo deliveries falling between the Start Date and December 2023 as soon as reasonably practicable but in any event no later than 30 October 2022.
- (d) For each calendar year following the 2023 calendar year, the Buyer shall communicate to the Seller no later than 30<sup>th</sup> September of the preceding calendar year a five (5) day range for Cargo deliveries.
- (e) No later than sixty (60) days before the first day of the relevant five (5) day period, the Buyer will advise the Seller of the two (2) day period during which the Delivery Window is scheduled to occur.
- (f) Daytime berthing shall apply.

## 6. LNG Heel

The LNG Heel shall not be used to reduce or increase the Estimated Contract Quantity beyond the tolerance set out in paragraph 4.1(c) of this Confirmation Notice.

## 7. Specification

The LNG to be sold and delivered by Seller to Buyer ex-ship at the Discharge Port in accordance with this Confirmation Notice and the MSPA shall comply with the Specifications set out in Clause 5.1 and Annex B of the MSPA.

## 8. Contract Price

The delivered ex-ship Contract Price for each LNG cargo shall be calculated as follows:

- (g) The price (in US\$/MMBtu) applicable to each relevant LNG cargo, the discharge of which commences during a particular calendar month (month n) (the “**Contract Price**”), shall be equal to  $CP_n$  determined in accordance with the following formula:

For Delivery Period-1 i.e., January 2023 to December 2024:

$$CP_n = [\bullet]^3 \% Brent_m$$

For Delivery Period-2 i.e., January 2025 to December 2028:

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<sup>3</sup> To be kept empty.

$$CP_n = [\bullet]^4 \% Brent_m$$

Where:

$CP_n$  is the Contract Price applicable to the relevant LNG cargo, rounded to 4 decimal places;

$Brent_m$  for a given month is the arithmetic mean of the 3 values of BRICE (US\$/bbl) for the 3 months immediately preceding (and not including) the month in which the commencement of unloading of the relevant LNG cargo falls.  $Brent_m$  shall be rounded to 4 decimal places;

BRICE for a given month is the arithmetic mean of all the settlement prices (in US\$/bbl) for each quoted day of that month as published by the Intercontinental Exchange of the first line ICE Brent future's contract. The first line settlement price will be used except to the expiration date of each maturity. On such date, the applicable pricing quotation will be rolled to the second nearby maturity. BRICE will not be rounded.

- (h) Commencement of discharge shall be deemed to occur at the point at which the relevant LNG carrier is shown to be all fast in the port log at the relevant Discharge Port.

## 9. Allowed Laytime

The Allowed Laytime for the purposes of Clause 12.2 of the MSPA for LNG Carriers shall be thirty-six (36) hours.

## 10. Demurrage Rate

The rate of Demurrage for the purposes of Clause 12.5 of the MSPA shall be equivalent to the daily charter rate (reduced pro-rata for each partial day) under the charter party between the Seller and the Seller's transporter for such LNG Vessel applicable as at the relevant date.

Boil off rate for all LNG Cargoes under this Confirmation Notice shall be 0.15% (zero point one five percent) per day of the Estimated Contract Quantity.

## 11. Payment

- (a) The payment due date as specified under Clause 15.3.1 of the MSPA for commercial invoice(s) of LNG delivered shall be twenty-one (21) days after the Completion of Unloading of the Cargo at the Discharge Port or receipt of the

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<sup>4</sup> To be kept empty.

invoice for the delivered cargo in accordance with Clause 15.1.4 of the MSPA, whichever is later.

- (b) The payment due date as specified under Clause 15.3.2 of the MSPA for invoices other than as specified in paragraph 11(a) above, shall be thirty (30) days after due receipt of such invoice(s).

**12. Parties' Account Details**

- (a) The name of Seller's bank and Seller's account details for the purposes of Clause 15.4 of the MSPA are as follows:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

- (b) The name of Buyer's bank and Buyer's account details for the purposes of Clause 15.4 of the MSPA are as follows:

Beneficiary Name: **Pakistan LNG Limited**

Beneficiary Bank Name: **United Bank Limited**

Beneficiary Bank Address: **United Bank Limited, Jinnah Avenue  
Branch, Corporate Centre, Blue Area,  
Islamabad**

Beneficiary Account Number: \_\_\_\_\_

Beneficiary IBAN: \_\_\_\_\_

Beneficiary SWIFT: \_\_\_\_\_

**13. Parties' Contact Details**

For the purposes of Clause 19.4 of the MSPA, the Parties' contact details shall be as follows:

- (a) For: **PAKISTAN LNG LIMITED**



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Attention: Chief Executive Officer  
Address: 9<sup>th</sup> Floor, Petroleum House,  
G-5/2, Islamabad. 44000  
Pakistan  
Tel: +92 (0) 51 8744 183 – 84  
Fax: + 92 (0) 51 9216904  
Email: [procurement@paklng.com](mailto:procurement@paklng.com)

With copy of the same addressed to:

Manager (LNG Procurement)  
Tel: +92 (0) 51 8744 183 – 84  
Fax: +92 (0) 51 9216904  
Email: [ahmed.rasheed@paklng.com](mailto:ahmed.rasheed@paklng.com)

With copy at the same address to:

[yawar.ghazi@paklng.com](mailto:yawar.ghazi@paklng.com)  
[azaam.akram@paklng.com](mailto:azaam.akram@paklng.com)  
[muhammad.zubair@paklng.com](mailto:muhammad.zubair@paklng.com)

Manager Finance (for matters pertaining to invoices and SBLC)

Email: [finance@paklng.com](mailto:finance@paklng.com)

(b) For: \_\_\_\_\_

Attention:

Address:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Tel:



Fax:

Email:

With copy at the same address to:

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#### 14. Credit Support

- (a) Buyer shall provide Seller with credit support in accordance with Clause 15.6 of the MSPA as follows:
- (i) Buyer shall provide an irrevocable standby letter of credit ("**SBLC**") for an amount equal to one hundred and five percent (105%) of the Cargo value of the first Cargo to be supplied under the MSPA in United States Dollars and substantially in the form of Appendix A to this Confirmation Notice from a Scheduled Bank with a long-term credit rating of at least AA from PACRA/JCR-VIS or equivalent from a reputable international credit rating agency by the later of (i) fifteen (15) days before the first day of the Delivery Window for the first Cargo finalised in accordance with paragraph 5 of this Confirmation Notice and (ii) seven (7) days before the loading date of the first Cargo and (iii) five (5) days of signing of this Confirmation Notice by PLL and which shall be renewed annually no later than thirty (30) days before the end of the relevant twelve (12)-month period and which shall continue to be in place to secure Buyer's obligations under this Confirmation Notice until thirty (30)-days from the end of the two (2)-day scheduled Delivery Window referred to in paragraph 5 of this Confirmation Notice for the last Cargo to be delivered hereunder.
  - (ii) Seller and the Buyer shall re-determine the value of the SBLC that is required to be provided by the Buyer in accordance with the provisions of paragraph 8 of this Confirmation Notice every ninety (90) days from the date of issuance. Where the value of the SBLC is below the value as determined by the Seller, the Seller shall notify such re-determined amount to Buyer and within five (5) Business Days of receipt of such notice, the Buyer shall increase the value of the SBLC to equal the value as determined by the Seller. Where the value of the SBLC is higher than the redetermined amount, the Buyer shall notify the Seller and within five (5) Business Days of the receipt of such notice, the Seller shall confirm to reduce the value of the SBLC to equal the redetermined amount.





