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Ref. No. HSEPL/REG/PNGRB/01

18<sup>th</sup> January, 2018

To  
**The Secretary,**  
**Petroleum and Natural Gas Regulatory Board,**  
**1<sup>st</sup> Floor World Trade Centre,**  
**Babar Lane, Connaught Place,**  
**New Delhi-110001.**

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**Sub: Proposal for Tie-in Connectivity for Chhara LNG Terminal, Gujarat.**

Dear Madam,

HPCL Shapoorji Energy Private Limited ("HSEPL") is a Joint Venture between Hindustan Petroleum Corporation Ltd ("HPCL") and SP Ports Pvt. Ltd. (SPPPL). HPCL is a Government of India enterprise and one of the largest integrated petroleum refining and marketing Company in India. SPPPL is a Wholly Owned Subsidiary of Shapoorji Pallonji Infrastructure Capital Co. Ltd. ("SP Infra"), which in turn is a 100% subsidiary of Shapoorji Pallonji & Co Ltd. ("SPCL"), the flagship Company of Shapoorji Pallonji ("SP") Group.

In this connection please refer to our letter no. CS&P/RM/LNG-Chhara dated 28<sup>th</sup> August, 2013 vide which we had brought to your kind information about the setting up of a 5 mmtpa LNG Receiving, Storage & Regasification Terminal at village Chhara, taluka Kodinar, District Gir Somnath, Gujarat ("LNG terminal") in joint venture (Copy of referred letter is **enclosed**).

As per 'Petroleum and Natural Gas Regulatory Board (*Authorizing Entities to Lay, Build, Operate or Expand Natural Gas Pipelines*) Regulations, 2008' along with PNGRB (*Authorizing Entities to Lay, Build, Operate or Expand Natural Gas Pipelines*) Amendment regulations, 2014' - regulation 21, the concerned entity shall submit a detailed proposal to the Board for tie-in connectivity of natural gas source to existing natural gas pipeline infrastructure in vicinity.

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Accordingly, in order to evacuate gas, a tie-in connectivity to the nearest gas grid would be required for Chhara LNG terminal as it will be a new source of gas.

Gujarat State Petronet Ltd. (GSPL) has a high pressure trunk pipeline in the vicinity of Chhara LNG terminal. The issue of tie-in connectivity of Chhara terminal with GSPL gas grid has been discussed between GSPL and HSEPL. In this regard, a MoU has also been signed between HSEPL and GSPL. As required under the regulation 21 of "PNGRB (Authorizing Entities to Lay, Build, Operate or Expand Natural Gas Pipelines) Regulations, 2008 and Amendment 2014', a detailed Proposal for Tie-in Connectivity of Chhara LNG terminal is **attached** herewith.

We request you to kindly accept our proposal for further consideration and also look forward to your continued support in this regard.

Should you require any further information, kindly let us know.

Thanking you,

Yours sincerely,

**For HPCL Shapoorji Energy Pvt. Ltd.**



**Authorized Signatory**

**(S. Baitalik)**

**VP - Projects**

Contact Details:-

Mobile- 9662526274

Email id- sudarshan.baitalik@hse.in



Encl.: Proposal for Tie- in connectivity of Chhara Terminal

CC : Group ED, Gas Business, GSPL.

## Proposal for Tie-in Connectivity of Chhara LNG Terminal

### I. Introduction

HPCL Shapoorji Energy Private Limited (HSEPL) is a Joint Venture between Hindustan Petroleum Corporation Ltd. and SP Ports Pvt. Ltd. (SPPPL). HSEPL proposes to develop a LNG Receiving, Storage & Regasification Terminal at village Chhara, taluka Kodinar, District Gir Somnath, Gujarat ("LNG terminal"). The LNG terminal will be 5 MMTPA capacity terminal under phase I with provision to expand up to 10 MMTPA under phase II. The LNG Terminal will be developed within boundary of Chhara port which is being developed by M/s Simar Port Private Limited (SPPL), a 100% subsidiary of SPPPL.

HPCL is a Government of India Enterprise with a Navratna Status, and a Forbes 2000 and Global Fortune 500 company. It is one of the largest integrated petroleum refining and marketing company in India.

SPPPL is a Wholly Owned Subsidiary of Shapoorji Pallonji Infrastructure Capital Co. Ltd. ("SP Infra"), which in turn is a 100% subsidiary of Shapoorji Pallonji & Co Ltd. ("SPCL"), the flagship company of Shapoorji Pallonji ("SP") Group.

