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SEIPL/T&S-PNGRB/2024/009

July 4, 2024

To,
The Secretary,
The Petroleum and Natural Gas Regulatory Board (PNGRB/ Board),
1st Floor, World Trade Centre,
Babar Road, New Delhi – 110001

Sub.: Comments on Draft PNGRB (Registration for Establishing & Operating Liquefied Natural Gas (LNG) Terminals) Regulations, 2024

Respected Madam,

At the outset, Shell Energy India Private Limited ('**SEIPL**'), appreciates the Honourable Board for its valuable contributions in its encouraging initiatives to develop robust gas-based infrastructure connecting the demand centres across India. SEIPL is privileged to have the opportunity to support the Government of India's ('**Gol**') vision of fuelling the nation's energy growth as the sole 100% Foreign Direct Investment in the sector through its presence in the LNG regasification terminal in Hazira, Gujarat (having a capacity of 5.2 MTPA), serving the needs of gas customers competitively since its inception in 2005.

The LNG regasification terminal model in India has been robust and successful since its inception in 2004. There has been sufficient capacity to cater to the needs of the market not met by the indigenously produced natural gas. The evolution has seen multiple global disruptions and yet has maintained the spirit of the statute fostering fair trade and competition providing competitive pricing across the value chain and multiple options for the customers to choose. It has a wide range of investors ranging from the public sector, private sector and multi-nationals.

The PNGRB has played a crucial role in supporting the growth of the sector through the systematic development of pipeline infrastructure across the length and breadth of the country. To be able to fully utilise the available capacity of regas terminals, it is imperative that the gas infrastructure is interlinked and extended to the last mile.

We write to you in context to the public notice PNGRB/Auth/5-Registration of LNG (01)/2023 dated June 05, 2024, soliciting our views on Draft Petroleum and Natural Gas Regulatory Board (Registration for Establishing & Operating Liquefied Natural Gas (LNG) Terminals) Regulations, 2024 ("**Draft Regulations**").

We have reviewed the proposed draft Regulations and our detailed comments and suggestions are provided in the annexure for kind consideration of the honourable Board, we had in 2014, 2018 and 2022 provided comments on the matter and we would humbly request the Honourable Board to also take them in to consideration. We wish to state that third-party access for infrastructure should be consistent with the PNGRB Act, 2006 should meet the objective of bringing in efficiency and competitiveness while ensuring that rights of the investors remain protected.

CIN: U40100GJ2000PTC038780

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We trust the Honourable Board finds our submission in order and would be pleased to provide any further clarification in the subject matter, should that be required by your good office. We shall be grateful if we can be invited to any Open House or public consultation organised in this regard.

We look forward to work constructively to support the growth of natural gas infrastructure in India.

Your sincerely,

**For,
Shell Energy India Private Limited,**

A handwritten signature in blue ink, appearing to read 'Nakul Raheja'.

**Nakul Raheja,
Country Head**



Annexure-1: Comments on Draft PNGRB (Registration for Establishing & Operating Liquefied Natural Gas (LNG) Terminals) Regulations, 2024

The comments from Shell Energy India Private Limited (SEIPL) on the draft PNGRB (Registration & Operating Liquefied Natural Gas (LNG) Terminals) Regulations, 2024 hereinafter referred to as "Draft Regulations" have been categorized into the following sections:

1. Request for additional clarity on applicability of the draft regulations to existing or operating terminals before the appointed day
2. Scope of the Petroleum and Natural Gas Regulatory Board Act, 2006 (the "PNGRB Act" or the "Act") w.r.t. RLNG terminals
3. Specific comments on the provisions of the draft Regulations
4. Techno-commercial aspects pertaining to operations of an RLNG terminal

1. Request for additional clarity on applicability of the draft Regulations to LNG Terminals established or operating before the appointed day

- (a) While draft Regulation, under sub regulation (2) of Regulation 3 read with Regulation 6, 7, 8, 9 and 10 makes the proposed regulations applicable to any entity that has already established or is operating a liquefied natural gas terminal immediately before the appointed day of the Board, however the provisions of clause (c) of sub section (1) of Section 15 of the PNGRB Act, 2006 states the following:

15. Registration of entities: -

(1) Every entity desirous of-

- (a) marketing any notified petroleum or petroleum products or natural gas; or
- (b) establishing or operating a liquefied natural gas terminal; or
- (c) establishing storage facilities for petroleum, petroleum products or natural gas exceeding such capacity as may be specified by regulations, and fulfilling the eligibility conditions as may be prescribed shall make an application to the Board for its registration under this Act:

Provided that no registration under this Act shall be required for **any entity** carrying on any activity referred to in clause (a) or clause (b) or clause (c) immediately before the appointed day but shall inform the Board about such activity within six months from the appointed day.

