

**FORM OF CONFIRMATION NOTICE (For Individual Spot Cargo)**

**Confirmation Notice for September 2017 LNG Cargo (Delivery Window: September 6-7, 2017)**

In accordance with the results of a competitive tender (PLL/IMP/LNGT03), 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 \_\_\_\_\_ ("\_\_\_\_") (the "MSPA"), PLL and \_\_\_\_\_ agree upon the following sale and purchase of LNG on this \_\_\_\_\_ day of [ ], 201[/].

**1 Source of LNG**

The expected Seller's Facilities are located at \_\_\_\_\_.

The expected Loading Port shall be the port located at \_\_\_\_\_.

The expected departure date from the Loading Port shall be \_\_\_\_\_.

Seller shall confirm to Buyer, in writing, the final location of the Loading Port, identity of Seller's Facilities and departure date of the LNG Carrier from the Loading Port under this Confirmation Notice, as soon as practicable after execution of this Confirmation Notice, but in no case later than fifteen (15) days prior to the first day of the Delivery Window, unless the LNG delivery under this Confirmation Notice causes the 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 twenty one (21) days prior to the first day of the Delivery Window.

**2 LNG Carrier**

The provisional identity of the LNG Carrier to be utilised by Seller for transportation of the LNG Cargo under this Confirmation Notice and its/their technical description is as follows:

Name of the provisionally nominated LNG Carrier: \_\_\_\_\_

Provisional dimensions:

Length: \_\_\_\_\_

Beam: \_\_\_\_\_

Provisional maximum displacement/draft: \_\_\_\_\_

Provisional Boil-off Rate: \_\_\_\_\_

Provisional vessel volumetric capacity: \_\_\_\_\_

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 Terminal as soon as practicable after the execution of this Confirmation Notice but in no case later than fifteen (15) days prior to the first day of the Delivery Window, unless the LNG delivery under this Confirmation Notice causes the 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 twenty one (21) days prior to the first day of the Delivery Window.



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**3 Discharge Port and Receiving Facilities**

- (a) Discharge Port shall be Port Qasim, Karachi, Pakistan.
- (b) Subject to paragraph 3(c) below, the Receiving Facilities shall be the FSRU-based LNG receiving terminal operated by Pakistan Gas Port Consortium Limited.
- (c) PGPCCL is a new terminal (including the FSRU) that will be commissioned before 1<sup>st</sup> September, 2017 and accordingly commercial start-up will be notified.
- (d) The Buyer may by written notice, prior to the first day of the Delivery Window, request the Seller to deliver the Cargo to Engro Elengy Terminal (Private) Limited's LNG receiving facility at Port Qasim, Karachi, Pakistan. 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.

**4 Contract Quantities**

The quantity of LNG in each Cargo to be sold and purchased under this Confirmation Notice is 140,000 m<sup>3</sup> (-2% to +5%).

The number of Cargo(es) to be sold and purchased under this Confirmation Notice is one (01).

The energy content comprising the Estimated Contract Quantity for each Cargo is 3,200,000 MMBtu +/-5%.

**5 Delivery Window**

The firm Delivery Window for arrival of the LNG Carrier at the Receiving Facilities shall be the two (02) day firm 'Delivery Window' (as defined in the MSPA) which shall be 6<sup>th</sup> of September 2017 to 7<sup>th</sup> of September 2017.

Daytime berthing shall apply.

**6 LNG Heel**

The LNG Heel shall not pass to the Buyer and the quantity of the LNG Heel shall not be used to reduce or increase the Estimated Cargo Quantity beyond the tolerance set out in paragraph 4 of this Confirmation Notice.

The estimated LNG Heel quantity shall be notified by Seller to Buyer together with the first notice of Estimated Time of Arrival under Clause 10.1.1(a) of the MSPA.

**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.



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**8 Contract Price**

The delivered ex-ship Contract Price shall be as follows: [●].<sup>1</sup>

**9 Allowed Laytime**

The Allowed Laytime for the purposes of Clause 12.2 of the MSPA 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 United States Dollars thirty thousand (30,000 USD) per day and pro rata for any begun day.

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

**11 Payment**

The payment due date for commercial invoice(s) of LNG delivered shall become due twenty one (21) days after the Completion of Unloading of the Cargo at the Discharge Port; subject to compliance with the terms and conditions of the Letter of Credit (as defined in section 14 below) in accordance with the provisions of section 14 below and the relevant provisions of Clause 15.4.1 of the MSPA shall be deemed to be amended accordingly.