- (iii) In case Seller draws any amount under the SBLC in accordance with Clause 17.2.2 of the MSPA, Buyer shall either restore the SBLC or issue a replacement SBLC within a maximum of fourteen (14) Business Days from the date of drawing. If at any time the SBLC is not provided, subject to the foregoing sentence, Seller shall have the right to immediately suspend performance of its obligations under this Confirmation Notice. Suspension of deliveries under this provision shall not constitute a failure of Seller to deliver LNG or to make LNG available for delivery for any purpose of this Confirmation Notice.
  - (iv) All charges in relation to the SBLC inside Pakistan shall be on Buyer's account. All charges and commission including confirmation charges in relation to the SBLC outside Pakistan shall be on Seller's account. If required, SBLC confirmation will be arranged by the Seller.
- (b) Seller shall provide Buyer with credit support in accordance with Clause 15.6 of the MSPA as follows:
- (i) Seller shall provide an irrevocable standby letter of credit for an amount equal to one hundred and five percent (105%) of the value of two (2) Cargo (based on the Contract Price for the first Cargo) in United States Dollars and substantially in the form of Appendix B to this Confirmation Notice from a Scheduled Bank operating in Pakistan with a long-term credit rating of at least AA from PACRA/JCR-VIS or equivalent from a reputable international credit rating agency ("**Performance Guarantee**"), no later than 20 October 2022. The Performance Guarantee shall be renewed annually no later than thirty (30) days before the end of the relevant twelve (12)-month period and shall continue to be in place to secure Seller's obligations under this Confirmation Notice until thirty (30)-days from the end of the two (2)-day scheduled Delivery Window referred to in paragraph 5 of this Confirmation Notice for the last Cargo to be delivered hereunder.
  - (ii) Buyer and the Seller shall re-determine the value of the Performance Guarantee that is required to be provided by the hereunder in accordance with the provisions of paragraph 8 of this Confirmation Notice every ninety (90) days from the date of issuance. Where the value of the Performance Guarantee is below the value as determined by the Buyer, the Buyer shall notify such re-determined amount to Seller and within five (5) Business Days of receipt of such notice, the Seller shall increase the value of the Performance Guarantee to equal the value as determined by the Buyer. Where the value of the Performance Guarantee is higher than the re-determined amount, the Seller shall notify the Buyer and within five (5) Business Days of the receipt of such notice, the Buyer shall confirm to

reduce the value of the Performance Guarantee to equal the redetermined amount.

- (iii) In case Buyer draws any amount under the Performance Guarantee in accordance with Clause 17.2.3 of the MSPA, Seller shall either restore the Performance Guarantee or issue a replacement Performance Guarantee within a maximum of fourteen (14) Business Days from the date of drawing.
- (iv) All charges in relation to the Performance Guarantee shall be for Seller's account.

## 15. Notices of LNG Carrier Movements<sup>5</sup>

Notice provisions set out in Clause 10.1.1 of the MSPA, in case the total time the LNG Carrier takes to transport the Cargo between the Loading Port and the Discharge Port is equal to or less than:

- (i) 96 hours, Clause 10.1.1(b) of the MSPA shall not apply;
- (ii) 72 hours, Clauses 10.1.1(b) and (c) of the MSPA shall not apply; and
- (iii) 48 hours, Clauses 10.1.1(b), (c) and (d) of the MSPA shall not apply,

and the provisions of Clause 10.1.1 of the MSPA shall be deemed to be amended accordingly.

## 16. Title Transfer

[One of the elections below should be marked]

Clause 6.1 (*Point of title transfer*)

Election A – International waters title transfer

Election B – Delivery Point title transfer

In the event, Election A is opted for, the following definition shall be inserted in Clause 1.1 of the MSPA:

“**Title Transfer Point**” has the meaning specified in Clause 6.1(a) of the MSPA and the references to Delivery Point in Clause 6.2 of the MSPA shall be read as references to the Title Transfer Point.”

## 17. Port Charges

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<sup>5</sup> Only to be filled in if the journey from the Loading Port to the Discharge Port is equal to or less than 96 hours.

The following new definition shall be inserted in Clause 1.1 of the MSPA after the definition of “Port Authority Regulations”:

“**Port Charges**” means any port charges or port dues in respect of an LNG Vessel and/or LNG imported by the Buyer including light dues, mooring charges, agency or port handling charges including expenditures relating to tugs, pilotage, towage, escort or watch vessels, immigration and customs clearance that become payable in connection with the use of the Discharge Port or the Receiving Terminal at the rates published or, in the absence of rates published, rates set by any relevant Competent Authority from time to time, provided that all such port dues must be non-discriminatory towards the Seller, the Seller's Transporter, the Buyer or any user of the relevant Discharge Port or Receiving Terminal, and such charges in all events shall not exceed United States Dollars five hundred thousand (US\$500,000) per Cargo delivery to any Discharge Port or Receiving Terminal. For the avoidance of doubt, any charges in excess of United States Dollars five hundred thousand (US\$500,000) shall be for the Buyer’s account, provided that, the Seller shall initially pay all required Port Charges, including those in excess of United States Dollars five hundred thousand (US\$500,000), and the Buyer will reimburse the Seller for any such excess amount.

The following wording shall be inserted before the full stop at the end of Clause 7.1 of the MSPA:

“The Seller should provision for Port Charges of US\$ 500,000. If any Port Charges exceeding an amount of US Dollars five hundred thousand (USD 500,000) per calling of the LNG Carrier at the Discharge Port these shall be to the account of the Buyer and shall be reimbursed to the Seller by the Buyer against an invoice rendered by the Seller pursuant to Clause 15 of the MSPA. If Port Charges actually incurred by the Seller are less than US Dollars five hundred thousand (USD 500,000) on any calling(s) of the LNG Carrier at a Discharge Port, whether within or outside Pakistan, the differential of US Dollars five hundred thousand (USD 500,000) and the actual Port Charges will be paid by the Seller to the Buyer or adjusted by the Buyer against Seller’s invoices”.

## 18. Termination Provisions

For the purposes of this Confirmation Notice, in Clause 3.2 of the MSPA, the following new clauses shall be inserted after Clause 3.2.3:

### “3.2.4.

A Party may terminate a Confirmation Notice without cause upon giving the other Party ninety (90) days’ written notice of termination. In the event of such termination, the Party terminating such Confirmation Notice shall be liable to pay to the other Party liquidated damages equal



to the value of six (6) Cargoes (based on the average Brent price for the three months preceding the month in which the notice of termination is served).”

**19. Business Day**

The following new definition shall substitute the definition of "Business Day" in Clause 1.1 of the MSPA:

**"Business Day"** means a day (other than a Saturday, Sunday, U.S. bank holiday or public holiday) on which commercial banks are ordinarily open (i) with respect to a payment obligation of a Party under the relevant Transaction, in the country in which that Party's bank is located (as specified in the relevant Confirmation Notice), and (ii) with respect to a notice provision, in the country specified in the Confirmation Notice for the Party providing such notice.

**20. S&P Global Inc.**

In Clause 1.1 of the MSPA, the definition of “Standard & Poor’s” and “S&P’s” shall be substituted as follows:

**“Standard & Poor’s” or “S&P’s”** means Standard and Poor’s Financial Services LLC (a division of S&P Global, Inc.).

**21. Seller’s Deficiency Quantity**

For the purposes of determining Seller’s Deficiency Quantity, the following wording shall be inserted after the words “SDQ is Seller’s Deficiency Quantity” in Clause 4.3.2 of the MSPA:

“, which is determined as:

$$SDQ = ECQ - QD$$

Where:

ECQ is the Estimated Contract Quantity

QD is the Quantity Delivered”

**22. Acceptance of Off-Spec LNG**

The following wording shall be inserted at the end of the Clause 5.3.3 of the MSPA:

“If the Buyer does not reject the Off-Spec LNG within thirty-six (36) hours, such LNG shall be treated as having been accepted.”



**23. Estimated Contract Quantity**

The words “Estimated Cargo Quantity” in Clause 15.1.1(b) of the MSPA shall be replaced with “Estimated Contract Quantity”.