- (b) Clause (c) of sub section (1) of Section 15 clearly states that no registration is required for any entity establishing or operating a liquefied natural gas terminal before the appointed day. Such an entity is required to only inform the Board about the activity. The draft sub regulation (2) of Regulation 3 read with Regulation 6 requires submitting information in prescribed forms which is inconsistent with the mandated statute and therefore may be avoided.
- (c) The mandated provision of the Act was envisaged to be made applicable entity wise and not with respect to every terminal, infrastructure modification, expansion, etc. of such entity so registered.



- (d) In order to be fully consistent with the provisions of the PNGRB Act, we recommend that the Draft regulations incorporate a clarifying statement that the draft Regulation is not applicable to the entities operating a liquefied natural gas terminal before the appointed day. Accordingly, we humbly request the Hon'ble Board to modify draft sub regulation (2) of Regulation 3 as mentioned herein below and Regulation 6 be deleted:

*"It is clarified that this Regulation shall not apply to **an entity** which has already established and was operating liquefied natural gas terminals immediately before the Appointed Day."*

1.1. LNG Terminal definition in the draft Regulation to be consistent with the definition under the PNGRB Act

- (a) "Liquefied natural gas terminal" is a defined term in the PNGRB Act, however the definition of the same under the draft Regulations is different.

Definition as per the PNGRB Act	Definition as per draft Regulation
"liquefied natural gas terminal" means the facilities and infrastructure required to- (i) receive liquefied natural gas; (ii) store liquefied natural gas; (iii) enable regasification of liquefied natural gas; and (iv) transport regasified liquefied natural gas till the outside boundaries of the facility;	"Liquefied Natural Gas terminal (LNG terminal)" means an infrastructure required to: (i) receive Liquefied natural gas; (ii) store Liquefied natural gas; (iii) enable regasification of Liquefied natural gas; and (iv) transport re-gasified Liquefied natural gas to the outside boundaries of the facility. (v) transport Liquefied natural gas to the outside boundaries of the facility; and such an infrastructure on-land LNG terminal, Floating Storage Regasification unit (FSRU), small-scale LNG storage and regasification terminals or small-scale LNG producing facilities at land locked sites shall also form a part of the definition Liquefied natural Gas terminal.

- (b) Sub clause (v) of clause (c) of sub regulation (1) of Regulation 2 in the draft Regulation is an addition to the definition mentioned under PNGRB Act under Section 2(t). The inconsistency between the two definitions could result in confusion and interpretational issues.
- (c) It is submitted that definition as per the Act should be used in the draft Regulations for legislative consistency.

2. Scope of the Petroleum and Natural Gas Regulatory Board, 2006 w.r.t. RLNG terminals

2.1. Common carrier capacity on LNG Terminal not envisaged under the PNGRB Act.



- (a) The PNGRB Act does not provide for common carrier capacity for LNG terminals. The definition of common carrier under Section 2(j) refers only to pipelines for transportation of petroleum products and natural gas and does not include LNG terminals.
- (b) Further Section 14 – Register read with Section 15 – Registration of entities and Section 16- Authorisation unambiguously demarcates activities which fall under the registration category and activities where the authorization from the Board is required. Establishing or operating a liquefied natural gas terminal falls under the registration category and the Act provides for only making an application to the Board for the purpose of registration.

