



# **THIRD PARTY ACCESS TO LNG TERMINALS**

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**GIIGNL – Commercial Study Group  
Topic 8**

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## Introduction.

This report has been elaborated in the context of the GIIGNL Commercial Study Group (CSG) activities, which include as one of its topics the “Third Party Access to LNG terminals” (Topic 8), led by Enagás.

The 2010 edition is the third update to the report presented during the meeting of the GIIGNL Commercial Study Group in Tokyo, Japan, in September 2007.

- **Section 1** includes a review of the regulatory TPA regimes of LNG terminals in operation in Europe. The existing regime in each country, or for each terminal, is reviewed following a number of subsections. Each subsection follows the same structure in order to better understand the different arrangements and facilitate comparisons.
- **Section 2** shows data on effective usage and TPA access to each LNG terminal since 2000. Three main data are shown where available: number of cargoes delivered, volumes unloaded / sent-out, and the part of these cargoes/volumes that correspond to third parties.
- **Section 3** includes a tariff comparison for TPA to LNG terminals in Europe, taking into account the terms and conditions in force as of July 2010.
- A description of the regulatory situation in the US in **Sections 4**. Access conditions to the three terminals under regulated TPA have been included for the first time: Lake Charles, Cove Point and Elba Island. An overview of Mexico and Canada is also reported.
- An overview of the regulatory situation in Japan is provided in **Section 5**.

The information required for the elaboration of this report has been collected from official websites (LNG operators, regulatory authorities and industry associations), public reports and industry and statistical data Enagás deems to be reliable. For the adoption of certain hypothesis in Section 3 Enagás has also relied in information directly provided by operators.



# **1 Description of existing TPA regimes to LNG terminals in Europe.**

In this section, access rules and conditions established in each country or terminal in the European Union are reviewed. An overview of European regulations and guidelines on TPA to LNG terminals is provided first.

In order to allow for comparisons of the information compiled, the access rules for each country/terminal are provided through a number of subsections which are the same in all cases. These are:

1. General overview.
2. Unbundling requirements.
3. Access rules.
4. Services offered.
5. Capacity allocation procedures.
6. Long term/short term capacity offering requirements.
7. Contracts duration.
8. Programming / Nomination procedures.
9. Congestion management procedures.
10. UIOLI.
11. Method for calculating usable, available and unused capacities.
12. Send-out requirements.
13. Gas quality requirements.
14. Balancing regime/ Management of LNG stock levels.
15. Own consumption record and gas in kind.
16. Charges and/or penalties for imbalance, cancellation and other, including minimum payment obligations.
17. Financial Guarantees.
18. Secondary market.
19. Limitation in vessel size.
20. Force Majeure.
21. Ship Approval Procedure at LNG terminal.
22. Standard contracts.
23. TPA tariffs.
24. Capacity booking procedures.



## 1.1 European regulations and guidelines.

### 1.1.1 Directive 2003/55/CE.

Directive 2003/55/EC<sup>1</sup> of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in natural gas and repealing Directive 98/30/EC established rules for the transmission, distribution, supply and storage of natural gas. This Directive, which was repealed by the Third Gas Directive in 2009 (namely by Directive 2009/73/EC), has been the main legal piece regulating access to LNG terminals at European level since 2003. Member States were obliged to bring into force the laws, regulations and administrative provisions necessary to comply with Directive 2003/55/CE not later than 1 July 2004.

Although Directive 2009/73/EC is, already in force, Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with the Directive by 3 March 2011, and Directive 2003/55/EC is still relevant until that date.

Directive 2009/73/EC laid down the rules relating to the organisation and functioning of the natural gas sector, access to the market, the criteria and procedures applicable to the granting of authorisations for transmission, distribution, supply and storage of natural gas and the operation of systems. These rules for natural gas also applied to liquefied natural gas (LNG).

Hereafter the main articles of Directive 2003/55/EC related to LNG terminals are summarised.

**Article 6**, “Technical rules”, establishes that Member States shall ensure that technical safety criteria are defined and that technical rules establishing the minimum technical design and operational requirements for the connection to the system of LNG facilities, storage facilities, other transmission or distribution systems, and direct lines, are developed and made public. These technical rules shall ensure the interoperability of systems and shall be objective and non-discriminatory.

In **Article 7** the Directive established that Member States shall designate, or shall require natural gas undertakings which own LNG facilities to designate, for a period of time to be determined by Member States, having regard to considerations of efficiency and economic balance, one or more LNG system operators.

According to **Article 8**, each LNG system operator shall:

- a) Operate, maintain and develop under economic conditions secure, reliable and efficient LNG facilities to secure an open market, with due regard to the environment;
- b) refrain from discriminating between system users or classes of system users, particularly in favour of its related undertakings;
- c) provide any other transmission system operator, any other storage system operator, any other LNG system operator and/or any distribution system operator, sufficient information to ensure that the transport and storage of natural gas may take place in a manner compatible with the secure and efficient operation of the interconnected system; and

<sup>1</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:176:0057:0078:EN:PDF>



- d) provide system users with the information they need for efficient access to the system.

Interestingly, the Directive clarifies in **Article 15** that unbundling provisions on transmission and distribution system operators (Articles 9 and 13) “shall not prevent the operation of a combined transmission, LNG, storage and distribution system operator, which is independent in terms of its legal form, organisation and decision making from other activities not relating to transmission LNG, storage and distribution system operations” and which meets certain independency requirements.

LNG operators are also affected by the rules on unbundling of accounts set in **Article 17**, which establish that “Natural gas undertakings shall, in their internal accounting, keep separate accounts for each of their transmission, distribution, LNG and storage activities as they would be required to do if the activities in question were carried out by separate undertakings, with a view to avoiding discrimination, cross-subsidisation and distortion of competition. They shall also keep accounts, which may be consolidated, for other gas activities not relating to transmission, distribution, LNG and storage.”

The default access regime to LNG terminals in Europe was (and remains under the Third Gas Directive) regulated Third Party Access (rTPA), as explained in **Article 18** of Directive 2003/55/EC:

*“Article 18*

*Third party access*

1. *Member States shall ensure the implementation of a system of third party access to the transmission and distribution system, and LNG facilities based on published tariffs, applicable to all eligible customers, including supply undertakings, and applied objectively and without discrimination between system users. Member States shall ensure that these tariffs, or the methodologies underlying their calculation shall be approved prior to their entry into force by a regulatory authority referred to in Article 25(1) and that these tariffs — and the methodologies, where only methodologies are approved — are published prior to their entry into force.*

Article 25(1), establishes that Member States shall designate one or more competent bodies with the function of regulatory authorities, and that these authorities shall be wholly independent of the interests of the gas industry.

However, **Article 22** of Directive 2003/55/EC allowed, under certain conditions, LNG terminals to be exempted from certain provisions of the Directive.

*“Major new gas infrastructures, i.e. interconnectors between Member States, LNG and storage facilities, may, upon request, be exempted from the provisions of Articles 18, 19, 20, and 25(2), (3) and (4) under the following conditions:*

- a) *the investment must enhance competition in gas supply and enhance security of supply;*
- b) *the level of risk attached to the investment is such that the investment would not take place unless an exemption was granted;*



- c) *the infrastructure must be owned by a natural or legal person which is separate at least in terms of its legal form from the system operators in whose systems that infrastructure will be built;*
- d) *charges are levied on users of that infrastructure;*
- e) *the exemption is not detrimental to competition or the effective functioning of the internal gas market, or the efficient functioning of the regulated system to which the infrastructure is connected.”*

The exemption regime has also been retained in the Third Gas Directive.

Although exemptions are granted by national regulatory authorities or Member States, the decision must be notified to the European Commission, without delay, by the competent authority to the Commission, together with all the relevant information with respect to the decision. Within two months after receiving a notification, the Commission may request that the regulatory authority or the Member State concerned amend or withdraw the decision to grant an exemption.<sup>2</sup> In particular, the information shall contain:

- (a) the detailed reasons on the basis of which the regulatory authority, or Member State, granted the exemption, including the financial information justifying the need for the exemption;
- (b) the analysis undertaken of the effect on competition and the effective functioning of the internal gas market resulting from the grant of the exemption;
- (c) the reasons for the time period and the share of the total capacity of the gas infrastructure in question for which the exemption is granted;
- (d) in case the exemption relates to an interconnector, the result of the consultation with the Member States concerned or regulatory authorities;
- (e) the contribution of the infrastructure to the diversification of gas supply.

Under Directive 98/30/EC of the European Parliament and of the Council of 22 June of 1998 concerning common rules for the internal market in natural gas, both negotiated and regulated third party access to LNG terminals was allowed, as stated in articles 14, 15 and 16. Directive 98/30/EC was repealed by Directive 2003/55/EC where only regulated third party access is allowed if an exemption is not granted.

The tables below show existing and planned terminals in the European Union under regulated TPA, and the exemptions already granted to LNG terminals.

<sup>2</sup> The two month period may be extended by one additional month where additional information is sought by the Commission.



Table 1: LNG terminals in the EU subject to regulated TPA.

LNG Terminal	Country	Status
Zeebrugge LNG Terminal	Belgium	In operation (since 1987)
Montoir de Bretagne LNG Terminal	France	In operation (since 1980)
Fos Tonkin LNG Terminal	France	In operation (since 1972)
Panigaglia LNG Terminal	Italy	In operation (since 1971)
Revithoussa LNG Terminal	Greece	In operation (since 2000)
Sines LNG Terminal	Portugal	In operation (since 2003)
Barcelona LNG Terminal	Spain	In operation (since 1968)
Huelva LNG Terminal	Spain	In operation (since 1988)
Cartagena LNG Terminal	Spain	In operation (since 1989)
Bilbao LNG Terminal	Spain	In operation (since 2003)
Sagunto LNG Terminal	Spain	In operation (since 2006)
Mugardos LNG Terminal	Spain	In operation (since 2007)
North Adriatic LNG Terminal <i>Only 20% of capacity subject to rTPA</i>	Italy	In operation (since 2009)
Fos Cavaou LNG Terminal	France	In operation (since 2010)
El Musel LNG Terminal	Spain	Under construction (est. 2011)
Arinaga LNG Terminal	Spain	Planned (est. 2013)
Arico-Granadilla LNG Terminal	Spain	Planned (est. 2012)

Source: GLE's LNG map, June 2010<sup>3</sup> and self-made.

<sup>3</sup> GLE's LNG Map is available at [http://www.gie.eu.com/maps\\_data/lng.html](http://www.gie.eu.com/maps_data/lng.html)



**Table 2: Exemptions granted to LNG terminals in the EU under Article 22 of Directive 2003/55/CE.**

LNG Terminal	Country	Notification <sup>4</sup>	Status
Shannon LNG	Ireland	27 April 2010	Planned
Dunkerque LNG	France	22 October 2009	Planned (est. 2014)
Livorno LNG Terminal	Italy	11 September 2009	Under construction (est. 2011)
Eemshaven LNG Terminal	Netherlands	23 July 2007 & 19 February 2009	Cancelled <sup>5</sup>
Liongas Rotterdam	Netherlands	18 July 2007	Cancelled <sup>6</sup>
Grain LNG Terminal (expansion – phase 3)	UK	4 May 2007	Under construction (est. winter 2010/2011)
Gate Terminal Rotterdam	Netherlands	23 November 2006	Under construction (est. 2011)
Brindisi LNG Terminal	Italy	18 April 2005	Planned
Dragon LNG Terminal	UK	3 February 2005	In operation (since 2009)
North Adriatic LNG Terminal <i>80% of capacity exempted</i>	Italy	3 December 2004	In operation (since 2009)
South Hook LNG Terminal	UK	1 December 2004	In operation (since 2009)
Grain LNG Terminal	UK	1 December 2004	In operation (2005)

**Source:** European Commission<sup>7</sup> and GLE's LNG map, June 2010.

### 1.1.2 Third Energy Package.

The Third Energy Package was approved in the Official Journal of the European Union by the European Parliament and by the Council on 13 July 2009. As regards the natural gas sector, the Third Energy Package contains the following legal documents:

<sup>4</sup> Notification of the exemption decision to the European Commission by the National Regulatory Authority.

<sup>5</sup> On 1<sup>st</sup> September 2010, Essent, Gasunie and Vopak announced that they will not go ahead with the construction of the terminal. See <http://www.bloomberg.com/news/2010-09-01/essent-vopak-cancel-eemshaven-lng-terminal-project-update1-.html>

<sup>6</sup> 4Gas BV and the Port of Rotterdam announce on Liongas site they have decided to end the LionGas project with immediate effect. See <http://www.liongas.nl/?id=20&LANG=EN>

<sup>7</sup> [http://ec.europa.eu/energy/infrastructure/infrastructure/gas/gas\\_exemptions\\_en.htm](http://ec.europa.eu/energy/infrastructure/infrastructure/gas/gas_exemptions_en.htm)





- the gas directive (Directive 2009/73/EC concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC),<sup>8</sup>
- the gas regulation (Regulation (EC) No 715/2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005)<sup>9</sup> and
- the agency regulation (Regulation 713/2009 establishing an Agency for the Cooperation of Energy Regulators)<sup>10</sup>.

### 1.1.2.1 Directive 2009/73/EC

According to Directive 2009/73/EC, already in force, Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with the Directive by 3 March 2011. They shall apply those measures from 3 March 2011 with the exception of Article 11 (Certification in relation to third countries), which they shall apply from 3 March 2013.

As regards specific provisions on LNG, the Third Gas Directive is in line with the Second Directive. Most of new provisions related to LNG have been introduced in Regulation (EC) No 715/2009, since the previous regulation did not deal with LNG. The Third Directive, however, strengthens the role and independence of NRAs, which may have an impact on who is responsible for developing regulations concerning LNG in each Member State.

**Article 8**, “Technical rules”, includes the same provisions as former Article 6 of Directive 2003/55/EC, recognizing the potential role of regulatory authorities where Member States have so provided, and the role of the Agency on making appropriate recommendations towards achieving compatibility of technical rules, where appropriate.

**Article 12**, “Designation of storage and LNG system operators”, introduces for natural gas undertakings which own LNG facilities the same requirement previously established in Article 7 of Directive 2003/55/EC:

**Article 13**, “Tasks of transmission, storage and/or LNG system operators”, establishes the same four requirements as former Article 8 of Directive 2003/55/EC (from (a) to (d)) for LNG operators, with an addition referred to service obligations at the end of the first requirement:

*“a) operate, maintain and develop under economic conditions secure, reliable and efficient LNG facilities to secure an open market, with due regard to the environment, ensure adequate means to meet service obligations;*”

**Article 29** maintains the clarification formerly contained in Article 15 of Directive 2003/55/EC, which states that unbundling provisions on distribution system operators (Article 26(1)) “shall not prevent the operation of a combined transmission, LNG, storage and distribution system operator”, under certain independency requirements

<sup>8</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0094:0136:EN:PDF>

<sup>9</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0036:0054:EN:PDF>

<sup>10</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:211:0001:0014:EN:PDF>



**Article 31**, referred to “Unbundling of accounts”, maintains the same provisions for LNG operators as Article 17 of Directive 2003/55/EC.

**Article 32**, “Third-party access”, maintains rTPA as the default access regime to LNG terminals in Europe. As in Article 18 of Directive 2003/55/EC, it is established that Member States shall ensure the implementation of a system of third party access to LNG facilities based on published tariffs, applicable to all eligible customers, including supply undertakings, and applied objectively and without discrimination between system users. It is also maintained that Member States shall ensure that these tariffs, or the methodologies underlying their calculation are approved prior to their entry into force by a regulatory authority, and that those tariffs — and the methodologies, where only methodologies are approved — are published prior to their entry into force.

While Article 32 roughly maintains the wording of Article 18 of Directive 2003/55/EC, the new article makes reference to Article 39(1), by which each Member State shall designate a single national regulatory authority at national level (Article 25 of Directive 2003/55/EC allowed for the designation of one or more competent bodies with the function of regulatory authorities), and to “Article 41, “Duties and powers of the regulatory authority”. It is clarified that the single regulatory authority referred to in article 39(1) is responsible for the cited approval of tariffs or the methodology underlying their calculation. Its duties are contained in Article 41 (which substitutes part of Article 25 of Directive 2003/55/EC).

It is clear that under the new legislation all missions and duties listed in the Gas Directives and Regulations (and also in the Electricity Directives and Regulations) have to be attributed to a single regulatory authority at national level. According to the European Commission’s Draft Interpretative Note on Directive 2009/72/EC and on Directive 2009/73/EC, regarding “the regulatory authorities”:<sup>11</sup>

*“the NRA can no longer be part of a Ministry. The European Commission’s services are of the opinion that e.g. sharing personnel, sharing offices between the NRA and any other (public or private) body is, in principle, not in line with Article 35.4, a) Electricity Directive and Article 39.4, a) Gas Directive. This does, however, not prevent a Member State from integrating the NRA into other structures (such as the competition authority or sectoral regulators others than the energy regulator), as long as these other structures are also legally distinct and functionally independent from any other public or private entity.”*

The Interpretative Note clarifies that provisions on independence of the NRA in Article 39.4 are key because they are aimed at ensuring that regulatory decisions are removed from political and specific economic interests which is necessary to create a stable and predictable investment climate. Article 39.4 establishes, among other guarantees, that *Member States shall ensure that, when carrying out the regulatory tasks conferred upon it by this Directive and related legislation, the regulatory authority ensures that its staff and the persons responsible for its management:*

*(i) act independently from any market interest;*

<sup>11</sup> The “Draft Interpretative Note on Directive 2009/72/EC concerning common rules for the internal market in electricity and on Directive 2009/73/EC, concerning common rules for the internal market natural gas”, regarding “The Regulatory Authorities”, is under consultation among stakeholders. The final Interpretative Note is expected in the coming months.

Interpretative Notes by the European Commission are not legally binding, but are intended to shed light on the Commission staff’s understanding of how the provisions of the Electricity and Gas Directives are to be understood. In any event, giving binding interpretation of Community law is ultimately the role of the European Court of Justice.



*(ii) and do not seek or take direct instructions from any government or other public or private entity when carrying out the regulatory tasks. This requirement is without prejudice to close cooperation, as appropriate, with other relevant national authorities or to general policy guidelines issued by the government not related to the regulatory powers and duties.*

Finally, **Article 36**, “New infrastructure”, regulated the exemption procedure formerly regulated by Article 22 of Directive 2003/55/EC. Article 36 maintains the five exemption criteria contained in the Second Directive, while detailing the new role that the Agency will play in the procedure when the infrastructure in question is located in the territory of more than one Member State. Moreover, exemptions can only be granted by regulatory authorities, and not by Member States, as allowed under the Second Directive.

A new element of the procedure is that it is established that, *before granting an exemption, the regulatory authority shall decide upon the rules and mechanisms for management and allocation of capacity.* In particular, the Directive indicates that *the rules shall require that all potential users of the infrastructure are invited to indicate their interest in contracting capacity before capacity allocation in the new infrastructure, including for own use, takes place. The regulatory authority shall require congestion management rules to include the obligation to offer unused capacity on the market, and shall require users of the infrastructure to be entitled to trade their contracted capacities on the secondary market.*

As regards the role of the European Commission in the exemption decision, and the information that must be submitted to it by regulatory authorities, the conditions remain fundamentally unchanged, although some periods have been slightly modified.

Another new provision is that the Commission’s approval of an exemption decision shall lose its effect two years from its adoption in the event that construction of the infrastructure has not yet started, and five years from its adoption in the event that the infrastructure has not become operational unless the Commission decides that any delay is due to major obstacles beyond control of the person to whom the exemption has been granted.

### **1.1.2.2 Regulation (EC) No 715/2009**

Regulation (EC) No 1775/2005 did only deal with natural gas transmission. However, Regulation (EC) No 715/2009 widened its scope to include LNG (and storage) facilities. The Regulation shall apply from 3 March 2011.<sup>12</sup>

The European Commission, in the explanatory memorandum<sup>13</sup> of Regulation (EC) No 715/2009, explains that:

*“The role of LNG in the supply of gas to the European Union is becoming ever more important, and a lot of investment in LNG terminals is planned or under way. For that reason, transparent rules on access to LNG terminals are needed. Regulators have identified the need, and ERGEG has prepared guidelines with a goal create a common approach to third party access for LNG terminals.*

<sup>12</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:229:0029:0029:EN:PDF>

<sup>13</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0532:FIN:EN:PDF>



*Although many LNG terminals constructed have used the possibilities to be exempted from third party access and regulatory intervention under Article 22 of the Directive, there are also LNG terminals for which third party access rules apply. Since the current Directive [Directive 2003/55/EC] only imposes a general requirement that access has to be regulated, this leaves room to diverging interpretations among Member States. Moreover, an exemption under Article 22 is always temporary, and when the exempted period has passed, LNG terminals will become regulated.*

*Therefore the Commission proposes to impose more clearly defined third party access rules to LNG terminals. To make the guidelines legally binding, the Regulation will be extended to define how LNG terminal operators should offer third party access services and how they should allocate capacity and manage congestion. It will also define the transparency requirements and propose measures to enable a secondary market in terminal-capacity to develop. These rules shall also serve to ensure consistency with the proposed minimum requirements on exempted infrastructure."*

According to the Regulation itself,

*"Access to gas storage facilities and liquefied natural gas (LNG) facilities is insufficient in some Member States, and therefore the implementation of the existing rules needs to be improved."*

The Regulation includes three articles of particular relevance for LNG on services, capacity allocation mechanisms and congestion management procedures, and transparency:

**Article 15**, "Third-party access services concerning storage and LNG facilities", states the conditions that LNG system operators must fulfill regarding TPA services:

*"1. LNG and storage system operators shall:*

- (a) offer services on a non-discriminatory basis to all network users that accommodate market demand; in particular, where an LNG or storage system operator offers the same service to different customers, it shall do so under equivalent contractual terms and conditions;*
- (b) offer services that are compatible with the use of the interconnected gas transport systems and facilitate access through cooperation with the transmission system operator; and*
- (c) make relevant information public, in particular data on the use and availability of services, in a time-frame compatible with the LNG or storage facility users' reasonable commercial needs, subject to the monitoring of such publication by the national regulatory authority.*

*[...]*

*3. LNG and storage facility contracts shall not result in arbitrarily higher tariffs in cases in which they are signed:*

- (a) outside a natural gas year with non-standard start dates; or*



(b) *with a shorter duration than a standard LNG and storage facility contract on an annual basis.*

4. *Where appropriate, third-party access services may be granted subject to appropriate guarantees from network users with respect to the creditworthiness of such users. Such guarantees shall not constitute undue market-entry barriers and shall be non-discriminatory, transparent and proportionate.*

5. *Contractual limits on the required minimum size of LNG facility capacity and storage capacity shall be justified on the basis of technical constraints and shall permit smaller storage users to gain access to storage services.”*

**Article 17** underlines the principles of capacity allocation mechanisms and congestion management procedures concerning LNG facilities.

*“1. The maximum storage and LNG facility capacity shall be made available to market participants, taking into account system integrity and operation.*

*2. LNG and storage system operators shall implement and publish non-discriminatory and transparent capacity-allocation mechanisms which shall:*

- (a) provide appropriate economic signals for the efficient and maximum use of capacity and facilitate investment in new infrastructure;*
- (b) be compatible with the market mechanism including spot markets and trading hubs, while being flexible and capable of adapting to evolving market circumstances; and*
- (c) be compatible with the connected network access systems.*

*3. LNG and storage facility contracts shall include measures to prevent capacity-hoarding, by taking into account the following principles, which shall apply in cases of contractual congestion:*

- (a) the system operator must offer unused LNG facility and storage capacity on the primary market without delay; for storage facilities this must be at least on a day-ahead and interruptible basis;*
- (b) LNG and storage facility users who wish to re-sell their contracted capacity on the secondary market must be entitled to do so.”*

**Article 19** intends to promote transparency among LNG facilities.

*“1. LNG and storage system operators shall make public detailed information regarding the services it offers and the relevant conditions applied, together with the technical information necessary for LNG and storage facility users to gain effective access to the LNG and storage facilities.*

*2. For the services provided, LNG and storage system operators shall make public information on contracted and available storage and LNG facility capacities on a numerical basis on a regular and rolling basis and in a user-friendly standardised manner.*



3. LNG and storage system operators shall always disclose the information required by this Regulation in a meaningful, quantifiably clear and easily accessible way and on a non-discriminatory basis.

4. LNG and storage system operators shall make public the amount of gas in each storage or LNG facility, or group of storage facilities if that corresponds to the way in which the access is offered to system users, inflows and outflows, and the available storage and LNG facility capacities, including for those facilities exempted from third-party access. That information shall also be communicated to the transmission system operator, which shall make it public on an aggregated level per system or subsystem defined by the relevant points. The information shall be updated at least daily.

5. In order to ensure transparent, objective and non-discriminatory tariffs and facilitate efficient utilisation of the infrastructures, the LNG and storage facility operators or relevant regulatory authorities shall make public sufficiently detailed information on tariff derivation, the methodologies and the structure of tariffs for infrastructure under regulated third-party access.”

Notably, **Article 19(4)** of Regulation (EC) No 715/2009 is also applicable to LNG terminals exempted under Article 36 of Directive 2009/73/EC (Article 22 of Directive 2003/55/EC).

LNG system operators are also explicitly affected by Article 20 on “Record keeping by systems operators” and **Article 22** on “Trading of capacity rights”. The latter is relevant for the well-functioning of secondary capacity markets:

*“Each transmission, storage and LNG system operator shall take reasonable steps to allow capacity rights to be freely tradable and to facilitate such trade in a transparent and non-discriminatory manner. Every such operator shall develop harmonised transport, LNG facility and storage contracts and procedures on the primary market to facilitate secondary trade of capacity and shall recognise the transfer of primary capacity rights where notified by system users.*

*The harmonised transport, LNG facility and storage contracts and procedures shall be notified to the regulatory authorities.”*

### **1.1.3 ERGEG's Guidelines for Good Third Party Access Practice for LNG System Operators (GGPLNG).**

#### **1.1.3.1 ERGEG/CEER.**

The Council of European Energy Regulators (CEER) and the European Regulators' Group for Electricity and Gas (ERGEG) are two organisations established for the cooperation of the independent energy regulators of Europe. Both organisations pursue the same overall aim of facilitating the creation of a single, competitive, efficient and sustainable internal market for gas and electricity in Europe.

CEER and the ERGEG share similar objectives and the work and achievements of the CEER and ERGEG are intrinsically linked. Yet there is one main difference in the role of the organisations in relation to the EU and the other stakeholders of the energy sector in Europe. Cooperation in the framework of the CEER is based on a voluntary agreement among the regulators themselves, while





ERGEG was founded by the European Commission in 2003 as its official advisory group on energy issues.

ERGEG was set up by the European Commission (Decision of November 11, 2003 2003/796/EC)<sup>14</sup> as its advisory body on internal energy market issues. It is made up of the national energy regulatory authorities of the EU's Member States. Its purpose is to facilitate a consistent application, in all Member States, of the provisions set out in Directive 2003/54/EC, Directive 2003/55/EC and Regulation (EC) No 1228/2003, as well as of possible future Community legislation in the field of electricity and gas.

ERGEG advises and assists the Commission on its own initiative or upon request, in particular with respect to the preparation of draft implementing measures in the field of electricity and gas. For example, ERGEG provided significant input to the European Commission in the preparation of its third energy liberalisation legislative package.

In advising the Commission, ERGEG is required to consult stakeholders and to do so at an early stage. ERGEG is committed to best regulatory practice in terms of conducting its public consultations and engaging with stakeholders. ERGEG's established public consultation practices are based on four guiding principles: openness, transparency, consistency and accountability. ERGEG's written consultations are used in conjunction with public hearings and the European electricity (Florence) and gas regulatory (Madrid) fora.

### 1.1.3.2 GGPLNG.

In the context of ERGEG's Gas Focus Group Work Programme for 2007, CEER/ERGEG, as part of their Work Programme announced that ERGEG's Liquefied Natural Gas Task Force would deliver *"Guidelines for Good Practice on TPA to LNG facilities (GGPLNG) including an impact assessment of the proposal covering why the proposal is necessary; what are the advantages and disadvantages including the option of not taking any further measures"*.

The GGPLNG were published in May 2008<sup>15</sup>. Previously, a consultation process among stakeholders took place between 2007 and 2008 in order to develop the guidelines.<sup>16</sup>

The main objective of the GGPLNG is to establish common rules to guarantee transparent, non-discriminatory and appropriately homogeneous TPA to LNG regasification facilities in the European

<sup>14</sup> [http://www.energy-regulators.eu/portal/page/portal/EER\\_HOME/EER\\_PUBLICATIONS/CEER\\_ERGEG\\_PAPERS/Founding%20Document%20and%20Rules/Founding%20Documents/ERGEGdecision\\_11-11-03.pdf](http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_ERGEG_PAPERS/Founding%20Document%20and%20Rules/Founding%20Documents/ERGEGdecision_11-11-03.pdf)

<sup>15</sup> [http://www.energy-regulators.eu/portal/page/portal/EER\\_HOME/EER\\_CONSULT/CLOSED%20PUBLIC%20CONSULTATIONS/GAS/GGPLNG/CD/E08-LNG-06-03\\_GGPLNG\\_conclusions\\_7-May-08v2.pdf](http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_CONSULT/CLOSED%20PUBLIC%20CONSULTATIONS/GAS/GGPLNG/CD/E08-LNG-06-03_GGPLNG_conclusions_7-May-08v2.pdf)

<sup>16</sup> On 13<sup>th</sup> December 2007, ERGEG launched a public consultation on its Draft Guidelines of Good TPA Practice for LNG System Operators (GGPLNG). The consultation closed on 23<sup>rd</sup> January 2008. 19 responses were received from 18 stakeholders, 4 of which were confidential. All non-confidential responses were published on the ERGEG website as well as a document summarizing the main views of the stakeholders' responses.

[http://www.energy-regulators.eu/portal/page/portal/EER\\_HOME/EER\\_CONSULT/CLOSED%20PUBLIC%20CONSULTATIONS/GAS/GGPLNG/CD/E08-LNG-06-02\\_GGPLNG\\_EoC\\_7-May-08\\_0.pdf](http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_CONSULT/CLOSED%20PUBLIC%20CONSULTATIONS/GAS/GGPLNG/CD/E08-LNG-06-02_GGPLNG_EoC_7-May-08_0.pdf)



Union. ERGEG clarified that the GGPLNG should only be applied on a voluntary basis to regulated TPA LNG facilities, in accordance with Article 18 of the European Directive 2003/55/EC.

ERGEG also clarified that the GGPLNG did not go beyond the Directive 2003/55/EC in creating or restricting TPA rights, but that the GGPLNG were intended as possible input from ERGEG for an amendment to Regulation 1775/2005 and its annexes. Before the approval of the modification of the Regulation, the GGPLNG could serve as non-binding guidelines. Since the GGPLNG were developed before the Third Package had been adopted, some of its voluntary guidelines are now contained in the Third Package as binding regulation.

The ERGEG conclusions Paper on Guidelines on Good Practice on TPA for LNG System Operators addresses:

- the basic principles for access tariffs
- the role and duties of LSOs in providing TPA services, as well as other conditions and requirements to assure proper TPA services
- the principles underlying the capacity allocation and congestion management procedures
- transparency requirements; and
- trading of capacity rights.

#### **1.1.3.3 Tariffs.**

The GGPLNG establish general principles regarding tariff's structure and methodologies used to calculate them. TPA tariffs should:

- Be transparent and cost-reflective
- Incentivise the efficient use of the facilities
- Include appropriate return on investments
- Applied in a non-discriminatory way

Tariff structures will be reviewed when necessary, striking a balance between effective reflectivity of costs and the need for market stability.

Besides, costs associated with gas quality adjustments will be paid by users requiring the service.