**24. Payment**

The words “Subject to Clause 15.6” in Clause 15.4.2 of the MSPA shall be replaced with “Subject to Clause 15.7”.

**25. Termination for Prolonged Force Majeure**

Clause 16.5 of the MSPA shall be replaced with the following:

“If an event of Force Majeure occurs and is continuing for an uninterrupted period of forty-five (45) days such that it prevents a Party from performing all or substantially all of its obligations under the relevant Transaction, then either Party shall be entitled to terminate the relevant Confirmation Notice, without liability to the other Party by giving written notice to the other Party. For the avoidance of doubt, after termination of the relevant Confirmation Notice, Buyer may purchase replacement LNG from other LNG suppliers and Seller may sell Cargo/es to other buyers. Seller shall not be required to deliver make-up Cargoes to Buyer in respect of LNG quantities that Seller is excused from supplying by reason of Force Majeure. The Buyer shall not be required to pay for Cargoes to the Seller in respect of LNG quantities that the Buyer is excused from taking delivery of by reason of Force Majeure”

**26. Sole Rights of Termination**

In Clause 17.4, after the words “as set out in Clauses 3.2” and before the words “and Clause 17.2”, a comma shall be inserted and thereafter the number “16.5” shall be inserted.

**27. Survival**

Clause 19.11 of the MSPA shall be substituted as follows:

**“19.11 Survival**

19.11.1 The obligations set forth by Clauses 18.2.7 and 19.5 shall survive the termination of this Master Agreement in full for a period of two (2) years.

19.11.2 Without prejudice to Clause 19.11.1, the provisions of this Clause 19.11.2 and of Clauses 1 (Definitions), 17.3 (Limitation of Liability), 18 (Dispute Resolution), 19.4 (Notices), 19.6



(Governing Law), 19.8 (Amendments), 19.13 (Non-Waiver) and 19.16 (Waiver of Immunity) and any right or obligation of the Parties in this Master Agreement which, by its express terms or nature and context is intended to survive termination or expiration of this Master Agreement, will survive the termination or expiration of this Master Agreement.”

**28. Annex A**

Annex A to the MSPA shall be substituted with the revised "Annex A", attached to this Confirmation Notice as Appendix C.

**29. Annex B**

The following changes shall be made in Annex B to the MSPA:

The numbers “-158.5 °C” in the first line of Annex B shall be replaced by “-159 °C”;

**30. Annex C**

Annex C to the MSPA shall be substituted with the revised "Annex C", attached to this Confirmation Notice as Appendix D.

**31. Expert Determination**

For the purposes of Expert Determination, Energy Institute shall be replaced with “International Centre for ADR by ICC (International Chamber Commerce)” in section 18 of the MSPA.

**32. Interest Rate**

The following new definition shall substitute the definition of "Interest Rate" in Clause 1.1 of the MSPA:

"Interest Rate" shall be two percent (2%) above SOFR, whereas “SOFR” (Secured Overnight Financing Rate) means the forward-looking term SOFR per annum (based on a three hundred and sixty (360) Day year) administered by the CME Group Benchmark Administration Limited (or any successor administrator) and published on its website (or any successor administrator’s website) for United States Dollars for a three (3) month index maturity, determined at 11.00 a.m. New York Time, as quoted on the due date of the relevant payment under the Agreement. Where, in respect of any Day, if SOFR (i) is negative, it shall be deemed to be zero; or (ii) is not published, SOFR

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published on the nearest preceding Day on which banks in New York were open for business shall be used.



**IN WITNESS WHEREOF**, each of the Parties, in accordance with the MSPA, has caused this Confirmation Notice to be executed by its duly authorised representative.

**PAKISTAN LNG LIMITED**

By: \_\_\_\_\_ By: \_\_\_\_\_

Title: \_\_\_\_\_ Title: \_\_\_\_\_

Date: \_\_\_\_\_ Date: \_\_\_\_\_

WITNESSED BY:

1. \_\_\_\_\_

Name

2. \_\_\_\_\_

Name

WITNESSED BY:

1. \_\_\_\_\_

Name

2. \_\_\_\_\_

Name





**APPENDIX A**  
**FORM OF BUYER'S STANDBY LETTER OF CREDIT**

To: The "**Beneficiary**"

Address

Gentlemen:

We hereby open in favour of the Beneficiary our irrevocable Standby Letter of Credit (the "**SBLC**") No. [●] in an amount not exceeding the total of US\$ [●] (the "**Maximum Amount of the SBLC**"), by order and for the account of Pakistan LNG Limited (the "**Buyer**").

This SBLC relates to the Master (Delivered Ex-Ship) LNG Sales and Purchase Agreement dated [●] and the Confirmation Notice between the Buyer and the Seller dated \_\_\_\_\_ as may be amended, modified or supplemented, from time to time (together, the "**Agreement**"). Capitalised terms not otherwise defined herein shall have the same meaning as given to them in the Agreement.

Funds under this SBLC shall be available to the Beneficiary upon presentation of your written demand in the form attached to this SBLC (the "**Demand for Payment**"). The Beneficiary is not required to provide any reasons or justifications in respect of the Demand for Payment or provide any other documentation to us other than stating the Buyer has not paid the invoices on the due date of payment pursuant to the terms of the Agreement. The presentation for demand for payment in authenticated SWIFT form is also acceptable.

We hereby unconditionally and irrevocably undertake to pay the Beneficiary within three (3) days of receipt of a Demand for Payment, the full amount which is demanded for payment, without delay or contestation.

A Demand for Payment will be duly honoured by us if presented not later than the Expiry Date (as defined herein below) at the confirming bank's (*insert bank name*) counters during banking hours.

Notwithstanding any provision of the Agreement or other provision of this SBLC, this SBLC shall be valid for a period of one (1) year from its date of issuance and shall expire on [*insert expiry date*] (the "**Expiry Date**"). The Buyer may request from us an extension of this SBLC thirty (30) days prior to the expiry of this SBLC for a further period of one (1) year. If the



extension is not granted the Beneficiary may demand the full amount due by Buyer to the Beneficiary prior to the Expiry Date, upto the Maximum Amount of this SBLC.

On receipt of the Maximum Amount of the SBLC as undertaken herein the Beneficiary will return to us this SBLC duly discharged and cancelled but failure to do so will not adversely affect us as our liability will be extinguished.

Multiple presentations and drawings (in whole or in part) may be made under this SBLC but our aggregate liability will be restricted to the Maximum Amount of the SBLC.

All banking commissions and charges inside Pakistan are account of the Buyer. All banking commissions and charges outside Pakistan are on account of the Beneficiary including SBLC confirmation charges. Confirmation will be arranged by the beneficiary, if required.

This SBLC is subject to the Uniform Customs and Practice for Documentary Credits (2007 revision) of the International Chamber of Commerce Publication No.600 and shall be governed by and construed in accordance with English law.

Any dispute arising out of, relating to, or in connection with this SBLC including any question regarding its existence, validity, or termination shall be settled by arbitration in accordance with the Arbitration Rules of the London Court of International Arbitration and the arbitrators shall apply English law.

Yours faithfully

For and on behalf of [SBLC issuing Bank]



**DEMAND FOR PAYMENT**

To: [Bank]

[Date]

Dear Sirs,

**Re: Standby Letter of Credit issued in respect of Company ([\]) dated [xxxx] (the “SBLC”)**

We refer to the SBLC No [/>. Terms defined in the SBLC have the same meaning when used in this Demand for Payment.

We hereby demand payment of the sum of [.] in accordance with the terms of the SBLC. We certify that the amount of this drawing under the Standby Letter of Credit No. [-] represents funds due to us as per the Agreement as the Buyer has failed to make timely payment and/ or buyer has failed to renew or replace SBLC No [/>.