PNGRB Act 2006, Definition -

*Section 2 (i) - "city or local natural gas distribution network" means an **interconnected network of gas pipelines** and the associated equipment used for transporting natural gas from a bulk supply high pressure transmission main to the medium pressure distribution grid and subsequently to the service pipes supplying natural gas to domestic, industrial or commercial premises and CNG stations situated in a specified geographical area.*

Explanation :- For the purposes of this clause, the expressions "high pressure" and "medium pressure" shall mean such pressure as the Central Government may, by notification, specify to be high pressure or, as the case may be, medium pressure;

*Section 2 (j) – "common carrier" means such **pipelines** for transportation of petroleum, petroleum products and natural gas by more than one entity as the Board may declare or authorise from time to time on a non-discriminatory open access basis under sub-section (3) of section 20, but does not include pipelines laid to supply*

- (i) petroleum products or natural gas to a specific consumer; or*
- (ii) crude oil;*

Explanation.- For the purposes of this clause, a contract carrier shall be treated as a common carrier, if –

- (i) such contract carrier has surplus capacity over and above the firm contracts entered into; or*
- (ii) the firm contract period has expired.*

*Section 2 (m) - "contract carrier" means such **pipelines** for transportation of petroleum, petroleum products and natural gas by more than one entity pursuant to firm contracts for at least one year as may be declared or authorised by the Board from time to time under sub-section (3) of section 20;*

*Section 2 (zn) - "transportation rate", in relation to **common carrier or contract carrier** or a city or local natural gas distribution network, means such rate for moving each unit of petroleum, petroleum products or natural gas as may be fixed by regulations.*

The PNGRB Act under Section 11 (e) states the following:



11. Functions of the Board:-

(e) Regulate, by regulations:-

- (i) **access to common carrier or contract carrier** so as to ensure fair trade and competition amongst entities and for that purpose specify pipeline access code;
- (ii) transportation rates for **common carrier or contract carrier**;
- (iii) **access to city or local natural gas distribution network** so as to ensure fair trade and competition amongst entities as per pipeline access code;

- (c) Reading Section 11, Section 15 along with sub section (1) and (2) of Section 61 suggests that the Board may, by notification, make regulations consistent with this Act and the rules made there under to carry out provisions of this Act and further states that without prejudice to the generality of the foregoing power, such regulations may provide for all or any of the matters listed under sub section (2) of Section 61. It is worth noting the limited scope of sub-section (2)(l) and sub-section 2(m) of Section 61 which are reproduced herein below:

“(2) (l): form and manner in which application shall be made for any entity which intends to carry out entities listed under sub section (1) of Section 15, and

(2) (m): the manner by which a certificate of registration granted under sub section (3) of Section 15 and may be suspended or cancelled under sub section (4) of Section 15.”

Based on the above-mentioned sections under the PNGRB Act, the Act provides power to frame regulations pertaining to activities related to application for registration (*excluding entities established or operating the RLNG terminal before the appointed day*) and manner in which certificate of registration shall be granted.

Therefore, it can be safely concluded that no provision exists in the PNGRB Act to provide for common carrier capacity in LNG Terminals.

3. Without prejudice, specific comments on some of the provisions of the draft PNGRB (Registration for Establishing & Operating Liquefied Natural Gas (LNG) Terminals) Regulations, 2024 is submitted herein below:

S.N	Reference to draft Regulation	Comment
1.	2. Definition: (1)(c) <i>“Liquefied Natural Gas terminal (LNG terminal)” means an infrastructure required to:</i> <i>(i) receive Liquefied natural gas;</i> <i>(ii) store Liquefied natural gas;</i> <i>(iii) enable regasification of Liquefied natural gas; and</i> <i>(iv) transport re-gasified Liquefied natural gas to the outside boundaries of the facility.</i> <i>(v) transport Liquefied natural gas to the outside boundaries of the facility; and such an</i>	Liquefied Natural Gas terminal (LNG Terminal) is a defined term in the PNGRB Act, 2006 under Section 2(t). The definition under the draft Regulations expands the scope of LNG Terminals. It is requested that definition as per the Act is adopted under the Regulations.