**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:

Beneficiary Bank Name:

Beneficiary Bank Address:

Beneficiary Account Number:

<sup>1</sup> To be kept empty



*[Handwritten signature]*

Pakistan LNG Limited

Beneficiary IBAN:

Beneficiary SWIFT:

Correspondent Bank Name:

Correspondent Bank 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**

Attention: Chief Operating Officer

Address: 6<sup>th</sup> Floor, Petroleum House,

G-5/2, Islamabad. 44000

Pakistan

Tel: +92 (0) 51 9216904

Fax: +92 (0) 51 9216904

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

With copy of the same addressed to:

Manager Procurement

Tel: +92 (0) 51 9216904

Fax: +92 (0) 51 9216904

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

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

Attention:

Address:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Tel:

Fax:



*Pakistan LNG Limited*



Email:

With copy at the same address to:

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

#### 14 Letter of Credit and Seller Credit Support

- (a) Buyer shall provide Seller with an irrevocable letter of credit (the “**Letter of Credit**” or “**LC**”) for an amount equal to one hundred and five percent (105%) of the estimated Cargo value, this being the Contract Price multiplied by the Estimated Contract Quantity in United States Dollars and substantially in the form of Appendix A 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, by the earlier of (i) fifteen (15) days before the first day of the Delivery Window and (ii) at least three (03) days before the loading date of the Cargo.

Letter of Credit issuing charges inside Pakistan will be on Buyer’s account whereas all other banking charges including charges for advising and confirming shall be at Seller’s expense.

- (b) Seller shall provide Buyer with credit support in accordance with Clause 15.6 of the MSPA and as follows:

Seller shall provide an unconditional irrevocable performance guarantee substantially in the form of the bank guarantee set out in Appendix B to this Confirmation Notice for an amount equal to 10% of the estimated Cargo value, (being the Contract Price multiplied by the Estimated Contract Quantity) in United States Dollars, 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 which shall continue to be valid for ninety (90) days after the last day of the two (02) day delivery window referred to in section 5 above.

All charges in relation to the bank guarantee will be on Seller’s account.

#### 15 Notices of LNG Carrier movements<sup>2</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,

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<sup>2</sup> If the journey from the Loading Port to the Discharge Port is equal to or less than 96 hours.



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 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.

**18 Port Charges**

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

“Port Charges” means the Pilotage fee (inclusive of towage charges) for LNG vessels as per Provisional amendments in notification number SRO 70 (KE)/2010 dated May 12, 2010 amended July 16, 2015 w.r.t. LNG Tariffs Section Para 0902 bullet “c” and Para 0908 Note 2 bullet C IX Pilotage (Please visit Port Qasim Authority’s website [www.pqa.gov.pk](http://www.pqa.gov.pk) where the rates are published or set by the Port Authority from time to time.). Anything additional to the “Port Charges” as defined will be treated separately and will be to Seller’s account. For the avoidance of doubt, Port Charges shall not include any additional charges or expenditure that may become payable by the Seller in connection with the use of the Discharge Port or the Receiving Facilities including for additional tugs, pilotage, towage, escort or watch vessel, immigration and custom clearance and any such charges shall be to the Seller’s account and shall not be reimbursed by the Buyer.



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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 and pay Port Charges of US\$ 500,000. If the Port Charges exceed an amount of US Dollars five hundred thousand (USD 500,000) per calling of the LNG Carrier at the Discharge Port the additional charges over and above five hundred thousand US Dollars (\$500,000) 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”.

**19 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.).

**20 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”

**21 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.”

**22 Estimated Contract Quantity**

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



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**23 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".

**24 Termination for Prolonged Force Majeure**

In Clause 16.5 of the MSPA the reference to "forty five (45) days" shall be replaced with "seven (07) days".

**25 Events of Default**

In Clause 17.1(a) of the MSPA the reference to "three (03) Business Days" shall be replaced with "ten (10) Business Days".

**26 Effect of an Event of Default**

In Clause 17.2.2 of the MSPA the words "of the relevant Cargo" appearing at the end of the Clause shall stand deleted.

In Clause 17.2.3 of the MSPA the words "of the relevant Cargo under a Transaction" appearing at the end of the Clause shall stand deleted.

**27 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.

**28 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 (02) 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."

**29 Annex A**

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

**30 Annex B**

The numbers "-158.5°C" in the first line of Annex B shall be replaced by "-159°C".