#### **1.1.3.4 TPA services.**

##### *Roles and responsibilities.*

The GGPLNG outlines the main LSOs' responsibilities regarding operation, maintenance, offering available capacity and services according to market demand, cooperation with connected operators, transparency and communication tools.





On the other hand, LNG terminal users should collaborate with the related LSO. To this end, terminal users should:

- provide all the relevant information required to carry out its duties,
- comply with the gas quality specifications,
- refrain from distorting or preventing competition on the LNG, gas or capacity markets, and
- put in place the relevant IT communication tools

In order to ensure that LSOs and terminals users respect their contractual obligations, penalties may be in place. Nevertheless, penalties shall neither hamper the entry of new participants, nor distort the market.

#### Necessary TPA services.

Not only shall LSOs offer firm standard bundled LNG services, but also LSOs shall consider the possibility to offer other types of services, such as: unbundled services, short-term services or interruptible services.

The services offered by LSOs as well as the terminal code shall be developed after proper consultation with the LNG terminal users and other market participants, and supervised by NRAs. Besides, the terminal code should take into account the technical features, the economically efficient use of the LNG terminal, the market environment and the national regulation in place.

#### Additional requirements to assure proper TPA services.

LSOs shall cooperate with interconnected system operators to assure interoperability between systems and to minimized any disruption of services to system users and in order to ensure equal benefits with respect to security of supply.

Besides, LSOs should ensure that all confidential information remains confidential.

LSOs shall publicize scheduling procedures.

#### **1.1.3.5 Capacity allocation (CAM) and congestion management procedures (CMP).**

The method to calculate available capacity shall be transparent, published on the LSO's website and be approved by the competent NRA.

In calculating the available capacities, the maximum LNG facility capacity shall be made available to market participants, taking into account system and operation integrity, security of supply standards and constraints imposed by the downstream network.

The principles on CAM and CMP will:

- facilitate competition and liquidity,



- be flexible and capable of adapting to market circumstances,
- neither hamper the entry of new market participants nor create undue barriers to market entry,
- provide appropriate signals for efficient and maximum use of capacity to foster investment in new infrastructure, and
- be non-discriminatory and transparent.

#### Congestion management procedures.

The procedures established by the LSO to make available unused capacity will never prevent, but instead encourage the capacity holder to offer his unused capacity on the secondary market at a reasonable price.

Whenever the initial holder of a capacity is considered no longer able to use it, has not released the capacity itself and there is contractual congestion, the LSO shall offer the corresponding capacity to the market as firm capacity.

Unused capacity will be made available to the primary market on a short-term basis, if the contracted capacity goes unused and no short-term capacity is available:

- when the holder of the capacity does not use a particular unloading window, another terminal user could do it. Notice period to be defined in consultation with the market
- when it deals with a particular standard bundled LNG service, it will be offered first as firm capacity

Once capacity is transferred, the initial holder no longer pays for it.

Transparent, non-discriminatory national procedures will be established in order to release systematic underutilized capacity. These procedures will describe the respective roles of the LSO, the NRA or any authority with regard to:

- the roles of the agents regarding the procedure;
- the criteria to evaluate if there actually is underutilized capacity;
- the capacity to be released; and
- the appeal procedure.

#### **1.1.3.6 Transparency requirements.**

LNG system operators shall always disclose the information required in a meaningful, quantifiable and easily accessible way on a non-discriminatory basis.

The information shall be published in a user-friendly, standardised manner, updated on a timely basis and, when possible, in English.



The following operational information shall be published:

- Service definitions, rights and responsibilities
- Existing and future LNG capacity: starting date for new capacity
- Contracted and available LNG facility capacity including ST available capacity
- Updated maintenance plans

Besides, commercial information shall be published:

- Tariff and tariff methodologies
- Standard service contracts

#### **1.1.3.7 Trading of capacity rights.**

The GGPLNG promote the creation of a secondary capacity market. The LSO shall assure equal treatment to the capacity acquired on the secondary market.

When services to facilitate secondary capacity markets are put in place, they will be cost-reflective.

#### ***1.1.4 Monitoring activities by ERGEG/CEER.***

ERGEG has adopted an active role in monitoring the implementation and compliance with the requirements for LNG terminals established in the GGPLNG in 2008, and ERGEG/CEER (or ACER in the future) are likely to extend this monitoring and compliance analysis of LNG regulations to the Third Package.<sup>17</sup>

At the XV Madrid Forum<sup>18</sup>, the European Commission approached ERGEG with a request to monitor the degree of implementation and compliance with the GGPLNG. ERGEG carried out in

<sup>17</sup> As regards underground storage activities, ERGEG launched on 28 July 2010 a Public consultation to enhance GGPSSO taking into account the new requirements in the Third Package on CAM and CMP.

ERGEG: "Assessment of Capacity Allocation Mechanisms and Congestion Management Procedures for effective Access to Storage and Proposals for the Amendment of the GGPSSO. An ERGEG Public Consultation Paper" Ref: E10-GST-09-06, 28 July 2010.

[http://www.energy-regulators.eu/portal/page/portal/EER\\_HOME/EER\\_CONSULT/OPEN%20PUBLIC%20CONSULTATIONS/CAM%20and%20CMP%20for%20effective%20access%20to%20storage/BG](http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_CONSULT/OPEN%20PUBLIC%20CONSULTATIONS/CAM%20and%20CMP%20for%20effective%20access%20to%20storage/BG)

<sup>18</sup> The European Gas Regulatory Forum, or Madrid Forum, was set up to discuss issues regarding the creation of a true internal gas market. It is currently addressing cross-border trade of gas, in particular the tariffication of cross-border gas exchanges, the allocation and management of scarce interconnection capacity and other technical and commercial barriers to the creation of a fully operational internal gas market.

The participants include national regulatory authorities, Member State governments, the European Commission, transmission system operators, gas suppliers and traders, consumers, network users, and gas exchanges. Since 1999 the Forum meets once or twice a year in Madrid and is co-hosted by the "Fundación de Estudios de Regulación". For further information see:



2009 a monitoring exercise of the GGPLNG.<sup>19</sup> ERGEG's monitoring exercise therefore covered LSOs, System users and NRAs. The aim was to assess the degree of implementation and hence compliance with the requirements outlined in the GGPLNG, to identify benefits and failures, as well as users' requests and main trends in the market, to obtain clear conclusions and recommendations for how the potential difficulties in LNG regimes could be reduced and access improved.

ERGEG developed three online questionnaires, seeking views from National Regulatory Authorities (NRAs), LNG System Operators (LSOs) and LNG facility users (users) on how the GGPLNG have been implemented. ERGEG considered that since all of them were actively participating in the LNG market, they could provide the best insight as to whether and how the GGPLNG had been implemented or whether there were aspects of the GGPLNG which had been avoided. ERGEG highlighted that the regulation to be implemented was intended to reflect the necessities of all system actors, guaranteeing a cooperative and well balanced market framework.

The overall result of the monitoring was satisfying, in particular when compared with previous GGP monitoring exercises for other basic infrastructures, although ERGEG showed some concerns on the representativity of the results for certain areas due to the low number of responses. Before publishing the full report, the main outcome of the GGPLNG monitoring was presented at the XVI Madrid Forum on 28<sup>th</sup> May 2009<sup>20</sup>, highlighting the recommendations below:

- Users favour greater standardisation, wider services provision and hence, implementation of general practices at the European level
- A degree of improvement is necessary regarding tariff structures, certain service provision, CAM/CMP definition and anti-hoarding principles
- Secondary markets must be fostered for the dynamic and competitive growth of the market, responding to the most common users' complaint
- Rules to avoid congestion problems and the mechanisms to manage them must be settled under consensus-building, taking into account market's preferences
- More time would be beneficial in order to allow NRAs and LSOs the full implementation of GGPLNG provisions in their systems
- In some markets the number of users is still low, so new surveys should be undertaken in the future, once market develops

[http://ec.europa.eu/energy/gas\\_electricity/forum\\_gas\\_madrid\\_en.htm](http://ec.europa.eu/energy/gas_electricity/forum_gas_madrid_en.htm)

<sup>19</sup> ERGEG: "Monitoring the implementation of the ERGEG Guidelines of Good TPA Practice for Liquefied Natural Gas System Operators (GGPLNG)", Ref: E09-LNG-07-03, 3 June 2009. Full report available at: [http://www.energy-regulators.eu/portal/page/portal/EER\\_HOME/EER\\_PUBLICATIONS/CEER\\_ERGEG\\_PAPERS/Gas/2009/E09-LNG-07-03\\_GGP%20LNG%20Monitoring\\_03-June-09\\_0.pdf](http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_ERGEG_PAPERS/Gas/2009/E09-LNG-07-03_GGP%20LNG%20Monitoring_03-June-09_0.pdf)

<sup>20</sup> [http://www.energy-regulators.eu/portal/page/portal/EER\\_HOME/EER\\_WORKSHOP/Stakeholder%20Fora/Madrid%20Fora/16supthsup%20Madrid%20Forum/ERGEG\\_GGPLNG-monitoring\\_v2.ppt](http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_WORKSHOP/Stakeholder%20Fora/Madrid%20Fora/16supthsup%20Madrid%20Forum/ERGEG_GGPLNG-monitoring_v2.ppt)



As a result of the previous report, and after a workshop organised by GLE in April 09, and a meeting with the Commission, GLE, EFET and Eurogas in July 09, ERGEG committed to do a specific study on CMP and anti-hoarding.

In the 17<sup>th</sup> Madrid Forum (January 2010), ERGEG presented the preliminary results of the study on CMP and anti-hoarding.<sup>21</sup> ERGEG already announced in January 2010, at the Madrid Forum, that a second step would consist on developing CMP and anti-hoarding guidelines leading to a higher availability of capacity for spot/short notice cargoes, and that in order to produce such guidelines, a public consultation and a workshop would be celebrated.

The initiative somehow lost momentum during 2010, and the publication of the final study, including conclusions, was delayed until November 2010;<sup>22</sup> however, recommendations will be drafted later in 2011. As regards the way forward the study indicates that:

“ERGEG future work in 2010 and 2011 is to be developed taking into consideration the conclusions of this study addressed to European level. They should serve as a basis for further analysis on how these problems are influencing each national or regional market preventing the single European market. Final decision on the way forward needs to be taken once the document had been submitted for a public survey and the recommendations had been drafted.”.

After the publication in November 2010, a survey among LNG terminal users and potential users in Europe was launched by ERGEG aimed at collecting information on their situation in the different markets, sounding their conditions for accessing firm and spot LNG capacity and their experience with the antihoarding mechanisms in the European terminals. According to ERGEG, the responses collected will serve to complete the study and reach conclusions that would assist to define more efficient and more transparent CMPs and promote the potential development of guidelines on best-practice approaches for CMPs in LNG terminals.

Hereafter the main ERGEG's conclusions of the GGPLNG monitoring report presented in May 2009, and the conclusions of the study on CMP and anti-hoarding, are outlined.

#### **1.1.4.1 ERGEG's conclusions of the GGPLNG monitoring report presented in May 2009.**

##### **1.1.4.1.1 Tariffs.**

While NRAs are generally satisfied with the degree of compliance with GGPLNG on tariffs, users believe that there is room for improvement. The areas to be improved are:

<sup>21</sup> [http://www.energy-regulators.eu/portal/page/portal/EER\\_HOME/EER\\_WORKSHOP/Stakeholder%20Fora/Madrid%20Fora/17supthsup%20Madrid%20Forum/MFO-17\\_LNG\\_CAM-CMP\\_100112.pdf](http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_WORKSHOP/Stakeholder%20Fora/Madrid%20Fora/17supthsup%20Madrid%20Forum/MFO-17_LNG_CAM-CMP_100112.pdf)

<sup>22</sup> “ERGEG study on congestion management procedures & antihoarding mechanisms in the European LNG terminals”, E10-LNG-11-03, 15 November 2010”. Available at:  
[http://www.energy-regulators.eu/portal/page/portal/EER\\_HOME/EER\\_PUBLICATIONS/CEER\\_ERGEG\\_PAPERS/Gas/2010/E09-LNG-11-03\\_CMP%20in%20LNG\\_final%2016.11.2010.pdf](http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_ERGEG_PAPERS/Gas/2010/E09-LNG-11-03_CMP%20in%20LNG_final%2016.11.2010.pdf)



- Transparency in tariff methodology
- Cost-reflectivity
- Efficient tariff incentivising terminal utilisation
- Management of congestion revenues.

#### 1.1.4.1.2 TPA services.

There is a high degree of harmonisation and transparency when defining bundled services. Ship reception and unloading, LNG storage and regasification capacity is included in the bundled service.

On the other hand, interruptible services are not being offered in most of the LNG terminals.

The areas to be improved are

- To include rules for secondary capacity markets
- Better definition of CMPs
- Tolerance levels of services and imbalances
- Liabilities
- More visibility regarding the available slots

#### 1.1.4.1.3 Capacity allocation and congestion management procedures.

The monitoring survey reflects that different mechanisms are applied in different terminals. Besides, opinions differ among stakeholders, not only on their understanding of the current type of mechanism, but also on the opportunity for developing new ones.

Users claim that market consultation is not used broadly when designing CAM and CMP, consequently CAM and COM are not market-based in many cases.

The areas to be improved are:

- Effective, simple and consistent CAM and CMP
- Information provided on how mechanisms in place work
- CAM and CMP compatible with liquid trading and spot markets
- Clear definition of underused and systematically underutilised capacity

#### 1.1.4.1.4 Transparency requirements.



User's opinions concerning effective publication of transparency criteria, services offer, used and available capacities, tariffs, etc. indicate global recognition of an adequate transparency level regarding GGPLNG provisions.

The areas to be improved are:

- The availability of slots
- Penalties
- Accessibility of information in English

#### 1.1.4.1.5 Trading of capacity rights.

According to NRAs, only three of the monitored countries have established operative secondary markets.

ERGEG states that:

*“Secondary markets must be fostered for the dynamic and competitive growth of the market, responding to the most common users’ complaint.”*

#### 1.1.4.2 ERGEG’s conclusions on CMP and anti-hoarding (November 2010).

The report published in November 2010 included sections on “European LNG market evolution and terminal utilisation”, “LNG business understanding when defining CMPs” and, notably “Existing congestion management and anti-hoarding mechanisms in Europe”, with a detailed description of the situation in each country.

The section on “Conclusions on the different countries arrangements” highlighted the following:

- **Access:** Requirements to be fulfilled by shippers when booking any type of capacity could constitute access barriers for small shippers and spot unloading due to the need to understand several regulation and arrangements in the different terminals:
  - Different type of licenses needed around Europe
  - Special agreements to be signed with LSOs in some cases
  - Knowledge of terminal specific technical procedures.

Gaining access to a market via an LNG terminal involves significant effort and commercial skills. The long-term nature of the LNG market, capital-intensive investments, safety in ports, and batch supply and delivery are all specific aspects. There are commercially reasons for specific procedures and contracts, and parties seeking and expecting to secure participation rights in LNG terminals must be financially and commercially skilled. As Europe’s experience and dependence on LNG grows, we can expect a growth in the number of companies wishing to and able to participate in LNG.



- Regulations governing CMPs in the LNG European terminals are different. Differences arise from:
  - the mechanisms employed to identify the unused capacity
  - the way in which capacity is released and the role of the LSO when doing so
  - the period of time in which capacity is lost
  - the effective development of secondary markets
  - the application of penalties.

The diversity of CMPs could be explained by the particular characteristics and technical constraints both in the existing LNG terminals and in the downstream gas markets. For example, the market share of LNG, its role in providing flexibility to users or security of supply requirements, could influence the type of CMP and anti-hoarding mechanism currently chosen. At present, the establishment of consistent CMPs in all European terminals has not been reached.

- Transparency: all countries have already published their CMP's. Nevertheless, in a number of the cases the information is either, very disseminated or difficult to find directly on the web pages of the terminals:
  - It is part of the general regulatory framework or included in the terminal code
  - They are spread out in several documents that have been published in different ways.
  - There are CMPs provisions to be included in terminal codes that are in the drafting process.
  - In some cases applicants (maybe a new entrant), are unable to learn the rules beforehand.

Also, transparency regarding the technical parameters and procedures of the terminals is poor. It is difficult to find the information directly on the web pages of the terminals. To face this problem, the preparation of a template to identify for potential users the routes to information at European LNG terminals appears to be a pragmatic solution.

- No sufficient experience. Effectiveness of anti-hoarding measures in European is still to be gained.
  - The applicable regulation has not been applied in some countries, as their infrastructures offer excess of capacity.
  - Other countries have already applied the CMPs provisions contained in their regulations, obtaining results that improve accessibility.
  - In others, the development of secondary markets is encouraged as a tool to ensure the capacity use and to foster system flexibility.





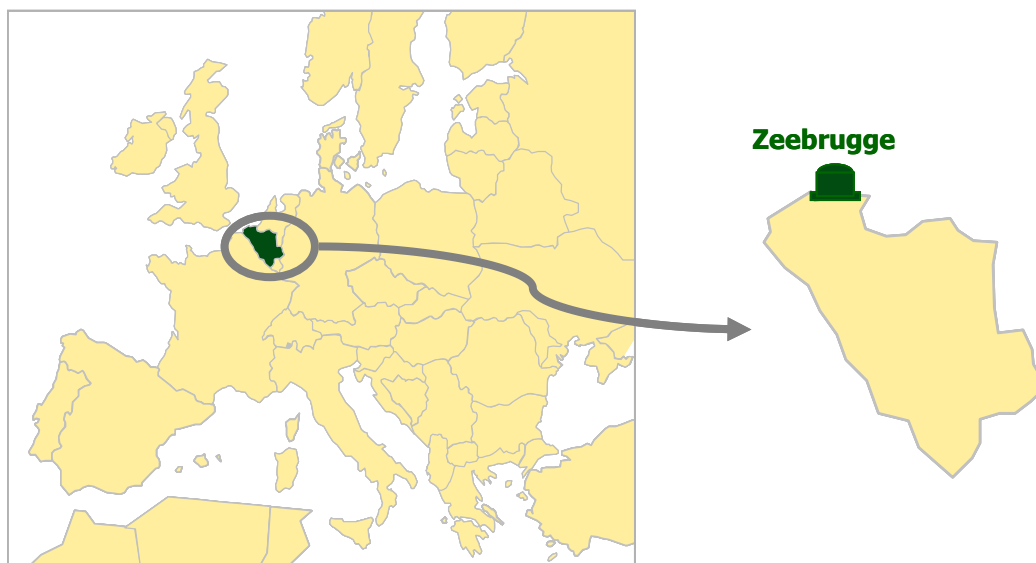
- Nowadays the most common CMP is ex-post UIOLI. Ex-ante UIOLI is, and/or has been, broadly exercised in some regulatory approaches. Secondary markets start to develop in many places following market demands and supported by LSOs.
- There is no clear definition of capacity underutilisation in many countries and the associated consequences. Binding slots schedules or mandatory secondary markets to be efficient would require to apply penalties the primary capacity holder for late cancelation.
- There are still barriers to the creation of secondary markets, normally related to the national regulations in place, or the development of the downstream market. For example, the regulatory regime for accessing downstream markets when not transparent enough can act as a restriction to eventual users of LNG terminal capacity. In this sense LSO's should reach a consensus for establishing access arrangements that facilitate access and trade of capacity among users and which detail the CMP and antihoarding procedures.

## 1.2 Belgium.

### 1.2.1 General overview.

There is one LNG terminal in Belgium, the Zeebrugge LNG terminal operated by Fluxys LNG. The following map shows the location of the terminal:

**Map 1: Location of the Zeebrugge LNG terminal in Belgium.**



The characteristics of the Zeebrugge LNG terminal are detailed in the following table:

**Table 3: General information about the Zeebrugge LNG terminal.**

Belgium, Zeebrugge		FLUXYS LNG	
Start-up : 1987		EXCELLENCE IN GAS TRANSPORT	
MAX. HOURLY CAPACITY		NOM. ANNUAL CAPACITY	
1.700.000 m <sup>3</sup> (N)/h		9 bm <sup>3</sup> (N)/year	
NOMINATION	Yes	ALLOCATION	OBA
MATCHING	Yes	FLOW CONTROL	Yes
SCHEDULE	H/H	MEASUREMENT	Yes
LNG STORAGE CAPACITY	380.000 m <sup>3</sup> LNG		
NUMBER OF TANKS	4		
MAX. LNG SHIP CLASS SIZE REC.	217.000 m <sup>3</sup> LNG		
URL AUTHORISED SHIPS	<a href="http://www.fluxyslng.net">www.fluxyslng.net</a>		
NUMBER OF JETTIES	1		
MIN. SEA DEPTH ALONG SIDE	13 m		
MAX. SEND OUT PRESSURE	80 bar		

Source: GLE's LNG map, June 2010.



The business model of the terminal changed completely in 2007, from a single shipper model to a multi-shipper one.

In 2003, an open season was launched for the booking of capacities as from 1<sup>st</sup> April 2007. As a result, Fluxys LNG signed 3 long-term capacity subscription agreements and invested in doubling the LNG terminal's throughput capacity. Consequently, the single shipper business model was modified and most of the services offered at the LNG terminal are now of a complete new type. The current business model, designed for a multi-shipper context, is primarily based on the "slot" concept, as described in the following sections.

Table 3 above reflects the situation of the terminal after the expansion works. As the commissioning of additional infrastructures was foreseen by 2008, the available capacities under the new access rules have been offered in two stages: first, limited capacities under the "unexpanded regime", before switching to the "expanded regime".

### 1.2.2 Unbundling requirements.

Fluxys is the main infrastructure operator in Belgium, it operates the transmission network, underground storages and the LNG facility. Fluxys LNG offers terminalling services for liquified natural gas at the LNG terminal in Zeebrugge.

In Belgium legal and effective separation has been implemented, with strict requirements for effective separation. Nevertheless, the separation of property has been reinforced as a result of conditions imposed to support the merger between GDF and SUEZ and the amendment of the Gas Act.

Currently, Fluxys LNG is owned by Fluxys (100%); however, the ownership structure of Fluxys, and Fluxys LNG, has significantly changed during the last years.

Distrigas, controlled by SUEZ until 2008, was both the TSO and the trader of gas. In 2001 Distrigas voluntary split its activities. The trading activities were hereafter managed by Distrigas and for its network activities a separate company, Fluxys, was set up. At an early stage, both companies maintained the same shareholder structure, controlled by SUEZ, with a significant presence of Publigaz (holding controlled by Belgian municipalities) and the Belgian State through a golden share.<sup>23</sup>

After Belgian Shell manifested its intention to sell its participation (12,500 shares) in Fluxys LNG, Fluxys SA acquired the shares on 31<sup>st</sup> January 2005. Fluxys thus increased its ownership in Fluxys LNG from 91.84 to 93.20%.

On 3<sup>rd</sup> July 2008 SUEZ-Tractebel SA confirmed its intention to sell to Ecofin Limited 12.5% of the capital of Fluxys. The operation brought the stake of SUEZ-Tractebel SA in Fluxys SA below the 45% threshold. Publigaz SCRL which had a period of 60 days to exercise its right of pre-emption on the shares involved, exercised its right of first refusal on the 87,804 shares sold by GDF SUEZ to Ecofin Limited. In this way, the number of Fluxys shares held by GDF SUEZ did not exceed the

<sup>23</sup> By end 2006 the European Commission approved, under the EU Merger Regulation, the merger of Gaz de France (GDF) and SUEZ group, subject to certain conditions. These included, among other conditions, the divestiture of the SUEZ group's holding in Distrigas. Following a competitive tender process, which involved the main European gas operators, it was decided that Eni had offered the best conditions. From May 2009 Distrigas is 100% owned by Eni.



number of shares held by Publigaz and set up at 45%. The transfer was exercised at the price agreed between GDF SUEZ and Ecofin Limited, namely EUR 2,600 per share.

On 8<sup>th</sup> December 2009, legislation amending the Gas Act was published in the Belgian Official Gazette.

Within the new structure, Publigas set up Fluxys Holding, a fully fledged subsidiary, to hold Publigas' stake in Fluxys SA. Fluxys Holding also incorporates the stakes of Fluxys SA in companies with non-regulated activities in Belgium and in companies active abroad.

- Sale by Fluxys SA to Fluxys Holding of Fluxys' stake in Fluxys NL BV, incorporating the shareholdings in BBL and Interconnector, the two companies operating a pipeline between the European mainland and the United Kingdom. Fluxys NL BV will be renamed Fluxys Europe.
- Sale by Fluxys SA to Fluxys NL BV of Fluxys' stake in Huberator SA (operator of the Zeebrugge Hub spot market), Gas Management Services Ltd (operational support services and software for natural gas companies active in the transmission grids in North-Western Europe), APX BV (group of international natural gas and electricity exchanges in the Netherlands, the United Kingdom and Belgium) and C4gas SAS (company set up with Gaz de France and National Grid to purchase gas equipment).
- Sale by Fluxys SA to Fluxys Holding of Fluxys' stake in Fluxys Europe SA, in which the cash management of Fluxys Holding will be centralised. Fluxys Europe SA will be renamed Fluxys Finance.

This new structure is required by the new Gas Act as changed by the Act of 10 September 2009 since it compels Fluxys to divest itself from shareholdings in which a supply company or a company affiliated to such a company holds membership rights (which is the case for the Fluxys shareholdings in BBL, Interconnector and C4Gas). The transfer of the other companies mentioned above is triggered by the wish to make a clear separation between the activities submitted to the regulatory framework in Belgium and the other activities. Fluxys SA serves now as the entity for regulated activities in Belgium.

Under the changes, suppliers and their affiliated companies are not allowed to hold more than 24.99% of either the capital or shares with voting rights in a transmission infrastructure operator. This new provision therefore required Electrabel to sell at least a proportion of its shares in Fluxys.

Following the change in legislation, Electrabel and Publigas concluded an agreement in March 2010 concerning the sale by Electrabel of its entire 38.5% stake in Fluxys, increasing Publigas's stake in Fluxys to 89.97% and putting an end to the GDF SUEZ Group's ownership of stakes in Fluxys. The disposal of 270,530 shares was completed at the price of € 2,350 per share, for a total amount of € 636 million. Through this transaction, the GDF Suez group completely withdrew from the capital of Fluxys S.A.

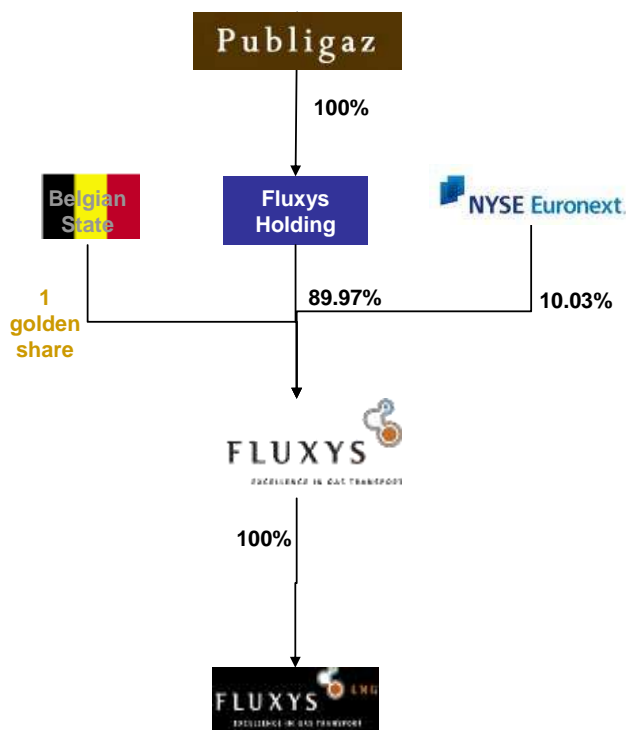
As part of the agreement between GDF SUEZ and Publigas, the GDF SUEZ Group's 5% stake in Interconnector (UK) Ltd (IUK) is to be transferred to Fluxys NL once all formalities with the IUK shareholders have been completed. The operation will increase the Fluxys Group's stake in IUK to 15% and in so doing will further consolidate its position on the natural gas transmission market for east-west flows in North-Western Europe.



The terms of the agreement between Electrabel and Publigas also required the GDF SUEZ Group to transfer its 6.8% stake in Fluxys LNG to Fluxys. As from 5 May, Fluxys LNG is a wholly owned subsidiary of Fluxys.

In 2008, Fluxys purchased Distrigas & C° from Distrigas, the former being responsible for marketing border-to-border transmission capacity in the Troll (Zeebrugge–Blaregnies) and RTR1 (Zeebrugge–Zelzate/Eynatten) pipelines. At the time of this acquisition, the GDF SUEZ Group and Publigas gave Fluxys a guarantee to cover the regulatory uncertainties associated with the valuation of Distrigas & C°'s activities. Under the terms of the agreement concluded between Electrabel and Publigas in March 2010, Publigas will take over the whole guarantee of maximum €250 million.

**Figure 1: Fluxys LNG shareholder structure as of September 2010.**



**Source:** Fluxys website and self-made.

On 11<sup>th</sup> May 2010<sup>24</sup> Publigaz announced its intention to sell 30 or 40 percent of the stake in Fluxys and to retain between 60 or 65 percent of their shares; Publigaz was in the process of looking at new long-term partners either industrial or financial in order to pay off its debts.

However, on August 2010 Publigaz postponed the planned sale of part of its holding of Fluxys and was also looking at raising cash via the stock exchange instead.<sup>25</sup>

<sup>24</sup> <http://www.reuters.com/article/idUSLDE64A1A120100511>

<sup>25</sup> [http://www.lse.co.uk/FinanceNews.asp?ArticleCode=olvswss7fzpfy5w&ArticleHeadline=Publigas\\_delays\\_Fluxys\\_stake\\_sale\\_mulls\\_cash\\_call](http://www.lse.co.uk/FinanceNews.asp?ArticleCode=olvswss7fzpfy5w&ArticleHeadline=Publigas_delays_Fluxys_stake_sale_mulls_cash_call)



### 1.2.3 Access rules.

The Gas Act implemented the stipulation in the Second Gas Directive to officially appoint one or more system operators. To be considered for appointment, operators must meet a number of specific requirements relating to, among other things, corporate governance.

As part of the implementation of the Gas Act, Fluxys and Fluxys LNG were officially appointed operators under the non-definitive system in March 2006: Fluxys LNG was appointed operator of the LNG facilities (the Zeebrugge tanker terminal) and Fluxys was appointed operator of the natural gas transmission system and of the natural gas storage facilities.

The Royal Decree of 4 April 2003 on the Code of conduct covers a set of operational and administrative directives for gas transmission system operators and their service users.

The main documents listed in the Royal Decree on the Code of conduct are:

- **Main Conditions**<sup>26</sup>: Fluxys LNG must set out the basic principles governing access to their transmission system and have to submit these main conditions to CREG for approval.

Full implementation of the Code of conduct implies that the Main Conditions for access to the Fluxys LNG terminal to be approved by federal regulator CREG and published. Fluxys LNG submitted to CREG on 11 July 2003 its first draft of Main Conditions. This first draft, a proposal with general principles that required further elaboration, was rejected by CREG on 8 January 2004. Fluxys LNG submitted to CREG a second draft on 23 March 2004. CREG approved on 13 May 2004 the larger part of this second draft.

The final document, “Main Conditions for accessing the LNG terminal of Fluxys LNG”, was approved by the CREG (17 June 2004) in accordance with articles 10 and 11 of the Royal Decree of 4 April 2003 concerning the Code of Conduct with regard to access to the natural gas transmission infrastructure.