Please may the amount demanded hereunder to the following account:

[Account Details]

Yours faithfully

For and on behalf of Beneficiary



**APPENDIX B**  
**FORM OF PERFORMANCE GUARANTEE**

To: The “**Beneficiary**”  
Address

Gentlemen:

We hereby open in your favour our irrevocable Standby Letter of Credit (the “**SBLC**”) No. \_\_\_\_\_ in the maximum amount of US\$ \_\_\_\_\_ (the “**Maximum Amount of the SBLC**”), by order and for the account of [●] (the “**Seller**”).

This SBLC relates to the Master (Delivered Ex-Ship) LNG Sales and Purchase Agreement dated [●] and the Confirmation Notice between Pakistan LNG Limited and the Seller dated \_\_\_\_\_ as may be amended, modified or supplemented, from time to time (together, the “**Agreement**”). Capitalised terms not otherwise defined herein shall have the same meaning as given to them in the Agreement.

Funds under this SBLC shall be available to you upon presentation of your written demand in the form attached to this SBLC (a “**Demand for Payment**”). The Beneficiary is not required to prove any reasons or justifications in respect of the Demand for Payment or provide any other documentation to us and such Demand for Payment shall only state that the Seller has failed to satisfy or otherwise has contravened or failed to perform any of the conditions of the Agreement. The presentation for demand for payment in Authenticated Swift form is also acceptable.

We hereby unconditionally and irrevocably undertake to pay the Beneficiary within three (3) days of receipt of a Demand for Payment, the full amount which is demanded for payment up to the amount of SBLC, without delay or contestation.

A Demand for Payment will be duly honoured by us if presented not later than \_\_\_\_\_ (the expiry date) at the [*insert bank's name*] Bank's counters during banking hours.

This SBLC shall continue in full force notwithstanding any alterations, additions or deletions to the Agreement.

Notwithstanding any provision of the Agreement or other provision of this SBLC, this SBLC shall be valid for a period of one year from its date of issuance to expire on [expiry date] (the “**Expiry Date**”). The Beneficiary may request from us an extension of this SBLC thirty (30) days prior to the expiry of this SBLC for a further period of one (1) year. If the extension is not granted the Beneficiary may demand the full amount due by the Seller to the Beneficiary prior to the Expiry Date, up to the Maximum Amount of the SBLC.

Multiple presentations and drawings (in whole or in part) may be made under this SBLC up to the Maximum Amount of the SBLC.



All banking commissions and charges including issuing, advising the SBLC are for the seller's account. SBLC confirmation may be arranged by the beneficiary at its own cost.

Spelling and typographical errors are not to be considered discrepancies except for numbers and amounts.

In case a duplicate of this SBLC is required by the beneficiary, the same may be issued subject to written request by the beneficiary.

This guarantee is non-assignable non-transferable.”

This SBLC is subject to the Uniform Customs and Practice for Documentary Credits (2007 revision) of the International Chamber of Commerce Publication No.600 and shall be governed by and construed in accordance with English law.

Any dispute arising out of, relating to, or in connection with this SBLC including any question regarding its existence, validity, or termination shall be settled by arbitration in accordance with the Arbitration Rules of the London Court of International Arbitration and the arbitrators shall apply English law.

Yours faithfully  
For and on behalf of [SBLC issuing Bank]

## **DEMAND FOR PAYMENT**

To: [Bank]

[Date]

Dear Sirs,

**Re: Standby Letter of Credit issued in respect of Company ([]) dated [xxxx] (the “SBLC”)**

We refer to the SBLC No [/>. Terms defined in the SBLC have the same meaning when used in this Demand for Payment.

We hereby demand payment of the sum of [] in accordance with the terms of the SBLC. We certify that the amount of this drawing under the Standby Letter of Credit No. [-] represents funds due to us as per the Agreement as the Seller has failed to satisfy or otherwise has contravened or failed to perform any of the conditions of the Agreement and/or the seller has failed to renew the SBLC/Performance guarantee.

Please pay the amount demanded hereunder to the following account:



[Account Details]

Yours faithfully

For and on behalf of Beneficiary



**APPENDIX C**

**REVISED ANNEX A OF MSPA**

**FORM OF CONFIRMATION NOTICE**

In accordance with the results of a competitive tender [Tender Enquiry No. [●]], Seller was selected as the selected bidder and, pursuant to the Master (Delivered Ex-ship) LNG Sale and Purchase Agreement dated [●], between Pakistan LNG Limited ("PLL") and [SELLER ] ("[●]") (the "Master Agreement"), PLL and [SELLER] agree upon the following sale and purchase of LNG on this [●] day of [●], 20[●].

**1.1 Source of LNG**

Seller's Facilities are located at [●].

The Loading Port shall be the port located at [●].

The expected departure date from the Loading Port shall be [●].

**1.2 LNG Carrier(s)**

The LNG Carrier(s) to be utilised for transportation of LNG under this Confirmation Notice and its/their technical description is as follows:

Name of LNG Carrier(s): [●]

Dimensions: [●]

Maximum displacement/draft: [●]

Boil-off Rate: [●]

Vessel Capacity: [●]

**1.3 Discharge Port and Receiving Facilities**

Discharge Port shall be [Port Qasim, Karachi, Pakistan].

Schedule 2 Receiving Facilities shall be [the FSRU-based LNG receiving terminal operated by Pakistan Gas Port Consortium Limited ].

**1.4 Contract Quantities**

The quantity of LNG in each Cargo to be sold and purchased under this Confirmation Notice is [●]m<sup>3</sup>.

The number of Cargo/es to be sold and purchased under this Confirmation Notice is [●].

The approximate energy content comprising the Estimated Contract Quantity for each Cargo is [●] MMBtu.

**1.5 Delivery Window**

The Delivery Window for arrival of the LNG Carrier at the Discharge Port shall be [●].

[Daytime unloading shall apply.]

**1.6 LNG Heel**

The LNG Heel shall be notified by Seller to Buyer [●] days prior to the start of the Delivery Window.

**1.7 Specification**

The LNG to be sold and delivered by Seller to Buyer under this Confirmation Notice shall comply with the Specifications set out in Clause 5.1 and Annex B of the Master Agreement.

**1.8 Contract Price**

The Contract Price shall be [shall be calculated] as follows: [●]

**1.9 Parties' failure to take/deliver**

(a) [Buyer's failure to take

The grace period in Clause 4.2.2 shall be [●] hours.]

(b) [Seller's failure to deliver

The grace period in Clause 4.3.2 shall be [●] hours.]

**1.10 Allowed Laytime**

The Allowed Laytime for the purposes of Clause 12.2 shall be [●] hours.

**1.11 Demurrage rate**

The rate of Demurrage for the purposes of Clause 12.5 of the Master Agreement shall be [●] per day and pro rata for any begun day.

**1.12 Invoice due dates**

(a) [The payment due date for invoices under Clause 15.3.1 shall be [●] Business Days after the receipt of the relevant invoice.]

(b) [The payment due date for invoices under Clause 15.3.2 shall be [●] Business Days after the receipt of the relevant invoice.]