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31      **Annex C**

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

**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:	WITNESSED BY:
1. _____ Name	1. _____ Name
2. _____ Name	2. _____ Name



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**APPENDIX A**  
**FORM OF BUYER'S LETTER OF CREDIT**  
**LC DRAFT**

:27: SEQUENCE OF TOTAL                      DATE: XXXXXX

:40A: FROM OF DOCUMENTARY CREDIT  
IRRECOVABLE

:20: DOCUMENTARY CREDIT NUMBER  
XXXXXXXXXXXXXX

:31C: DATE OF ISSUE  
XXXXXXXXXX

:40E: APPLICABLE RULES  
UCP LATEST VERSION

:31D: DATE AND PLACE OF EXPIRY  
XXXXXXXXXX

:50: APPLICANT  
PAKISTAN LNG LIMITED  
PETROLEUM HOUSE  
6<sup>TH</sup> FLOOR  
G-5/2  
ISLAMABAD - 44000  
PAKISTAN

:59: BENEFICIARY  
XXXXXXXXXXXXXX

:32B: CURRENCY CODE, AMOUNT  
USD XXXXXXXXXXXX

:41D: AVAILABLE WITH .....BY .....  
XXXXXXXXXXXXXX  
BY DEF PAYMENT

:42P: DRAFTS AT .....  
AT XX DAYS FROM THE DATE OF COMPLETION OF DISCHARGE AT DISCHARGE  
PORT

:43P: PARTIAL SHIPMENTS  
NOT ALLOWED

:43T: TRANSHIPMENT  
NOT ALLOWED

:44E: PORT OF LOADING  
XXXXXX



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:44F: PORT OF DISCHARGE  
PORT QASIM KARACHI, PAKISTAN

:44C: LATEST DATE OF SHIPMENT  
XXXXXXX

:71B: CHARGES

1. ALL BANK CHARGES AND COMMISSIONS WITHIN PAKISTAN  
ARE ON APPLICANT ACCOUNT EXCEPT CONFIRMATION CHARGES
2. ALL CHARGES AND COMMISSIONS OUTSIDE PAKISTAN INCLUDING  
CONFIRMATION CHARGES  
ARE ON BENEFICIARY ACCOUNT

:48: PERIOD FOR PRESENTATION  
WITHIN 30 DAYS FROM THE DATE OF B/L, BUT WITHIN THE VALIDITY  
OF THIS CREDIT

:49: CONFIRMATION INSTRUCTIONS  
MAY CONFIRM

:78: INSTRUCTIONS TO THE NEGOTIATING BANK  
+ FORWARD ALL ORIGINAL DOCUMENTS VIA COURIER DIRECT TO XXX BANK  
PAKISTAN LIMITED

+ NEGOTIATING BANK IS REQUIRED TO FURNISH A CERTIFICATE ON  
SCHEDULE THAT ALL TERMS OF THE CREDIT COMPLIED WITH. IN CASE OF  
DISCREPANCY THE SAME HAS TO BE MENTIONED ON THE SCHEDULE.

+EACH DRAWING/PRESENTATION MUST BE ENDORSED ON THE REVERSE OF  
ORIGINAL L/C  
AND NEGOTIATING/NOMINATED BANK MUST CERTIFY THE SAME ON THEIR  
COVERING SCHEDULE

+ UPON RECEIPT (DURING THE WORKING HOURS IN PAKISTAN) BY US OF THE  
TESTED TELEX/AUTHENTICATED SWIFT OF THE NEGOTIATING BANK  
CONFIRMING THAT THE NEGOTIATING BANK HAS NEGOTIATED DOCUMENTS  
ISSUED IN STRICT CONFORMITY WITH THE TERMS AND CONDITIONS OF THIS  
CREDIT AND HAS DISPATCHED THE DOCUMENTS BY REGISTERED MAIL/  
COURIER TO OUR ADDRESS SHOWING THE REGISTERED MAIL NO./ COURIER  
RECEIPT NO. AND DATE OF DISPATCH OF DOCUMENTS, WE SHALL BY CABLE  
COVER THE NEGOTIATING BANK AT MATURITY DATE ACCORDING TO ITS  
INSTRUCTIONS, PROVIDED WE SHALL HAVE RECEIVED (DURING THE WORKING  
HOURS IN PAKISTAN) THE TESTED TELEX/AUTHENTICATED SWIFT OF THE  
NEGOTIATING BANK THREE WORKING DAYS (IN PAKISTAN) PRIOR TO DUE  
DATE AT LATEST, OTHERWISE PAYMENT WILL BE EFFECTED THREE WORKING  
DAYS AFTER THE RECEIPT OF SUCH THE TESTED TELEX/ AUTHENTICATED  
SWIFT OR CLEAN DOCUMENTS FROM THE NEGOTIATING BANK. UNLESS  
EXPRESSLY OTHERWISE STATED HEREIN, THIS L/C IS SUBJECT TO THE  
UNIFORMS CUSTOMS AND PRACTICE FOR DOCUMENTARY CREDITS (2007  
REVISION) ICC PUBLICATION NO. 600.