- **Indicative Transmission Programme**<sup>27</sup>. This document comprises a description of the general items including among other the following topics regarding gas transport and storage:
  - proposed firm, non-firm and interruptible capacities;
  - applicable capacity allocation rules;
  - proposed tolerance values;
  - the various types of Transmission Service Agreements;

<sup>26</sup>

[http://www.fluxys.com/en/Services/LNGTerminalling/TerminallingModel/~/\\_media/Files/Services/LNG%20Terminalling/ConditionsAndTariffs/Fluxys\\_LNGTerminalling\\_MainConditions\\_EN%20pdf.ashx](http://www.fluxys.com/en/Services/LNGTerminalling/TerminallingModel/~/_media/Files/Services/LNG%20Terminalling/ConditionsAndTariffs/Fluxys_LNGTerminalling_MainConditions_EN%20pdf.ashx)

<sup>27</sup>

[http://www.fluxys.com/en/Services/LNGTerminalling/TerminallingModel/~/\\_media/Files/Services/LNG%20Terminalling/ConditionsAndTariffs/Programme\\_indicatif\\_de\\_terminalling%20pdf.ashx](http://www.fluxys.com/en/Services/LNGTerminalling/TerminallingModel/~/_media/Files/Services/LNG%20Terminalling/ConditionsAndTariffs/Programme_indicatif_de_terminalling%20pdf.ashx)



- the duration of standard Transmission Service Agreements.

Fluxys has to submit its Indicative Transmission Programme to CREG for approval.

The “Programme Indicatif de Terminalling 2010 - 2011”, already been approved by CREG and available at Fluxys LNG website, describes the catalogue of services offered based on the capacities offered from 1<sup>st</sup> January 2010 till 31<sup>st</sup> December 2011.

- **Compliance programme.** This document enables Fluxys LNG to pursue an active policy of transparency and non-discrimination:
  - the internal policy rules contain the Internal Rules of Procedure. The Internal Rules of Procedure include all internal rules seeking to ensure that the confidentiality of commercial data on service users is respected by all Fluxys LNG employees who are privy to said confidential information in executing their jobs. These internal rules are communicated to and Fluxys LNG employees and to CREG.
  - the external policy rules concern the principles of non-discrimination and transparency which Fluxys LNG shall follow in their relations with suppliers, contractors, subcontractors, other service providers and service users. The external policy rules are to be communicated to the service users.
- **Grid Code<sup>28</sup>.** This document contains the arrangements on the use and operation of the automatic reservation system becoming available in a second implementation phase of the Code of conduct and includes in particular:
  - the capacity on offer;
  - the method used for exchanging information between the grid user and the transmission system operator;
  - the specific capacity reservations timetable.

Fluxys has to submit its Grid Code for approval by CREG and have to communicate the approved Grid Code to their service users.

The Terminalling Code for the Zeebrugge LNG terminal in accordance with article 88 of the Royal Decree of 4 April 2003 governing the Code of Conduct with regard to access to the natural gas transport infrastructure is available at Fluxys LNG website.

- **The Service Agreement.** The Service Agreement is the contract signed by Fluxys LNG and the service user. It is the main document in the system implemented by Fluxys LNG to organise access to their transmission system. This contract governs the rights and obligations of the service user and Fluxys LNG.

<sup>28</sup>

[http://www.fluxys.com/en/Services/LNGTerminalling/TerminallingModel/~media/Files/Services/LNG%20Terminalling/ConditionsAndTariffs/Fluxys\\_NetworkCodeForTerminalling\\_EN%20pdf.ashx](http://www.fluxys.com/en/Services/LNGTerminalling/TerminallingModel/~media/Files/Services/LNG%20Terminalling/ConditionsAndTariffs/Fluxys_NetworkCodeForTerminalling_EN%20pdf.ashx)



Besides, “Fluxys LNG Terminal services Conditions & Tariffs; Conditions & Tariffs applicable as from 1st April 2007”<sup>29</sup>, available at Fluxys website ([www.fluxyslng.com](http://www.fluxyslng.com)), details the rTPA tariffs to access Zeebrugge LNG terminal.

#### 1.2.4 Services offered.

The services provided by the Zeebrugge LNG terminal are described at the “Terminalling Code”, as well as on the websites of Fluxys LNG and the CREG.

The standard capacity service is based upon the “Slot” concept. According to the access rules in force, a Slot is a service which consists of:

- Receiving and unloading of an LNG ship within a window of 3 consecutive high tides.
- Basis storage, equal to 140,000m<sup>3</sup> LNG, linearly decreasing over 20 high tides.<sup>30</sup>
- Basic send-out capacity, equal to 4,200 MWh/h during 20 high tides.

Other types of services can be contracted:

- Send-out capacities:
  - Additional send-out capacity: additional send-out services are allocated during an open-season process,
  - Additional send-out capacity entitlements (pooling),
  - Daily send-out capacity: daily send-out capacities are requested 1 month ahead and are allocated day-ahead,
  - Send-out capacity for an unsubscribed slot,
  - Day ahead interruptible send-out capacity.
- Storage:
  - Additional storage: these services are allocated during an open-season process;
  - Daily storage: daily capacities are requested 1 month ahead and are allocated day-ahead;
  - Storage for an unsubscribed slot.
- LNG truck loading capacity.

<sup>29</sup>

[http://www.fluxys.com/en/Services/LNGTerminalling/TerminallingModel/~/\\_media/Files/Services/LNG%20Terminalling/ConditionsAndTariffs/Fluxys\\_LNGTerminalling\\_Tariffs\\_FR%20pdf.ashx](http://www.fluxys.com/en/Services/LNGTerminalling/TerminallingModel/~/_media/Files/Services/LNG%20Terminalling/ConditionsAndTariffs/Fluxys_LNGTerminalling_Tariffs_FR%20pdf.ashx)

<sup>30</sup> 20 high tides ≈ 250 hours, according to Fluxys LNG.





- LNG loading services for LNG ships.
  - Since July 2008, Fluxys LNG offers LNG loading services at Zeebrugge LNG terminal. According to the company, the demand for LNG loading services is rising because they enable terminal users to better exploit commercial opportunities on the LNG market: if the price of LNG is sufficiently high somewhere else in the world, then they can ship LNG from Zeebrugge to another consumer market.

Under the “unexpanded regime”, the LNG terminal had the following technical capacities:

- The total technical send-out capacity amounts to 10,950 MWh/h ( $\approx 950,000 \text{ m}^3(\text{n})/\text{h}$ ), of which:
  - 8,400 MWh/h is available for slots.
  - 805 MWh/h is available for additional send-out capacity.
  - 1,745 MWh/h is available, on interruptible basis only, for Fluxys LNG and Fluxys NV for operational purposes.
- The total technical storage of the terminal amounts to  $240,000 \text{ m}^3$  LNG, of which:
  - $210,000 \text{ m}^3$  LNG is available for slots.
  - $30,000 \text{ m}^3$  LNG is available for additional storage (of which Fluxys NV has booked  $8,000 \text{ m}^3$  LNG for operational purposes).

Under the current “expanded regime”<sup>31</sup>, the LNG terminal will have the following technical capacities:

- The total technical send-out capacity amounts to 21,415 MWh/h ( $\approx 1,850,000 \text{ m}^3(\text{n})/\text{h}$ ), of which:
  - 16,800 MWh/h is available for slots.
  - 2,870 MWh/h is available for additional send-out capacity (of which Fluxys NV has booked 1,163 MWh/h LNG for operational purposes).
  - 1,745 MWh/h is available, on interruptible basis only, for Fluxys LNG and Fluxys NV for operational purposes.
- The total technical storage of the terminal amounts to  $380,000 \text{ m}^3$  LNG, of which:
  - $350,000 \text{ m}^3$  LNG is available for slots.

<sup>31</sup> On 23<sup>th</sup> April 2008, the new LNG terminal facilities were put into operation. A fourth LNG storage tank and additional regasification facilities have been put into operation at the Zeebrugge LNG terminal. These new facilities double the throughput capacity from 4.5 to 9 billion cubic metres of natural gas a year. The terminal will now be able to receive 110 cargoes per year.



- 30,000 m<sup>3</sup> LNG is available for additional storage (of which Fluxys NV has booked 6,000 m<sup>3</sup> LNG for operational purposes).

The table below summarizes the main parameters for each of the services that Fluxys LNG may make available.

**Table 4: Main parameters for each level of aggregate services that Fluxys LNG may make available.**

	<i>Basis Storage</i>	<i>Basic Storage duration</i>	<i>Minimum spacing between the 1<sup>st</sup> High Tide for 2 successive Scheduled Slots</i>	<i>Basic Send-out</i>	<i>Total Basic Send-out</i>	<i>Additional Send-out</i>	<i>Additional Storage</i>
	m <sup>3</sup> LNG	High Tides	High Tides	MWh/h	MWh/h	MWh/h	m <sup>3</sup> LNG
<i>Unexpanded Terminal Capacity</i>	140,000	20	10	4,200	8,400	805	30,000
<i>Expanded Terminal Capacity</i>	140,000	20	5	4,200	16,800	2,870	30,000

**Source:** *Terminalling Code – Appendix C and self-made.*

Through the contract period, terminal users are entitled to schedule truck loading. This service comprises the unloading of LNG volumes from the storage to the trucks transporting this LNG. To be able to load cargoes at the LNG terminal's loading station, trucks must include in the list of "Approved LNG Trucks".

**Table 5: Summary the services available.**

<i>Service</i>	<i>Units</i>	<i>LNG terminal capacities</i>
Total number of slots	Slots per year	110
Minimum spacing between the 1 <sup>st</sup> High Tide for 2 successive Scheduled Slots	High tides	5
Duration of the basic storage	High tides	20
Basic storage	m <sup>3</sup> (GNL) per slot	140,000
Total basic storage	m <sup>3</sup> (GNL)	350,000
Basic send-out	MWh/h per slot	4,200
Total basic send-out	MWh/h	16,800
Additional send-out	MWh/h during 1 year	2,870
Additional storage	m <sup>3</sup> (GNL) during 1 year	30,000

**Source:** *Programme Indicatif de Terminalling 2010-2011.*



Under the lending service, Fluxys LNG may lend the terminal user a quantity of LNG for send-out, subject to the subsequent redelivery of such loaned quantities by the terminal user form its nominated cargo of LNG. The lending service may be available in the following circumstances:

- If the master of the LNG carrier has advised that the “Estimated Time of Arrival” of the LNG carrier will be after its scheduled slot but within the first priority to berth;
- If a queuing event occurs;
- If Fluxys LNG reasonably expects that a queuing event will occur.

### **1.2.5 Capacity allocation procedures.**

The capacity allocation procedures are detailed at the “Main Conditions for accessing the LNG terminal of Fluxys LNG – Chapter III” and at the “Terminalling Code – Appendix A” available at Fluxys LNG website.

#### **1.2.5.1 Allocation of long term capacities on the primary market.**

The following types of capacities can be allocated on the primary market of long term capacities: slot, additional send-out capacity and additional storage capacity.

The allocation of these capacities can be seen in case of new investments made in the facilities at the LNG terminal or in the term of a long term contract. This allocation of capacities takes place during an Open Season for which the procedure is as follows:

- i. An information protocol is sent to potential players and is published in the press and on Fluxys LNG website.
- ii. The interested parties get involved in the process and sign a confidentiality agreement.
- iii. The parties negotiate with Fluxys LNG.
- iv. The parties sign conditional agreements.
- v. If the demand for capacity is greater than Fluxys LNG’s supply, based on its investment programme, non-discriminatory and transparent priority criteria are used to decide between the applicants. These criteria are determined by market conditions and are approved by CREG.
- vi. The parties sign the Terminalling Contract.

Capacities not allocated in the context of the Open Season process are allocated in accordance with the *First Committed/First Served* principle until a new Open Season process is organised.

#### **2007 Open Season.**



In late 2007, Fluxys LNG launched a market consultation to gather interest in additional capacity at the Zeebrugge LNG terminal. Fluxys LNG stated in the Information Memorandum<sup>32</sup> documentation that depending on the outcome of the open season, the project could imply the construction of:

- a second berthing jetty, allowing ships up to a capacity of 260,000 m<sup>3</sup> LNG,
- potentially with the possibility to accommodate regasification ships or any other technical solution;
- up to 6 additional LNG storage tanks with a capacity of 155,000 m<sup>3</sup> LNG each;
- and/or additional regasification capacity.

Several players in the LNG sector registered interest in services requiring an additional jetty. Subsequently, Fluxys LNG launched detailed studies into building a second jetty at Zeebrugge LNG terminal to enable, among others, LNG ships with regasification facilities on board to berth there. For its part, according to Fluxys, Exmar is prepared to book long-term capacity with Fluxys LNG. The two companies have signed a Memorandum of Understanding setting out their agreement. Other market players have also expressed interest in loading small LNG ships.

Reception of regasification ships at the terminal requires a second jetty in the LNG-dock as well as a pipeline and ancillary infrastructure allowing injection of natural gas into the Fluxys transmission network. In the first phase, Fluxys LNG – in close cooperation with the Brugge Port Authority (MBZ) and the proper government bodies – is to study the technical and economic feasibility of the project, the safety and nautical aspects, and other factors.

#### **1.2.5.2 Allocation of free slots on the primary market.**

The free slots are slots which have not been allocated during Open Season or which are identified as being available:

- either upon drawing up the annual unloading programme (AMS<sup>33</sup>): additional slots between March and October;

<sup>32</sup>

[http://www.fluxys.com/en/About%20Fluxys/Infrastructure/LNGTerminal/~/\\_media/Files/Services/LNG%20Terminaling/Fluxys\\_InformationMemorandum\\_TRML2007%20pdf.ashx](http://www.fluxys.com/en/About%20Fluxys/Infrastructure/LNGTerminal/~/_media/Files/Services/LNG%20Terminaling/Fluxys_InformationMemorandum_TRML2007%20pdf.ashx)

<sup>33</sup>

*Available Monthly Slots:* It is determined for each month in the next Contract Year by Fluxys LNG based on an equal distribution of the cumulative number of terminal users subscribed slots for such contract year, such distribution being based on the number of high tides in each month excluding high tides being unavailable for reasons of planned maintenance at the LNG terminal (which will have been determined beforehand in cooperation with the TO) during such month, as determined pursuant to the following formula:

$$\frac{SS_{tot}}{HT_y} \times \frac{1}{T_y} \times (D_n - X_n)$$

rounded to two decimal places, where:

- $SS_{tot}$  is equal to the expanded terminal capacity or the unexpanded terminal capacity, as the case may be;
- $T_y$  is equal to the number of high tides in the relevant contract year;



- or during the contract year, at the time of the quarterly unloading programmes (RBS<sup>34</sup>): unsubscribed slots scheduled by Fluxys LNG or groups of consecutive high tides.

These free slots are allocated whilst observing the following order of priority:

- To the LNG terminal user which have notified Fluxys LNG of its effective or probable lack of capacity – due to maintenance – to use the subscribed slot during the contract year;
- To the LNG terminal user which has *Make-up* capacity;
- To any LNG terminal user or potential terminal user: based upon the rule of *First Committed/First Served* from the time at which this slot was scheduled in the RBS.

### 1.2.5.3 Allocation of unused send-out capacity (pooling).

If the send-out capacity is still available 30 days before the date of providing the service, a group of unused send-out capacity is made. These additional entitlements to send-out capacity are allocated whilst observing the following order of priority:

- To terminal users whose basic send-out capacity is less than the average monthly net capacity of their nominations. If several terminal users are in this situation, allocation is made proportionate to their respective difference between this average and their basic send-out capacity;
- To terminal users proportionate to their initial adjusted requests for capacities allocated in the previous point.

Firm capacities resulting from "pooling" shall be allocated 30 days before and interruptible capacities shall be allocated the day before.

### 1.2.5.4 Allocation of daily storage and send-out capacities.

Daily send-out and storage capacities are allocated proportionate to the requests made by terminal users the day before, before the start of the nomination process.

### 1.2.5.5 Allocation of send-out on the Day Ahead market.

Non-nominated send-out capacity is offered on the Day Ahead market and is allocated on the basis of the *First Committed/First Served* principle during the nomination process.

- $Y_{cy}$  is equal to the number of high tides in the relevant contract year and during which the LNG terminal is not expected to be available due to planned maintenance (as defined beforehand in cooperation with the TO);
- $D_m$  is equal to the number of high tides in the relevant month;
- $X_m$  is equal to the number of high tides in the relevant month on which the LNG terminal will not be available due to planned maintenance (as defined beforehand in cooperation with the TO).

<sup>34</sup> *Rolling Berthing Schedule*: It determines the number of scheduled slots for each terminal user and the date and time of such slot, based on a selected high tide, and the anticipated Estimated Time of Arrival of terminal user's LNG carrier.



#### **1.2.5.6 Allocation of unsubscribed capacities for slots.**

If a slot remains unsubscribed 10 days before the start of the slot, the send-out and storage capacities for this slot shall be allocated free of charge proportionate to the requests.

The capacity allocated in this way free of charge shall be interrupted if Fluxys LNG sells it as firm capacity at the price regulated to a terminal user.

#### **1.2.5.7 Allocation of truck loading capacities.**

An Open Season for truck loading capacities is organised annually. These capacities are allocated by priority to users of the PSP<sup>35</sup> up to their injection capacity for the year in question. The balance of truck loading capacities is allocated proportionate to requests upon completion of the Open Season, then based on the “*First Committed/First Served*” rule.

#### **1.2.5.8 Allocation on the secondary market.**

The following capacities can be the subject of transactions on the secondary market: the slot and all or part of the basic or additional storage and the basic or additional send-out capacity.

Allocation is made based upon the rule of “*First Committed / First Served*”.

#### **1.2.5.9 Allocation of capacities released by the regulator in case of congestion.**

Allocation is made up to the capacity released in favour of the applicant who has demonstrated that it is actually going to use the released capacity, in accordance with art. 48 §2 of the Code of Conduct.

It is up to the Federal regulator to determine the applicable rules of release and allocation.

### ***1.2.6 Long term/short term capacity offering requirements.***

No capacity ratio must be reserved for long term or for short term capacity contracts.

Capacities at the LNG terminal are fully subscribed to under long-term contracts on the primary market.

### ***1.2.7 Contracts duration.***

The Terminalling Code mentions both long term and short term capacities.

The “Programme Indicatif de Terminalling 2010-2011” article 7 details that Fluxys LNG offers the following types of contracts:

- Long-term contract: referred to the contract covering capacities and services allocated after an open season;

<sup>35</sup> The PSP is an entry point to the transmission network.



- Spot contract: referred to the booking of capacities and contracts under short term basis (for example: the service of one slot or ship loading).

One slot is the minimum number of slots that can be contracted. Additional send-out capacity and additional storage can be booked for a minimum period of 1 day, whereas daily send-out capacity and daily storage can be booked for a minimum period of 1 hour.

As regards the maximum duration, capacities at the LNG terminal are fully subscribed to under long-term contracts up to 20 years from 2007 on the primary market, as approved by the CREG to make the extension of the terminal possible.

Fluxys LNG website provides the following information about the current long-term contracts and their duration:

- The long-term LNG terminalling Capacity Subscription Agreement signed between Fluxys LNG and Qatar Terminal Limited (an affiliate of Qatar Petroleum) on the one hand and Zeebrugge LNG Trading Company Limited (an affiliate of ExxonMobil) on the other hand will secure capacity rights for 55 unloading slots per year for a period of 20 years. This corresponds to an annual capacity of around 3.4 million tonnes of LNG or around 4.5 bcm per year at the Fluxys LNG Zeebrugge terminal for a 20-year period, beginning in April 2007. The LNG will be sourced from Qatar's North Field, which holds estimated recoverable resources of more than 24,000 billion m<sup>3</sup> of natural gas, and produced by Ras Laffan Natural Gas Co. (II).
- The second long-term LNG terminalling Capacity Subscription Agreement was signed between Distrigas and Fluxys LNG. The agreement gives Distrigas capacity rights for 33 unloading slots per year for a period of 20 years. This corresponds to an annual capacity of around 2 million tonnes of LNG or around 2.7 bcm per year at the Zeebrugge LNG terminal for a period of 20 years starting in April 2007.
- Suez LNG Trading S.A. and Fluxys LNG also signed a long-term a Capacity Subscription Agreement entailing capacity rights for 22 unloading slots per year for a period of 15 years. This corresponds to an annual capacity of around 1.3 million tonnes of LNG or around 1.8 bcm per year for a period of 15 years with an expected start date in 2008. Suez LNG Trading will use its global supply portfolio as a source for the terminal capacity.

### **1.2.8 Programming / Nomination procedures.**

The nomination procedures are described in the document: "Terminalling Code – Appendix H".

#### **1.2.8.1 Three-monthly nomination schedule at the LNG terminal.**

Before the 19<sup>th</sup> day of each month M, the user of the LNG terminal shall send the quarterly nomination schedule enclosing the daily nominations for the three following months and forecasting a permanent update compatible with the RBS.

If Fluxys LNG does not receive an update of the three-monthly nomination schedule, the previous program will be consider as the three-monthly nomination schedule for the two consecutive months up to month M, and the information relating to month M+2 shall be repeated for month M+3.



### **1.2.8.2 Weekly nomination schedule at the LNG terminal.**

Every week S-1 each user of the LNG terminal shall issue its daily nominations for the following week S; this means the amount of gas that would be injected the Gas Day of week S.

For each Gas Day of the following week S, Fluxys LNG shall inform the user of the LNG terminal, by a weekly Matching Notice, of the quantities that have been nominated by the other parties but, where applicable, without applying the Lesser rule.

In the event of a mismatch notified using the weekly Matching Notice, the user of the LNG terminal shall have to modify its nominations for the daily nomination schedule set out in the next section.

### **1.2.8.3 Daily nomination schedule at the LNG terminal.**

In order to inform Fluxys LNG of the quantity of natural gas for send-out at the redelivery point, the terminal user shall send its initial nomination to Fluxys LNG and, if necessary, renominations.

If Fluxys LNG does not receive a renomination, the final nomination shall be considered as being equal to the confirmed value of the initial nomination. In case of renominations, the final nomination shall be considered as being equal to the confirmed value of the last of the renominations confirmed by Fluxys LNG.

#### **Initial nomination**

Every day J-1, the user of the LNG terminal shall send Fluxys LNG the hourly nominations at the redelivery point for the Gas Day J. Fluxys LNG shall undertake a capacity check and communicate the user of the LNG terminal, using the daily Matching Notice, the quantities nominated by the other parties but, where applicable, without applying the Lesser rule.

After receiving the daily Matching Notice, the terminal user shall have the option of issuing revised hourly nominations for the next Gas Day J. Where this is the case, Fluxys LNG shall undertake a new capacity and matching check, in accordance with the Matching Process.

#### **Renomination during Gas Day J-1**

Renominations implemented during day J-1 are optional. They are only used in case of a change made to the initial nomination. Each renomination is subjected of a capacity and matching check, in accordance with the Matching Process, and finishes with confirmation by Fluxys LNG to the terminal user of the hourly quantities, which shall be supplied at the redelivery point.

#### **Renomination during Gas Day J**

Thanks to an on-going process of revision, the terminal user may adapt its nominations during the Gas Day J. These optional renominations are only used in the event of a change made to the initial nomination. Each renomination is subjected of a capacity and matching check, and finishes with confirmation by Fluxys LNG to the terminal user of the hourly quantities, which shall be supplied at the redelivery point.

#### **Daily nomination notice of the terminal user (SDT notice)**





The terminal user shall issue a notice to notify Fluxys LNG of the hourly quantities of natural gas to be withdrawn at the redelivery point.

Each Gas Day J-1, no later than before 14:00 hours, the terminal user shall send its initial nomination for the next Gas Day J, using a SDT notice.

After 14:00 hours, in case of revising its daily nomination schedule, the terminal user shall send its revised nomination for the next Gas Day J, using a revised SDT notice, no later than before 16:00 hours.

Only the last SDT notice received by Fluxys LNG before 14:00 hours on Gas Day J-1 (or before 16:00 hours in case of revised nomination) shall be considered as being the applicable send-out nomination.

The terminal user will be able to revise its daily nomination schedule on two occasions, by sending its renomination for the next Gas Day J using a revised SDT notice no later than before 20:00 hours on Gas Day J-1, accordingly.

Only the last SDT notice received by Fluxys LNG before 20:00 and/or before 00:00 hours on Gas Day J-1 shall be considered as being the applicable send-out nomination.

In case of revision of its daily nomination schedule occurring after Gas Day J-1 up to 04:00 hours, the terminal user shall send its renominations for the Gas Day J in question, using revised SDT notices and by intervening between 04:00 hours on Gas Day J-1 and no later than before 03:00 hours on Gas Day J.

These renominations shall only become effective two hours after the end of the hour during which they were communicated to Fluxys LNG.

In the event that the terminal user should not send any SDT, Fluxys LNG shall apply the terminal user's weekly schedule relating to the Gas Day for which there is not a daily schedule.

In the event of the terminal user not having communicated a weekly schedule, the nomination relating to the terminal user's daily schedule shall be deemed to be zero.

#### Daily nomination notice of Fluxys LNG (TMN / TDT notice)

Fluxys LNG shall issue a notice to notify the terminal user of the hourly quantities of confirmed natural gas (as well as the daily total) after applying the capacity check and the matching rule (but, where applicable, without applying the Lesser rule for issuing the TMN). This notice shall also notify the terminal user of the lowest GCV<sub>d</sub> announced by any other party at the redelivery point.

Fluxys LNG shall also issue a revised TDT notice every time that a restriction associated with the send-out applies.

#### **1.2.8.4 Capacity check.**

Fluxys LNG shall ensure that the nominations reported by the user of the LNG terminal do not exceed the capacities that have been subscribed to.

- If the net daily capacity associated with one of the Gas Days of the weekly or daily nominations schedule of the terminal user exceeds its send-out capacity for the Gas Day in



question, taking into account pooling of the send-out capacity, Fluxys LNG shall limit nominations to the capacities that have been subscribed to.

- If the injection nominations exceed the send-out nominations, the injection nominations shall be reduced pro-rata.

#### **1.2.8.5 Matching process.**

Upon each nomination or renomination, Fluxys LNG shall ensure that this occurs with the nomination of the other parties. This correlation must at the same time relate to:

- The quantities nominated on either sides of the redelivery point, and
- The parties, that supply and receive these quantities, upstream and downstream the redelivery point.

If the nominations at either side of the redelivery point are identical, matching applies. In this case, Fluxys LNG shall send a TDT notice confirming the hourly quantities of the nominated natural gas, as well as the daily total.

If the nominations at both parts of the redelivery point are not equal, there is a mismatch.

In case of mismatch, Fluxys LNG shall apply the Lesser rule and shall substitute a nomination that has reached its upper limit for the nomination submitted by the terminal user. This rule will be applied as follows:

- If the quantities nominated at either side of the redelivery point are not equal, the sum of the smallest hourly quantities nominated shall be deemed to be the nomination taken into account on either sides of the redelivery point.
- In case that one or several parties do not correspond with the other parties that the TSO has reported to Fluxys LNG in order to receive this natural gas downstream the LNG terminal, the hourly quantities intended for the other parties that the user of the LNG terminal has not designated shall be zero.

#### **1.2.9 *Congestion management procedures.***

The congestion management procedures are described in the document: "Terminalling Code – Appendix B".

In order to avoid congestion situations at the LNG terminal, Fluxys LNG will take in advance the following measures:

- Promote the optimal use of the capacities by allowing capacity transfers between the users of the LNG terminal using the secondary market and by promoting the Day Ahead market;
- Encourage the effective use of the allocation capacities by maintaining a register of the unused capacity and by stating the take-up rate of firm subscribed capacity on invoices presented to LNG terminal users;



- In case of impossibility to answer favourably to a request of firm capacity allocation, Fluxys LNG will suggest, as far as possible:
  - To the user of the LNG terminal to convert from subscribed firm capacity to interruptible capacity.
  - To the applicant of capacity to subscribe to interruptible capacity.

If these pro-active measures do not meet the requirements of an applicant, the following procedure, made up of four stages, will be applied.

#### **1.2.9.1 Stage 1.**

Fluxys LNG communicates CREG information about to the congestion:

- Place (jetty, storage and/or send-out) and probable duration of the congestion.
- Applicant and user of the LNG terminal concerned with the congestion.
- For each applicant:
  - Quantity of firm unallocated capacity due to the congestion.
  - Duration of the requested contract.
- For each the user of the LNG terminal: quantity of unused capacity.
- Measures already taken by Fluxys LNG to minimize the congestion and to resolve the congestion (if possible).

#### **1.2.9.2 Stage 2.**

Any applicant of capacity must supply to CREG proof of the actual use of the requested capacity. The applicant is thus authorized to invoke any delivery contracts.

If the applicant is already a user of the LNG terminal, the level of its unused capacity shall be taken into consideration. Fluxys LNG shall use the allocated capacity usage register to proceed with a preliminary analysis:

- Evolution of the use of the capacity.
- Nominations/allocation profiles.
- Any other relevant criteria.

The firm capacity is not deemed to be unused capacity when the user of the LNG terminal supplies the following justifications:

- The allocated firm capacity falls within the framework of contracts of provisioning and/or supply;



- The allocated firm capacity is transferred with release of the assignor to one or several users from the LNG terminal;
- The allocated firm capacity is offered by the user of the LNG terminal on the secondary market at a price, which does not exceed the regulated tariff or the indicative price of the primary market in case there is not a regulated tariff;
- The allocated firm capacity is required to fulfil public service obligations.

### 1.2.9.3 Stage 3.

On the basis of the information gathered during the course of stages 1 and 2, CREG will take the necessary action to release partially or totally the unused allocated capacity up to the requested capacity. To do so, CREG shall use the allocated capacity register to calculate the capacity that is to be released.

### 1.2.9.4 Stage 4.

45 days after CREG has notified its request to release the required capacity, Fluxys LNG shall free the capacity unused by the users of the LNG terminal. Then, Fluxys LNG shall impose a capacity interruption tariff according to its regulated tariffs.

Furthermore, if congestion persists, Fluxys LNG shall revise the current capacity allocation rules, considering the following points:

- Market demand,
- Long term contracts,
- Approved projects to expand the LNG terminal.

Any revision of the capacity allocation rules shall be carried out in collaboration with the users of the LNG terminal. The proposals shall be submitted to CREG and, in case of approval, shall result in the Main Conditions of access to the LNG terminal being update.

### 1.2.10 *UIOLI.*

The main purpose of UIOLI rules is to ensure that the unused capacity is freed up. The unused capacity is released and sold on the secondary market.<sup>36</sup> This criteria is mentioned at “Terminalling Code – Appendix J and Appendix C, Art. 9”, available at Fluxys LNG website.

If two months before the service start date the use of any slot has not been confirmed, the terminal user is obliged to notify Fluxys LNG of the slots that it does not intend to use. Through this notification, the terminal user authorises Fluxys LNG to sell the capacity of the unused slot, on behalf of this terminal user and at the regulated tariff.

<sup>36</sup> The capacity is considered to be sold on the secondary market even when Fluxys LNG sells it on behalf of the TU.



The terminal user may sell it at a negotiated price or assign any of its subscribed slots directly to a third party, without using Fluxys LNG's assistance. The terminal user shall notify Fluxys LNG of such sale or assignment in order to allow Fluxys LNG to withdraw the sale offer from its website.

### ***1.2.11 Method for calculating usable, available and unused capacities.***

The information about the method for calculating usable and available capacities is described in the document: "Main Conditions Fluxys LNG – Chapter I & Chapter II" and at Fluxys LNG website.

#### **1.2.11.1 Method for calculating usable and available capacities.**

The capacities of the LNG terminal are characterised by:

- Reception capacity,
- LNG storage volume,
- LNG regasification capacity.
- Truck loading capacity.

##### Reception capacity.

Considered independently of the storage volume and regasification capacity, the reception capacity of the LNG terminal jetty is characterised by the theoretical maximum frequency at which it can receive LNG carriers and by the size of those carriers:

- Frequency: the theoretical maximum receiving frequency of the jetty is one LNG carrier every 3 tides. This theoretical maximum frequency takes the maritime conditions for accessing the port into account as well as the time required for mooring and unloading the LNG carrier, and constitutes a peak capacity, which cannot be sustained in continuous service.
- Size: only LNG carriers that have successfully passed the Ship Approval Procedure may dock at the LNG terminal.