### II. Location of Terminal

Chhara LNG terminal is proposed to be developed at Chhara Village, taluka Kodinar, District Gir Somnath of Gujarat State, India with the following latitude & longitude:

Latitude: 20° 43' 19.56"N  
Longitude: 70° 44' 28.7" E

The proposed green field Chhara port is located with the following latitude & longitude:

Latitude: 20° 43' 14.25"N  
Longitude: 70° 44' 54.92"E

### III. Project Details

Facilities proposed to be developed for on-shore LNG terminal are LNG unloading system which can accommodate LNG carriers of size 80 000 m<sup>3</sup> to 266 000 m<sup>3</sup>, one main jetty with a provision for one standby jetty, trestle for LNG unloading lines, 2 self-supporting full containment LNG storage tanks of 200,000 m<sup>3</sup> each and LNG vaporization with shell & tube vaporizer (STV) supplemented by submerged combustion vaporizer (SCV) for cold weather conditions.

Other utilities includes 18 MW gas based captive power plant as main source of power with backup from State Grid, Electrical Sub-station, Main Control Room, Metering Station, Workshop, and warehouse. The nominal gas send out from the Chhara LNG terminal, under phase 1, shall be up to 20 mmscmd (~ 5 mmtpa) with peak send out of gas reaching up to 24 mmscmd.

*Sanjiv*  
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#### IV. LNG Regasification Process Description

LNG at atmospheric pressure and (-)162°C temperature will be transported by sea in specially designed and dedicated LNG vessels of 80,000 to 2,66,000 m<sup>3</sup> capacity at the Jetty to be located at Chhara. The LNG ships will be brought to the unloading jetty by Tug Boats from the mouth of channel with the guidance of experienced pilot. Channel width of approach channel in Chhara port will be around 300 m. The turning area will be around 600 m in diameter and depth of the approach channel will be (-) 20 m CD which will be adequate for bringing Q-Max ships (266,000 m<sup>3</sup> capacity). No additional dredging is envisaged for meeting LNG ship requirement.

LNG will be unloaded using unloading arms at the dedicated LNG berth. The unloading arms will be moved with a remote-controlled hydraulic system located on the berth. When they are lined up with the LNG carrier, the two will be then secured by bolts or quick connect couplings. After connection is completed, the communication cable will be connected to shore and the emergency shutdown system will be tested. After the unloading arms are cooled, the LNG will be transferred from the carrier to the storage tanks using the carrier's pumps. The discharge of LNG from the carrier will take 12-19 hours depending upon the capacity of the ship and unloading rate. In addition, approximately 3 hours will be required for mooring, cool down, connecting unloading arms, and approximately 3 hours will be required for arm purging, disconnecting arms, and unmooring.

LNG will be stored in tanks in on-shore terminal. Stored LNG will be regasified in order to be transported by gas pipeline to the end users. This will be accomplished via LNG Vaporizers using Water Glycol system. Once the LNG is vaporized, the regasified LNG (RLNG) will be transported to end consumer through network of natural gas pipeline(s).

#### V. Connectivity

The Chhara LNG Terminal will be developed within boundary of Chhara port which is being developed by M/s Simar Port Private Limited (SPPL). The terminal will be connected to NH 8E, which is approximately 6.5 km from the Port on the North of Chhara Port. The Road and Building department, Gujarat will be constructing road to connect Port with NH 8E.

#### VI. Access to Natural Gas Grid

The LNG Terminal location is close to the high pressure natural gas pipeline which is owned and operated by Gujarat State Petronet Limited ("GSPL"). The envisaged location for tie-in of the RLNG evacuation pipeline to the GSPL grid shall be dispatch Station on Darod-Jafrabad pipeline section of GSPL's Gas Grid at Village Londhpur, Taluka Jafrabad, District Amreli.

The approximate length of Tie-in connectivity to evacuate RLNG from LNG terminal in to the GSPL grid at dispatch station at Londhpur will be **around 85 km**.

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**VII. Project Status**

<b>Activity</b>	<b>Status</b>
DFR	Complete
Geotech and Marine Studies	Complete
FEED	Complete, EIL
Project Financing	Loan Agreement Signed with Consortium of Bankers
CRZ Clearance	Received
Public Hearing	Completed
CTE/GPCB NoC	Received
Environmental Clearance	EAC recommended grant of EC in the meeting held on May 25 <sup>th</sup> 2017
EPC Bids	EPC bids received, under evaluation

**VIII. Proposal**

It is proposed that, in accordance with 'Petroleum and Natural Gas Regulatory Board (*Authorizing Entities to Lay, Build, Operate or Expand Natural Gas Pipelines*) Regulations, 2008' along with PNGRB (*Authorizing Entities to Lay, Build, Operate or Expand Natural Gas Pipelines*) Amendment regulations, 2014', the tie-in connectivity of Chhara LNG terminal be established with the natural gas common carrier/contract carrier/ gas grid pipeline in the vicinity. For Chhara LNG terminal, the nearest common carrier/contract carrier/ natural gas grid pipeline is owned and operated by GSPL and the approximate length of the proposed tie-in connectivity pipeline is around 85 km. The maximum send out from commercial operation of Phase I of the terminal shall be 24 mmscmd.