**1.13 Parties' account details**

The name of Seller's bank and Seller's account details for the purposes of Clause 15.4 of the Master Agreement are as follows:





**[Include relevant Bank Details]**

The name of Buyer's bank and Buyer's account details for the purposes of Clause 15.4 of the Master Agreement are as follows:

**[Include relevant Bank Details]**

#### **1.14 Parties' contact details**

Schedule 3 For the purposes of Clause 19.4 of the Master Agreement, the Parties' contact details shall be as follows:

(a) For: PAKISTAN LNG LIMITED

Schedule 4 Attention: Manager LNG Procurement

Schedule 5 Address: Pakistan LNG Limited, 9<sup>th</sup> Floor, Petroleum House, G-5/2. Islamabad

Schedule 6 Tel: +92 (0) 51 8744183

Schedule 7 Fax: +92 (0) 51 9216904

Schedule 8 Email: procurement@paklng.com

Schedule 9 With copy at the same address to:

(b) For: [●]

Schedule 10 Attention:

Schedule 11 Address:

Schedule 12 Tel:

Schedule 13 Fax:

Schedule 14 Email:

Schedule 15 With copy at the same address to:

#### **1.15 Credit Support**

(a) [Buyer shall provide Seller with credit support in accordance with Clause 15.6 of the Master Agreement as follows:

[●].

(b) [Seller shall provide Buyer with credit support in accordance with Clause 15.6 of the Master Agreement as follows:

[●].

#### **1.16 Any other Provisions**

1 (a) [Notices of LNG Carrier movements



Seller's requirements to provide notices of Estimated Time of Arrival under clause 10.1.1 of the Master Agreement shall be amended as follows:

[●].]

**(b) [Documents for tax purposes]**

Seller shall provide the following additional documents as referred to in Clause 15.1.1(b) of the Master Agreement:

[●].

**(c) [Other provisions]**

[●]

**IN WITNESS WHEREOF**, each of the Parties, in accordance with the Master Agreement, has caused this Confirmation Notice to be executed by its duly authorised representative.

By: \_\_\_\_\_ By: \_\_\_\_\_

Title: \_\_\_\_\_ Title: \_\_\_\_\_

Date: \_\_\_\_\_ Date: \_\_\_\_\_



## APPENDIX D

### (REVISED ANNEX C OF MSPA)

#### MEASUREMENT, SAMPLING AND TESTING

The procedures for determination of the Quantity Delivered shall be those specified in the relevant Terminal Rules. Should no Terminal Rules be in force, the procedure and guidelines specified below shall be applicable for determining such Quantity Delivered.

#### References for this Annex C

Annex C is intended to give basic requirements that are in general compliance with LNG International Standards and practice. Primary references are:

- ISO 10976 – Refrigerated light hydrocarbon fluids – Measurement of cargoes on board LNG carriers;
- ISO 8943 – Refrigerated light hydrocarbon fluids – Sampling of liquefied natural gas – Continuous and intermittent methods;
- ISO 6142 – Gas analysis – Preparation of calibration gas mixtures – Gravimetric method;
- ISO 6976 – Natural gas — Calculation of calorific values, density, relative density and Wobbe index from composition
- ISO 10723 – Natural gas – Performance evaluation for analytical systems;
- ISO 13443 – Natural gas – Standard reference conditions
- Institute of Petroleum Measurement Manual, Part XII, Static & Dynamic Measurement of Light Hydrocarbon Liquids, SECTION 1, CALCULATION PROCEDURES;
- GPA 2145 – Table of Physical Constants for Hydrocarbons & Other Compounds of Interest to the Natural Gas Industry;
- GPA 2172 – Calculation of Gross Heating Value, Relative Density, and Compressibility of Natural Gas Mixtures from Compositional Analysis;
- GPA 2261 – Analysis for Natural Gas & Similar Gaseous Mixtures by Gas Chromatography;
- ASTM D 3246 – Standard Test Method for Sulphur in Petroleum Gas by Oxidative Microcoulometry;
- ASTM D 5504 Standard Test Method for Determination of Sulphur Compounds in Natural Gas and Gaseous Fuel by Gas Chromatography and Chemiluminescence;

- National Bureau of Standards Interagency Report 77-867: A COMPARISON OF MATHEMATICAL MODELS FOR THE PREDICTION OF LNG DENSITIES; and
- GIIGNL LNG CUSTODY TRANSFER HANDBOOK.

The latest editions of the above references shall be considered as the generally industry-accepted criteria for any item not specifically addressed herein. The latest version of the standards referred to in this Annex C shall be considered as the official version.

## **1 GENERAL**

Seller or Buyer may request changes to the methods of measurement and procedures contained in this Annex C. When such a request is made, Seller and Buyer shall promptly meet to discuss in good faith the proposed revisions to methods and procedures. Similarly, if referenced standards are updated, the Parties shall meet to agree the incorporation of the revised standards into the methodology herein.

## **2 TANK GAUGE TABLES**

### **2.1 Calibration of LNG Tanks**

During or immediately following the completion of construction, or immediately prior to entry into service hereunder, of any LNG carrier that Seller intends to use as the LNG Carrier, Seller shall ensure that each LNG tank of that LNG Carrier has been calibrated for volume against level by a qualified independent surveyor. Seller shall furnish to Buyer, or cause Buyer to be provided, evidence of any calibration conducted pursuant to this Annex C.

### **2.2 Preparation of Tank Gauge Tables**

Seller shall have a qualified independent surveyor prepare tank gauge tables for each LNG tank of an LNG carrier Seller intends to use as the LNG Carrier. Such tank gauge tables shall include sounding tables, correction tables for list and trim, volume corrections to tank service temperature, and other corrections if necessary.

### **2.3 Precision of Tank Gauge Tables**

Tank gauge tables prepared pursuant to paragraph 2.2 of this Annex C shall, in the relevant loading and discharging range of the LNG Carrier's tanks, indicate volumes in cubic metres expressed to the nearest thousandth (1/1000), with LNG tank depths expressed in metres to the nearest thousandth (1/1000). Seller shall enable Buyer or its representative to audit the LNG Carrier's tables upon notice at commercially reasonable times.

### **2.4 Witnessing of Tank Calibration**

2.4.1 Where applicable, Buyer shall have the right to have its representative witness the tank calibrations referred to in paragraph 2.1 of this Annex C.

2.4.2 Seller shall give reasonable advance notice to Buyer of the timing and location of such LNG tank calibrations.

### **2.5 Recalibration of LNG Tanks in case of Distortion and Modification**



In the event that any LNG tank of the LNG Carrier suffers distortion of such a nature as to cause either Party reasonably to question the validity of the tank gauge tables referred to in paragraph 2.2 of this Annex C, or in the event of modification to any of the LNG tanks, Seller, subject to Buyer's consent, shall arrange for such LNG tank to be recalibrated in the same manner as set forth in paragraphs 2.1 and 2.2 of this Annex C during any period when that LNG Carrier is out of service for inspection and/or repairs. Seller shall bear the costs of recalibration, unless such recalibration was done at Buyer's request and did not demonstrate any inaccuracy in the tank gauge tables, in which case Buyer shall pay the costs of recalibration. Except as provided in this paragraph 2.5, no other recalibration of any LNG tank of the LNG Carrier shall be required. If mutually agreed between the Parties, recalibration of distorted tanks can be deferred until the next time when such tanks are warmed for any reason, and any corrections to the prior tank gauge tables will be made from the time the distortion occurred. If the time of the distortion cannot be ascertained, the Parties shall mutually agree on the time period for retrospective adjustments.

### **3 SELECTION OF GAUGING DEVICES**

#### **3.1 General**

- 3.1.1 All devices provided for in paragraphs 3 and 4 of this Annex C shall be approved by Seller, acting as a Reasonable and Prudent Operator. The required degree of accuracy (which shall in any case be within the permissible tolerances defined herein and in the applicable standards referenced herein) of such devices selected shall be mutually agreed upon by the Parties. In advance of the use of any device, the Party providing such device shall cause tests to be carried out to verify that such device has the required degree of accuracy.
- 3.1.2 All custody transfer gauging devices and systems shall be installed, operated and maintained according to the manufacturers' specification and standards used in the LNG industry.