##### LNG terminal Storage Volume.

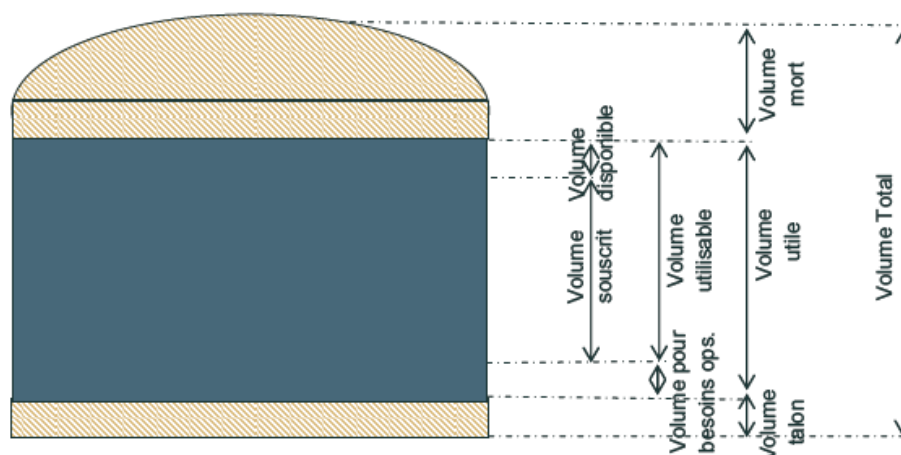
The *total storage volume* of the LNG terminal corresponds to the physical volume of the LNG storage tanks within the LNG terminal.

The *effective storage volume* of the LNG terminal is the difference between the total volume and the heel volume (volume that cannot be extracted under normal operating conditions) and, the dead volume (volume cannot be filled under normal operating conditions).

The *usable storage volume* of the LNG terminal is the difference between the effective storage volume and the storage volume for the operational needs of Fluxys LNG.

The volume available at a given moment is the part of the non-allocated usable volume still available for the users of the LNG terminal.

**Figure 2: Different types of storage volumes at the Zeebrugge LNG terminal.**



**Source:** *Main Conditions Fluxys LNG –Chapter I, Section 2, Art. 4.*

#### LNG terminal Regasification Capacity.

The *total regasification capacity* of the LNG terminal is determined by the technical characteristics of the LNG regasification installations, taking into account the technical reserve capacities whose purpose is to improve the continuity of the regasification service.

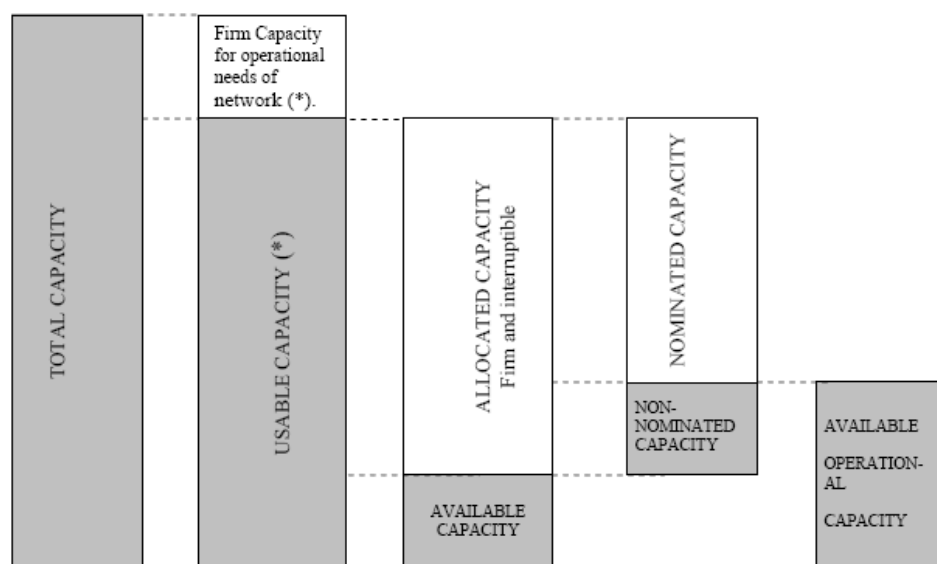
The *usable regasification capacity* is the difference between the total regasification capacity and the regasification capacities for the operational needs of Fluxys LNG.

Fluxys LNG determines the usable regasification part that is sold in the form of firm regasification capacity, taking into account the expected availability of the concerned capacities. In addition, the regasification capacities may be interruptible for the operational needs of Fluxys LNG.

The *available regasification capacity* of the LNG terminal at a given moment is the difference between the usable regasification capacity of the LNG terminal and the regasification capacity of the LNG terminal already allocated to the users of the LNG terminal.



**Figure 3: Schematic representation of capacities at the Zeebrugge LNG terminal.**



(\*) including, if the case arises, capacities made interruptible for operational needs of the transport network.

**Source:** *Main Conditions Fluxys LNG –Chapter I, Section 3, Art. 9.*

#### Determination of the Theoretical Maximum Number of Slots.

Fluxys LNG determines the content of the slot service and, in particular, the provisions with regard to:

- The duration of the LNG carrier's arrival, unloading and departure window;
- The basic storage: volume, profile and duration (basic storage duration) of that storage.
- The regasification capacities (basic regasification capacity).

The determination of the maximum theoretical number of slots per year requires combining the constraints linked to the reception capacity, the storage volume and the regasification capacity with the services offered included in a slot.

The theoretical maximum number of slots per year is determined by the most restrictive of the following three constraints:

- Constraints linked to the reception capacity:

The frequency at which the jetty can receive LNG carriers in continuous service is less than the theoretical maximum receiving frequency and is determined by Fluxys LNG as a reasonable and prudent operator, taking into account the prevailing practices and customs generally recognised and followed within this sector.



The theoretical maximum number of slots that the jetty can receive per year depends on the receiving frequency that the jetty can attain in continuous service in accordance with the following table:

**Table 6: Number of slots at the Zeebrugge LNG terminal.**

<i>Receiving frequency in continuous service</i>	<i>Theoretical maximum number of slots per year</i>
1 LNG carrier every 4 tides	176
1 LNG carrier every 5 tides	141
1 LNG carrier every 6 tides	117

**Source:** *Main Conditions Fluxys LNG.*

- Constraints linked to the regasification capacity:

The maximum annual volume that can be accepted at the LNG terminal is obtained on the basis of the firm usable regasification capacity using the following formula:

$$\text{Maximum annual volume} = \frac{\text{Firm usable regasification capacity} \times 8760 \text{ hours}}{\text{Flexibility coefficient}}$$

The flexibility coefficient takes into account the firm capacity usage rate, the modulation requirements of the users of the LNG terminal and the availability of the installations (planned and unplanned maintenance).

On the basis of an assumption concerning the standard size of LNG carriers, the annual volume may be translated into a theoretical maximum number of slots that may be accommodated each year:

$$\text{Maximum\_number\_of\_slots} = \frac{\text{Maximum\_annual\_volume}}{\text{Standard\_size\_carrier}}$$

- Constraints linked to the storage volume:

The theoretical maximum number of slots per year, considering the storage volume at the LNG terminal earmarked for the slot service offer, is obtained from the following formula:

$$\text{Maximum\_number\_slots} = \frac{(2 \times V_{\text{base}} - 1) \times 365}{D_{\text{base}}}$$

Where:

$V_{\text{base}}$ : storage volume at the LNG terminal earmarked for the slot service offer expressed as a multiple of the size of the LNG carriers for which the slot service is defined.

$D_{\text{base}}$ : basic storage duration (in number of days) per slot.





The theoretical maximum number of slots per year calculated before is given on an indicative basis. This number is small taking into account the constraints below and is given in the indicative transport programme of Fluxys LNG:

- The impact of the number of slots on the users of the LNG terminal and, in particular, on the costs of the integrated LNG chain for those users.
- The planning constraints linked to the production and transport of LNG;
- The needs for flexibility and guarantees of availability of the reception installations that the users of the LNG terminal require;
- Unforeseen events linked to maritime transport.
- The transit time between the loading ports and the LNG terminal of Fluxys LNG.

#### Truck Loading capacity.

Fluxys LNG offers LNG transport services by tanker truck, with the possibility of regasification on site. These services enable end users to safeguard their supply if they carry out works on their internal gas regasification that necessitate to cut off normal supply to part of their plant.

As Fluxys LNG gives full priority to the capacity enhancement of its LNG terminal, LNG Trucking services therefore can only be offered to clients loading LNG trucks at the LNG terminal's loading bay in the context of using their storage capacity at Fluxys' LNG Peak Shaving facility in Zeebrugge.

#### **1.2.11.2 Method for calculating the unused capacity.**

##### Records of use of the allocated capacity.

Fluxys LNG establishes a record of use of the capacities of the LNG terminal that details, for each user of the LNG terminal:

- The number of slots nominated by the user of the LNG terminal for each month;
- The unloading dates of LNG carriers and the amounts unloaded;
- The nominated slots which have not been used by the user of the LNG terminal and the reasons why these slots have been missed.
- The regasification capacity allocated (and not interrupted) to the user of the LNG terminal and
- The maximum and the daily total of scheduled regasification nominations.

The record will be in electronic form. It is confidential and can be consulted only by the CREG and the concerned user of the LNG terminal.



#### Method for calculating the unused capacity.

The calculation method applied by Fluxys LNG reflects the past use of capacities and is based on the data contained within the records referred to in the previous section. The calculation by Fluxys LNG of the unused capacity must be regarded as a preliminary analysis.

For each user of the LNG terminal the calculation method takes into account:

- The annual slot usage rate, i.e. the number of slots used divided by the number of slots to which the user is contractually entitled on an annual basis.
- The monthly slot usage rate, i.e. the number of slots used divided by the number of slots nominated on a monthly basis.
- The slots accounted for.
- The daily usage rate of regasification capacities (maximum and daily total of regasification nominations divided by the total subscribed (and not interrupted)).
- The operational availability of the installations and relevant external factors (for example, the closing of the port of Zeebrugge).
- The firm capacity allocated in the context of supply contracts and/or supply of which Fluxys LNG is aware.
- Any capacity assigned with release of the assignor.
- The capacity offered on the secondary market.
- Public service obligations.
- The characteristics of the subscribed services.
- Any justifications and relevant facts submitted by the user of the LNG terminal.

#### **1.2.12 Send-out requirements.**

The standard slot includes the basic send-out right of 4.20 GWh/h during 20 high tides (≈250 hours).

The minimum send-out rate is detailed at “Terminalling Code – Appendix C, Art.8”. Pursuant this article the following measures shall be taken to raise the send-out capacity to its minimum rate.

- If the total terminal nominations of the terminal users are less than 0.92 GWh/hour, then, at Fluxys LNG’s request, the terminal users shall increase their nominations to the aforementioned amount pro-rata to each terminal user’s gas in storage. However, Fluxys LNG shall curtail reverse injection nominations before requesting such an increase in send-out.
- If during the unloading of a terminal user’s LNG carrier, the total terminal nominations of the terminal users at the LNG terminal are less than 4.60 GWh/hour, Fluxys LNG may oblige



the terminal user whose LNG carrier is being unloaded to increase, in addition to the terminal user's obligations mentioned below, its terminal nominations by up to 3.68 GWh/hour but such request will be limited so that total terminal nominations are equal to 4.60 GWh/hour. However Fluxys LNG shall curtail reverse injection nominations before requesting such an increase in send-out.

- If up to thirty-six hours after the completion of the unloading of an LNG carrier, the total terminal nominations of the terminal users are less than 1.60 GWh/hour, Fluxys LNG may oblige the terminal user, whose LNG carrier was the last to be unloaded, to increase, in addition to the terminal user's obligations mentioned two paragraphs below, its terminal nominations by up to 0.68 GWh/hour but such request will be limited so that total terminal nominations are equal to 1.60 GWh/hour. However, Fluxys LNG shall curtail reverse injection nominations before requesting such an increase in send-out
- Additionally, if the send-out nominations are higher than the minimum flow but the difference between the send-out nominations and injection nominations, although greater than zero, is nonetheless less than the minimum flow, the injection nominations shall be reduced such a difference between the send-out nominations and the injection nominations is equal to the minimum flow.

On the other hand, if the send-out nominations are less than the minimum send-out flow:

- If the TSO allows an operational agreement for compensation, Fluxys LNG shall group the flows, shall accept the send-out nominations and reject the injection nominations.
- If the TSO denies an operational agreement of compensation, Fluxys LNG shall reject the injection nominations and the user of the LNG terminal shall increase its send-out nominations up to the minimum send-out flow.

### 1.2.13 Gas quality requirements.

This information is available at Fluxys LNG website.

#### 1.2.13.1 Specifications for the Fluxys LNG terminal Delivery Point.

**Table 7: Gas quality requirements at the Zeebrugge LNG terminal.**

	Unit	Min	Max
Methane	mol %	80	-
Nitrogen	mol %	-	1.2
Gross Calorific Value	kWh/m <sup>3</sup> (n)	10.83	12.43
Wobbe Number	kWh/m <sup>3</sup> (n)	14.17	15.56
LNG density at atmospheric equilibrium pressure, i.e. 1013.25 mbar absolute	kg/m <sup>3</sup> LNG	425	480

**Source:** Fluxys LNG website.



Max. LNG temperature allowed at the delivery point:

The LNG temperature at the delivery point shall preferably be at or below the LNG atmospheric boiling point, i.e. the liquid temperature in equilibrium with an absolute pressure of 1013.25 mbar. In any case the calculated equilibrium vapour pressure, based on the LNG temperature and the LNG molar composition at the delivery point as calculation inputs, shall not exceed an absolute pressure of 1150 mbar.

Reference standards:

ISO standards, e.g. ISO 6976: 1995 for calorific values (calorific reference temperature: + 25°C)  
Calculated LNG density: revised Klosek-McKinley method (Technical Note Nr. 1030, 1980).

**Table 8: Limitations for impurities and components at the Zeebrugge LNG terminal.**

Specific limitations for trace components and impurities in LNG	Unit	Max
iC4	mol %	1
nC4	mol %	1
iC5	mol %	0.2
nC5	mol %	0.2
C6+	mol %	0.1
H <sub>2</sub> S + COS (as S)	mg/m <sup>3</sup> (n)	5
Total S (as S)	mg/m <sup>3</sup> (n)	22.4
Mercaptans (as S)	mg/m <sup>3</sup> (n)	6
O <sub>2</sub>	Ppm (vol)	10
CO <sub>2</sub>	Ppm (vol)	100
CO	Ppm (vol)	1
H <sub>2</sub>	Ppm (vol)	1
H <sub>2</sub> O	Ppm (vol)	0.1
Hg	nano g/m <sup>3</sup> (n)	50
Hydrocarbon dewpoint (cricondenthem)	°C@0-69 barg	-20
Solids	no deposits on '32 mesh strainer'	

**Source:** Fluxys LNG website.

Impurities:

To avoid internal clogging or erosion of equipment, as a general rule the delivered LNG shall not contain any fluid component (e.g. aromatics, C<sub>6</sub>H<sub>6</sub>, CO<sub>2</sub>, CH<sub>3</sub>OH, etc.) in a concentration higher than 50% of the solubility limit in LNG of that particular fluid component in the operating pressure



and operating temperature range of resp. 0 to 100 bar abs. and -162 to + 50 °C. C<sub>6</sub>H<sub>6</sub>: max. 1 ppm, CH<sub>3</sub>OH: max. 0.5 ppm.

Contaminants:

As a general rule, the delivered LNG shall not contain any liquid or solid contaminants.

1.2.13.2 Specific requirements at the Redelivery Point: ZBT Entry Point of the Fluxys transmission grid

**Table 9: Specific requirements at the Redelivery point.**

	Unit	Min	Max
Gross Calorific Value	kWh/m <sup>3</sup> (n)	10.81	12.79
Wobbe Number	kWh/m <sup>3</sup> (n)	13.65	15.56
Pressure for offtake by Fluxys <sup>37</sup>	bar gauge	55	80
Temperature	°C	2	38
Hydrocarbon Dewpoint	°C from 0 bar gauge up to 69 bar gauge	-	Minus 2
Water Dewpoint	°C at 69 bar gauge	-	Minus 8
Oxygen content (O <sub>2</sub> )	Ppm (vol)	-	5000
Carbon dioxide content (CO <sub>2</sub> )	vol %	-	2.0
Hydrogen sulphide content (H <sub>2</sub> S) (inclusive of COS) (as S)	mg/m <sup>3</sup> (n)	-	5
Total sulphur at any time (as S)	mg/m <sup>3</sup> (n)	-	150
Total sulphur (as S) yearly	mg/m <sup>3</sup> (n)	-	120

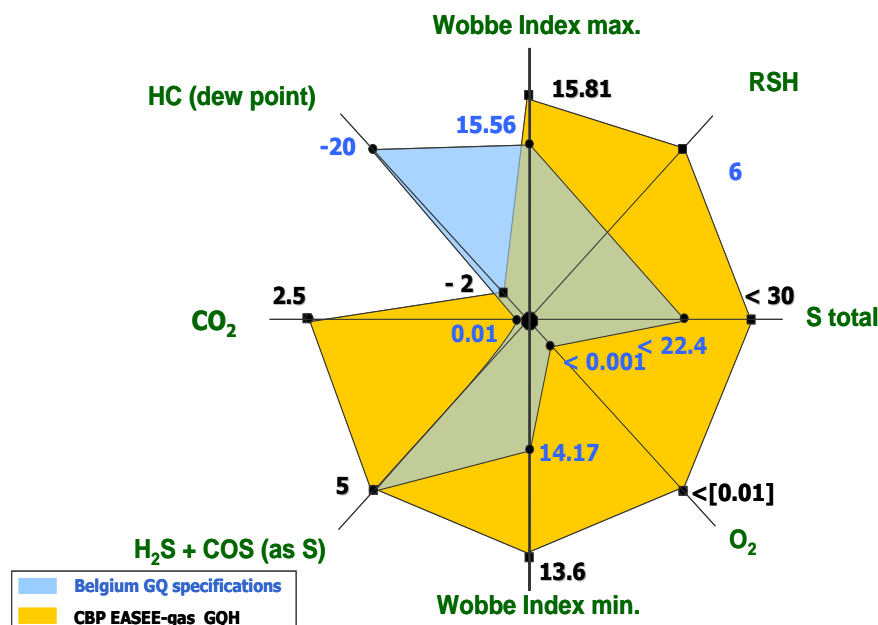
**Source:** *Fluxys LNG website.*

The natural gas redelivered may not contain other elements and impurities (such as but not limited to methanol, condensates, gas odorants) to the extent that the natural gas delivered cannot be transported, stored and marketed in Belgium without incurring additional cost for quality adjustment.

No blending service is currently offered.

<sup>37</sup> The Shipper shall make available the Natural Gas at any pressure within that range as requested from time to time by Fluxys LNG (TO).

Figure 4: Gas quality specifications at Zeebrugge LNG terminal vs. EASSE-gas specifications.



Source: Elaborated from data on Fluxys LNG website and EASSE-gas CBP 2005-001-01 Gas Quality Harmonisation.

#### 1.2.14 Balancing regime/Management of LNG stock levels.

This information is available at “Main Conditions for accessing the LNG terminal – Chapter V” and at “Terminalling Code – Appendix C Art.5”.

Fluxys LNG established, on an hourly basis, a gas in storage account for each user of the LNG terminal according to the input and output allocations of the LNG terminal, taking into account an offtake of gas in kind and any quantities of LNG that may be transferred between users of the terminal.

The gas in storage account of a user of the LNG terminal must, at any given moment:

- Be more than or equal to zero (without prejudice to an LNG lending service), and
- Be less than or equal to the storage capacity at the disposal of the user of the LNG terminal at that particular moment.

If the gas account balance of a user of the LNG terminal exceeds its storage capacity, Fluxys LNG may reduce the gas account of the user of the LNG terminal to the quantity of gas in excess compared to its storage capacity and, reimburse the user of the terminal the revenue generated by the sale of this quantity of gas, after deducting reasonable costs incurred by Fluxys LNG.

The quantity of gas in storage, expressed in kWh is calculated as:

- The gas in storage as from the service start date of the Terminalling Contract;



- (ii) The total quantity of LNG delivered by the terminal user at the delivery point as from the service start date of the Terminalling Contract, including corrections resulting from fuel gas reimbursement percentage and from the energy balance;
- (iii) Total quantities of natural gas delivered into the LNG terminal through reverse nominations at the redelivery point (increased with a correction for the fuel gas reimbursement percentage),
- (iv) Total quantities of other terminal user's gas in storage transferred to the terminal user;

less the sum of:

- a) The quantities of natural gas redelivered by Fluxys LNG at the redelivery point, or any other point as may be agreed between Fluxys LNG and the terminal user, on all days, as from the service start date of the Terminalling Contract, for the contract period, up to and including such hour on such day;
- b) Without prejudice to the fuel gas related correction pursuant to (ii), the quantities of Natural Gas corresponding to fuel gas reimbursement, applied to the quantities of Natural Gas referred to under (a) above;
- c) the quantities of Natural Gas exceeding the storage capacity for which Fluxys LNG has implemented overrule rights;
- d) The quantities, if any, of Natural Gas lost after delivery to Fluxys LNG, which loss was due to the fault, duly documented and proven by Fluxys LNG, of the terminal user;
- e) Total quantities of gas in storage transferred to other terminal users.

In the case where the terminal user's gas in storage exceeds terminal user's storage capacity, Fluxys LNG shall immediately advise terminal user and terminal user shall either purchase daily storage for the gas in storage exceeding its storage capacity and/or increase the send-out and/or purchase daily send-out capacity and increase the send-out for the duration of the period terminal user's gas in storage exceeds terminal user's storage capacity.

In the course of the month M+1, Fluxys LNG shall establish an energy and mass balance for the LNG terminal for the month M.

This energy difference (A) minus (B) for that month M shall be calculated as follows:

The value of (A) shall be:

- The total quantity of Natural Gas physically redelivered at the redelivery point or at any other point as may be agreed over the month M; and
- The actual Fuel Gas consumption in month M; and
- Any quantity of Natural Gas lost, firmly established, such as flare losses in month M; and
- The change in a terminal users' gas in storage over the month M;

The value of (B) shall be:



- The total quantity of LNG physically delivered at the delivery point over the month M.

Any gains  $((A) - (B) > 0)$  shall be credited and any losses  $((B) - (A) > 0)$  shall be debited to the terminal users, after having unloaded its first LNG ship in month M+2 or in any later month, pro rata such terminal user's LNG delivered at the delivery point over that month M.

However if such loss  $((B) - (A))$  exceeds 0.50% of the LNG delivered at the delivery point over the month M, the amount debited to the terminal users shall in total be limited to 0.50% of the terminal users' LNG delivered at the delivery point throughout month M. The remaining part of such loss over 0.50% shall be at the expense of Fluxys LNG.

If the gain or loss in any month exceeds 0.30% of the LNG delivered at the delivery point over the month M, Fluxys LNG and the terminal users shall as appropriate check any and all equipment used for measuring the energy balance and take the appropriate corrective actions.

### **1.2.15 Own consumption record and gas in kind.**

#### Own Consumption Record

This information is available in the document "Main Conditions for accessing the LNG terminal – Chapter XI".

Fluxys LNG establish, for the LNG terminal, a record called the "Own Consumption Record". The record, on a monthly basis, details the quantity of gas oftaken for own use. These quantities of gas are broken down into the following categories:

- The gas used by the vaporisers for regasifying the LNG.
- The gas used during interventions on the installations and losses.
- Given the situation with regard to the ownership / co-ownership of the cogeneration installation, if appropriate, the gas used for the production of heat by the cogeneration unit.
- Own uses linked to the compressors and the heating of the premises.

Any purchases of gas for own use beyond the offtake of gas in kind according to the tariffs approved by the CREG is carried out in a non-discriminatory and transparent way.

#### Fuel Gas Reimbursement Percentage

The concept of "Fuel Gas Reimbursement Percentage" is defined at the "Terminalling Code – Appendix C, Art. 5.1.2 and at "Fluxys LNG Terminal Services; Conditions & Tariffs applicable as from 01 April 200 Point 3, note 5"

The estimated quantity of fuel gas expressed in kWh for each month M,  $FG_m$ , shall be determined as being a percentage of the natural gas redelivered by Fluxys LNG to the terminal users at the redelivery point. Before the end of each month M-1, Fluxys LNG shall notify terminal users of the value of  $FG_m$  which shall not exceed the maximum fuel gas reimbursement percentage. In the course of month M+1, Fluxys LNG shall determine the actual fuel gas consumption for the LNG terminal during the month M, in accordance with the Terminalling Contract. If the actual fuel gas consumption during month M exceeds the maximum fuel gas reimbursement percentage of the





natural gas redelivered by Fluxys LNG at the redelivery point during said month M, the actual fuel gas consumption shall be deemed to be equal to the maximum fuel gas reimbursement percentage multiplied by the natural gas redelivered by Fluxys LNG at the redelivery point. Fluxys LNG will use reasonable endeavours to minimize the actual fuel gas consumption at the LNG terminal, in which shall include operating the CHP unit existing at the effective date of the Terminalling Contract, as much as reasonably possible

If the actual monthly average aggregate of shipper's and other shipper's send-out in a given month M is less than 2.53 GWh/h and is not due to Terminal Operator's fault or due to Force Majeure, then the Fuel Gas Reimbursement Percentage shall be calculated as follows:

*Fuel Gas Reimbursement Percentage = 1.30% + 1.3% \* (2.53 – actual monthly average aggregate of shipper's and other shipper's send-out (GWh/h)), calculated to two significant digits. The Fuel Gas Reimbursement Percentage shall not exceed 3.40%.*

If the TO reasonably estimates that the actual monthly average aggregate of shipper's and other shipper's send-out in a given month M will be less than 2.53 GWh/h, TO shall use reasonable endeavours to minimize the use of the CHP, in order to minimize the use of fuel gas.

The difference between: (i) the quantity, expressed in kWh, resulting from applying the Fuel Gas Reimbursement Percentage, to the natural gas redelivered at the redelivery point by TO, and (ii) the actual fuel gas consumption determined for the month M, taking into account the Fuel Gas Percentage, shall be credited or debited, as applicable, to shipper's and other shipper's gas in storage pro rata the natural gas redelivered at the redelivery point by TO to shipper and other shippers during the month M. Such credit or debit shall be applied after the shipper or other shipper has unloaded its first LNG ship in month M+2 or in any later month.

#### **1.2.16 Charges and/or penalties for imbalance, cancellation and other, including minimum payment obligations.**

According to "Main Conditions Fluxys LNG – Chapter XII, Art.70" the maximum compensation paid by any of the parties shall not exceed a maximum amount of:

- For each slot lost or interrupted following an event or a series of events: an amount equal to five times the regulated payable tariff for the slot concerned provided this amount does not exceed the amount envisaged for the contractual year;
- For each service (other than the slot) envisaged by the terminalling contract that is lost or interrupted following an event or a series of events: an amount equal to 2.5 times the regulated payable tariff for the slot concerned provided this amount does not exceed the amount envisaged for the contractual year;
- Per contractual year: an amount equal to 3/12 of the invoicing amount payable by the user of the LNG terminal concerned during the contractual year for all its contracts, with a minimum equal to the regulated payable tariff for a slot.

Furthermore, the terminalling contracts provide for the possibility for the user of the LNG terminal to terminate the terminalling contract in accordance with the following terms and conditions:

- For contracts involving the unloading of less than 5 LNG carriers and a maximum contract period of 2 years:



- In the event where the user notifies (by registered letter) its wish to terminate the terminalling contract at least 3 months before the start date of the contract in question, the user of the LNG terminal may terminate the terminalling contract in return for the payment, to Fluxys LNG, of an indemnity corresponding to 75% of the invoiced sums (calculated on the basis of the tariff conditions linked to the reservation of capacity – exclusive of the terms linked to use) provided for by the terminalling contract;
- In other cases, the user of the LNG terminal may terminate the terminalling contract in return for the payment, to Fluxys LNG, of an indemnity corresponding to the invoiced sums (calculated on the basis of the tariff conditions linked to the reservation of capacity - exclusive of the terms linked to use) provided for by the terminalling contract for the remaining contractual period.
- For contracts other than those stipulated before, the user of the LNG terminal may terminate the terminalling contract in return for the payment, to Fluxys LNG, of an indemnity corresponding to:
  - 95% of the invoiced sums (calculated on the basis of the tariff conditions linked to the reservation of capacity - exclusive of the terms linked to use) provided for by the terminalling contract for the remaining contractual period in so far as said period is greater than 2 years;
  - 100% of the invoiced sums (calculated on the basis of the tariff conditions linked to the reservation of capacity - exclusive of the terms linked to use) provided for by the terminalling contract for the remaining contractual period in so far as said period is less than or equal to 2 years.

In case an LNG carrier fails to arrive on time for a rescheduled slot, the terminal user shall pay a rescheduling fee equal to 5,000 €.

Moreover, in the event shipper's LNG carrier exceeds the allowed laytime, shipper shall pay demurrage actually incurred for the next LNG ship due to berth at the LNG terminal at the demurrage rate equivalent to 75,000 \$/day.

### **1.2.17 Financial Guarantees.**

In terms of financial guarantees the information can be found in the “Main Conditions Fluxys LNG – Chapter XII”.

#### For a terminalling contract of 30 days or more:

- The user of the LNG terminal must, at any time and at the latest thirty days before the provision of services, have a bank guarantee, in favour of Fluxys LNG, with a bank approved by the Banking, Finance and Insurance Commission (or an equivalent organisation of one of the 15 Members States of the European Union at 30<sup>th</sup> April 2004) of an amount at least equal to the average monthly amount (VAT included) calculated on the basis of the total amount of the invoices anticipated for the contractual year to come and of which there are not less than thirty days to run.
- On the anniversary date of the terminalling contract in progress at the latest and provided that there remain no less than thirty days to run for this contract, the user of the LNG



terminal shall give evidence to Fluxys LNG each year that the financial institution that issued the bank guarantee or another financial institution that satisfies the criteria enumerated above, has extended the period of the bank guarantee and adapted its amount according to the average monthly amount (VAT included) calculated on the basis of the total amount of the invoices anticipated for the contractual year to come.

*For a terminalling contract of less than thirty days:*

- the user of the LNG terminal shall transfer to Fluxys LNG, at the latest by the date that the services start, the invoicing amount (including VAT) anticipated for the said terminalling contract.

When the user of the LNG terminal has ceased to meet the requirements for terminalling contract of thirty years or more, it must, under penalty of contractual default, immediately inform Fluxys LNG thereof by registered letter. The user of the LNG terminal shall have twenty banking days to submit the proof to Fluxys LNG of a new bank guarantee that meets the requirements above. After the expiry of twenty banking days and in the absence of a new bank guarantee, the terminalling contract of the user of the LNG terminal shall be automatically suspended as of right.

In the absence of payment of the invoices after the due date and beyond the fourteen calendar days after the receipt by the user of the LNG terminal of a formal notice sent by Fluxys LNG by registered letter, Fluxys LNG shall be entitled to invoke the bank guarantee. When Fluxys LNG invokes the bank guarantee, the user of the LNG terminal, within twenty banking days from the day when Fluxys LNG invoked the bank guarantee, shall give evidence that the financial institution that issued the bank guarantee has adapted the amount of the bank guarantee to the level determined above or will constitute a new bank guarantee meeting the conditions mentioned above. Failing which, the terminalling contract shall be automatically suspended as of right.

### **1.2.18 Secondary market.**

The information about the operational rules on the secondary market is described at: "Terminalling Code – Appendix J".

The available slots for the secondary market are published at Fluxys LNG website.