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:57D: "ADVISE THROUGH" BANK

:45B: DESCRIPTION OF GOODS AND / OR SERVICES

XXXXXXXXXXXX

AS PER PROFORMA INVOICE NUMBER XXXX DATED XXXXX.

TERMS DES KARACHI, PAKISTAN

HS CODE XXXXXXXXXXXX WITH COUNTRY OF ORIGIN AS XXXXXXXXXXXX TO BE STATED ON THE COMMERCIAL INVOICE

:46B: DOCUMENTS REQUIRED

1. SIGNED COMMERCIAL INVOICES IN X ORIGINALS & COPY SHOWING VALUE OF THE GOODS AS PER THE PRICE CLAUSE OF THE L/C MULTIPLIED BY THE QUANTITY RECEIVED AT DISCHARGE PORT IN MMBTU AND STATING WE CERTIFY THAT GOODS HEREIN INVOICED CONFORM WITH PROFORMA INVOICE NUMBER XXXXX DATED XXXXX AND ARE OF XXXXX ORIGIN.

2. 3/3 ORIGINAL PLUS 3 NON- NEGOTIABLE COPIES OF BILL OF LADING ISSUED OR ENDORSED TO THE ORDER OF ---KARACHI, PAKISTAN AND NOTIFY PAKISTAN LNG LIMITED. BILL OF LADING TO BE DULY SIGNED BY THE MASTER OR MASTER'S AGENT UNDER HIS OFFICIAL SEAL. CHARTER PARTY BILL OF LADING ALSO ACCEPTABLE.

3. ONE ORIGINAL PLUS 3 SIGNED COPIES OF CERTIFICATE OF ORIGIN ISSUED OR COUNTERSIGNED BY THE RLEVANT CHAMBER OF COMMERCE OR PORT AUTHORITIES OR TERMINAL OPERATOR (ISSUED IN THE NAME OF THE APPLICANT AS CONSIGNEE ACCEPTABLE) MENTIONING GOODS OF XXXX ORIGIN.

4. CERTIFICATE OF QUALITY TO BE ISSUED BY INDEPENDENT LOADPORT SURVEYOR

5. CERTIFICATE OF QUANTITY TO BE ISSUED BY INDEPENDENT LOADPORT SURVEYOR

6. CERTIFICATE OF QUALITY TO BE ISSUED BY INDEPENDENT DISCHARGE PORT SURVEYOR.

7. CERTIFICATE OF QUANTITY TO BE ISSUED BY INDEPENDENT DISCHARGE PORT SURVEYOR. THE QUANTITY DISCHARGED IN MMBTU, APPEARING IN THIS CERTIFICATE, WILL BE CONSIDERED AS QUANTITY FOR PAYMENT.

8. TIME LOG OR STATEMENT OF FACT OR TIME SHEET SHOWING DISCHARGE COMPLETION DATE, ISSUED BY THE DISCHARGE PORT SURVEYOR.

:47B: ADDITIONAL CONDITIONS

PRICE CLAUSE

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

$CP = [xx.xxxx] \% Brent_m$

Where:

CP is the Contract Price applicable to the 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 LNG cargo falls.  $Brent_m$  shall be rounded to 4 decimal places;



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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 futures 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.