*Santosh*

## Schedule A

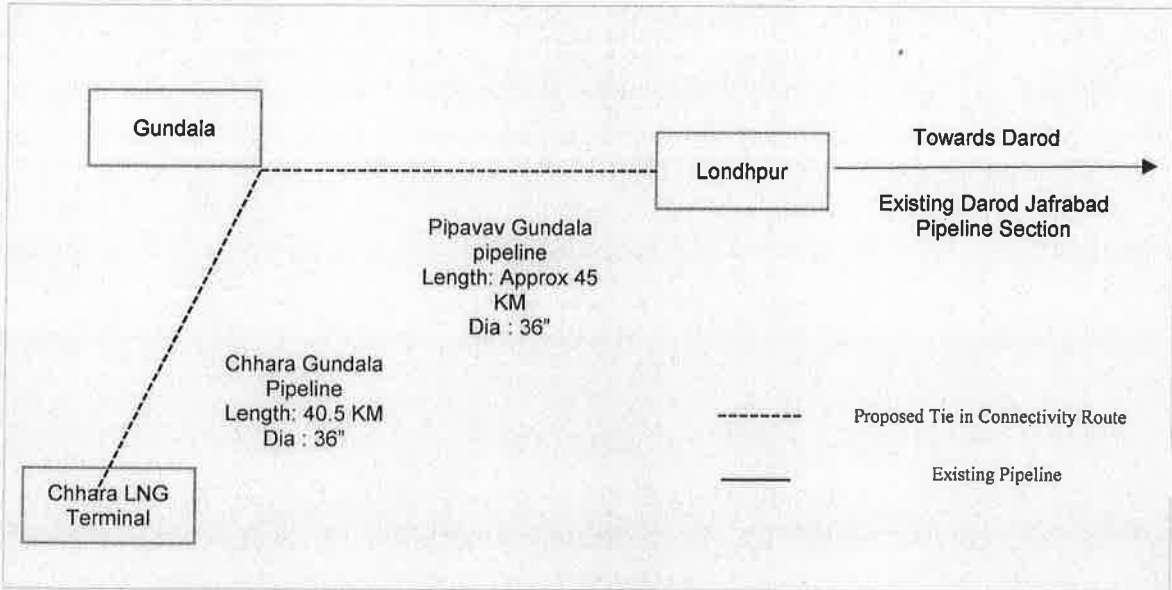
<b>1</b>	<b>GENERAL DETAILS</b>	
A	Name of Entity	HPCL Shapoorji Energy Private Limited
B	Type of Firm	Private Limited
C	Date of Incorporation & date of commencement of Business	15 <sup>th</sup> October, 2013
D	Address of the Registered Office	Venus Amadeus, 301-305, 3 <sup>rd</sup> Floor, Jodhpur cross Road, Satellite, Ahmedabad-380015
<b>2</b>	<b>BASIC DATA</b>	
A	Point of Origin and end point of the proposed natural gas pipeline	
	• Point of origin	Proposed Chhara LNG Terminal, Gujarat
	• End Point	GSPL Dispatch Station, Londhpur
B	Indicative route of the proposed natural gas pipeline indicating the likely natural gas injection point and likely delivery points depicted on a physical map	Chhara → Gundala → Londhpur (Annexure I)
C	Natural Gas Availability Position	Chhara LNG terminal will offer regasification facility to off-takers. The Off-takers will import LNG and it will be regasified at the terminal and evacuated as RLNG. RLNG will flow through the proposed pipeline which shall connect to natural gas grid operated by GSPL.
D	Potential Demand of Natural Gas en-route the natural gas Pipeline	The LNG terminal will be connected to major trunk pipelines like MBPL, BJSPL, MBBVPL, HVJ, DUPL/DVPL-I & II etc. through GSPL pipeline network. The terminal will cater to demands of northern and western India which are in vicinity to these trunk pipelines. (Annexure II)
E	Assessment of total gas volume for transportation in the proposed natural gas pipeline	Nominal flow of 20 mmscmd with peak rate of 24 mmscmd.
F	Any other issue considered as relevant by the entity	---
3	Application Fee	---

*Sanjay*  
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### Annexure I

#### Route Map – Proposed connectivity of Chhara LNG terminal with GSPL Gas grid



*Maulanib*

## Annexure II

### Natural Gas Demand Supply Assessment for Chhara LNG Terminal

Gas demand is likely to increase many fold in the coming years. The unconstrained gas demand has been worked out assuming that the pipeline network will be commissioned as planned and gas can be made available at affordable prices to different sectors. Also, growth of Indian economy overall will improve the affordability of the consumers over time.