The secondary market works as follows:

- i. More than twenty days before the start date of the slot, the user of the LNG terminal can only sell slots on the secondary market in the form of full slots, without breaking them down to their constituent services.

From twenty days before the start date of the slot, the user of the LNG terminal may sell the various services that constitute the slot separately on the second market.

- ii. Before the 20<sup>th</sup> day of month M-3, the user of the LNG terminal programmes the number of slots that it is scheduling for the month M.

Before the 20<sup>th</sup> day of month M-2, the user of the LNG terminal notifies the dates of slots that it has programmed.

- iii. At latest on the first day of month M-2, the user of the LNG terminal must notify Fluxys LNG of the slots that it does not intent to use. Due to this notification, the user of the



LNG terminal authorises Fluxys LNG to sell, on behalf of the user of the LNG terminal, the slot in question.

- iv. Fluxys LNG sells the slots that it has been notified of in accordance with point (iii). These slots are published on Fluxys LNG's website, and are sold at the regulated tariff as complete slots up to ten days before the start date of the slot. They are allocated on the basis of the principle *First Come/First Served*.

Ten days before the start date of the slot, the capacities that constitute the slot are marketed by Fluxys LNG in a dissociated way at the regulated tariff. As soon as the slot or the constituent capacity has been allocated Fluxys LNG will notify the user of the LNG terminal, and adapt the website.

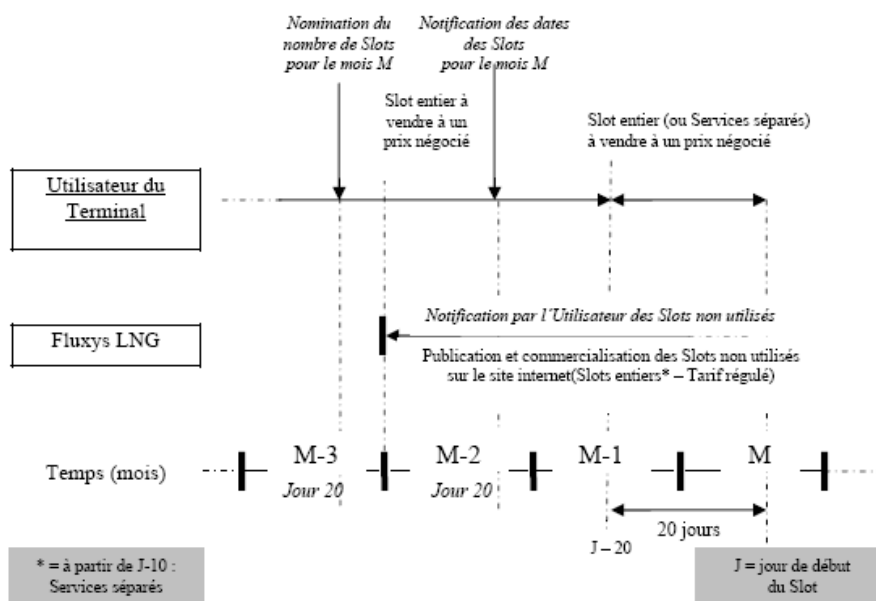
- v. Without prejudice to points (iii) and (iv), the user of the LNG terminal still retains the possibility of selling the slots at a negotiated price on the secondary market, and from twenty days before the start date of the slot the user of the LNG terminal can sell the services making up this slot on the secondary market at a negotiated price.

If the user of the LNG terminal has sold a slot, or the capacities constituting a slot, that has been subject of a notification in accordance with point (iii), then the user of the LNG terminal will notify Fluxys LNG who will interrupt the sale of the slot in question and actualize its website.

If the user of the LNG terminal has sold capacity in a dissociated way, the possible residual capacity not sold ten days before the start date of the slot will be marketed by Fluxys LNG according to point (iv).

- vi. Regarding to point (ii), Fluxys LNG will take into account any slot nominated by the user of the LNG terminal but not used, provided that this slot was no subject of a notification pursuant to point (iii) of this article.

**Figure 5: Secondary market for capacity at the Zeebrugge LNG terminal.**



**Source:** *Terminalling Code – Appendix J*

### 1.2.19 Limitation in vessel size.

The information about the limitation in vessel size can be found at Fluxys LNG website.

The Fluxys LNG terminal is able to handle LNG carriers of almost all different types and capacities:

- LNG carriers with a Length Over All of up to 350 m, a breadth of up to 55 m and a draft of up to 12 m; there is no limitation of aircraft,
- Membrane Technique Carriers, Moss Rosenberg Technique Carriers and the newest generation of LNG carriers,
- LNG carriers with a capacity of 40,000 m<sup>3</sup> LNG to up to 135,000 m<sup>3</sup> LNG or even above can be unloaded

It is also interesting to note that the Fluxys LNG terminal has an unloading capacity of up to 12,000 m<sup>3</sup> LNG/hour; the jetty consists of four LNG 16" unloading arms and one vapour return arm.

### 1.2.20 Force Majeure.

"Force Majeure" is not explicitly defined in the access rules.

According to the study "Third Party Access to LNG terminals" commissioned by NERA, in the event that a capacity owner cannot use a slot by Force Majeure of the TO then the slot can be made up at another time.



### **1.2.21 Ship Approval Procedure at LNG terminal.**

Only LNG carriers that have successfully passed the Ship Approval Procedure may dock at the LNG terminal. The Ship Approval Procedure is attached to the terminalling contract and included in the “Terminalling Code – Appendix D”. The Procedure is made up of the following five stages:

#### **1.2.21.1 Stage 1.**

The main objective of this step is to gather all necessary information to determine the compatibility of the LNG carrier to the berth at the LNG terminal.

Information between the TO and the shipper shall be exchanged.

#### **1.2.21.2 Stage 2.**

In order to verify both the technical compatibility and the operational aspects, it is important to determine that the LNG ship and LNG Terminal know each party's Operating Procedures to work in a safe way.

This is completed by a careful scrutiny and review of all documents exchanged during stage 1.

#### **1.2.21.3 Stage 3.**

Fluxys LNG at its own discretion may or may not require an LNG carrier inspection (vetting) prior to the first berthing of the LNG carrier at the LNG terminal. This inspection is performed by an endorsed inspector of Fluxys LNG and performed according to Inspection Guidelines accepted by Fluxys LNG. Such inspection shall be without prejudice to the responsibility of the parties as specified in the relevant contracts. These Inspection Guidelines shall be consistent with the OCIMF inspection guidelines and SIGTTO's latest recommendations for crew safety standard and training on LNG ships.

Fluxys LNG's Inspection Guidelines focus on identifying risks occurring when the LNG carrier is within the unloading port (particularly at berth at the LNG terminal) and intend to reduce such risks, thereby assessing both procedures (operational and safety) and equipment.

A list of remarks and/or deficiencies, arising from such inspection, if any, shall be handed over to the master of the LNG carrier at an exit meeting held onboard the LNG carrier. Upon receipt of the implementation schedule of the corrective actions, Fluxys LNG shall decide whether the LNG carrier can be received at the LNG terminal.

Terminal user shall promptly notify or procure that Fluxys LNG is notified if any of its LNG carrier, pre-approved or approved according to this Ship Approval Procedure, has been rejected or has failed a ship safety inspection at another LNG terminal. Terminal user shall provide Fluxys LNG with all relevant technical details and information in that respect.

#### **1.2.21.4 Stage 4.**

Depending on the outcome of the previous steps, an LNG carrier shall either be approved or approved pending corrective action, for a single cargo unloading, which shall constitute the Unloading Test. Otherwise the LNG carrier shall be rejected.



### 1.2.21.5 Stage 5.

Before and during each call at the LNG terminal, terminal user shall provide timely assistance to Fluxys LNG, to clarify and solve any urgent issues that may arise before or during each call of one of the terminal user's LNG carrier. The terminal user's assistance can preferably be implemented by notifying Fluxys LNG for each call of the LNG carrier of who will be the terminal user's representative for that specific call. The terminal user shall provide Fluxys LNG all necessary and relevant details on how Fluxys LNG can reach terminal user's representative via telephone, mobile phone, e-mail, etc. This terminal user's representative shall be present before and during the LNG carrier's call, and be empowered to make all necessary "ad hoc" operational decisions on behalf of the terminal user, e.g. regarding any arising safety, security, technical, crew, environmental issues, LNG cargo off-spec issues, ship's chandler's issues, bunkering or waste handling issues.

### 1.2.22 *Standard contracts.*

No standard contracts have been published. Contracts shall respect the access rules detailed at "Main Conditions for accessing the LNG terminal of Fluxys LNG" and "Terminalling Code for the Zeebrugge LNG terminal".

### 1.2.23 *TPA tariffs.*

TPA tariffs are available at Fluxys LNG website.

The following tariffs, expressed in 2003 prices, are in force from April 1<sup>st</sup> 2007 to March 31<sup>st</sup> 2027:

- Slot: 750,443 €/slot
- Unit tariff for additional storage: 1.95 €/(kWh/h)/year
- Unit tariff for additional send-out: 96.39 €/m<sup>3</sup> LNG/year

And from April 1<sup>st</sup> 2007 to December 31<sup>st</sup> 2007:

- Loading trucks: 512.2 €/loading
- Commercialization of the unused capacities by Fluxys LNG at the secondary market: 3% of the regulated tariff of the sold capacities

These tariffs are under discussion and are not approved for 20 years. However, for 2009 the truck loading and secondary market tariffs are the same. On the other hand, the liquid nitrogen tariff has changed, and amounts up to 744,424.5 €/year.

In addition to these tariffs, it must be taken into account that:

- In case an LNG carrier fails to arrive on time for a rescheduled slot, the terminal user shall pay a rescheduling fee equal to 5,000 €.
- In the event that the shipper's LNG carrier exceeds the allowed laytime, the shipper shall pay demurrage actually incurred for the next LNG ship due to berth at the LNG terminal at the demurrage rate equivalent to 75,000 \$/day.





As already mentioned, all tariffs are expressed as values of July 2003. The monthly index, starting in August 2003, is calculated as follows:

$$0.65 + 0.35 * I_{m-1} / I_{m0}$$

Where:

- $I_{m0}$ : Belgian Consumer Price Index (CPI) on July 1<sup>st</sup> 2003 which is 112.59
- $I_{m-1}$ :  $I_{m-2} * (\text{CPI for month M-1} / \text{CPI for month M-2})$

Subject to:

- $I_{m-1}$  not being greater than 1.03 times the Index used in the most recent month of August.
  - $I_{m-1}$  for August 2003 being equal to 112.59.
- $I_{m-2}$ : the value of the Index used in the preceding month.

The updated tariffs are not published on Fluxys LNG or CREG's websites.

The regulated tariff for the LNG loading service includes a fixed component of 75,000 € per loading operation and a variable component of 0.1 € per MWh loaded.

New LNG ships or LNG ships back in service after maintenance can also be loaded, with the terminal offering the appropriate loading preparation services. The regulated tariff for loading preparation services is 544 € per hour.

Furthermore, 3,264 € are charged for approval of a truck.

### **1.2.24 Capacity booking procedures.**

Within two months after the approval of the Terminalling Code by CREG, Fluxys LNG has to develop an automatic reservation system (ARS). By this ARS, any terminal user who signed the Terminalling Code can check the availability of capacity and book available capacity.

Fluxys LNG provides LNG terminal users with the facility to automatically reserve a selection of standard terminalling services using an electronic platform.

The ARS user can reserve certain terminalling services on line using a secure Web application. The user will be able to start to use the services that have been reserved as soon as it has subscribed to these services and as soon as Fluxys LNG has confirmed this subscription.

This ARS is available 24 hours a day, 7 days a week.

To be able to use the ARS, the terminal user signs an ARS Access Form in accordance with the terms that it commits itself to, in particular, to comply with the conditions of use of the ARS. ARS User status can be obtained by signing the ARS Access Form.

On the ARS Access Form, the User specifies the following points, in particular:





- The identity of the user's employees, which will have access to the ARS and which will be able to perform operations on it on behalf of and for the account of the user. The user defines the rights, which will be granted to each of its employees. It notifies Fluxys LNG of the amendments made to the list of authorised employees and/or made to the rights that have been granted to them. This list is reviewed annually by Fluxys LNG and by the user.
- The maximum authorised amount per transaction as well as the total amount of the transactions that the user/each of its employees can make using the ARS. The total amount of the transactions is calculated based upon the sum of the subscription requests in progress and the services already subscribed to by the ARS but not yet paid for. If the maximum amount of a transaction or the total amount of the transactions exceeds the maximum authorised amount, the transaction will be refused by Fluxys LNG.

The user will effectively have access to the ARS as soon as it has a valid certificate. If the valid period of the certificate has expired, or if the certificate is no longer valid for any other reason, access to the ARS will be refused.

As soon as the user has signed an ARS Access Form and has a valid certificate for making transactions using the secure line, within 2 weeks it will receive the number of agreed access codes that it will use/that its employees will use to identify itself/themselves and to make transactions.

The ARS forms part of Fluxys LNG's Extranet application, which provides online services to users of the ARS. This application provides access to a variety of data, information and service platforms.

The following functions will be available:

- Viewing available capacities: it allows its users to view all of the capacities available at any time. An update is made every hour.
- Reserving services on the Primary Market using the ARS. The following services can be reserved using the ARS: daily storage, daily send-out Capacity, additional send-out entitlements. The availability of these capacities is published and updated every hour and can be reserved 30 days before the start of the service but have not yet been allocated. The day before the start of the service at 6h, the available capacities are confirmed for the following day. The day before at 11h, the capacities allocated per service are confirmed for all services.
- Viewing information such as scheduling Slots using the ARS.

## 1.3 Spain.

### 1.3.1 General overview.

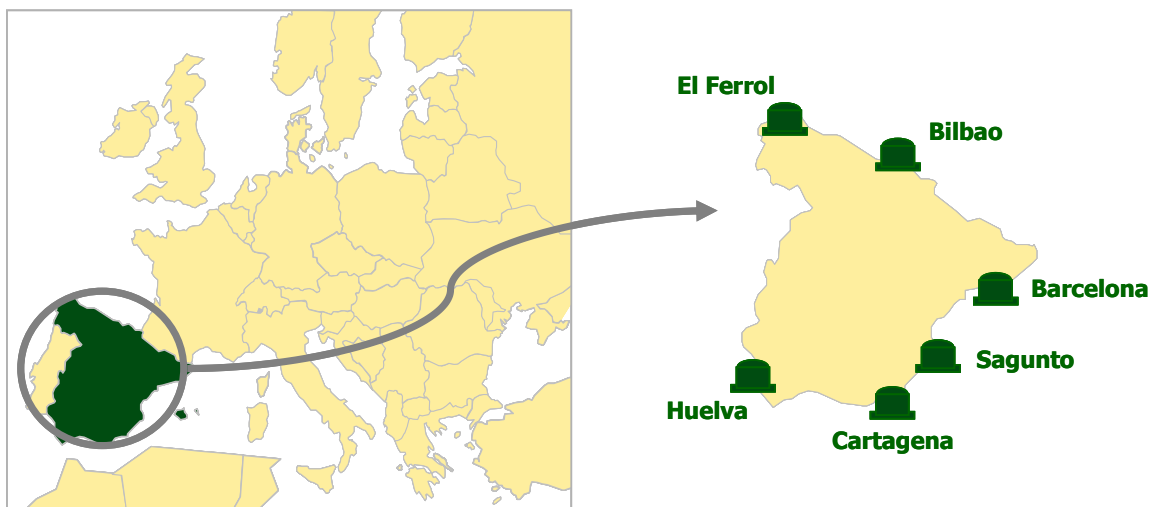
There are six LNG terminals in Spain, all of them subject to regulated TPA.

- Barcelona (Enagás),
- Cartagena (Enagás),
- Huelva (Enagás),
- Sagunto (Saggas);
- El Ferrol (a.k.a. Mugardos) (Reganosa), and
- Bilbao (BBG).

These terminals receive LNG from a number of exporting countries, including Algeria, Egypt, Libya, Nigeria, Oman, Qatar and Trinidad & Tobago.

The following map shows the location of the LNG terminals in Spain:

**Map 2: Location of LNG terminals in Spain.**



The characteristics of the LNG terminals are detailed in the table below:

Table 10: General information about the Spanish LNG terminals.

<b>Spain, Barcelona</b> Start-up: 1968			
MAX. HOURLY CAPACITY 1.950.000 m <sup>3</sup> (N)/h		NOM. ANNUAL CAPACITY 17,1 bm <sup>3</sup> (N)/year	
NOMINATION MATCHING SCHEDULE	Yes Yes D/D	ALLOCATION FLOW CONTROL MEASUREMENT	OBA Yes Yes
LNG STORAGE CAPACITY	current : 540.000 m <sup>3</sup> LNG by 2011: 680.000 m <sup>3</sup> LNG		
NUMBER OF TANKS	current : 6 by 2011: 5		
MAX. SHIP CLASS SIZE REC.	current : 140.000 m <sup>3</sup> LNG future : 250.000 m <sup>3</sup> LNG		
URL AUTHORISED SHIPS NUMBER OF JETTIES (jetty 1 : 80.000 / jetty 2 : 140.000 ) MIN. SEA DEPTH ALONG SIDE MAX. SEND OUT PRESSURE		www.enagas.es 2 15 m 72 bar	

<b>Spain, Huelva</b> Start-up: 1988			
MAX. HOURLY CAPACITY current : 1.350.000 m <sup>3</sup> (N)/h by 2015: 1.800.000 m <sup>3</sup> (N)/h		NOM. ANNUAL CAPACITY current : 11,8 bm <sup>3</sup> (N)/year by 2015: 15,8 bm <sup>3</sup> (N)/year	
NOMINATION MATCHING SCHEDULE	Yes Yes D/D	ALLOCATION FLOW CONTROL MEASUREMENT	OBA Yes Yes
LNG STORAGE CAPACITY	current : 460.000 m <sup>3</sup> LNG by 2015: 760.000 m <sup>3</sup> LNG		
NUMBER OF TANKS	current : 4 by 2015: 6		
MAX. SHIP CLASS SIZE REC.	current : 137.500 m <sup>3</sup> LNG future : 250.000 m <sup>3</sup> LNG		
URL AUTHORISED SHIPS NUMBER OF JETTIES MIN. SEA DEPTH ALONG SIDE MAX. SEND OUT PRESSURE		www.enagas.es 1 12,5 m 72 bar	

<b>Spain, Sagunto</b> Start-up: 2006			
MAX. HOURLY CAPACITY current : 1.000.000 m <sup>3</sup> (N)/h by 2014: 1.600.000 m <sup>3</sup> (N)/h		NOM. ANNUAL CAPACITY current : 8,8 bm <sup>3</sup> (N)/year by 2014: 14 bm <sup>3</sup> (N)/year	
NOMINATION MATCHING SCHEDULE	Yes Yes D/D	ALLOCATION FLOW CONTROL MEASUREMENT	OBA Yes Yes
LNG STORAGE CAPACITY	current : 450.000 m <sup>3</sup> LNG by 2014: 750.000 m <sup>3</sup> LNG		
NUMBER OF TANKS	current : 3 by 2014: 5		
MAX. SHIP CLASS SIZE REC. URL AUTHORISED SHIPS NUMBER OF JETTIES MIN. SEA DEPTH ALONG SIDE MAX. SEND OUT PRESSURE		265.000 m <sup>3</sup> LNG www.saggas.es 1 - m 72 bar	

<b>Spain, Cartagena</b> Start-up: 1989			
MAX. HOURLY CAPACITY current : 1.350.000 m <sup>3</sup> (N)/h by 2014: 1.650.000 m <sup>3</sup> (N)/h		NOM. ANNUAL CAPACITY current : 10,5 bm <sup>3</sup> (N)/year by 2014: 14,5 bm <sup>3</sup> (N)/year	
NOMINATION MATCHING SCHEDULE	Yes Yes D/D	ALLOCATION FLOW CONTROL MEASUREMENT	OBA Yes Yes
LNG STORAGE CAPACITY	current : 437.000 m <sup>3</sup> LNG by 2014: 590.000 m <sup>3</sup> LNG		
NUMBER OF TANKS	current : 4 by 2014: 5		
MAX. SHIP CLASS SIZE REC. URL AUTHORISED SHIPS NUMBER OF JETTIES MIN. SEA DEPTH ALONG SIDE MAX. SEND OUT PRESSURE		263.000 m <sup>3</sup> LNG www.enagas.es 1 15 m 72 bar	

<b>Spain, Bilbao</b> Start-up: 2003			
MAX. HOURLY CAPACITY current : 800.000 m <sup>3</sup> (N)/h by 2011: 1.400.000 m <sup>3</sup> (N)/h		NOM. ANNUAL CAPACITY current : 7 bm <sup>3</sup> (N)/year by 2011: 12,3 bm <sup>3</sup> (N)/year	
NOMINATION MATCHING SCHEDULE	Yes Yes D/D	ALLOCATION FLOW CONTROL MEASUREMENT	OBA Yes Yes
LNG STORAGE CAPACITY	current : 300.000 m <sup>3</sup> LNG by 2011: 600.000 m <sup>3</sup> LNG		
NUMBER OF TANKS	current : 2 by 2011: 4		
MAX. SHIP CLASS SIZE REC. URL AUTHORISED SHIPS NUMBER OF JETTIES MIN. SEA DEPTH ALONG SIDE MAX. SEND OUT PRESSURE		270.000 m <sup>3</sup> LNG www.bahiasdebizkaia.com 1 20 m 72 bar	

<b>Spain, El Ferrol</b> Start-up : May 2007			
MAX. HOURLY CAPACITY current : 413.000 m <sup>3</sup> (N)/h by 2013: 825.600 m <sup>3</sup> (N)/h		NOM. ANNUAL CAPACITY current : 3,6 bm <sup>3</sup> (N)/year by 2013: 7,3 bm <sup>3</sup> (N)/year	
NOMINATION MATCHING SCHEDULE	Yes Yes D/D	ALLOCATION FLOW CONTROL MEASUREMENT	OBA Yes Yes
LNG STORAGE CAPACITY	current : 300.000 m <sup>3</sup> LNG future : 300.000 m <sup>3</sup> LNG		
NUMBER OF TANKS	current : 2 future : 2		
MAX. SHIP CLASS SIZE REC. URL AUTHORISED SHIPS NUMBER OF JETTIES MIN. SEA DEPTH ALONG SIDE MAX. SEND OUT PRESSURE		145.000 m <sup>3</sup> LNG www.reganosa.com 1 15 m 72 bar	

Source: GLE's LNG map, June 2010.



### 1.3.2 Unbundling requirements.

Article 63 of the Hydrocarbons Law establishes that companies developing regulated activities of regasification, transmission or storage of natural gas are neither allowed to develop production or commercialisation activities nor take shares of companies that carry out these activities.

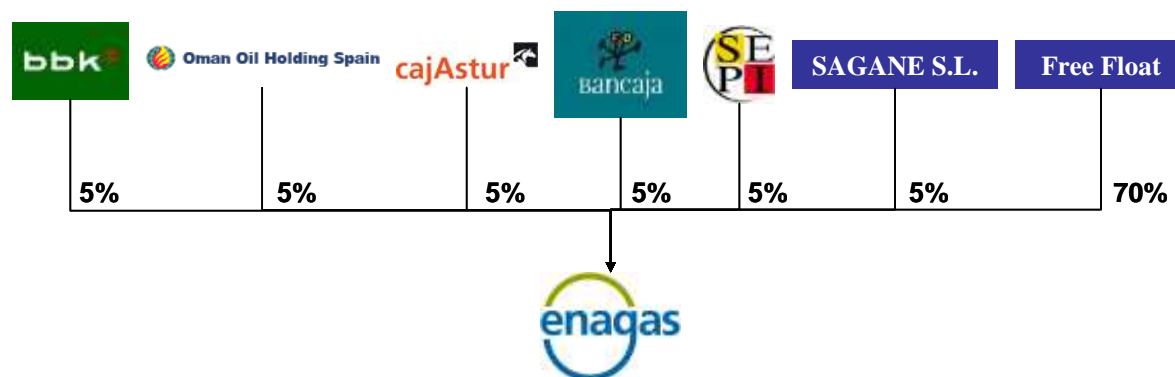
Companies that operate any basic infrastructure of the national natural gas network should have separate internal accounts of the activities of regasification, storage and transportation.

In the case of Enagás, the main LNG terminal operator, strict ownership unbundling measures are applied. Unbundling requirements for other operators do not include restrictions on ownership, and are limited to legal, accounting and managerial provisions.

- Enagas S.A. ([www.enagas.es](http://www.enagas.es)) is the owner and operator of the LNG terminals located in Barcelona, Cartagena and Huelva.

Enagás is an independent infrastructure operator and the System Technical Manager in Spain (GTS, Gestor Técnico del Sistema). The GTS main purpose is to guarantee the continuity and security of supply, as well as the adequate coordination in the operation of all the access points, storage, transport and distribution facilities. This should be performed in a transparent, objective and independent way. By law, no company or person is allowed to neither hold more than 5% of the shares of the GTS (Enagás), nor exercise voting rights for more than 3%. Moreover, companies that develop activities in the gas sector and are not only not allowed to hold more than 5% of the share capital, but their voting rights are limited to 1%.

Figure 6: Enagás shareholder structure.

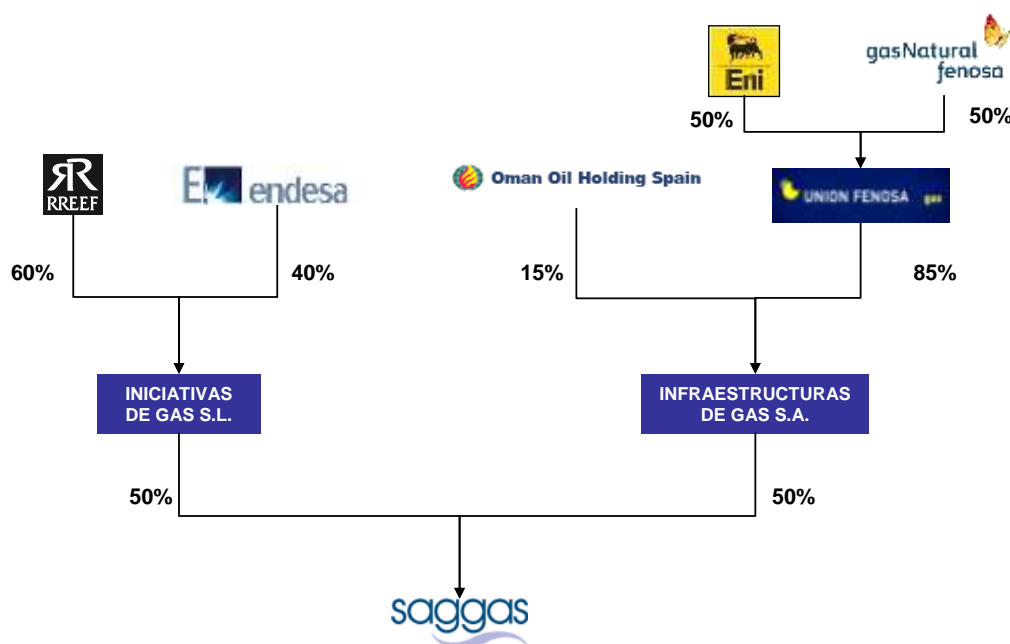


Source: Enagás website and self-made.

- The owner and operator of the LNG terminal in Sagunto is Saggas ([www.saggas.es](http://www.saggas.es)) (42.5% Unión Fenosa Gas, 30% RREEF Infrastructure, 20% Endesa, 7.5% Oman Oil Company). Iberdrola's announced on 1<sup>st</sup> July 2009 the sale of its 30% share to RREEF.



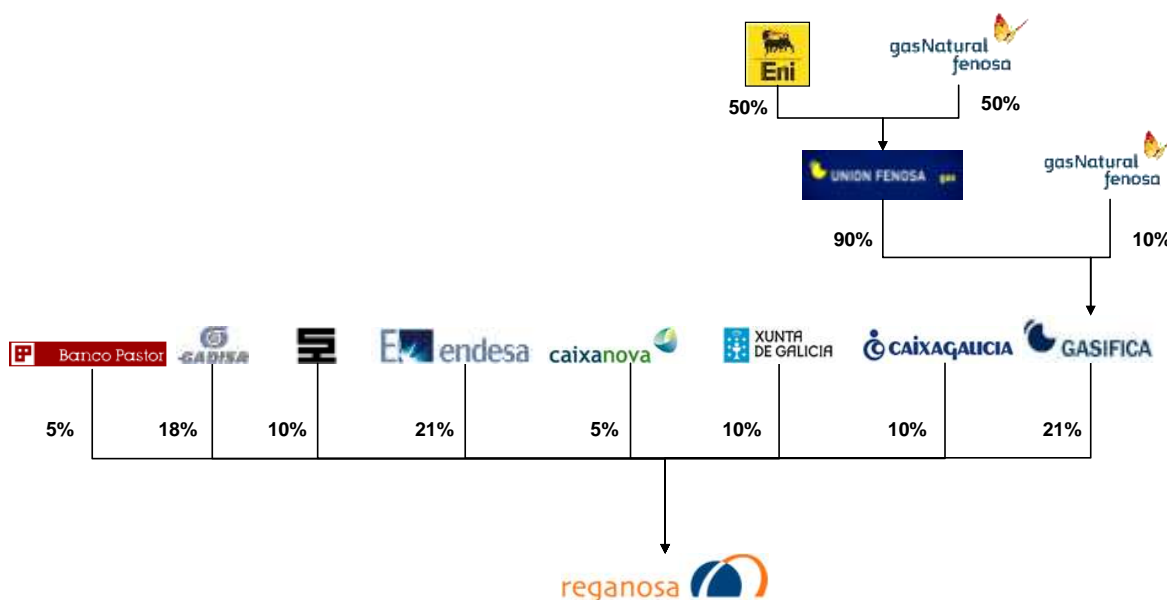
Figure 7: Saggas shareholder structure.



Source: Saggas website and self-made.

- The owner and operator of LNG terminal in Ferrol is Reganosa ([www.reganosa.es](http://www.reganosa.es)) (21% Endesa, 21% Unión Fenosa, 18% Grupo Tojeiro, 10% Xunta Galicia, 10% Caixa Galicia, 10% Sonatrach, 5% Banco Pastor, 5% Caixanova).

Figure 8: Reganosa shareholder structure.

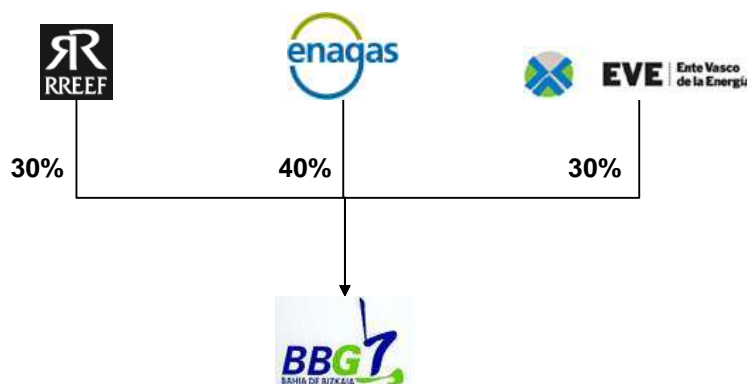


Source: Reganosa website and self-made.



- The owner of the LNG terminal located in Bilbao is BBG ([www.bahiasdebizkaia.com](http://www.bahiasdebizkaia.com)) (30% RREEF Infrastructure, 40% Enagás, 30% EVE). 50% of the terminal shares changed hands in summer 2009, with Iberdrola's sale of its 25% share to RREEF on 1<sup>st</sup> July 2009 and BP sale of its 25% share to Enagás on 3<sup>rd</sup> September 2009. In July 2010 Repsol sold its shares in the LNG terminal to the other shareholders: 15% to Enagás, 5% to RREEF, and 5% to EVE.