#### **3.2 Liquid Level Gauging Devices**

- 3.2.1 Each LNG tank of the LNG Carrier shall be equipped with independent main and auxiliary liquid level gauging devices that preferably utilise different technologies. All liquid level gauging devices shall be installed, operated and maintained according to the manufacturers' specification and standards used in the LNG industry. Seller shall identify the main and auxiliary liquid level gauging devices for the LNG Carrier.
- 3.2.2 The measurement accuracy of the main and auxiliary liquid level gauging devices shall be better than plus or minus seven decimal five ( $\pm 7.5$ ) millimetres. Indications from the two (2) systems shall be routinely compared to ensure they are performing normally.

3.2.3 The liquid level from the main and auxiliary gauging devices in each LNG tank shall be logged and printed.

### **3.3 Temperature Gauging Devices**

3.3.1 The LNG tank (or each LNG tank, if more than one) of the LNG Carrier shall be equipped with a minimum of five (5) pairs of temperature gauging devices located on or near the vertical axis of such LNG tank, in such a way as not to be affected by the spray of LNG when the spray pumps are in operation.

3.3.2 Primary and redundant temperature gauges are required, and indications from the two systems shall be routinely compared to ensure they are performing normally. Such temperature gauging devices shall be installed at various locations from the top to bottom of each tank to provide temperature measurements at various levels in the tank. The topmost temperature device shall be located in the vapour space at all times, and the bottom temperature device shall be located in the heel.

3.3.3 In the temperature range of minus one hundred sixty-five (-165) degree Celsius to minus one hundred forty-five (-145) degree Celsius, the accuracy shall be plus or minus zero decimal two ( $\pm 0.2$ ) degree Celsius. In the temperature range of minus one hundred forty-five (-145) degree Celsius to plus forty (+40) degree Celsius, the accuracy shall be plus or minus one decimal five ( $\pm 1.5$ ) degree Celsius.

3.3.4 The temperature in each LNG tank shall be logged and printed.

### **3.4 Pressure Gauging Devices**

3.4.1 The LNG tank (or each LNG tank, if more than one) of the LNG Carrier shall have one (1) absolute vapour pressure gauging device.

3.4.2 The measurement accuracy of each pressure gauging device shall be plus or minus one percent ( $\pm 1\%$ ) of full scale.

3.4.3 The pressure in the LNG tank (or in each LNG tank, if more than one) shall be logged and printed.

### **3.5 List and Trim Gauging Devices**

3.5.1 A list gauging device and a trim gauging device shall be installed on the LNG Carrier. These shall be interfaced with the custody transfer system.

3.5.2 List and trim corrections shall be made using devices whose accuracy is better than plus zero decimal zero five (0.05) degrees Celsius for list and plus zero decimal zero one (0.01) metres for trim.

3.5.3 The list and trim in each LNG tank shall be logged and printed.



### **3.6 Verification of Accuracy of Gauging Devices**

Gauging devices shall be verified for accuracy and corrected for error in accordance with the terms of Clause 13 of the Master Agreement.

### **3.7 Measurement Equipment Maintenance, Calibration and Testing**

3.7.1 Seller shall cause or shall have caused, tests for the accuracy of the Custody Transfer Measurement System (which, for the purposes of this Annex C, shall be referred to as "CTMS") equipment and devices installed in the LNG Carrier prior to the LNG Carrier being brought into service in order to ensure that the equipment and devices comply with these measurement requirements.

3.7.2 Thereafter, Seller shall carry out or cause to be carried out tests to ensure the accuracy of the CTMS equipment, excluding the volumetric calibration of the cargo tanks in the LNG Carrier. Such tests will be carried out as follows:

- (a) when the LNG Carrier is out of service for scheduled inspection and/or repairs;
- (b) when Buyer, acting as a Reasonable and Prudent Operator, requests such verification due to the changes in accuracy of custody transfer measurements related to the specific LNG Carrier in question;
- (c) when such tests are considered necessary by Seller, in which case Seller shall so notify Buyer and that notice shall be acknowledged by Buyer; or
- (d) periodic, scheduled calibration tests as agreed by the Parties, in conjunction with the vendor equipment recommendations, as part of the regular scheduled CTMS servicing.

3.7.3 The tests referred to above shall be witnessed and verified, by the Independent Surveyor. Seller shall give notice to Buyer reasonably in advance of such tests and Buyer shall have the right to be present at such tests.

3.7.4 Seller shall maintain or cause to have maintained for the CTMS, which shall be agreed by the Parties:

- (a) a CTMS maintenance procedure;
- (b) a schedule of maintenance;
- (c) a log of the maintenance carried out, which is verified by the master of the LNG Carrier or his designate, which shall be retained on board for inspection or audit, as requested by Buyer, Seller (or its representative) or the Independent Surveyor; and
- (d) calibration, testing and defect correction procedures.

3.7.5 If the LNG Carrier's CTMS equipment or devices are found to be outside the allowable limits, or are inoperable, then they shall be rectified or replaced without unreasonable delay, and the Parties shall apply such provisions as are set out in this Annex C. Any discrepancies in invoices which are caused by the inaccuracy of any measuring equipment or device shall be corrected and agreed upon by the Parties accordingly. Historical corrections to invoices shall be limited to a period of three (3) years or to the last time an adjustment was made, whichever is shorter.

## **4 MEASUREMENT PROCEDURES**

### **4.1 Conditions at Custody Transfer**

(a) The condition of the LNG Carrier at the time of custody transfer shall be as described in clause 5.6 of ISO 13398.

### **4.2 Liquid level**

4.2.1 Liquid levels in each LNG tank of the LNG Carrier shall be determined in accordance with clause 6.2 of ISO 13398. Measurement of the liquid level in each LNG tank of an LNG Carrier shall be made in metres, accurate to the nearest millimetre by using the main liquid level gauging devices referred to in paragraph 3.2 of this Annex C.

4.2.2 The same liquid level gauging device must be used for both the initial and final measurements during unloading. If the main level gauging device is inoperative at the time of commencement of unloading, necessitating use of the auxiliary level gauging device, the auxiliary level gauging device shall be used at the time of cessation of unloading, even if the main level gauging device has subsequently become operative. Trim and list of the LNG Carrier shall be kept unchanged while the referenced measurements are performed.

4.2.3 At least five (5) readings shall be made following manufacturer's recommendations on reading interval. The arithmetic average of the readings shall be deemed the liquid level.

4.2.4 Such arithmetic average shall be calculated to the nearest zero decimal one (0.1) millimetre and shall be rounded to the nearest millimetre.

4.2.5 Any necessary corrections for trim, list, temperature or other adjustment as defined in the tank gauge tables as called for in paragraph 2.2 of this Annex C must be applied to the arithmetic reading to get the true level reading.

4.2.6 The liquid level shall be logged and printed.

### **4.3 Temperature**

4.3.1 The average temperature of the Cargo in the LNG Carrier's cargo tank (or in each cargo tank, if more than one) shall be determined immediately before unloading by means of

the temperature measuring instruments which are fully immersed in the liquid. This determination shall be made by taking the temperature readings of the LNG to the nearest zero decimal zero one (0.01) degree Celsius. If more than one of the instruments is immersed in the liquid, the arithmetic average of these readings will be used. Such arithmetic average shall be calculated to the nearest zero decimal zero one (0.01) degree Celsius and shall be rounded to the nearest zero decimal one (0.1) degree Celsius.

- 4.3.2 The average temperature of the vapour in the LNG Carrier's cargo tank (or in each cargo tank, if more than one) shall be determined immediately after unloading and before loading by means of such temperature measuring instruments which are fully surrounded by vapour. This determination shall be made by taking the temperature readings of the vapour to the nearest zero decimal zero one (0.01) degree Celsius, and if more than one are fully surrounded by the vapour, the arithmetic average of these readings will be used. Such arithmetic average shall be calculated to the nearest zero decimal zero one (0.01) degree Celsius and shall be rounded to the nearest zero decimal one (0.1) degree Celsius.
- 4.3.3 The temperature in the LNG tank (or in each LNG tank, if more than one) shall be logged and printed.