S.N	Reference to draft Regulation	Comment
	<i>infrastructure on-land LNG terminal, Floating Storage Regasification units (FSRU), small-scale LNG storage and regasification terminals or small-scale LNG producing facilities at land locked sites shall also form a part of the definition Liquefied natural Gas terminal."</i> (1) (d) <i>"Uncommitted Re-gasification Capacity" means that capacity of the LNG facility which is net of the entity's own and the contractual requirements.</i>	This term does not find a mention in the PNGRB Act and in the overall construct thereto. Therefore, it is respectfully submitted that the same may be deleted in the Draft Regulations.
2.	3. Applicability (2) <i>Any entity that has already established or is operating a LNG terminal immediately before the appointed day of the Board.</i> Read with 6. Entities establishing or operating LNG Terminal before the appointed day. <i>(1) The entity shall submit relevant information along with supporting documents in the form as per Schedule IV.</i> <i>(2) The entity shall abide by the technical standards, specifications including safety standards as specified under the relevant regulations.</i>	As suggested under Point no. 1 above, the Regulation (and, consequently, the registration requirement) is not applicable to LNG Terminals established or operating before the appointed day. Accordingly, we humbly request the Hon'ble Board to modify draft sub regulation (2) of Regulation 3 and Regulation 6 be deleted: <i>"It is clarified that this Regulation shall not apply to an entity which has already established and was operating a liquefied natural gas terminal immediately before the Appointed Day."</i>
3.	5. Certificate of Registration <i>(1) The board after examining the application for registration submitted by the entity, the documents provided, along with the performance bank guarantee, and application fee may issue a certification of registration allowing it to commence and carry on the activity valid for 30 years from the date of commissioning or from the date of registration whichever is earlier as per the format at Schedule-V to the entity making an application for registration.</i> <i>(6) At the end of the validity period of certificate of registration, the entity shall be required to make a fresh application to the Board as per</i>	Investment in RLNG terminals is distinct infrastructure from a licensed activity, once an entity is registered and the asset has been created - the registration should be valid coterminous the asset's operationality. The requirement for periodic renewal of registration, without disclosing upfront, categorically and unequivocally, the circumstances under which such renewal can be denied, would pose a serious threat for the investment in this sector. It may also be pertinent to note may that unlike the regulations pertaining to natural gas pipelines and CGD network, the draft Regulations do not provide any protection in terms of exclusivity of operations to the



S.N	Reference to draft Regulation	Comment
	<i>Schedule-II, six months prior for the expiry of the certification of registration certificate.</i> <i>(7) The Board, upon scrutiny of the application, may consider extension of registration for a block of 10 years at a time on such terms and conditions, as it may deem fit.</i> 7. Capacity Expansion of Existing LNG Terminals <i>In case it is proposed to expand the capacity of the existing LNG Terminal, the entity shall submit a proposal for consideration of the Board, at least 90 days before the expansion, and the Board may allow for expansion of the capacity in the LNG terminal.</i>	investor of the LNG terminal and therefore there should not be any requirement of a validity of registration or any extension by the Board thereof. We respectfully submit that the registration requirement for the LNG Terminal is in respect of an 'Entity' as mentioned in the Act and therefore the provisions of submitting a proposal for expansion would be travelling beyond the stated intent.
4.	8. Change of Ownership <i>(1) In case of change in the ownership, management control or any other such change in respect of the LNG Terminal after the issue of the certificate of registration or enlistment, the same shall be informed to the Board along with copies of the supporting documents within 60 days of such a change with a request for amending the certificate of registration.</i> <i>(2) Upon receipt of such an information and due examination of the request, the Board may amend the certificate of registration or enlistment in the name of the new owner.</i>	We humbly submit that the registration requirement for the LNG Terminal is always in respect of an 'Entity' (as a going concern) as mandated under the Act and neither the eligibility condition nor the running of operations have any nexus or correlation with the ownership and management control of such an entity. Since the change of ownership and management control are integral events in the life cycle of a corporate entity, it would be futile to keep amending the registration certificate on each such instance and will act as an impediment to the functioning of a corporate entity. The language should accordingly be revised to clarify that the Entity shall be required to inform Board only in the case where the name of the entity changes or where such entity merges with another entity making it essential to amend the registration certificate. Without prejudice to above, it is not clear as to what is meant by "...change in the ownership, management control or any other such change..." and the expression in its present form appears to be vague and open ended. Introduction of such a requirement would have the effect of increasing administrative burden of the 'Entity' and subject it to the unnecessary review of the Board for no cogent reason. If required due to reasons of 'name change' or 'merger' or the registered entity, we respectfully submit that amendment of



S.N	Reference to draft Regulation	Comment
		certificate of registration by the Board subsequent to change in ownership is a procedural activity (as is being done by Registrar of Companies under Companies Act, 1956/2013). Therefore, the language 'the Board may amend', the word 'may' would amount to imply that the Board may in its discretion grant or refuse to an amended certificate. We request that this provision be re-examined and the expression 'may' be replaced by 'shall'.

4. Techno-commercial aspects pertaining to operations of an LNG terminal vis-à-vis scope of the draft Regulations

Without prejudice to the submission made under Point No. 1, 2 and 3 certain techno-commercial points have been mentioned herein to bring forth key differences between pipeline regulations and LNG commerciality and other operational constraints.