Figure 9: BBG shareholder structure.



Source: BBG website and self-made.

### 1.3.3 Access rules.

All LNG terminals in Spain are subject to regulated Third Party Access based on the First Come/First Served principle. The main access rules to the LNG terminals in Spain are collected at:

- Law 34/1998<sup>38</sup> modified by the Law 12/2007<sup>39</sup>.
- Royal Decree 949/2001<sup>40</sup>.
- System code (*Normas de Gestión Técnica del Sistema*, NGTS<sup>41</sup>), an access code developed for all 'basic system infrastructures' (transmission, LNG and storage assets), which was approved by the Ministry of Industry, Tourism and Trade in November 2005, together with a number of Detailed Procedures approved by the Directorate General for Energy Policy and Mines (there are currently up to 11 Detailed Procedures).
- Ministerial Order ITC/3520/2009<sup>42</sup>, where TPA tariffs for 2010 are detailed.
- Standard contracts<sup>43</sup> and access request models<sup>44</sup> are available at Enagás website ([www.enagas.es](http://www.enagas.es)).

<sup>38</sup> <http://www.boe.es/boe/dias/1998/10/08/pdfs/A33517-33549.pdf>

<sup>39</sup> <http://www.boe.es/boe/dias/2007/07/03/pdfs/A28567-28594.pdf>

<sup>40</sup> <http://www.boe.es/boe/dias/2001/09/07/pdfs/A33888-33904.pdf>

<sup>41</sup> <http://www.boe.es/boe/dias/2005/10/11/pdfs/A33241-33270.pdf>

<sup>42</sup> <http://www.boe.es/boe/dias/2009/12/31/pdfs/BOE-A-2009-21174.pdf>





Besides, on 2<sup>nd</sup> March 2010, all stakeholders, including all TOs and the NRA, have agreed to develop and publish the Guidelines for Good Practices at the Spanish LNG terminals<sup>45</sup>. The objective of the document is to develop a common document for all LNG terminals where access conditions and requirements are clearly detailed. All LNG terminals are obliged to publish the document in its website.

The Guidelines for Good Practices at the Spanish LNG terminals contains the following information:

- Chapter 1: General aspects, where the applicable access rules shall be detailed, both national and European regulation.
- Chapter 2: Technical characteristics of the LNG terminal. The objective of this chapter is to detail the characteristics of each port, compatibility between ships and LNG terminals, the ship unloading procedure, the necessary information to be exchanged and the ship-shore procedure.
- Chapter 3: Operational procedures. This chapter includes the measurement rules applicable to the LNG terminals, as well as a link to the GIIGNL “LNG Custody Transfer Handbook” shall be included.
- Chapter 4: Maintenance.
- Chapter 5: Safety measures. This chapter includes the information about the safety measures, both internally and externally, according with the regulation in force: ISPS code and Royal Decree 1254/1999.
- Chapter 6: TPA rules. This chapter includes links to the relevant information to the might consulted by a party who wants to unload a cargo at a LNG terminal (i.e booking procedures, programming procedures, list of compatible ships)
- Chapter 7: Quality, safety and environmental aspects. All the relevant certificates shall be published.
- Chapter 9: Incident management

### 1.3.4 Services offered.

The information about the main services offered by LNG terminals is described in the Royal Decree 949/2001 Art. 6.

<sup>43</sup>

<http://www.enagas.es/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1146251658433&ssbinary=true>

<sup>44</sup>

<http://www.enagas.es/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1146251658090&ssbinary=true>

<sup>45</sup>

<http://www.enagas.es/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1146250794398&ssbinary=true>



LNG terminals users can contract, in a separated or joint way, the services of slots assignment, unloading operations, vaporization, LNG storage, loading of trucks that transports the LNG to satellite plants, etc.

Other additional services can also be contracted: additional LNG storage capacity; ship cooling (operation required before introducing LNG into the tanks); loading of ships with LNG; transference of LNG between ships.

Enagás offers in its website the list of services offered:

- Regasification service, which includes the right to use the necessary facilities for regasified LNG as well as to store it.
- LNG offloading from ships, which includes the right to use the facilities necessary to offload LNG from a ship to a regasification plant. The service is provided under the regasification contract; for this reason, no request forms or contract forms are available for this service.
- LNG truck loading, which includes the right to use the necessary facilities for loading trucks with the LNG stored in the LNG tanks for its transport to the satellite regasification plants. Barcelona, Cartagena and Huelva LNG terminals have three tank loading platforms providing this service each.
- Loading of tankers and ship cooling. These services can only be provided if the provision of the service does not interfere with the normal activity of the LNG terminal. Enagás currently provides these services in the Huelva regasification facility.

### **1.3.5 Capacity allocation procedures.**

The capacity allocation procedures are based on the *First Come/First Served* principle.

Under the existing Mandatory Planning for basic gas infrastructures in Spain, LNG terminals have been designed to allow for a capacity margin over the forecasted peak demand. Therefore, no major physical congestion problems are expected to arise in the long-term.

Moreover, with the proliferation of CCGTs in the system, the difference between average demand and peak demand is increasing, leaving more spare capacity in valley periods.

### **1.3.6 Long term/short term capacity offering requirements.**

The maximal long term and short term ratios of the contracts are established in Art. 6 of the Royal Decree 949/2001.

- Each TSO will dedicate 25% of the sum of the capacities of its regasification, storage and entry transmission facilities to short term contracts, with duration under 2 years.
- Therefore, 75% of each TSO total capacity will be dedicated to long term contracts, with duration above 2 years.

The owners of the LNG terminals are required to publish every three months the booked and available capacity at each LNG terminal, differentiating the capacities dedicated to short term contracts and long term contracts.

Contracts with duration of two years or less cannot be extended in any case.





Contracts with duration of more than two years may include a freely-agreed extension by the parties, subject to the condition that the notice for the extension of the contract must not exceed six months in any case.

### **1.3.7 Contracts duration.**

There is no specified duration, all types of contract durations are accepted. Short-term contracts can be signed for periods as short as 1 day. There are no limits on long-term contracts.

### **1.3.8 Programming / Nomination procedures.**

The programming / nomination procedures are described in the system code “NGTS – 03 & 04” and in the “Detailed Procedure PD-07<sup>46</sup>”.

The NGTS differentiate between “programs” and “nominations”. The former are just indicative, except for monthly programs, which are binding for a period ranging from one and a half months to two months, depending on the capacity of the LNG vessel. The latter are binding.

In principle, programs follow the general structure:

- Users of the LNG terminals will send the owner of the LNG terminal the nomination program associated with the unloading of the LNG carriers, regasification and send-out from the LNG terminals to the transport regasification.
- Moreover, the TO will receive and take into account the requests for loading LNG trucks that supply distribution networks and industrial customers that are not connected to the transmission/distribution network and are supplied through LNG satellite terminals.
- The TO will simulate the viability of the program.
- If the program is not viable, the TO will communicate it to the users of the LNG terminal so that they can modify their program. If a viable program is not reached, the owner of the LNG terminal will call a meeting between the users in order to reach an agreement and obtain a viable program.
- On the other hand, if the nomination program is viable, the TO will confirm the viability to the users of the LNG terminal.

In the case of nominations submitted by LNG terminal users with access contract to the TO, if the communication is made within the nomination reception period, the TU can submit again the nomination. Otherwise the TU must wait until the next renomination period.

When the nomination is not considered viable, because the LNG terminal capacity would be exceeded, and the nomination is consequently refused, the TO shall communicate it to TSO and to TUs, and proceed to allocate the requested capacity pro-rata according to the following criteria:

- The requested capacity shall be allocated to all users that have nominated a capacity equal or below the booked capacity. Other users shall be allocated the booked capacity (but not

<sup>46</sup> [http://www.mityc.es/energia/gas/NGTS/NGTS/105\\_Protocolos\\_7-10.pdf](http://www.mityc.es/energia/gas/NGTS/NGTS/105_Protocolos_7-10.pdf)



the requested capacity), sharing the remaining capacity proportionally to the booked capacity.

- When the operation of the facility is viable according to all nominations submitted, the TO shall confirm the nomination to all TUs involved before the deadline.
- In the case of connection between LNG terminals and transport networks, the operators of both infrastructures shall match the gas inputs and outputs in the connections points of their facilities.

### **1.3.8.1 Annual program.**

The users of the LNG terminals will send each year the annual program detailing the monthly programming for the twelve following months, from January to December.

The following services will be enclosed: unloading LNG carriers, regasification, loading trucks, consumption of the direct lines connected to the LNG terminals and the exchanges between the users of the LNG terminals (optional).

The data corresponding to the first three months of next year will be sent to the TOs before the 1<sup>st</sup> of June. Then, the TOs will inform about the viability of the program. In case of non-viability, meetings will be called to achieve an agreement. Before the 20<sup>th</sup> of July the definitive annual program for the first three months must be obtained.

With provisional character, to allow TOs to make the programs of their facilities in advance, the users of the LNG terminals will send TOs the annual provisional program before July 31<sup>st</sup>.

The shippers and “direct customers” (i.e. end users accessing infrastructures directly) must send the definitive annual program at latest the 15<sup>th</sup> of September and the rest of the users of the LNG terminals must send their definitive program before the 1<sup>st</sup> of October.

### **1.3.8.2 Monthly program.**

All the users of the LNG terminals must send their monthly programs for month M before the 20<sup>th</sup> of month M-1. The 25<sup>th</sup> of month M-1 the TO of each LNG terminal will set the unloading date for each LNG carrier.

Each month the users of the LNG terminal will elaborate the monthly program for the three subsequent months. In each month the next concepts will be detailed:

#### **Unloading LNG carriers:**

The unloading/loading date of the LNG carriers specified at the monthly program will be binding for the first month and for the first fortnight of the second month. The users of the LNG terminals should respect, as far as possible, the dates given at the annual program.

Besides, the users of the LNG terminals should provide information about the name and the unloading amount for LNG carriers greater than 70,000 m<sup>3</sup>. For LNG carriers smaller than 70,000 m<sup>3</sup> and less than five days trip between the origin port and the destiny LNG terminal, it will be sufficient to indicate the total amount per origin (GWh/month) and the number of shipments. If the LNG carriers are shared, the shippers with which they share and the total amount of the ship will be detailed. (All this information will be binding for the first month and for the first fortnight of the second month).



Furthermore, the best assessment of the gas quality in origin of each unloading program will be indicated.

The total amount of gas per origin (GWh/month) and the number of shipments will be binding for the second fortnight of the second month and informative for the third month.

The monthly program of unloading LNG carriers cannot be modified or eliminated unless there is a justifiable reason and the TOs and the System Technical Manager have agreed, or the security System is in danger.

A register of the unloading windows assigned, not assigned and free in each LNG terminal, maintained by the System Technical Manager, will be created, of free access for LNG terminal owners and shippers.

If an unloading window of an LNG terminal is released, the capacity re-allocation procedure will be as follows:

- The request that, being at the register of unloading not programmed at the LNG terminal with window available, the asked date of unloading is the closest to the one that has been released.
- The request that, being at the register of unloading not programmed at another LNG terminal, the asked date of unloading is the closest to the one that has been released.

If there is not a request at any LNG terminal, all the users of the LNG terminal with entry capacity will be informed.

#### Regasification:

The daily regasification amount of LNG for the first month and for the first fortnight of the second month and the monthly and destiny user of the amount of LNG to regasify would be detailed.

#### Truck loading:

The quantity (GWh/month) and the number of trucks will be specified for truck loading.

#### LNG terminal exchanges:

The date, the daily quantity (kWh/day) to exchange and the counterpart will be required.

### **1.3.8.3 Weekly program.**

Each Friday, users of the LNG terminals will send the TOs the daily program for the following week (from Saturday till Friday) with the same concepts and details than in the monthly nomination program.

The System Technical Manager will notify users of the LNG terminals the viability of their weekly nomination program.

### **1.3.8.4 Daily nomination.**

The daily nominations are the information that the users of LNG terminals must detail regarding the amount of LNG that they estimate to introduce, extract, supply or consume the Gas Day (D).



The following services will be enclosed: regasification, loading trucks, consumption of the Direct Lines connected to the LNG terminals and the exchanges between the users of the LNG terminals.

The terminal user must communicate the TO its daily nomination before 14:00 of the previous day to Gas Day (D-1). The validation period is done between the 14:00 and the 17:00 of the day D-1.

The renomination process is the revision of the daily nomination previously accepted. It will have the same content and format as the daily nomination, and will follow the same procedure.

The user of the LNG terminal must communicate the TO its renomination before 11:30 of Gas Day (D). The validation period is carried out until 12:00 of Gas Day (D).

#### **1.3.8.5 Viability of the program.**

The program submitted by a terminal user program of a LNG terminal will be considered as viable if:

1. The contractual terms established for each player are respected.
2. The program meets the operative rules in force that are settled down for operation in special periods of high demand and for covering the minimum existence.
3. The individual balance of the terminal user is within the range established in the system code.
4. The proposed regasification program has been accepted as viable by the TO downstream.
5. The programmed unloadings for each month can be carried out without exceeding the maximum physical storage capacity of the LNG terminal, according to the rules established in the system code.
6. The programmed unloadings fulfil the requirements established on allocation and re-allocation of unloading windows for LNG carriers.

In addition to the previous criteria, each terminal might, according to its technical characteristics, establish additional criteria. Should this be the case, the terminal operator will be obliged to develop transparent, objective and non-discriminatory procedures that will include the specific criteria to be applied to assess the viability of the programs submitted by terminal users. These procedures will be published and put at the disposition of terminal users and of the System Technical Manager.

In case that a program does not meet one or more of the previous conditions, it will be considered as non-viable. The reasons to deny viability will be indicated so the user of the LNG terminal can modify its program.

In order to solve the non-viability of the program according to the proposed dates for unloading the LNG carriers, TO will propose alternative dates.

If an agreement is not reached, the TO and the users of the LNG terminal will submit to the System Technical Manager their comments and programs, who will propose a definitive program, following maximum efficiency and security supply criteria, and taking into account the situation of each member of the gas system.



The System Technical Manager will be able to solve the non-viabilities of a terminal user through the elimination of certain unloading slots, or reallocating them to other LNG terminal where the user has booked capacity.

The regasification associated to the diverted unloading could be assumed by the LNG terminal that has received the LNG carrier, if it was necessary not to affect the previous nomination program of that LNG terminal.

A more detailed description of the actions taken by the System Technical Manager to resolve a non-viability is contained in the Detailed Procedure no.10 (PD-10).

### **1.3.9 Congestion management procedures.**

In order to avoid contractual congestion (capacity hoarding), the provision of a bail is required to terminal users, for an amount equivalent to 12 times the fixed term of the tariff, applied over 85% of the capacity booked by the user. The bail, and the capacity rights, would be lost by the terminal user in case of infra-utilisation (firm Use-It-or-Lose-It mechanism). Further information is available in Royal Decree 949/2001 (see section “1.3.10 UIOLI.” below).

The regulatory authority (National Energy Commission, CNE) has designed a procedure for managing the physical congestion that arose when the Saggas LNG terminal entered in operation, due to the lack transmission capacity to evacuate the regasification capacity of both Saggas and Cartagena LNG terminals simultaneously.

Owing to this situation, the CNE is now developing the Detailed Procedure for managing congestion situations.

### **1.3.10 UIOLI.**

In order to avoid capacity hoarding, UIOLI provisions have been established. These rules are detailed in Royal Decree 949/2001.

In order to guarantee the use of booked capacity and in addition to the minimum payment obligations, capacity solicitors have to pay, in favour of the owners of the LNG terminals, a bail, for an amount equal to twelve months of the fixed term of the corresponding access tariff, applied on 85% of the capacity booked by the terminal user. This bail will be returned to the user one year after the beginning of the supply.

Capacity rights and the bail are lost if capacity utilisation goes below 80% of booked capacity during the first six months of the contract. The terminal user only loses a percentage of the bail and of the capacity equal to the corresponding decrease in the utilization rate.

If the System Technical Manager observes that there is, or that could be, a continued underutilisation of booked capacity, and that this situation could result on a refusal of access to other users due to lack of available capacity, the System Technical Manager will reduce the capacity booked by the shipper, who would lose capacity rights equal to the capacity not being used, as well as the proportional part of the bail.

### **1.3.11 Method for calculating usable, available and unused capacities.**

Enagás publishes on its website a number of bulletins containing data related to the capacities of the gas system. These bulletins, which are monthly updated, provide very detailed data on the



number of cargoes unloaded by terminal (including the six terminals of the Spanish system), the volume of gas regasified, the LNG stored in tanks, and utilization rate for each LNG terminal.

The definition of usable and available capacity is contained in the first chapter of the system node (NGTS-01), “General concepts”.

*Nominal capacity:*

The nominal capacity will be authorised by the competent organism in the corresponding administrative authorization of the LNG terminal. This will be equal to the usable design capacity under normal operation, not including emergency or back-up equipment, and not considering the operative margins and restrictions related to the characteristics of other facilities to which the terminal might be connected.

*Maximum (or peak) capacity:*

The maximum capacity is the capacity that, respecting the safety and reliability parameters of the facility (operative margins), the facility is able to achieve from a technical point of view, employing all its equipments (including back-up equipment), but not including the operative margins and restrictions related to the characteristics of other facilities to which the terminal might be connected.

*Minimum operative capacity:*

Is the minimum capacity that guarantees that the facility can operate under reliability and safety criteria of the equipment, fulfilling all the environmental requirements.

*Useable capacity:*

Nominal capacity minus minimum operative capacity. This capacity might be reduced due to other restrictions depending on the integration of the facility with the rest of the system.

*Booked capacity:*

The booked capacity is the portion of the useful capacity that has been booked by the users of the facility.

*Available capacity:*

The available capacity is the difference between the useful capacity of the facility and the booked capacity.

**Figure 10: Capacities of the Spanish LNG terminals.**

Maximum (or peak) capacity.	Back-up equipment capacity.		
	Nominal.	Usable (a.k.a. operative or technical) capacity.	Available capacity.
			Booked capacity.
		Minimum operative capacity.	

**Source:** NGTS-02.

A definition of “unused capacity” is not included in the NGTS-01. This concept is addressed under the UIOLI provisions (see section “1.3.10 UIOLI.” above).



Minimum operative level of LNG tanks (Heel):

It is the minimum operative volume of LNG required for the correct operation of the LNG terminal. The value of this level depends on the characteristics of each LNG tank, and must be informed by the owners of the facility according to the technical characteristics of the tank and the rules established in the NGTS and its Detailed Procedures.

Provisionally, this value is equal to 9% of the storage capacity of the LNG tanks.

The minimum operative LNG volumes are owned by the TO (although under the former rules users where responsible to supply this gas). An annual auction is organised by the Ministry of Industry, Tourism and Trade do TOs can buy the necessary LNG quantities. All shippers are invited to take part in this auction.

Usable storage in LNG tanks:

It is the volume of LNG that can be storage in the usable capacity of the LNG tank.

Storage included in the TPA regasification tariff:

Before Ministerial Order ITC/3802/2008, the regasification capacity contract entitled terminal users to freely use an amount of storage, This amount was expressed in number of days equivalent to the daily regasification capacity book.

Currently, after the publication of Ministerial Order ITC/3802/2008, no storage capacity right is included in the regasification capacity in the regasification capacity contract.

### **1.3.12 Send-out requirements.**

This information is available at the System code (NGTS-02).

There is no minimum send-out value: regasification volume depends on LNG storage limitations. These limitations may vary in different seasons. During the last few winter seasons, the Ministry of Industry, Tourism and Trade has developed the so-called “Winter Plan”. According to the latest plans, the volumes kept by user during the winter season at LNG tanks cannot exceed three days of the daily regasification capacity booked.

Shippers exceeding the maximum number of days allowed will incur in imbalance penalties (see section “1.3.16 Charges and/or penalties for imbalance, cancellation and other, including minimum payment obligations.” below).

### **1.3.13 Gas quality requirements.**

The gas quality requirements are available at Enagás’ website<sup>47</sup>.

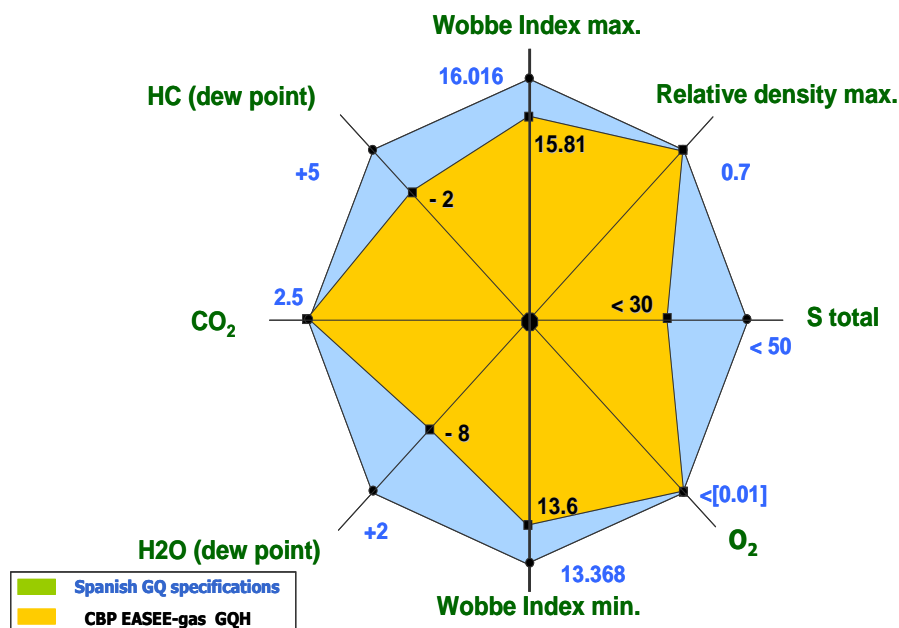
<sup>47</sup>

[http://www.enagas.es/cs/Satellite?cid=1142417697719&language=es&pagename=ENAGAS%2FPPage%2FENAG\\_pinta\\_rContenidoFinal](http://www.enagas.es/cs/Satellite?cid=1142417697719&language=es&pagename=ENAGAS%2FPPage%2FENAG_pinta_rContenidoFinal)

**Table 11: Gas quality requirements at the Spanish LNG terminals.**

Property	Unit	Min	Max
Wobbe Index	kWh/m <sup>3</sup>	13.368	16.016
Gross Calorific Number	kWh/m <sup>3</sup>	10.23	13.23
D	m <sup>3</sup> /m <sup>3</sup>	0.555	0.700
Total S	mg/m <sup>3</sup>	-	50
H <sub>2</sub> S + COS (as S)	mg/m <sup>3</sup>	-	15
RSH (as S)	mg/m <sup>3</sup>	-	17
O <sub>2</sub>	mol%	-	[0.01]
CO <sub>2</sub>	mol%	-	2.5
H <sub>2</sub> O (DP)	°C at 70 bar (a)	-	+2
HC (DP)	°C at 1-70 bar (a)	-	+5

Source: Enagás website.

**Figure 11: Gas quality specifications at Spanish LNG terminals vs. EASSE-gas specifications.**

Source: Elaborated from data on Enagás website and EASSE-gas CBP 2005-001-01 Gas Quality Harmonisation.

### 1.3.14 Balancing regime/Management of LNG stock levels.

The System Technical Manager calculates a daily physical and commercial balance by user and by LNG facility, according to the requirements of the system code (NGTS-07). These balances are calculated according to the following formula:

Data is valid through to 31 December 2010.





$$InitialStock + GasEntries - (Losses + OwnConsumption) - GasExits - FinalStock + GasExchanges = 0$$

Terminal users must provide TO with a schedule of the gas they estimate put in, take out, store, supply or consume. Daily schedules and monthly vessel offloading schedules are binding. TO relies on shippers to balance the scheduling programmes they submit attached with the projected demand.

The System Technical Manager will carry out a daily balance at each LNG terminal quantifying the initial and final stock in terms of energy (kWh) and volume (LNG m3), depending on the data available at the entry and exist points, own consumption record and exchanges between users of LNG terminal.

Moreover, the definitive balance will be published at the SL-ATR (Logistic System for TPA) by the 20<sup>th</sup> working day of the following moth.

For a description of the operative rules under an imbalance, see section “1.3.16 Charges and/or penalties for imbalance, cancellation and other, including minimum payment obligations.” below.

### **1.3.15 Own consumption record and gas in kind.**

The information about own consumption record and gas in kind can be found at the System Code (NGTS-02) and in several Ministerial Orders.

According to the Ministerial Order ITC/3993/2006<sup>48</sup>, each year before October 15<sup>th</sup>, Enagás in its role as System Technical Manager was responsible for proposing the percentage of the terminal user's gas that should be retained by TOs in as payment in kind.

According to the above Ministerial Order, users were not required to make any payment in the form of gas in kind. The gas required to operate the facilities was supplied by the TO, and it was acquired through an annual auction organised by the Ministry of Industry, Tourism and Trade where all shippers were invited to take part.

The System Technical Manager made studies, with the information provided by the TOs, pursuit the evolution of the losses and own consumption coefficients assigned to each LNG terminal. This percentage for year 2008 was fixed at 0.15%. Since then, this percentage was corrected several times, from November 2008 to February 2009 was fixed at 0.05%, and from February 2009 to July 2009 was set at 0.025%.

Then, in July 2010, Ministerial Order ITC/1890/2010<sup>49</sup> modified the above Ministerial Order, establishing that from the total amount of gas owned by the users a percentage will be reduced in relation of the gas in kind.

If the total amount of gas discounted by the application of the coefficient in force exceeds the actual own consumption of the LNG terminal, the difference will temporarily remain under the entitlement of Enagás for balancing purposes, in its role as System Technical Manager.

<sup>48</sup> <http://www.boe.es/boe/dias/2006/12/30/pdfs/A46692-46706.pdf>

<sup>49</sup> <http://www.boe.es/boe/dias/2010/07/15/pdfs/BOE-A-2010-11181.pdf>



On the other hand, if the total amount of gas discounted by the application of the coefficient in force is less than the actual own consumption of the LNG terminal, the difference will be covered by a decrease in the balance account.

Annually and before 1<sup>st</sup> February, TOs shall present to Enagás, in its role of System Technical Manager, to the CNE and to the Ministry of Industry, Tourism and Trade a report detailing the amount of gas retain in each LNG terminal as a result of the application of the coefficients in force. Then, Enagás, in its role of System Technical Manager, will carry out a study of the actual own consumption of the LNG terminals which will be presented to the General Directorate of Energy and Mines Policy before 1<sup>st</sup> April each year.

In case an LNG terminal has a positive natural gas balance, Enagás, in its role of System Technical Manager, will reimburse before 1<sup>st</sup> May each year half of the balance to the terminal users, proportionally to the amount of gas unloaded in the LNG terminal the previous year, keeping the rights of the rest of the gas in kind.

If the remaining gas in kind is above 300 GWh, it will be used to cover the own consumptions for the term starting on 1<sup>st</sup> July and ending 30<sup>th</sup> June next year.

Annually and before 1<sup>st</sup> June, the CNE will assess the balance of the own consumption of each LNG terminal taking into account Enagás' report, for which the average price of the working gas of the previous year will be taken into account. If this quantity is positive, then, half of it will be added to the allowed revenues of the LNG terminal. Besides, if the quantity is negative, half of the value will be subtracted from the allowed revenues.

From 1<sup>st</sup> October 2010, the gas in kind has been set at 0.01%.

### **1.3.16 Charges and/or penalties for imbalance, cancellation and other, including minimum payment obligations.**

The following penalties may be applied:

#### LNG stored in excess at LNG terminal:

According to System code (NGTS-03; paragraph 3.6.1), modified by Ministerial Order ITC/3802/2008<sup>50</sup> on 26<sup>th</sup> December 2008, the following penalties are applied to LNG stored in excess to the maximum allowed (the maximum value among 300 GWh and 8 days of the daily contracted capacity, calculated on a daily basis as the arithmetic average of the LNG stored in the previous 30 days):

**Table 12: Penalties for LNG stored in excess at the Spanish LNG terminals.**

	2.5 times the LNG storage toll	12 times the LNG storage toll
LNG stored	Over 8 days or over 300 GWh	Over 8.5 days or over 300 GWh + 0.5 days

**Source:** NGTS-03.

<sup>50</sup> <http://www.boe.es/boe/dias/2008/12/31/pdfs/A52686-52700.pdf>



### Regasification:

A penalty system is implied in the TPA regasification tariff. Nominations below 85%, or over 105%, of the daily booked capacity, pay a higher capacity term (measured in unit terms). The system, detailed in art. 29 of Royal Decree 949/2001, works as follows:

1. If the nominated daily capacity is above 105% of the maximum daily booked capacity, user is billed for the maximum nominated daily capacity in the month plus a penalty equivalent to two times the volumes over 105% of the capacity:

$$Q_e = Q_{nominated} + 2 * (Q_{nominated} - 1,05 * Q_{booked})$$

2. If the nominated capacity is between the 85% and 105% of the maximum booked capacity, shipper is billed for the nominated capacity. (No penalty is applied)

$$Q_e = Q_{nominated}$$

3. If the nominated daily capacity is below the 85% of the maximum daily booked capacity, shipper is billed for the 85% of the maximum contracted capacity (i.e. there is a minimum total payment equal to 85% of the maximum daily booked capacity).

### Unloading of an LNG carrier:

Penalties for delays in the unloading of LNG carriers are described in the Detailed Procedure no. 6 (PD-06<sup>51</sup>).

If the unloading of the LNG carrier has not been completed by the TO, for reasons beyond the LNG carrier control, during the allowed time for unloading, the TO will incur the following penalties:

1. For LNG carriers up to 60,000 m<sup>3</sup> of gross capacity: 26,000 US\$/day
2. For LNG carriers with gross capacity between 60,000 m<sup>3</sup> and 110,000 m<sup>3</sup>: 45,000 US\$/day
3. For LNG carriers with gross capacity higher than 110,000 m<sup>3</sup>: 65,000 US\$/day

If the unloading of the LNG carrier has been delayed due to the LNG carrier, or the captain of the LNG carrier, and this delay implies that another LNG carrier cannot access the facilities within its Programmed Unloading Date, then the TO will receive the following compensation:

1. For LNG carriers up to 60,000 m<sup>3</sup> of gross capacity: 26,000 US\$/day
2. For LNG carriers with gross capacity between 60,000 m<sup>3</sup> and 110,000 m<sup>3</sup>: 45,000 US\$/day
3. For LNG carriers with gross capacity higher than 110,000 m<sup>3</sup>: 65,000 US\$/day

### Imbalance penalties

Under the former system, if the stock of LNG of a user was in a terminal below the “heel” (minimum operative level set at 9% of the capacity), the terminal user had to make a payment to the System

<sup>51</sup> [http://www.mityc.es/energia/gas/NGTS/NGTS/101\\_Protocolos%20Detalle%20\(4-4-2006\).pdf](http://www.mityc.es/energia/gas/NGTS/NGTS/101_Protocolos%20Detalle%20(4-4-2006).pdf)



Technical Manager covering the value of the gas required to re-establish the “heel” level, at a price equivalent to 150% of the price at the “reference market”. The NGTS still reflects this mechanism.

Under the current system, it is understood that the same mechanism applies if, for whatever reason, the terminal user has a negative gas stock.

On contrary, if the LNG storage is above the maximum contracted capacity plus the capacity included in the regasification tariff, the corresponding TPA tariffs will be applied increased by 5%.

The result of an auction organized by the System Technical Manager to acquire the required gas will be taken as the “reference market”. In absence of quotation of the such market, the “reference market” would be the lesser price of natural gas between the Henry Hub in the USA and the National Balancing Point (NBP) in the UK. Under no circumstances the System Technical Manager shall accept offers which price is higher than 150% of the lesser price of natural gas between the Henry Hub and the NBP seven days before the auction date.