Sector wise demands study results are summarized below:

*Figs in mmscmd*

Demand	2022	2023	2024	2025	2026	2027	2028
Power	278	285	292	299	307	314	322
Fertilizer	95	95	95	100	104	106	106
Industry	154	160	167	174	181	189	197
Refining	63	63	63	64	65	68	71
Petrochemicals	36	38	39	41	43	45	47
CGD	49	53	57	60	64	68	71
<b>Total</b>	<b>675</b>	<b>694</b>	<b>713</b>	<b>738</b>	<b>764</b>	<b>790</b>	<b>814</b>

**Table 1: All India Natural Gas Demand Projections**

At the same time, gas supplies may not be able to keep pace with the growth in demand. Most of the gas production in India until last year was by the national companies, viz. Oil & Natural Gas Corporation Ltd. (ONGC) and Oil India Ltd. (OIL). Since most of these fields have been under production for over two decades, the supply from these fields is projected to decline significantly over the next few years. Moreover, the natural gas supply from the KG-D6 field has declined steeply of late.

Supply projections are given below:

*Figs in mmscmd*

Supply	2022	2023	2024	2025	2026	2027	2028
Domestic Supply	127.44	123.69	123.50	116.37	98.51	80.90	69.13
Unannounced discoveries	30.84	32.36	32.13	32.17	32.16	34.22	35.96
LNG	219.84	219.84	219.84	219.84	229.15	229.15	229.15
Transnational Pipelines	30.00	30.00	30.00	30.00	30.00	30.00	30.00
<b>Total</b>	<b>408.12</b>	<b>405.89</b>	<b>405.47</b>	<b>398.38</b>	<b>389.82</b>	<b>374.27</b>	<b>364.24</b>

**Table 2: All India Natural Gas Supply Projections**



In such a scenario, even after considering the plans of various players for developing newly discovered domestic fields and also the plans to expand/set up new LNG terminals, the demand-supply gap is widen enough.

*Figs in mmscmd*

<b>Demand - Supply Gap</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>2026</b>	<b>2027</b>	<b>2028</b>
Total Supply	408	406	405	398	390	374	364
Total Demand	675	694	713	738	764	790	814
<b>Gas Deficit</b>	267	288	307	340	375	416	450

**Table 3: Demand Supply Deficit**

HSEPL, through its 5 mmtpa LNG regasification terminal, will assist in curtailing down the demand supply deficit. The northern and western India (Gujarat, Rajasthan, Madhya Pradesh, Maharashtra, Punjab, Haryana, Delhi, Uttar Pradesh, Goa, Himachal Pradesh, Uttarakhand, Jammu & Kashmir, and Chandigarh) has been considered as the potential catchment area for the proposed terminal and specific districts have further been identified where the terminal could supply RLNG competitively as compared to other existing or proposed RLNG terminals.



Ref: CS&P/RM/LNG-Chhara

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28<sup>th</sup> August, 2013

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To,

Petroleum & Natural Gas Regulatory Board,  
World Trade Centre,  
1st floor,  
Babar Road,  
NEW DELHI - 110001

Attn: Shri K Rajeswara Rao, Joint Director (MC and ES)

Sub: LNG regasification terminal at Chhara, District Junagadh, Gujarat

Dear Sir,

We are pleased to inform that Hindustan Petroleum Corporation Ltd. and SP Ports Pvt. Ltd. are jointly proposing to set up a LNG re-gasification terminal with an initial capacity of 5 MMTPA at the upcoming port in Village Chhara, District Junagadh, Gujarat, being developed by SP Ports Pvt. Ltd. The LNG re-gasification terminal is being developed through a Joint Venture Company with 50:50 equity participation by HPCL and SPPPL. The terminal is expected to be commissioned in 4 years.

A Joint Venture Agreement has been signed between HPCL and SPPPL on 31<sup>st</sup> July, 2013 and the JV Company is being incorporated.

Very Truly Yours,

H Kumar  
Executive Director-Corporate  
Strategy & Planning

cc: Shri S. Mukundan  
Director, SP Ports Pvt. Ltd.  
Colaba, Mumbai.

bcc: Director - Marketing

→ bcc: ED - Gas, Renewables & BD- Marketing

कार्यकारी निदेशक - गैस, नवीनोपकरण  
एवं व्यवसाय विकास, विपणन  
Office of ED - Gas, Renewables  
& Business Development, Marketing

11/7/2013

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