4.1. Effective and efficient third-party access to pipeline and gas demand essential

As a precursor to regulations of terminals, it is essential to ensure effective, efficient and non-discriminatory access to pipelines (common or contract carrier natural gas pipeline and city or local natural gas distribution network). To ensure seamless operations of LNG terminals, timely evacuation of LNG is important. For entities to trade freely across value chain – access to gas buyers and for buyers to secure affordable supplies, easy access to pipeline is of utmost importance. Access to pipelines and its operations should be through an autonomous entity through a digital platform. Standardized gas transportation agreement and its provisions should be applicable to entire capacity of the pipeline i.e. own capacity, common and contract carrier. It is also critical to ensure that all gas buyer's interest is protected by way of having adequate competition and providing a choice to the gas buyers (connected to CGD network) to choose supplier of their own choice.

4.2. Exclusivity for LNG Terminals

- (a) It is a common principle to promote open access in such infrastructure which has exclusive jurisdiction to operate and where duplication of infrastructure can result in infructuous investments- such as electricity transmission and distribution business, petroleum, petroleum product and natural gas pipelines and city or local natural gas distribution networks. In India, the aforementioned assets essentially operate under a network exclusivity principle. It may be noted that LNG terminals in the country neither enjoy exclusivity of operations in any jurisdiction nor do the Act or Regulations provide protection against competition from setting up of other LNG terminals in the vicinity in the way it does to laying of pipelines and city gas distribution networks in the country.



Over the years, several LNG terminals have been built based on market principles. Currently 7 terminals are operational with a capacity of c. 47.7 mtpa. The utilisation levels of these terminals vary from less than 10% to more than 100%. Against the total capacity of 47.7 mtpa, LNG imports into India were around 23 mtpa, i.e. an average capacity utilisation of approximately 50%. It may further be noted that additional terminal capacity of approximately 15-20 mtpa is under construction and will be operational in the next few years taking the total capacity to around 70 mtpa. This capacity will operate without exclusivity, based on market forces and competition as is envisaged under the Act. Imposition of common carrier principles to infrastructure which has no exclusivity, or any kind of protection on investments made, will only act as an additional financial burden to the investors.

- (b) At a point in time when the stated policy of the Government of India is to encourage foreign investments in the energy sector (a case in point being 100% Foreign Direct Investment being permitted for investments in liquefied natural gas terminals under the automatic route), imposition of new regulations related to common carrier mid-way would create avoidable disincentives for such investments.
- (c) The concept of mandatory TPA to new-build terminals has been tried in the United States (US) and the regulators in those jurisdictions have found that new investments were not forthcoming unless exemptions/ derogations were provided. The Hackberry decision of the Federal Energy Regulatory Commission, United States (FERC, US) dated 18th December 2002 had done away with common capacity access to LNG terminals, as FERC found that the compliance to common capacity access policy created tremendous uncertainty for LNG project developers.
- (d) In principle, competition is introduced in any market by two legal regimes - sector-specific regulation and general competition law. LNG terminals are devoid of any exclusivity or protection under the Act and regulations thereof. LNG Terminals operate under the market forces with any entity in the country free to establish a LNG terminal unlike pipeline or city gas distribution business which requires specific authorization (license to operate) under the Act and from the regulator. LNG Terminals would anyways be governed by the competition law in India which has similar objectives:
 - To prevent practices having adverse effect on competition
 - To promote and sustain competition in markets
 - To protect the interests of consumers
 - To ensure freedom of trade

4.3. Operational constraints in offering common carrier capacity in an LNG terminal

- (a) By nature of operations, LNG terminals do not operate at uniform capacity throughout i.e. there would be days when the terminal could be operating at full capacity despite being underutilised at an overall level. Unlike a natural gas pipeline, where gas molecules flow on a continuous commingled basis and a portion of pipeline can be earmarked as a common carrier, the capacity in an LNG terminal offered to any consumer:
 - (i) is determined based on the capacity available on a specific day when requested for based on several factors such as berthing slots availability, storage capacity,



vaporisation capacity to name a few. This means that despite having capacity available on an average basis, the terminal could be constrained and operating at 100% capacity on certain days of the month or for certain months of the year. This is based on LNG carriers being slotted or due to its finite vaporisation capability and therefore may not be in a position to offer any spare capacity during such period.