The average of the seven last quotations available, counting from the date when the imbalance took place, will be taken for determining the gas cost in the Henry Hub and in the NBP, expressed in c€/kWh.

The closing prices published by the New York Mercantile Exchange under the Henry Hub Natural Gas Future epigraph and by the International Petroleum Exchange under the IPE Natural Gas Future epigraph, converted to € through the application of the official daily exchange rate published by the European Central Bank, shall be taken into account to determine the prices at the Henry Hub in USA and at the NBP in the UK, respectively.

The System Technical Manager is obliged to inform the National Energy Commission (CNE) in order to apply, to the terminal user responsible for the imbalance the corresponding TPA tariffs, increased by 5%, necessary to transport the natural gas to the consumption point, once the user has corrected the regasification nomination required to cover the imbalance.

### **1.3.17 Financial Guarantees.**

In order to guarantee the use of the booked capacity and avoid capacity hoarding, terminal users will have to pay in favour of the LNG terminals owners, in addition to TPA tariffs, a bail for a quantity equal to 12 times the fixed term of the corresponding TPA tariff applied over 85% of the capacity booked by the user. This bail will be returned to the user one year after the beginning of the supply.

The bail will be set through one of the following options:

1. A guarantee provided by some of the banks, saving banks, cooperative society of credit, lending institution, society of reciprocal guarantee, authorized to operate in Spain.
2. A caution insurance contract celebrated between the user and an insurance entity authorized to operate in the branch of caution insurance.

If during the first six months of the contract, or during the first six months after the last modification of the contract, the effectively used capacity is lower than 80% of the capacity booked (as established in the contract), the capacity booked by the user will be automatically reduced, for the part unused, and the user will lose the corresponding part of the bail set, in accordance to the previous paragraphs.



The extra revenues gained by the owner of the LNG terminal as a consequence of the execution of the above mentioned bail will be transferred to the compensation mechanism set to ensure that each regulated player receives the allowed revenues, regardless the direct collection of revenues.

### **1.3.18 Secondary market.**

Law 12/2007, amending the previous Hydrocarbons Law 34/1998, established the need to develop a new regulatory framework for secondary market capacity.

In its website Enagás offers shippers a tool to facilitate the exchange of contracted capacity at its facilities. The necessary documentation to participate in the secondary market is detailed below:

- Bulletin Board<sup>52</sup>
- Form for capacity offers and requests<sup>53</sup>
- Terms and conditions of the Capacity Secondary Market<sup>54</sup>
- Model of the contract for the Secondary Market<sup>55</sup>

Through Enagás' website interested parties can submit capacity offers and request for capacity in the secondary market, as well as access the related Bulletin Board.

#### Types of secondary capacity.

Shippers are allowed to apply for different types of capacity in the secondary market:

- Sublet of capacity, which does not imply the transfer any rights or obligations. The contract relationship between Enagás and the initial shipper would not be modified in any case.
- Resell of capacity. The capacity contract signed by the initial shipper will be transferred to the shipper contracting capacity in the secondary market; this implies that the rights and obligations will also be transferred to the second shipper.

#### Contractual issues.

<sup>52</sup>

<http://www.enagas.es/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1146251686078&ssbinary=true>

<sup>53</sup>

<http://www.enagas.es/cs/Satellite?blobcol=urldata&blobheader=application%2Fvnd.ms-excel&blobheadername1=Content-disposition&blobheadervalue1=attachment%3Bfilename%3DFicha+MS+Capacidad+feb-2010.xls&blobkey=id&blobtable=MungoBlobs&blobwhere=1146250580801&ssbinary=true>

<sup>54</sup>

<http://www.enagas.es/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1146250594736&ssbinary=true>

<sup>55</sup>

<http://www.enagas.es/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1146250580769&ssbinary=true>



The application for any change in the ownership of an access contract shall be notified to Enagás through electronic means, detailing the contract, the starting date of the surrender and the new owner, in order to perform the feasibility analysis established in the regulation.

Once accepted the request for change of the ownership, the transfer shall be formalised between the initial holder of the contract, the new shipper and the owner of the facility as provided in current regulation.

*Rights and obligation of the bulletin board administrator.*

The secondary market in Enagás LNG terminals is managed through a bulletin board, which is published in its website. The platform allows the publication and communication between users in order to exchange capacity. However, this is not an automatic matching system, but Enagás facilitates the contact between the parties under the terms and conditions detailed in the document “*Términos y condiciones del mercado secundario de las capacidades contratadas en las instalaciones operadas por ENAGAS S.A.*”

Enagás may modify or even cancel the bulletin board for the benefit or safeguard the interest of the system or when required by the NRA, informing all stakeholders.

Enagás is neither responsible for what is offered or demanded nor the specific contents indicated in the request. Secondary capacity application will be published the first working day following the reception.

Enagás is not liable for the actions of shippers. Enagás will just in touch with the interested parties only if applications for supply and demand are matched.

*Users.*

May be users of the bulletin board all stakeholders with right to access to basic network facilities of the Spanish gas system as provided in current regulation.

In particular:

- The capacity offered in the bulletin board is limited to shippers that have an access contract to the LNG terminal.
- All shippers enabled to operate in the Spanish system in accordance with the provisions of Law 34/1998 are allowed to demand capacity through the bulletin board.

*Activities in the bulletin board.*

All capacity requests, demand and offer, shall be submitted to the email address: [dgia.gestionatr@enagas.es](mailto:dgia.gestionatr@enagas.es), in accordance with the format available at Enagás website, detailing the following information:

- It should be detailed whether the request is new or replaces or deletes an application previously submitted.
- If the application is for capacity demand or capacity offer
- The object of exchange, expressed in terms of energy (MWh/day)



- If the amount of capacity can be split
- The contract reference number
- The starting date for the demand or offer capacity transaction, detailing the ending date of the contract.
- Whether the request is anonymous.
- If wanted, exchange price can be indicated
- Name of the company, contact details and phone number.

Once Enagás has accepted the request, the capacity offered will be announced in the bulletin board.

When a license shipper desires to match a capacity request already published, the request code should be indicated.

Once the requests have been matched, Enagás shall:

- In case of sublet of capacity, put in touch both parties in order to sign a bilateral agreement between them
- In case of resell of capacity, confirm the interest of the parties, in order to perform the feasibility study, and sign the relevant contract.

Capacity requests can be cancelled between 9:00 and 17:00 and from Monday to Friday by the party who offers or requests capacity.

All matched requests will be deleted from the bulletin board.

Shippers shall inform Enagás of the transaction results, as well as in those cases where shippers decide to delete an offer or request already published.

Enagás announces on its website that the company will continue with the development of the secondary market platform, adapting it to potential regulatory developments and market needs.

No public information about the secondary market in Sagunto, Mugardos and Bilbao LNG terminals has been found.

### ***1.3.19 Limitation in vessel size.***

At present, all LNG terminals are prepared for dealing with cargoes up to at least 140,000 m<sup>3</sup>.

Some Spanish terminals are already prepared to receive Q-Flex (between 210,000 m<sup>3</sup> and 216,000 m<sup>3</sup>) and Q-Max (266,000 m<sup>3</sup>) vessels





Enagás website provides a detailed list of the LNG tankers that are compatible with each LNG terminal in Spain.<sup>56</sup> As of October 2010:

- 11 different Q-Flex vessels were compatible with Enagás' Cartagena LNG terminal. This terminal was the first to receive a Q-Flex vessel in Europe.
- 6 Q-Flex vessels were compatible with the Saggas LNG terminal.
- 1 Q-Max vessel was compatible with the BBG LNG terminal. This terminal was the first to receive a Q-Max vessel in Europe.

### **1.3.20 Force Majeure.**

The concept of “force majeure” is not explicitly defined in the Spanish regulation. However, the TO can call Force Majeure as a reason that temporarily limits a part or the whole capacity of the LNG facilities.

### **1.3.21 Ship Approval Procedure at LNG terminal.**

The procedure for tanker compatibility is established in the Detail Protocol 06 (PD-06). The development of this procedure is available at Enagás website.

#### **1.3.21.1 Stage 1.**

TO and user of the LNG terminal or the ship-owner shall exchange information in order to study the compatibility between the LNG carrier and the terminal.

#### **1.3.21.2 Stage 2.**

After having analysed the information gathered in stage 1, TO will make a study to establish the technical compatibility of the LNG carrier.

#### **1.3.21.3 Stage 3.**

Before the first unloading at the LNG terminal, TO must certify that the LNG carrier is compatible with the LNG terminal.

Previously the LNG carrier must have passed a favourably safety inspection (“vetting”) by a specialised company of worldwide recognized prestige, for what the LNG carrier will need to have the copy that certifies it.

Furthermore, additional safety inspections can be required by the TO, carried out by an accredited company, to verify the continuous fulfilment of the LNG carrier with the safety and operational rules of the LNG terminal. These inspections may take place during the stay time of the LNG carrier at the LNG terminal or at any other moment or place.

<sup>56</sup>

<http://www.enagas.es/cs/Satellite?blobcol=urldata&blobheader=application%2Fpdf&blobkey=id&blobtable=MungoBlobs&blobwhere=1146251676579&ssbinary=true>





This inspection shall be carried out by an inspector designated by the TO according to the “TO’s Inspection Guidelines”.

A list of remarks and/or deficiencies, arising from such inspection, if any, shall be handed over to the master of the LNG carrier by the TO. Once the corrective action is made, the TO shall decide whether the LNG carrier can be received at the LNG terminal (pre-approved).

The ship owner shall promptly notify or procure if any of its LNG carriers, pre-approved or approved by another LNG terminal, has been rejected or has failed a ship safety inspection at another LNG terminal.

Depending on the outcome of the previous steps, the LNG carrier may be approved or rejected. The TO will issue a compatibility certificate for the first unloading at the LNG terminal.

#### **1.3.21.4 Stage 4.**

In order to check compatibility of the LNG carrier during the berth and to approve or reject its authorization, the LNG carrier shall undergo the Unloading Test that will be carried out during the first unloading.

Depending on the outcome of this test, the LNG carrier shall either be “approved” or “approved pending corrective action”, which shall constitute another Unloading Test. Otherwise, the LNG carrier shall be rejected.

#### **1.3.21.5 Stage 5.**

Before and during each unloading at the LNG terminal, terminal user shall provide timely assistance to the TO, to clarify and solve any urgent issues that may arise before or during each LNG carrier unloading. The TU’s assistance can preferably be implemented by notifying the TO of each LNG carrier unloading.

The TU shall provide the TO with all the necessary and relevant details on how the TO can reach TU’s representative via telephone, mobile phone, e-mail, etc. This TU’s representative shall be present before and during the LNG carrier’s call, and be empowered to take all necessary operational decisions on behalf of the TU, e.g. regarding any problem related to safety, security, etc.

During the period of validity of the compatibility certificate, the TO will have to be informed of any modification made to the LNG carrier as far as technical subjects, safety or management are concerned. According to these modifications the LNG carrier will have to pass another approval procedure.

### **1.3.22 *Standard contracts.***

The standard request application form, and the standard access contract of the regasification facilities are available at Enagás and CNE websites (“Contrato de Acceso a las Instalaciones de Regasificación”; “Solicitud de Acceso y Reserva de Capacidad de Regasificación”).

### **1.3.23 *TPA tariffs.***

TPA tariffs are generally valid for one year (1<sup>st</sup> January – 31<sup>st</sup> December) and annually updated by the Ministry of Industry, Tourism and Trade.



For the year 2010 TPA tariffs were established by in Ministerial Order ITC/3520/2009, of 28<sup>th</sup> December 2009.

### **1.3.23.1 Unloading LNG carriers.**

This service includes the right to use the facilities necessary to unload LNG from a carrier in the LNG terminal.

Huelva, Cartagena and Sagunto LNG terminals:

1.  $T_{fd}$ : fixed-term of the LNG unloading tariff: 27,893 €/LNG carrier.
2.  $T_{vd}$ : variable-term of the LNG unloading tariff: 0.000056 €/kWh.

Barcelona and Bilbao LNG terminals:

1.  $T_{fd}$ : fixed-term of the LNG unloading tariff: 13,946 €/LNG carrier.
2.  $T_{vd}$ : variable-term of the LNG unloading tariff: 0.000029 €/kWh.

Mugardos LNG terminal:

1.  $T_{fd}$ : fixed-term of the LNG unloading tariff: 0 €/LNG carrier.
2.  $T_{vd}$ : variable-term of the LNG unloading tariff: 0 €/kWh.

### **1.3.23.2 Regasification.**

The regasification tariff includes the right to use the facilities necessary to regasify and store LNG, according to the the Law 34/1998.

The fixed-term ( $T_f$ ) and variable-term ( $T_v$ ) of the regasification tariff are as follows:

1.  $T_{fr}$ : fixed-term of the regasification tariff: 0.016099 €/(kWh/day)/month.
2.  $T_{vr}$ : variable-term of the regasification tariff: 0.000096 €/kWh.

### **1.3.23.3 Truck loading.**

The truck loading tariff includes the right to use the necessary facilities to load trucks from LNG tanks at the LNG terminal.

1.  $T_{fc}$ : fixed-term of the truck loading tariff: 0.023647 €/(kWh/day)/month.
2.  $T_{vc}$ : variable-term of the truck loading tariff: 0.0000139 €/kWh.

In order to invoice the fixed-term, the daily volume will be calculated as the result of the division between the loaded kWh during the month and 30.

### **1.3.23.4 Loading of LNG carriers.**

For the loading of LNG carriers and for the cooling of tankers services provided at LNG terminals, the following tariff will be applied:

Data is valid through to 31 December 2010.	98
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1. Fixed-term: 156,208 €/operation

2. Variable-term: 0.0001381 €/kWh

Minimum price for operation of 50,000 €.

The tariff for transferring LNG between two carriers, without storing the LNG at the terminal, will be 80% of the previous tariffs.

### 1.3.23.5 Storage.

The tariff is applied to all the LNG storage by the terminal user in the tanks.

- $T_v$ : variable-term of the storage tariff: 0.028907 €/MWh/day

### 1.3.23.6 Contracts with duration less than 12 months.

Different seasonal, monthly and daily coefficients are applied to the fixed-terms of the TPA tariffs for contracts with duration less than twelve months. These are detailed in the following tables:

**Table 13: Monthly and daily coefficients for spot and short-term contracts at Spanish LNG terminals.**

	Monthly coefficients	Daily coefficients
January	2.00	0.10
February	2.00	0.10
March	2.00	0.10
April	0.50	0.03
May	0.50	0.03
June	0.50	0.03
July	0.50	0.03
August	0.50	0.03
September	0.50	0.03
October	2.00	0.10
November	2.00	0.10
December	2.00	0.10

**Source:** Ministerial Order ITC/3502/2009.

### 1.3.24 **Capacity booking procedures.**

Enagás has developed an automatic reservation system available on its website. Through this system, any TU can check the availability of capacity and apply for it.

The capacity booking procedures are detailed in the Royal Decree 949/2001.



### **1.3.24.1 Access request.**

Users willing to access LNG terminals will send a formal request to the facilities' owners detailing the schedule and program of use.

When the access request is incomplete or incorrectly formulated, LNG terminal user will return it to the solicitor in a period of three working days, indicating the information that shall be completed or corrected. The user shall complete or correct the abovementioned information within six working days, although the initial date request on effects of access priority will be kept. If the information has not been completed or corrected within this period, the initial request will not be considered valid, and a new request must be formulated.

Access requests will be solved attending to the chronological order of formal request receipt (*First Come/First Served* principle).

Access requests will be sent by the owner of the LNG terminal to the CNE, who will keep an updated list of the solicitors of access and the priority order.

Owners of LNG terminals that have received a formal access request will have to submit it within six working days, together with an analysis of the situation of their own facilities, to the System Technical Manager, who will analyze the situation of the whole system in order to assess the viability, and also to the owners of all the facilities that are connected to the delivery points of the natural gas. In a maximum period of 12 working days, the owners of the facilities and the System Technical Manager will send a viability report of the of the requested service to the owner of the LNG terminal. In case of non-viability, other alternatives will be included. If no reports are sent within the established period, the viability of the access request will be understood to be accepted.

In a maximum period of 24 working days from the formal access request, the owner of the LNG terminal will have to give a response to the solicitor, accepting or rejecting the request. In case of rejection, the owner of the LNG terminal will have to communicate its decision to the Directorate General for Energy Policy and Mines and to the CNE at the same time.

In the cases in which the access request is made by a consumer that is, at the moment of the request, consuming gas in conditions similar to the ones requested, the previous periods will be reduced to a half.

In case of disagreement with the response received, or if a response has not been received by the solicitor within the established period, it will be able to raise its access request to the CNE.

### **1.3.24.2 LNG terminal access booking.**

As soon as the access request been accepted, the solicitor will be able to book the services of regasification. The contract shall be signed by the solicitor and the owners of the facilities.

The contract will have to be signed by the parts within twenty-four working days from the acceptance of the access request. If the contract has not been formalized within such period, the solicitor will be able to file a conflict of access to the CNE.

The owners of the LNG terminals are obliged to attend reduction of capacity requests by TUs provided that the request is made three months in advance and is made one year after having carried out the initial reservation of capacity (or proceeded to change it) and effective use of the capacity has been made. When the reason of the request for reduction of capacity is the loss of a



customer in favour of other shipper, the communication will have to be made one month in advance.

The owners of basic gas infrastructures are obliged to assign to contracts of duration lower than two years at least 25 % of the sum of the capacities of their facilities of regasification, storage and entry to the transmission and distribution system. The short-term capacity that each TU is allowed to book is limited to 50% of the total capacity assigned for short-term contracts. This percentage might be changed by the Ministry of Industry, Tourism and Trade, depending on the evolution of the market.

In the case of short-term capacity access requests to the facilities of regasification, storage and entry to the transmission and distribution system, it will not be able to make this requests more than twelve months in advance of the starting date of the requested services.

Owners of the LNG terminals are required to publish every three months the booked and available capacities at their facilities, as well as the expansions planned. They are required to distinguish between the capacity allocated to international transits, to the regulated (end-user integrated tariff) market and to the liberalized market.

Moreover, for each of these segments they are also required to distinguish between the capacity allocated to contracts with duration equal or above two years and to contracts of access with duration lower than two years. The CNE will develop the standardized models for the publication of the booked and available capacity, as well as the methodology for their determination.



## 1.4 France.

### 1.4.1 General overview.

There are three active LNG terminals in France: Fos Tonkin, Montoir-de-Bretagne and Fos Cavaou.

The following map shows their locations:

**Map 3: Location of LNG terminals in France.**

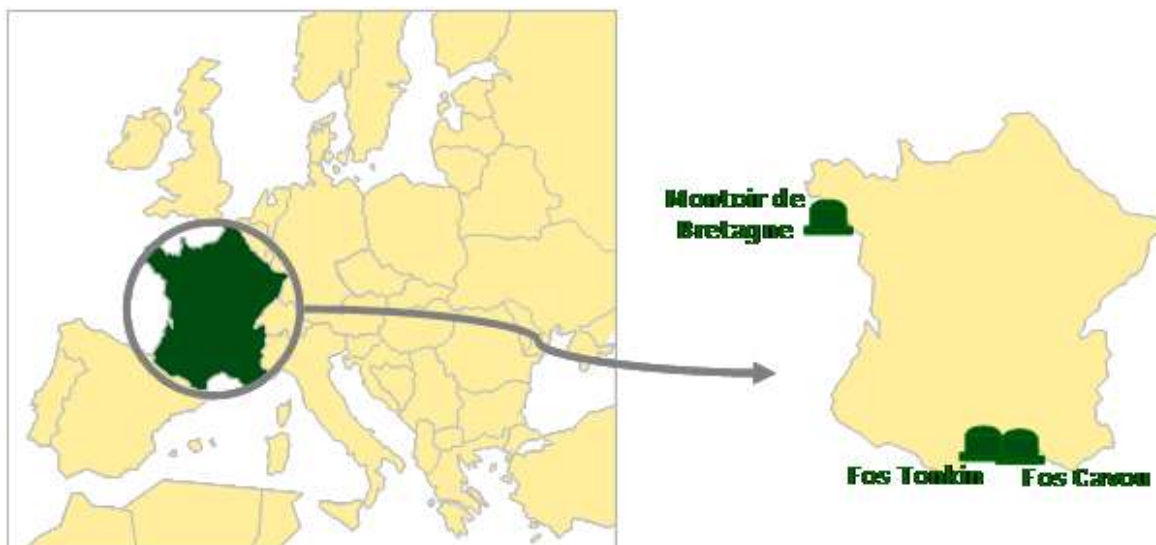







Table 14: General information about the French LNG terminals.

<b>France, Fos Tonkin</b> <b>Start-up : 1972</b> 				<b>France, Montoir de Bretagne</b> <b>Start-up : 1980</b> 			
<b>MAX. HOURLY CAPACITY</b> current : 1.150.000 m <sup>3</sup> (N)/h <b>Consultation under way</b>		<b>NOM. ANNUAL CAPACITY</b> current : 5,5 bm <sup>3</sup> (N)/year <b>Consultation under way</b>		<b>MAX. HOURLY CAPACITY</b> current : 1.600.000 m <sup>3</sup> (N)/h <b>future : tba</b>		<b>NOM. ANNUAL CAPACITY</b> current : 10,0 bm <sup>3</sup> (N)/year <b>future : 16,5 bm<sup>3</sup> (N)/year</b>	
NOMINATION	Yes	ALLOCATION	OBA	NOMINATION	Yes	ALLOCATION	OBA
MATCHING	Yes	FLOW CONTROL	Yes	MATCHING	Yes	FLOW CONTROL	Yes
SCHEDULE	D/D	MEASUREMENT	Yes	SCHEDULE	D/D	MEASUREMENT	Yes
LNG STORAGE CAPACITY		150.000 m <sup>3</sup> LNG		LNG STORAGE CAPACITY		360.000 m <sup>3</sup> LNG	
NUMBER OF TANKS		3		NUMBER OF TANKS		3	
MAX. LNG SHIP CLASS SIZE REC.		75.000 m <sup>3</sup> LNG		MAX. LNG SHIP CLASS SIZE REC.		217.000 m <sup>3</sup> LNG	
URL AUTHORISED SHIPS		www.elengy.com		URL AUTHORISED SHIPS		www.elengy.com	
NUMBER OF JETTIES		1		NUMBER OF JETTIES		2	
MIN. SEA DEPTH ALONG SIDE		12 m		MIN. SEA DEPTH ALONG SIDE		13 m	
MAX. SEND OUT PRESSURE		67,7 bar		MAX. SEND OUT PRESSURE		80 bar	

<b>France, Fos Cavaou</b> <b>Start-up : 2010</b> 			
<b>MAX. HOURLY CAPACITY</b> 1.160.000 m <sup>3</sup> (N)/h		<b>NOM. ANNUAL CAPACITY</b> 8,25 bm <sup>3</sup> (N)/year	
NOMINATION	Yes	ALLOCATION	OBA
MATCHING	Yes	FLOW CONTROL	Yes
SCHEDULE	D/D	MEASUREMENT	Yes
LNG STORAGE CAPACITY		330.000 m <sup>3</sup> LNG	
NUMBER OF TANKS		3	
MAX. LNG SHIP CLASS SIZE REC.		220.000 m <sup>3</sup> LNG	
URL AUTHORISED SHIPS		www.cavaou-gnl.com	
NUMBER OF JETTIES		1	
MIN. SEA DEPTH ALONG SIDE		15 m	
MAX. SEND OUT PRESSURE		90 bar	

Source: GLE's LNG map, June 2010.

### Fos Tonkin.

The Fos-sur-Mer LNG terminal spans 17.5 hectares to the north of man-made artificial harbour on the banks of the Rhone river. The facility was commissioned in 1972 and is France's third-largest LNG terminal.

The Fos Tonkin LNG terminal supplies the south of France by importing LNG mainly from the Skikda and Bethioua liquefaction plants in Algeria. Fos Tonkin lies at the crossroads of three key gas supply routes, with the Rhone valley to the north, the French Riviera to the east and the Midi-Pyrénées region to the west.

35-45% of French LNG imports passed through Fos Tonkin's LNG tankers, which provide a capacity of 150,000 cubic meters, split between three cryogenic tanks (two holding 35,000 cubic metres and one holding 80,000 cubic metres).



### **Montoir-de-Bretagne.**

The LNG terminal at Montoir-de-Bretagne is France's largest natural gas regasification facility; it covers 73 hectares in the Loire-Atlantique region, near Saint-Nazaire. It was commissioned in 1980. The facility regasifies LNG mainly from Algeria (Arzew and Bethioua), Nigeria (Bonny), Egypt (Idku), Qatar (Ras Laffan) and also from Norway (Snøhvit) and Trinidad & Tobago.

Montoir-the-Bretagne terminal handles 55-65% of the LNG imported into France each year.

### **Fos Cavaou.**

A third terminal, Fos Cavaou, has entered into operation at Fos-sur-Mer in 2010. With a capacity 8.25 bcm/y, this new facility increases significantly the LNG supplies in the south of France.

## **1.4.2 Unbundling requirements.**

### **Fos Tonkin and Montoir-de-Bretagne.**

In December 2008, GDF SUEZ LNG terminal activities in France were turned over to a new subsidiary: Elengy. Fos Tonkin and Montoir-de-Bretagne LNG terminals are owned by Elengy. Elengy is 100% owned by GDF SUEZ<sup>57</sup>. Elengy is a public limited company with its own Board that decides on strategic orientations.

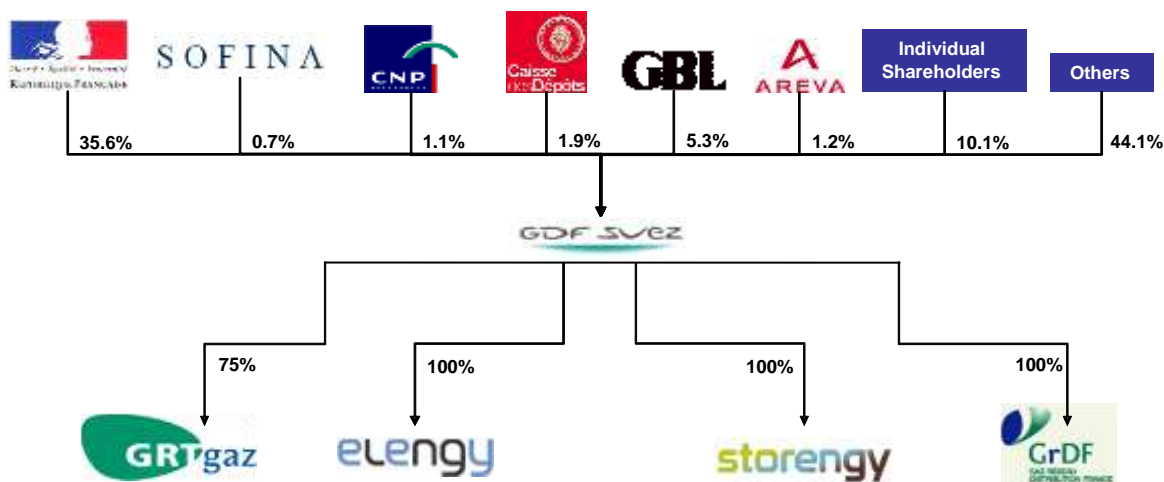
Elengy states that it's priorities are guaranteeing protection of commercially confidential information, ensuring all customers using LNG terminal services are treated equally, and providing comprehensive information. All these guidelines are laid out in Elengy's Code of conduct<sup>58</sup>.

<sup>57</sup> <http://www.elengy.com/en/about-elengy/activities.html>

<sup>58</sup> <http://www.elengy.com/en/corporate-social-responsibility/ethics-and-compliance.html>



Figure 12: Elengy shareholder structure.

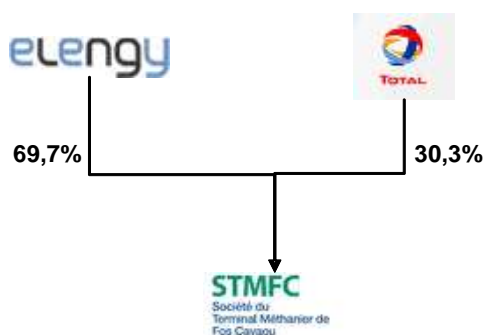


Source: Elengy website and self-made.

### Fos Cavaou.

Fos Cavaou LNG terminal is co-owned by Elengy (69.7%) and Total (30.3%). The terminal is operated and maintained by Elengy.

Figure 13: STMFC shareholder structure.



Source: STMFC website.

### 1.4.3 Access rules.

There is a regulated Third Party Access to all LNG terminals currently in operation, based on the *First Come/First Served* principle, accompanied with the provision of bails and UIOLI mechanisms.

All access rules are published in different documents, in particular the LNG terminal access contracts, together with the detailed appendixes.



The current tariff terms, in force since 1<sup>st</sup> January 2010, result from the Ministerial Decree of 20<sup>th</sup> October 2009.

**Fos Tonkin and Montoir-de-Bretagne.**

The following documents, which describe the access rules applicable from the 1<sup>st</sup> of January 2010, are available at Elengy's website, in French and in English (<http://www.elengy.com/>): <sup>59</sup>

- “LNG Terminal Access Contract – Appendix 1 – General conditions”
- “LNG Terminal Access Contract – Appendix 2 – Specific conditions”
- “LNG Terminal Access Contract - Appendix 3 - Ship-related Procedures”
- “LNG Terminal Access Contract – Appendix 4 – Measuring, metering and quality”
- “Complement: Method of calculating for unloaded energy”
- “LNG Terminal Access Contract - Appendix 5 - Allocation Rules”

Besides, Elengy has elaborated a document “Sharing send-out among Continuous Service Customers - Rules proposal - 25 November 2009”, which is available at Elengy's website, that aims to inform the market about Elengy's proposal regarding rules to manage the system for sharing regasification capacity among continuous service shippers. Once the rules have been approved by the Regulator, they will be implemented as annexes (to be drafted) to the Access Contract.<sup>60</sup>

**Fos Cavaou.**

The following documents, which describe the access rules, are available at STMFC's website, in French and in English (<http://www.cavaou-gnl.com/>): <sup>61</sup>

- The contract for access to the Fos Cavaou LNG Terminal
- Appendix 1 - Specific Conditions
- Appendix 2 - General conditions
- Appendix 3 - Vessel-related procedures
- Appendix 4 - Measurement, Metering and Quality Procedures
- Appendix 5 - Titles and Values of the Rate Terms
- Appendix 6 - Communication Forms
- Appendix 7 - Terminal Start-Up

<sup>59</sup> <http://www.elengy.com/en/commercial-section/access-to-terminals/contracts.html>

<sup>60</sup> [http://www.elengy.com/fileadmin/user\\_upload/pdf/TSA%20rules%20proposal%2025%20Nov%202009.pdf](http://www.elengy.com/fileadmin/user_upload/pdf/TSA%20rules%20proposal%2025%20Nov%202009.pdf)

<sup>61</sup> <http://www.cavaou-gnl.com/en/commercial-section/telechargements.html>



- Appendix 8 - Calculation Terms and Conditions for the Reference Send-Outs
- Appendix 9 - Negative Stock Account and Offsetting Terms and Conditions
- Appendix 10 - Unloading Procedure.

#### **1.4.4 Services offered.**

According to the French Order dated on 20<sup>th</sup> October 2009 approving the tariffs for the use of LNG terminals<sup>62</sup> all LNG terminals in France offer three types of basis services (i.e. each service comprises the right to receive LNG carriers, unload the cargo, storage in tanks the LNG unloaded quantities, and send-out of regasified LNG to the transmission network). The services provided are listed below:<sup>63 64</sup>

- Continuous service: this service is for shippers that have subscribed for an annual average of at least 10 cargoes at a terminal. As part of this service, the operator provides a continuous supply which is as regular as possible, according to the Terminal's global unloading schedule.
- Uniform service: regasification service for the shipper unloading at the most one cargo a month at a terminal, on average over the year. As part of this service, each cargo is sent out in the form of a uniform period lasting 30 days from the default unloading date.
- Spot service: this service is reserved for unloading cargo over a given month (M), reserved after the 20<sup>th</sup> day of month M-1. The booking (reservation) is based on vacant slots available in the monthly schedule at the book date. Each cargo is discharged as a constant quantity lasting 30 days starting from the unloading end date.