OTHER TERMS

NAME OF THE DOCUMENTS EXCEPT B/L AND COMMERCIAL INVOICE  
DIFFERENT FROM LC BUT SERVE THE SAME PURPOSE ARE ACCEPTABLE

ALL PARTIES TO THIS TRANSACTION ARE ADVISED THAT THE U.S. AND  
OTHER GOVERNMENT AND / OR REGULATORY AUTHORITIES IMPOSE SPECIFIC  
SANCTIONS AGAINST CERTAIN COUNTRIES, ENTITIES AND INDIVIDUALS;  
BANKS MAY BE UNABLE TO PROCESS A TRANSACTION THAT INVOLVES A  
BREACH OF SANCTIONS, AND AUTHORITIES MAY REQUIRE DISCLOSURE OF  
INFORMATION. BANK IS NOT LIABLE IF IT, OR ANY OTHER PERSON, FAILS  
OR DELAYS TO PERFORM THE TRANSACTION, OR DISCLOSES INFORMATION AS  
A RESULT OF ACTUAL OR APPARENT BREACH OF SUCH SANCTIONS.

NO PARTY WHICH IS SANCTIONED BY THE UNITED NATIONS, UNITED  
STATES OR THE EUROPEAN UNION, OR UNITED KINGDOM, IS TO BE  
INVOLVED IN THE TRANSACTION IN ANY MANNER. WE MAY NOT COMPLETE A  
TRANSACTION WHICH INVOLVES SUCH A PARTY, OR ANY PARTY IN THE  
ABOVE COUNTRIES.

+++++

1. THIS LETTER OF CREDIT NUMBER AND ISSUANCE DATE MUST BE QUOTED  
ON COMMERCIAL INVOICE.



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APPENDIX B

**FORM OF PERFORMANCE GUARANTEE IN THE FORM OF A BANK GUARANTEE  
(TO BE FURNISHED ON STAMP PAPER OF APPROPRIATE VALUE)**

**BANK GUARANTEE**

**In favour of Pakistan LNG Limited**      **Guarantee No.:** \_\_\_\_\_  
Petroleum House

**Date of Issue:** \_\_\_\_\_

6<sup>th</sup> Floor  
G-5/2  
Islamabad - 44000  
PAKISTAN

At the request of \_\_\_\_\_ (“**Seller**”), We, \_\_\_\_\_ (“**Bank**”), hereby issue our irrevocable confirmed Letter of Guarantee No. \_\_\_\_\_ (“**Guarantee**”) for a maximum amount of US\$. \_\_\_\_\_ (USD \_\_\_\_\_ Only) in consideration of the Seller having entered into the **Master (Delivered Ex-Ship) LNG Sale and Purchase Agreement (“MSPA”)**, dated \_\_\_\_\_ and the **Confirmation Notice** for the \_\_\_\_\_ Cargo, dated \_\_\_\_\_ (the MSPA and Confirmation Notice(s) hereinafter together referred to as “**Contract**”) with Pakistan LNG Limited (hereinafter called the “**Company**”);

1. We, \_\_\_\_\_ (Bank), do hereby irrevocably bind ourselves and unconditionally agree and undertake to pay forthwith to the Company on first written demand by the Company and without prior recourse to the Seller such sum or sums not exceeding US Dollars \_\_\_\_\_ (USD \_\_\_\_\_ Only) as may be demanded by the Company. Such first written demand of the Company shall only state that the Seller has failed to satisfy or otherwise has contravened or failed to perform any of the conditions of the Contract, or one or more of the Contracts, if this Guarantee covers more than one Contract. It is understood that any such demand made herein under by the Company shall be conclusive evidence of the Seller’s failure to comply with or fulfil the conditions of the relevant Contract(s).
2. This Guarantee shall come into force at once and we agree that the Company may claim all or any of the aforesaid amount and this Guarantee shall remain in force, operative and binding on us until the Expiry mentioned herein. The period of validity of this Guarantee is from the date of its issuance up to the date of Expiry and the responsibility of the Bank shall be extinguished / discharged from the date of its expiry by which date claims, if any, must be received by our Bank.
3. We \_\_\_\_\_ (Bank) shall at all times be bound on the first written demand of the Company to pay the Company forthwith the amount (or any portion thereof) hereby guaranteed in US Dollars \_\_\_\_\_ (USD \_\_\_\_\_ Only) until we are expressly released and discharged in writing by the Company from the liabilities and obligations hereby guaranteed free and clear of any counterclaim, deduction, set off or withholding.
4. Our liability to the Company hereunder shall be that of a principal debtor and the Company at its option may treat the Bank as primarily liable for the aforesaid amount / or any balances, which may at any time be due and payable by us to the Company in terms of this Guarantee.
5. Our obligations as set out herein shall be continuing obligations notwithstanding any change in the constitution or organisation of the Seller and notwithstanding any time given, indulgence or

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forbearance shown by the Company and not withstanding any amendments or alteration made in the obligations of the Seller under the contract(s) or in terms, conditions or covenants between the Seller and the Company without our assent or otherwise and not withstanding that any claim by the Company against the Seller is disputed or contested or referred for settlement, to arbitration or litigation.