The terminal may not, necessarily, be therefore able to offer any of its short-term uncommitted capacity as common carrier at all times. If such a condition is stipulated the terminal operators will be forced to operate the terminal at a lower capacity resulting in inefficient operations and overall reduced annual capacity utilisation, higher unit charges and lower revenue realisation. The implementation of regulations therefore should not result in lower capacity utilisation, higher unit charges and reduced revenues/ profitability just for the purpose of keeping spare capacity on a common carrier basis.

Therefore, it is in the best interest for interested parties to mutually decide on such third-party access arrangements based on expected arrival of LNG carriers, berthing slots and send-out and offtake obligations.

- (ii) is non-standard due to specific aspects related to LNG carrier size, send-out, offtake arrangements, vaporisation and storage capacity constraints and availability of berthing slots. A detailed explanation to this regard has been provided as *Annexure-2*.

The practical implementation of the above technical points requires more deliberation in how capacity can be made available and is therefore best left for the parties to agree mutually.



Annexure-2: Operational constraints in offering LNG Terminal capacity on a common carrier basis

- (a) We would like to draw the attention of the Board to the fact that there are significant operational challenges in implementing provisions pertaining to offering common carrier capacity at all times. Unlike natural gas pipelines, where gas molecules flow on a continuous, comingled basis and a portion of a pipeline's capacity can be easily earmarked as common carrier capacity, the LNG value chain is significantly more complex comprising several discrete components that need to act in unison to operationalize the whole value chain. At the outset, an LNG regasification terminal receives cryogenic shipments of LNG in the form of discrete cargo lots, which is limited by the marine berthing capacity of the terminal. Thereafter, LNG is unloaded into cryogenic tanks which have a finite storage capacity, which typically tends to be the most significant constraint for any LNG terminal. Next, LNG is vaporized to its gaseous form and there is a finite capacity limit on the vaporization capability of the terminal and finally the capacity limitation of its send-out pipeline which connects an LNG terminal to broader gas pipeline grids in the country.
- (b) Each element of the LNG value chain has its own unique challenges and uncertainty levels associated with it, which ultimately creates ambiguity on the practical definition of available capacity of the LNG terminal at any given time. For instance, due to the long shipping distances from LNG loading ports to a receiving terminal spanning thousands of nautical miles, weather conditions induced delays and frequent adjustments to scheduled arrival windows of LNG carriers are quite common. In the ensuing scenario, with frequent changes to scheduled arrival windows for LNG carriers, it is difficult to offer common carrier access to the LNG terminal as the berthing capacity may be constrained for access.
- (c) More importantly, the access challenge is substantially magnified due to the mismatch in finite storage capacity of the terminal and the need to maintain continuous send-out to create the requisite ullage in the limited storage capacity to accept subsequent cargoes. The send out pattern from a terminal varies significantly in response to fluctuations in demand from end users leading to mismatch between customer's daily offtake requirements and optimum send out required by the terminal. At any given time, an LNG terminal holds different titled stocks of multiple customers, and the offtake pattern of each customer varies according to their respective end-user requirements. Hence, even assuming that there is some spare capacity in vaporization and send-out capability of the LNG terminal at any given time, common carrier access cannot be maintained at all times as the LNG inventory is yet to be cleared out from the storage tanks.
- (d) To make matters more complicated, there are significant variations in LNG carrier sizes. With the advent of Q-Flex and Q-Max ships, the holding capacity of LNG carriers has doubled. These variations in ship sizes creates additional complexities in offering common carrier capacity access to an LNG terminal as scheduling will be difficult, unless done well in advance. Further, at times, with different density levels of LNG sourced from different countries, there is a stringent safety requirement to segregate LNG storage of varying densities in different tanks to prevent a catastrophic LNG inversion risk in a tank even though there may be some spare ullage in that tank at that juncture.
- (e) The above referred inclusive examples, clearly illustrate that, unlike natural gas pipelines, common carrier access principles are not readily applicable to an LNG terminal as the capacity



of the LNG terminal itself is a function of its separate, discrete components across marine berthing limitations, storage limitations and variability in demand from end users, further complicated by various LNG carrier sizes and quality constraints of LNG. LNG terminal operators manage all these complex logistics on a day to basis and are better positioned to offer negotiated access to customers taking into account all the components of the LNG value chain.