#### **4.4 Pressure**

- 4.4.1 At the same time the liquid level is measured, the absolute pressure in the LNG tank (or in each LNG tank, if more than one) shall be measured to the nearest one (1) millibar by using the pressure gauging device referred to in paragraph 3.4 of this Annex C.
- 4.4.2 The determination of the absolute pressure in the LNG tank(s) of the relevant LNG Carrier shall be made by taking one (1) reading of the pressure gauging device in the LNG tank (or in each LNG tank, if more than one), and then by taking an arithmetic average of all such readings.
- 4.4.3 Such arithmetic average shall be rounded to the nearest one (1) millibar.
- 4.4.4 If the LNG tank pressure cannot be obtained by the absolute vapour pressure gauging device, the tank pressure may be read from a normal pressure gauge, provided a barometric pressure reading, accurate to zero decimal one (0.1) millibar must also be taken and recorded to correct such reading to absolute pressure.
- 4.4.5 The pressure in the LNG tank (or each LNG tank, if more than one) shall be logged and printed.

#### **4.5 List and Trim**

- 4.5.1 The list and trim of the LNG Carrier shall be measured at the same time as the liquid level and temperature of LNG in the LNG tank (or each LNG tank, if more than one) are measured by using the list gauging device and trim gauging device referred to in paragraph 3.5 of this Annex C.

- 4.5.2 The measurement of the list and of the trim shall be conducted to the nearest zero decimal zero one (0.01) degree Celsius for list and the nearest zero decimal zero one (0.01) metre for trim.
- 4.5.3 The determination of the list and of the trim of the LNG Carrier shall be made by taking one (1) reading of the list and trim gauging devices.
- 4.5.4 The list and trim of the LNG Carrier shall be logged and printed.

#### **4.6 Procedure in case of Gauging Device Failure**

Should the measurements referred to in this paragraph 4 become impossible to perform due to a failure of gauging devices, alternative gauging procedures shall be determined by mutual agreement between the Parties in consultation with the Independent Surveyor appointed pursuant to Clause 13 of the Master Agreement. The alternative gauging procedures shall be documented and recorded.

#### **4.7 Determination of Volume of LNG Unloaded**

- 4.7.1 The measurements referred to in paragraphs 4.2, 4.3, 4.4 and 4.5 of this Annex C shall be made at the same time. Measurements shall first be made immediately before unloading commences. Accordingly, immediately before opening the manifold emergency shut down valves of the LNG Carrier, the initial gauging shall be conducted upon the confirmation of stoppage of all spray pumps and compressors and shut-off of the gas master valve to the LNG Carrier's boilers. The gas master valve to the LNG Carrier's boilers shall remain closed until after the second gauging. A second gauging shall be made immediately after unloading is completed. Accordingly, the second gauging shall be conducted upon the confirmation of shut-off of the manifold emergency shut down valve, with transfer pumps off and allowing sufficient time for the liquid level to stabilize. Measurements prior to unloading and after unloading will be carried out based on the condition of the LNG Carrier's lines upon arrival at the berth. Since significant volumes of LNG may remain in the LNG Carrier's manifold and crossover, gauging will be performed with these lines in the same condition prior to unloading and after unloading. If the LNG Carrier's manifold and crossover lines are empty (warm) when measurement is taken before unloading commences, they will be emptied prior to measurement following the Completion of Unloading. If the crossover lines are liquid filled (cold) when measurement is taken before unloading commences, they will remain full (cold) until measurement is taken following the Completion of Unloading. The volume of LNG, stated in cubic metres to the nearest zero decimal zero zero one (0.001) cubic metre, shall be determined by using the tank gauge tables referred to in paragraph 2.2 of this Annex C and by applying the volume corrections set forth therein.
- 4.7.2 The volume of LNG unloaded shall be determined by deducting the total volume of LNG in all LNG tanks (if more than one) immediately after unloading is completed from the

total volume of LNG in those LNG tanks immediately before unloading commences. This volume of LNG unloaded is then rounded to the nearest cubic metre.

#### **4.8 LNG Carrier Gas consumption during operation**

In case of consumption of gas on the LNG Carrier during discharge operations, the Parties agree to meet and agree upon the impact on the final energy delivered to Buyer.

### **5 DETERMINATION OF COMPOSITION OF LNG AND VAPOUR**

#### **5.1 Sampling Procedures**

##### **5.1.1**

(a)

(i) Buyer shall cause the Terminal Operator to continuously sample and analyse the LNG during unloading using an on-line gas chromatograph in accordance with the provisions of this paragraph 5.1.1(a)(i). A properly designed and maintained sample delivery and conditioning system shall be utilised. A sample shall be taken and analysed at least once every twenty (20) minutes by an on-line chromatograph during the period starting immediately after a stable flow rate has commenced and ending immediately prior to the completion of the stable flow rate, which excludes the initial start-up upsurge in the flow rate and the decreased flow rate before stopping. The results of each analysis, excluding those results deemed to be erroneous by the Independent Surveyor, shall be averaged to determine the final Cargo composition. All the results including those results deemed to be erroneous by the Independent Surveyor shall be reported to Buyer and Seller.

(ii) Buyer shall cause the Terminal Operator to obtain representative samples of LNG using a sampling system, designed, installed and operated in accordance with the latest version of ISO 8943 and in accordance with this paragraph 5.1.1(a)(ii). The method used shall be the method described in the latest version of ISO 8943 current at the time of analysis or any other method agreed upon by Buyer and Seller. Should the on-line gas chromatograph fail, samples will be obtained continuously and at an even rate during the period starting one (1) hour after continuous unloading at the normal flow rate (after ramp up) has commenced and ending one (1) hour prior to the suspension of continuous unloading at normal flow rate (before ramp down); otherwise, the frequency specified in paragraph 5.1.2 of this Annex C shall be sufficient.

- (b) Buyer shall cause the Terminal Operator to analyse the LNG unloaded, for invoicing purposes, using the on-line gas chromatograph. The arithmetic average of the analyses from the on-line gas chromatograph, excluding those results deemed to be erroneous by the Independent Surveyor shall be reported to Seller. All the results including those results deemed to be erroneous by the Independent Surveyor shall be reported to Buyer and Seller. The sampling system and laboratory analyses shall be considered for invoicing should the on-line gas chromatograph system fail.
- 5.1.2 In absence of a continuous sampling system, three (3) sets of spot samples shall be collected at the following intervals during the unloading, one (1) hour after the full pumping rate has been achieved, when unloading is twenty-five percent (25%), fifty percent (50%), and seventy-five percent (75%) complete and one (1) hour prior to the first pump shutdown. The Independent Surveyor who witnessed such sampling shall seal such sample bottles. The samples shall be distributed as specified in paragraph 5.1.3 of this Annex C. However, when a continuous sampling method is used, an adequate portion of the sample collected in paragraph 5.1.1(a) of this Annex C shall be transferred to at least three (3) sample cylinders, obtaining a portion of the gaseous sample during a stable period of an unloading using a dome type sampler.
- 5.1.3 Buyer shall use one (1) sample cylinder for the purpose of analysis in paragraph 5.2 of this Annex C. One (1) cylinder containing a gaseous sample of the LNG unloaded shall be made available for analysis by Seller or Seller's designee. At least one (1) other cylinder(s) containing a gaseous sample of each unloading shall be sealed and signed by Seller and Buyer (or their representatives) and retained by Buyer for at least thirty (30) days. In case of any dispute as to the accuracy of any analysis, the sample(s) shall be further retained until Buyer and Seller agree to retain it no longer. Sample cylinders shall be provided by Buyer.
- 5.1.4 If the Independent Surveyor determines that, as a result of the failure of one or both of the continuous sampling procedure or analysis, accurate results as to the composition of the unloaded LNG are not able to be determined as prescribed in paragraph 5.1.1(a)(i) of this Annex C, then the arithmetic average of the analysis results of the periodic samples, excluding those results deemed to be erroneous by the Independent Surveyor, shall be deemed to be the composition of the LNG. All the results including those results deemed to be erroneous by the Independent Surveyor shall be reported to Buyer and Seller. If neither continuous nor periodic samples are available, or if analysis fails, then the normalised arithmetic average of analysis results of the five (5) immediately preceding Cargoes from the same Loading Port (or the total Cargoes delivered if less than five (5)) from the same Loading Port shall be deemed to be the composition of the LNG. If both Buyer and Seller agree that the result of the

arithmetic average does not give a fair representation of the composition of the LNG, both Parties shall meet and decide in good faith the appropriate method to determine the composition of LNG.