6. We hereby declare and confirm that under our constitution and all applicable laws and regulations to have the necessary power and authority and all necessary authorization, approval and consent hereunder of Government and other regulatory authorities to enable us to enter, execute, deliver and perform the obligations undertaken by us under this Guarantee and the signatory(ies) to this Guarantee is / are our duly authorised officer/s and the obligations on part contained in this Guarantee are valid and legally binding on and enforceable against us.
7. Notwithstanding anything contained herein above to the contrary, our total liability against this Guarantee shall not, in any case exceed US\$. \_\_\_\_\_ (USD \_\_\_\_\_ Only). This Guarantee shall remain in full force until \_\_\_\_\_ ("Expiry"<sup>1</sup>) and we shall be absolved / discharged from our liability by which date claims if any must be received by our Bank. Thereafter we shall entertain no claim or any cost unless the Guarantee is renewed by us within 30 days after its Expiry, with the written consent of our customer, the Seller.
8. After Expiry and unless renewed within thirty (30) days therefrom, this Guarantee shall become null and void whether it is returned to us for cancellation or not
9. Our liability under this Guarantee shall not be affected by any dispute or difference between the Seller and the Company or any forbearance or indulgence granted by the Company to the Seller or any security held by the Company from the Seller relating to the above mentioned Contract or Contracts, if applicable, or any variation in the Contract or Contracts, if applicable, or any other matter or thing might otherwise affect our liability.
10. We further guarantee that no changes or additions to or other modifications of the terms and conditions of the aforesaid Contract shall in any way release us from our liability under this Guarantee and we hereby waive of any such change, addition or modification.
11. This bank guarantee shall be governed by and construed in accordance with the law of Pakistan and bank hereby irrevocably submit to the jurisdiction of the courts of Pakistan, provided however that the submission to jurisdiction of the courts in Pakistan shall not limit the right of Buyer to take proceeding in the courts of any other country having jurisdiction nor shall be taking of proceeding in any one or more jurisdictions preclude the taking of proceeding in another jurisdiction.

FOR AND ON BEHALF OF \_\_\_\_\_ (BANK)

\_\_\_\_\_  
SIGNATURE  
(NAME & DESIGNATION)

\_\_\_\_\_  
SIGNATURE  
(NAME & DESIGNATION)

1. Witness \_\_\_\_\_
2. Witness \_\_\_\_\_

<sup>1</sup> This should be 90 days from the date of [as in bid documents]



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**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. 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 [●].

**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: [●]

**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 ].

**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.

**5. Delivery Window**

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

[Daytime unloading shall apply.]



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6. **LNG Heel**

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

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.

8. **Contract Price**

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

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.]

10. **Allowed Laytime**

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

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.

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.]

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]*

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:

Pakistan LNG Limited



(a) For: PAKISTAN LNG LIMITED

Schedule 4 Attention: Deputy Director

Schedule 5 Address: Pakistan LNG Limited, 6<sup>th</sup> Floor, Petroleum House, G-5/2. Islamabad

Schedule 6 Tel: +92 (0) 51 9216904

Schedule 7 Fax: +92 (0) 51 9216904

Schedule 8 Email: naveed.iqbal@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:

**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:

[●].

**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]**

[●]



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**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: \_\_\_\_\_



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**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 13398 – Refrigerated light hydrocarbon fluids — Liquefied natural gas — Procedure for custody transfer on board ship;
- 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 10723 – Natural gas — Performance evaluation for on-line analytical systems;
- 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.



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**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**

**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. 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.

**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.

**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.

**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.



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

#### **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.

#### **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. 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.

#### **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.



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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.

**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.

**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.

**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;

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- (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**

##### **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.

##### **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.

##### **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



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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. 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.

**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.

**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



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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.

**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.

**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**

**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.



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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



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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.

## **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.

## **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



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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

### 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)  $T_L$  = 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)  $T_v$  = 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)  $V_b$  = 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;



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- (h)  $V_h$  = 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.

**2. Calculation of the Quantity Delivered in BTU**

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

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

Where

$E_{gas}$  = 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.