## **5.2 Analysis Procedures**

- 5.2.1 Buyer shall cause the Terminal Operator to analyse the LNG unloaded to determine, by an on-line gas chromatograph, the molar fractions of hydrocarbons, carbon dioxide, nitrogen and oxygen in the sample. Should the on-line gas chromatograph fail, the method used shall be the method described in the latest version of GPA 2261 current at the time of analysis or any other method agreed upon by Buyer and Seller. Duplicate runs shall be made on each sample to determine that the repeatability of peak areas are within acceptable limits. The calculated results of such duplicate runs shall be averaged.
- 5.2.2 ASTM D 3246 (latest edition) shall be used to determine the total sulphur content of the samples, unless Seller and Buyer mutually agree that some other method should be used. If the total sulphur content is less than five (5) milligram per Normal cubic metre, it is not necessary to analyse the sample for hydrogen sulphide.
- 5.2.3 ASTM D 5504 (latest edition) shall be used to determine the hydrogen sulphide content of the LNG unloaded, unless Seller and Buyer mutually agree that some other method should be used.
- 5.2.4 Mercury may be analysed using the latest version of ISO 6978 current at the time of analysis, unless Seller and Buyer mutually agree that some other method should be used.
- 5.2.5 The gas chromatography used for custody transfer shall be calibrated by Buyer (witnessed by the Independent Surveyor and/or Seller or its representative) prior to the start, and after the completion, of the bulk unloading using a standard gas supplied by a reliable and reputable manufacturer with known accuracy and traceability. The quality of the standard gas shall either be in accordance with the latest version of ISO 6142 or be in accordance with the customary practices and procedures at the Receiving Terminal which shall be certified traceable to International Standards. The composition of the standard gas shall be similar to the sample composition of the LNG. Validation of the gas chromatograph analysers shall be done by Seller in accordance with the latest version of GPA 2261 for off-line gas chromatograph analysers and ISO 10723 for on-line gas chromatograph analysers current at the time of validation or in any other way in accordance with the customary procedures of the Receiving Terminal.

## **5.3 Correlation Test of Analytical Equipment and Devices**

- 5.3.1 Prior to the use of such equipment, Seller shall be entitled to perform a calibration of the gas chromatograph using standard gas in order to properly maintain the accuracy of Buyer's and the Terminal Operator's equipment and devices.

5.3.2 During normal operation, Buyer shall cause the Terminal Operator to provide chromatograph calibration gasses with composition certified by an independent third party or the relevant Competent Authority. At least once annually (unless the Parties agree to a different period), Buyer and Seller shall cooperatively conduct deviation checks to verify the accuracy of the gas composition mole percentages and resulting calculated physical properties. Buyer and Seller shall mutually agree on test protocol and test gas supplier and compositions to be utilised. When procedures that are in accordance with the above mentioned standards have been applied, test data will be considered as acceptable, if the resulting analyses are within the "Reproducibility" and "Repeatability" tolerances of GPA 2261 and calculated Gross Heating Value is within plus or minus five Btu per Standard Cubic Foot ( $\pm 5$  Btu/SCF), or 0.185 Megajoules per Standard Cubic Metre ( $\pm 0.185$  MJ/Sm<sup>3</sup>), of the known Gross Heating Value of the test gas samples.

## **6 CALCULATION OF QUANTITY UNLOADED**

### **6.1 Calculation and calculation notations**

6.1.1 The calculations to be made in accordance with this Annex C for Gross Heating Value (Volume Based) and Gross Heating Value (Mass Based) shall be carried out according to GPA 2172 (1996), using the constants as given in GPA 2145 (2009), using the Reference Condition, where the conversion from fourteen decimal six nine six (14.696) psia to fourteen decimal seven three (14.73) psia is linear. The Gross Heating Value (Volume Based) of the LNG unloaded shall be expressed in British Thermal Unit per Standard Cubic Foot and rounded to one (1) decimal place. The Gross Heating Value (Mass Based) of the LNG unloaded shall be expressed in Megajoule per kilogram, rounded to four (4) decimal places.

6.1.2 The calculations to be made in accordance with this Annex C to determine the density of the unloaded LNG, shall be carried out in accordance with ISO 6578 (1991) or the National Bureau of Standards Interagency Report 77-867. The density of the LNG unloaded at the prevailing composition and temperature shall be expressed in kilogram per cubic metre, rounded to two (2) decimal places.

6.1.3 In this paragraph 6 of this Annex C, each of the following notations has the following meaning:

- (a)  $d$  = density of the LNG unloaded at the prevailing composition and temperature  $T_L$ , in kg/cubic metre, calculated in accordance with the method specified in paragraph 6.1.2 of this Annex C, rounded to two (2) decimal places;
- (b)  $H_m$  = Gross Heating Value (Mass Based) of the LNG unloaded, in MJ/kg, calculated in accordance with the method specified in paragraph 6.1.1 of this Annex C at the Reference Condition, rounded to four (4) decimal places;



- (c) P = the average absolute pressure of vapour in the LNG Carrier in the LNG tank(s) immediately after unloading in whole millibar as specified in paragraph 4.4 of this Annex C;
- (d) Q = the Quantity Delivered in MMBtu, rounded to the nearest ten (10) MMBtu;
- (e) T<sub>L</sub> = average temperature of the LNG in the LNG Carrier immediately before unloading, in degrees Celsius, rounded to one (1) decimal place, as specified in paragraph 4.3.1 of this Annex C;
- (f) T<sub>V</sub> = average temperature of the vapour in the LNG tank(s) in the LNG Carrier immediately after unloading, in degrees Celsius, rounded to one (1) decimal place, as specified in paragraph 4.3.2 of this Annex C;
- (g) V<sub>b</sub> = the volume of the LNG in the LNG Carrier immediately before unloading, in cubic metres, rounded to three (3) decimal places, as specified in paragraph 4.7 of this Annex C;
- (h) V<sub>h</sub> = the volume of the LNG in the LNG Carrier immediately after unloading, in cubic metres, rounded to three (3) decimal places, as specified in paragraph 4.7 of this Annex C; and
- (i) V = the total volume of the LNG unloaded, in cubic metres, as specified in paragraph 4.7 of this Annex C.

## 6.2 Calculation of the Quantity Delivered in BTU

6.2.1 The Quantity Delivered shall be calculated using the following formula:

$$Q = \frac{1}{1055.056} \times \left[ V \times d \times Hm - \left( V \times \frac{288.60}{273.15 + T_v} \times \frac{P}{1015.60} \times 37.4 \right) \right] - E_{gas}$$

Where

E<sub>gas</sub> = the energy of the gas consumed in the LNG carrier's engine room (also including all gas burnt by the ship for any other use/ boil off (including temperature/ pressure management)) during the time between opening and closing custody transfer surveys.