Additionally, the referred French Order mentions several options in addition to the services detailed above:

- Send-Out Postponement Service: additional regasification service offered to shippers that have subscribed for a spot Service or a uniform Service, allowing them to begin sending out their cargo up to two days after the unloading date.
- Early Send-Out Service: additional regasification service offered to shippers that have subscribed for a spot service or a uniform service, allowing them to begin sending out their cargo up to two days before the unloading date, on the condition that a guarantee is provided to the LSO for the quantities to be sent out early.
- LNG Inventory Transfer: additional service for the exchange of LNG quantities stored between shippers inside the Terminal, expressed in MWh (GHV), as defined in the procedure described in article 4 of the General Terms and Conditions.

#### **Fos Tonkin and Montoir-de-Bretagne.**

<sup>62</sup> <http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000021254008>

<sup>63</sup> <http://www.elengy.com/en/commercial-section/access-to-terminals/services.html>

<sup>64</sup> <http://www.cavaou-gnl.com/en/espace-commercial/devenir-client/presentation-offre.html>



The services offered are detailed at Elengy's website and are the continuous service, the uniform service and the spot service (see above).

Moreover, shippers have the possibility of choosing the options regarding the Send-Out Postponement Service, the Early Send-Out Service and the LNG Inventory Transfer which are also detailed at Elengy's website (see above).

In addition, CRE indicated in a deliberation<sup>65</sup> of 14<sup>th</sup> January 2010 that it was in favour of testing a mechanism proposed by Elengy allowing multiple users subscribe to the continuous send-out service. It consists on:<sup>66</sup>

- the sharing of send-out between "continuous" service customers based on a send-out ratio in order to ensure that send-out is shared fairly;
- a storage management system for each "continuous" service shipper to ensure that storage is shared fairly;
- a deficit allowance enabling "continuous" service shippers to have one-off negative storage levels;
- terms for compensation for reductions in send-out that ("continuous" service or "30-day band" service) shippers at the terminal may suffer as a result of a reprogramming by a "continuous" service shipper.

Montoir-de-Bretagne nominal unloading rate is 14,000 m<sup>3</sup>/h. As the terminal nautical access is linked to slacks of tide, the Laytime<sup>67</sup> shall be:

- 5 consecutive slacks of tide (approx. 25 hours),
- Call extensions may be possible,

Fos Tonkin nominal unloading rate is 5,000 m<sup>3</sup>/h. The Laytime shall be:

- 20 hours for cargo lot size up to 50,000 m<sup>3</sup>,
- 26 hours for cargo lot size above 50,000 m<sup>3</sup> and up to 75,000 m<sup>3</sup>.

Specific LNG Tanker operations alongside such as technical stripping, N<sub>2</sub> inerting, bunkers, provisions, etc... are not covered by the Laytime. They may be tolerated provided however that:

- the formal acceptance for such operation has been requested
  - to the terminal operator's commercial department before the vessel's call and granted, or

<sup>65</sup> <http://www.cre.fr/en/content/download/9380/161990/file/100114ProjetPerennisationFosTonkin-en.pdf>

<sup>66</sup> [http://www.elengy.com/fileadmin/user\\_upload/pdf/TSA%20rules%20proposal%2025%20Nov%202009.pdf](http://www.elengy.com/fileadmin/user_upload/pdf/TSA%20rules%20proposal%2025%20Nov%202009.pdf)

<sup>67</sup> Laytime ("Durée Totale de Déchargement Garantie") used in unloading the LNG ship shall begin to count upon berthing (first line ashore) and shall end upon unberthing (all lines let go). Laytime is related to the nominal unloading rate of the terminal and to the cargo lot size



- on the latest, to the terminal during the pre transfer meeting held onboard the vessel and granted,
- the Laytime, possibly extended as per specific conditions associated to the requested and granted service, is not exceeded.

The document “ELENKY – Sales & Operations Department - Specific services Revision 4 dated 25.11.2009”, available at Elengy’s website<sup>68</sup>, details the specific services available at the LNG terminals:

- Booking off spec cargo (detailed study will assess the possibilities to accommodate the cargo in the program)
- Additional terminal assistance for cargo measurement
- Laytime extension: 6 hours or one slack of the tide in Montoir (may be two slacks of tide depending of tidal coefficient)
- Nitrogen service
- Inerting
- Ship approval
- Other services: cooling down, technical stripping, etc.

### **Fos Cavaou.**

The services and options offered are detailed at STMFC’s website (see above)

The document “STMFC – Services spécifiques vf – Novembre 2009”, available at STMFC’s website,<sup>69</sup> details the specific services available at the LNG terminal.

- Ship Approval
- Lay time extension
- Odourising
- Tank to ship loading
- Tanker cooling down
- Gassing up
- Liquified Nitrogen Loading

<sup>68</sup> [http://www.elengy.com/fileadmin/user\\_upload/pdf/Specific%20Services%20v2.pdf](http://www.elengy.com/fileadmin/user_upload/pdf/Specific%20Services%20v2.pdf)

<sup>69</sup> [http://www.cavaou-gnl.com/sicsFront/FosCavaou/telechargements/catalogue\\_services\\_specifiques\\_v2.pdf](http://www.cavaou-gnl.com/sicsFront/FosCavaou/telechargements/catalogue_services_specifiques_v2.pdf)



- Scheduling of a cargo out of LNG specifications

According to “Contract for Access to the Fos Cavaou Methane Terminal – Appendix 2 General Conditions - Version dated 2010-02-26”, article 8.5, the port call duration shall be:

- 30 hours for vessels with a vessel capacity of less than or equal to 160,000 m<sup>3</sup>.
- for Vessels with a vessel capacity of more than 160,000 m<sup>3</sup> and less than 216,000 m<sup>3</sup>, the port call duration shall be measured in hours and defined for each vessel using the following formula, rounded up to the higher hour:

$$\text{Port Call Duration} = 30 + ((Q - 160\,000) / 12\,000)$$

Q = vessel capacity

The effective port call duration shall be calculated as from receipt of the notice of arrival by the TO and until the return to the pilot boarding station, at the latest 3 hours after casting off.

#### **1.4.5 Capacity allocation procedures.**

##### **Fos Tonkin and Montoir-de-Bretagne.**

The capacity allocation procedures are explained at Elengy website and at the document “Contract providing access to the LNG terminal - Appendix 5 - Allocation Rule - Version of the 1<sup>st</sup> of January 2010”.

The capacity is allocated under the *First Come/First Served* principle by the TO.

##### **Fos Cavaou**

The document “Contract for Access to the Fos Cavaou Methane Terminal – Appendix 2 General Conditions - Version dated 2010-02-26” details that the GTM<sup>70</sup> (TO) deals with the assignment requests on a *First Come/First Served* basis.

The *First Come/First Served* principle is, for obvious reasons, not used in the case of Open Seasons.

#### **1.4.5.1 Open Season processes at Montoir-de-Bretagne and Fos Tonkin**

##### **Montoir-de-Bretagne: 2006 Open Season.**

On December 27<sup>th</sup> 2006, the operator launched a transparent and non discriminatory invitation to subscribe for the development of new regasification capacity at its Montoir-de-Bretagne site.<sup>71</sup>

<sup>70</sup> The “Contract for acces to the Fos Cavaou LNG terminal”, identifies “GTM” as the owner and commercial operator of an LNG Terminal in Fos Cavaou capable of receiving Liquefied Natural Gas. In this report GTM is always referred as TO (Terminal Operator)

<sup>71</sup> The extension options were (i) maintaining the terminal at 10 bcm/year beyond 2021, (ii) extension of the terminal to 12.5 bcm/year as from 2011, (iii) extension of the terminal to 16.5 bcm/year as from 2014.



At the end of the process, this open season allowed to approve the decision to renew the terminal capacities in order to extend the terminal's lifetime up to 2035<sup>72</sup>.

### **Montoir-de-Bretagne: potential Open Season in 2011.**

Elengy is considering further development of LNG regasification capacity at Montoir de Bretagne. Prior to formally launching an open season process, Elengy indicates that it is willing to discuss with the market players in order to collect their input and to design, in an appropriate timing, a regasification service that best fits the market needs.<sup>73</sup>

**Table 15: Montoir-de-Bretagne expansion options.**

Extra regasification equipments	New LNG tank + Extra regasification
Capacity 12.5 bcm/y  Availability 2014	Capacity 12.5 bcm/y  Availability 2016  High operational flexibility can be offered to the market
Not applicable	Capacity up to 16.5 bcm/y

**Source:** *Elengy's website.*

Elengy announces that “these additional capacities will be marketed at a regulated very competitive tariff”. The access tariff level reported by Elengy of Montoir terminal, around 1 €/MWh, would not vary significantly according to the company's expectation with the implementation of the expansion project, except possibly for the high flexibility case.

Elengy has collected market players' contributions to these discussions until the end of June 2010. This would be followed by a formal commercial process which is envisaged for 2011.

### **Fos Tonkin: 2010 Open Season**

The terminal regasification capacity is of 7 bcm/year. Capacity is set to drop to 5.5 bcm/year once the Fos Cavaou terminal is commissioned. Its commercial operation is planned until October 2014.

On September 15<sup>th</sup> 2009 Elengy informed market stakeholders of its intention to launch an invitation to subscribe for capacity at the Fos Tonkin terminal ("Open Season Fos Tonkin"). The purpose was to assess the interest among its current and potential customers for new regasification capacity.

In February 2010, Elengy invited the market to subscribe capacity of up to 7 bcm/year at the Fos Tonkin terminal from October 2014 for a period of up to 20 years. Elengy was considering two continuation scenarios:

<sup>72</sup>

[http://www.elengy.com/fileadmin/user\\_upload/images/Cloture\\_de\\_l\\_appel\\_a\\_souscription\\_de\\_capacites\\_de\\_regasification\\_a\\_Montoir-de-Bretagne\\_01.pdf](http://www.elengy.com/fileadmin/user_upload/images/Cloture_de_l_appel_a_souscription_de_capacites_de_regasification_a_Montoir-de-Bretagne_01.pdf)

<sup>73</sup>

<http://www.elengy.com/en/projects/montoir-expansion.html>



- a “Higher-Capacity” project, enabling Elengy to offer capacities up to 7 Bcm/year,
- a “Lower-Capacity” project, enabling Elengy to offer capacities up to 5.5 Bcm/year.

Deliberation by CRE of 14 January 2010 approving the open season procedure for the Fos Tonkin LNG terminal continuation project, as well as the Information Memorandum and the Allocation Rules are available at Elengy’s and CRE’s websites <sup>74</sup>.

On 11<sup>th</sup> June 2010 Elengy published in its website the result of the Fos Tonkin Open Season. The Fos Tonkin Open Season has been closed without allocating any capacity. The results of the binding phase confirmed the interest of the market for regasification capacities significantly over 3 bcm/year over 20 years. Nevertheless, this was not sufficient for an investment decision aiming at expanding the operation of the terminal beyond 2014.

However, on the short term, Fos Tonkin LNG terminal remains attractive, given that the whole terminal capacity is booked until end of 2011, except for very few slots in 2010.

On 6<sup>th</sup> September 2010, a initiative regarding the permitting process has been launched, at Elengy’s request, in order to publicly debate<sup>75</sup> the interest of extending Fos Tonkin operating life<sup>76</sup>.

The debate is organised by an official entity, the “Commission Particulière du Débat Public (CPDP)” and, according to the documentation<sup>77</sup>, the conclusions are expected by the beginning of 2011.

#### **1.4.5.2 GDF SUEZ capacity release process.**

##### **Background.**

In December 2009, the European Commission adopted a decision making legally-binding the commitments proposed by GDF SUEZ and its subsidiaries aiming at reducing its share of firm long-term reservations of natural gas import capacities in France<sup>78</sup>. According to these commitments, and as regards to LNG infrastructures, two capacity release programs were carried out in 2010, one at Montoir LNG terminal, and another one at Fos Cavaou LNG terminal<sup>79</sup>.

##### **Montoir-de-Bretagne.**

Elengy offered the following capacity released by GDF Suez on Montoir-de-Bretagne LNG terminal, divided in two lots:

<sup>74</sup> <http://www.cre.fr/en/documents/deliberations/decision/open-season-procedure-for-the-fos-tonkin-lng-terminal-continuation-project>

<sup>75</sup> The public debate is a French procedure regulated by Law L95-101 which allows public participation in decision making.

<sup>76</sup> [http://www.debatpublic-prolongementexploitation-methanier-Fos\\_Tonkin.org/index.html](http://www.debatpublic-prolongementexploitation-methanier-Fos_Tonkin.org/index.html)

<sup>77</sup> [http://debatpublic-prolongementexploitation-methanier-Fos\\_Tonkin.org/\\_script/ntsp-document-file\\_download.php?document\\_file\\_id=205](http://debatpublic-prolongementexploitation-methanier-Fos_Tonkin.org/_script/ntsp-document-file_download.php?document_file_id=205)

<sup>78</sup> Decision “C (2009) 9375 final”:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:057:0013:0014:EN:PDF>

<sup>79</sup> <http://www.elengy.com/en/projects/capacity-release-project-montoir-de-bretagne-terminal.html>





- 1 bcm/y from 1<sup>st</sup> October 2010 until 31<sup>st</sup> December 2035,
- 1 bcm/y from 1<sup>st</sup> October 2011 until 31<sup>st</sup> December 2035.

Both lots were offered simultaneously<sup>80</sup>.

The capacity release process at Montoir has been closed on 7<sup>th</sup> March 2010 allocating 1 bcm/year capacity from October 2011 to December 2021. Gas Natural Fenosa has secured a total of 1 Bcm/y of capacity rights from 2011 to 2021<sup>81</sup>.

### **Fos Cavaou.**

GDF SUEZ committed to make available to the market 2.175 Gm<sup>3</sup>/year regasification capacities at the Fos Cavaou terminal from January 1, 2011.

Two separate operations for making these available were implemented under the commercialization procedure<sup>82</sup>:

- First, a "Punctual Commercialization Procedure for Batches", under which GDF SUEZ offered 2 "Batches"<sup>83</sup> of 1 Gm<sup>3</sup>/year of capacity at the Fos Cavaou terminal from January 1, 2011 up to the 20<sup>th</sup> anniversary of the commercial start up of the terminal.
- Second, a "Commercialization Procedure for Additional Capacities"<sup>84</sup>, in which GDF SUEZ intended to make available to the market a regasification capacity of 0.175 Gm<sup>3</sup>/year combined with approximately two unloadings per year from January 1, 2011 up to the 20<sup>th</sup> anniversary of the commercial start up of the terminal, this provision being made available as long as the supply capacity assigned pursuant to the CRE decision of May 16, 2007 (the "Short Term Capacities") remains below 1 Gm<sup>3</sup>/year, and coordinated with the Short Term Capacities.

The first commercialization procedure is closed. It led to the assignment of one batch of 1 bcm/year for five years (2011-2015) to a shipper.

The remaining capacity will again be offered to the market in 2011 at the latest and will follow the same procedure of commercialization as the one used so far.

<sup>80</sup> [http://www.elengy.com/fileadmin/user\\_upload/pdf/Acces%20France%20-%20Commercialization%20Procedure%20v2c.pdf](http://www.elengy.com/fileadmin/user_upload/pdf/Acces%20France%20-%20Commercialization%20Procedure%20v2c.pdf)

<sup>81</sup> Gas Matters Today, 11<sup>th</sup> May 2010.

<sup>82</sup> Commercialization Procedure for Capacities at the Fos Cavaou LNG Terminal:  
<http://www.gdfsuez.com/document/?f=files/en/memorandum-information-v2-2010-03-12-en-non-confidential.pdf>

All the information regarding the commercialisation of Fos Cavaou LNG terminal capacities is available at:

<http://www.gdfsuez.com/en/commitments/commitments-towards-the-european-commission/commitments-towards-the-european-commission/>

<sup>83</sup> Batch: regasification capacity of 1 Gm<sup>3</sup>/year on the LNG terminal at Fos Cavaou, i.e. approximately 12 slots for unloading allocated on a regular basis over the year, beginning on January 1, 2011 and ending no later than 20 years after the commercial start of the terminal combined with a "Continuous Emission" Service.

<sup>84</sup> Additional capacities: capacities corresponding to 0.175 Gm<sup>3</sup>/year of access capacities at the Fos Cavaou LNG terminal that GDF SUEZ has committed to make available to third party shippers.



In September 2010, STMFC launched the second operation for the commercialisation of short-term capacity at Fos Cavaou. This operation comprises the sale of short term access capacity for a period of 3 years, according to CRE's deliberation of December 15, 2003, 10% of Fos Cavaou terminal capacity is reserved for short term contracts, which amounts up to 0.825 Gm<sup>3</sup>/year (i.e. approximately 10 unloadings)

Furthermore, GDF SUEZ made available, on the primary market, a capacity of 0.175 Gm<sup>3</sup>/year (i.e. approximately 2 unloadings), pursuant to the commitments made by GDF SUEZ to the European Commission.

The relevant information related to this sale process is contained in the document "Information Memorandum, Sale of Short-Term Access Capacity at the Fos Cavaou LNG Terminal, Period 2011-2012"<sup>85</sup>.

If no capacity is allocated, lot 2011, and then lot 2012 will be divided into 10 slots of 1 TWh and distributed evenly throughout the year. Each slot will be available independently under "first committed -first served" basis.

#### **1.4.6 Long term/short term capacity offering requirements.**

There is no capacity ratio that must be reserved for long term or for short term capacity contracts for the Montoir and Fos Tonkin LNG terminals.

According to CRE's deliberation of December 15, 2003, 10% of Fos Cavaou terminal capacity is reserved for short term contracts.

#### **1.4.7 Contracts duration.**

##### **Fos Tonkin and Montoir-de-Bretagne.**

The duration of the contracts is detailed at "Contract providing access to the LNG terminal - Appendix 5: Allocation Rule - Version of the 1<sup>st</sup> of January 2010", section "0 Definitions", accessible at Elengy's website.

Two types of contracts in terms of duration are available:

- Infra-annual (or short term contract): access contract with a term strictly less than 12 months.
- Annual or supra-annual (or long term) contract: access contract with a term of 12 months or greater, without the term necessarily being a whole number of periods of twelve months.

##### **Fos Cavaou.**

The document "Contract for Access to Fos Cavaou LNG Terminal – Appendix 2 – Version dated 2010-02-26" available at STMFC's website differentiates between two types of contracts:

<sup>85</sup> [http://www.cavaou-gnl.com/sicsFront/FosCavaou/telechargements/vente\\_capacites\\_acces\\_2011-2012\\_memoirandum\\_VA\\_v2.pdf](http://www.cavaou-gnl.com/sicsFront/FosCavaou/telechargements/vente_capacites_acces_2011-2012_memoirandum_VA_v2.pdf)



- Long-Term Contract: contract concluded for a term in excess 36 months.
- Short-Term Contract: contract for a single cargo ("spot" contract) or concluded for a term equal to or less than 36 months.

#### **1.4.8 Programming / Nomination procedures.**

##### **Fos Tonkin and Montoir-de-Bretagne.**

The programming and nomination procedures at Fos Tonkin and Montoir-de-Bretagne LNG terminals are explained at "Contract providing access to the LNG terminal – Appendix 1: General Terms and conditions, Art 5:

- Annual Program
- Monthly Program
- Intra-monthly re-scheduling

##### **Fos Cavaou.**

The programming and nomination procedures at Fos Cavaou LNG terminal is explained at "LNG terminal access contract – Appendix 2 - General Conditions, Art 6:

- Annual Program
- Quarterly Program
- Intra-monthly re-scheduling
- Flexibility: Weekly and Daily Send-Out Programs

#### **1.4.8.1 Annual program**

##### **Fos Tonkin and Montoir-de-Bretagne.**

The annual program procedures at LNG terminals in France are explained at "LNG terminal access contract – Appendix 5: Contract providing access to the LNG terminal, Art 3".

- For the months of January and February of the year "n+1": unloading date requests received before 20<sup>th</sup> October of the year "n" are handled by no later than 1<sup>st</sup> November of the year "n". Unloading date requests for January and February of the year "n+1" received from 20<sup>th</sup> October of the year "n", cannot be accepted by the terminal operator if they change the unloading programs of other shippers.
- For the months of March to December of the year "n+1": unloading date requests received before 15<sup>th</sup> November of the year "n" are handled by no later than 15<sup>th</sup> December of the year "n". Unloading date requests for March to December of the year "n+1" received from



15<sup>th</sup> November of the year "n", cannot be accepted by the terminal operator if they change the unloading programs of the other shippers.

- For the month "m+1" of the year "n": unloading date requests regarding the month "m+1" and received after the 20<sup>th</sup> of the month "m" cannot be accepted if they change the unloading and send-out programs of other shippers.
- And any unloading date requests for the year "n+2" and subsequent years are not handled in advance by the terminal operator.

### **Fos Cavaou.**

#### **Shipper's request for the annual program.**

On October 15<sup>th</sup> of the previous year at the latest, the shipper shall notify the TO of an annual program request for the following calendar year.

The annual program request made by the shipper shall contain the following information for each cargo:

- the Window of Arrival requested for the Vessel,
- the estimated Energy Content,
- the planned Loading Port .

The second and third items are purely indicative.

The annual program request shall take into account the unavailability notified by the TO in its maintenance program. The sum of the volumes requested by the shipper must be compatible with the contractual unloaded quantity (QDC), adjusted by the processing of rounded-off figures.

The shipper establishes its annual program request taking care to ensure regularity in the arrival of the vessels.

#### **Determination and notification of the annual program by the TO.**

The TO shall analyse, in a non-discriminatory manner, the compatibility of the requests of all the shippers. In the event of incompatibility between requests, the TO shall propose adjustments to the shippers concerned. The TO cannot draw up an annual program that would result in a global delivery level that is higher than the nominal send-out of the LNG terminal. If the requests from shippers having subscribed to the uniform service prevent the TO, despite adjustments and negotiating efforts, from drawing up an annual program that complies with the aforementioned constraint, the TO may exceed the nominal send-out of the LNG terminal by 10% during the period of presence of a shipper having subscribed to the uniform service.

The TO establishes the annual program by arbitrating the requests in a non-discriminatory manner and by making effort to ensure regularity between the windows of arrival allocated, which is required for the smooth running of the long-term supply chains, and avoiding making any vessels wait. As a last resort, the TO shall determine the annual program, ensuring that a minimum period of 48 hours is maintained between the end of one window of arrival and the start of the next window of arrival.



The TO shall notify the shipper, at the latest on December 1<sup>st</sup>, of the definitive annual program for the next year.

#### **1.4.8.2 Quarterly program.**

##### **Fos Cavaou.**

##### **Quarterly program request by shipper.**

At the latest on the 20<sup>th</sup> calendar day of each month M, the Shipper shall provide the TO with a quarterly program that includes, for each of the cargos that the shipper wishes to unload at the terminal during months M+1, M+2, M+3, the following information:

- the requested window of arrival for the vessel
- the estimated energy content,
- the loading port,
- the name of the vessel carrying the cargo,
- the name of the shipping agent,
- the name of the customs agent,
- if applicable, for shippers having subscribed to the uniform service or the spot service, subscription to the early send-out service or the send-out postponement service.

The information for months M+2 and M+3 shall substitute the information on the annual program for the months concerned.

If the shipper does not notify a complete quarterly program request within the applicable timeframes, the information contained in the annual program and/or the latest quarterly program shall be used by the TO. The shipper may send the TO information concerning the month(s) after M+3, which information may possibly be taken into account.

##### **Subscription to the send-out postponement or early send-out service.**

Shippers having subscribed to the uniform service or the spot service may, at the time of notifying its quarterly schedule request, subscribe to the early send-out service or the send-out postponement service for one or more cargos.

Shippers having subscribed to the uniform service or the spot service give notice that they wish to advance or postpone by 1 or two 2 days the start of the reference send-out relating to each of the cargos in question.

Failing notification, at the time of its quarterly schedule request, of a number of days of rescheduling for the early send-out service or the send-out postponement service, this number is deemed to be equal to zero.



The TO makes reasonable efforts to postpone or advance the send-out by the requested number of days.

Allocation of windows of arrival by the TO.

The TO shall analyse, in a non-discriminatory manner, the compatibility of the requests of all the shippers. In the event of incompatibility between requests, the TO shall propose adjustments to the shippers concerned. The TO cannot draw up a quarterly program that would result in a global delivery level that is higher than the nominal send out of the LNG terminal. If requests by shippers having subscribed to the uniform service or spot service prevent the TO, despite adjustments and negotiating efforts, from drawing up a quarterly program that complies with the aforementioned constraint, the TO may exceed the nominal terminal flow rate by 10% during the period during which a shipper having subscribed to the uniform service or the spot service is present. The TO has the possibility but not the obligation to reduce the minimum period to 24 hours.

A window of arrival request shall not be accepted by the TO if said window has already been allocated to another shipper under the previous quarterly program or, by default, the annual program and confirmed in the quarterly program request.

As a last resort, the TO shall determine the quarterly program.

Allocation of the reference send-out by the TO.

The TO shall define a reference send-out for each day of the quarter:

- The reference send-out for shippers having subscribed to the continuous service shall be calculated by the TO in accordance with the provisions of Article 1 of Appendix 8.
- The reference send-out for shippers having subscribed to the uniform service or the spot service shall be calculated by the TO in accordance with the provisions of Article 2 of Appendix 8.

Notification of the quarterly program by the TO.

At the latest on the 25<sup>th</sup> calendar day of month M, the TO shall notify its quarterly program to the shipper, which includes all the Quarterly Program Request information and shows:

- the windows of arrival allocated,
- the reference send-out for each day of the quarter,
- in case of subscription, by a shipper having subscribed to the uniform service or the spot service, to the early send-out service or send-out postponement service, confirmation of the cargos to which the subscription applies and the number of days subscribed

The information concerning months M+2 and M+3 shall substitute the information in the annual program for the months concerned.

**1.4.8.3 Monthly nomination program.**

**Fos Tonkin and Montoir-de-Bretagne.**



Monthly schedule request by the shipper.

By no later than the 20<sup>th</sup> calendar day of each month M, the shipper gives the TO notice of a monthly schedule request including, for each of the LNG carriers that the shipper wants to unload at the LNG terminal during month M+1, the following data:

- the requested arrival date for the vessel,
- the estimated energy content,
- the loading port,
- the name of the vessel transporting the LNG,
- the name of the shipping agent,
- the name of the customs agent,
- where applicable, for shippers using uniform service, subscription to the early send-out service or the send-out postponement service.

The continuous service shipper gives notice, for each day of the month M+1, of the scheduled daily quantity to be sent-out.

The monthly schedule request is systematically accompanied by an updated forecast concerning the months M+2 and M+3, during which the shipper informs the TO of the data listed above. The updated forecast is given for information only.

If no notice is given by the shipper of a complete monthly schedule request within the deadlines indicated, the TO shall not allocate the shipper a window of arrival or a scheduled daily quantity to be sent-out for month M+1. However, subsequent requests to change data may be sent by the shipper to the TO.

Subscribing to the early send-out or send-out postponement services.

Shippers using uniform service or spot service can ask to bring forward or postpone (early send-out service and send-out postponement service) the start of the send-out related to a cargo by 1 or 2 days, the send-out duration of 30 days shall remain unchanged.

If no notification is received of a request to postpone the start of send-out, send-out shall start on the unloading date.

The TO shall make all reasonable efforts to bring forward or postpone the start of send-out to the date requested by the shipper in question within the framework of the monthly schedule.

Determining of the monthly schedule by the TO.

Between the 20<sup>th</sup> and 25<sup>th</sup> calendar day of month M, the TO draws up the shipper's monthly schedule for the month M+1, at the same time as the monthly schedule for the other users of the LNG terminal.



The TO shall allocate windows of arrival by making all reasonable efforts to comply with the shipper's monthly schedule request, including any requirements and modifications with regard to the contractual schedule.

The TO shall give priority to users of the LNG terminal whose monthly schedule request is in conformity with their contractual schedule.

The TO then allocates the shipper with a daily forecasted quantity to be sent-out, for each day of month M+1, depending on whether the shipper benefits from the continuous service, the uniform service or the spot service, making all reasonable efforts to comply with the shipper's request if need be.

For a shipper benefiting from the uniform service or spot service, the TO may extend the send-out period associated with a LNG carrier beyond the thirty day period, in the cases of force majeure, suspension of contractual obligations, terminal maintenance or safety and operation instructions, or in the event of a risk of the LNG terminal minimum physical stock being reached.

Notice given of the monthly schedule by the TO.

By no later than the 25<sup>th</sup> calendar day of month M, the TO shall inform the shipper of its monthly schedule for month M+1 which includes:

- For each LNG carrier that the TO accepts to receive during month M+1, all the data of the monthly schedule request, also stipulating the allocated window of arrival;
- the daily forecasted quantity to be sent-out for each day of month M+1;
- if a shipper using uniform or spot service has subscribed to the early send-out service or the send-out postponement service, confirmation of the cargoes affected by the subscription and the number of days covered by the subscription.

If a window of arrival does not correspond to a date indicated in the monthly schedule request, the shipper can ask for this window of arrival to be changed.

If the TO fails to give notice of the monthly schedule, the said monthly schedule is deemed to be the same as the monthly schedule request.

In the event of subscription to the early send-out service, the schedule announced by the operator shall be used subject to receipt of a guarantee.

**1.4.8.4 Intra-monthly re-scheduling.**

**Fos Tonkin and Montoir-de-Bretagne.**

Intra-monthly re-scheduling request at the shipper's initiative.

The shipper can at any time between the 25<sup>th</sup> calendar day of month M and the last day of the month M+1 ask for its monthly schedule of month M+1 to be changed. Any re-scheduling request must indicate the same data as the monthly schedule request, for each day between the day on which the shipper requests rescheduling and the last day of month M+1. The re-scheduling request must also stipulate the reasons or the causal events justifying the change.





Provided this time is compatible with the period remaining to be covered before the end of month M+1, at the latest at 12:00 AM the day after it receives a re-scheduling request, the TO informs the shipper of the time within which it will answer it.

*TO's response to the shipper's intra-monthly re-scheduling request.*

The TO shall make all reasonable efforts to accept the re-scheduling request, on the understanding that the windows of arrival already scheduled for a shipper cannot be changed without its agreement. The re-scheduling first affects the daily forecasted quantity to be sent-out for the shipper having made the re-scheduling request.

The TO shall handle re-scheduling requests by order of reception. However, change requests justified by a joint reason or causal event and received by the TO within an interval of twelve hours from the first request invoking the said reason or the said causal event shall be handled with the same degree of priority.

In the event of a refusal by the TO of a shipper re-scheduling request, the monthly schedule remains unchanged. If, on the other hand, the TO accepts a shipper re-scheduling request, new monthly schedule is allocated to it accordingly. If the new monthly schedule does not correspond to the request, the shipper is entitled to refuse it, and the allocated monthly schedule will remain unchanged. If the shipper does not refuse the new monthly schedule within twenty-four hours from notice thereof being given by the TO, the new monthly schedule shall replace the monthly schedule attributed initially.

If no reply is received from the TO, the re-scheduling request is deemed to be refused.

*Intra-monthly re-scheduling at the initiative of the TO.*

The TO reserves the right to change the windows of arrival and the daily forecasted quantity to be sent-out of month M+1 between the 25<sup>th</sup> calendar day of month M and the last day of month M+1 in the cases of force majeure, suspension of contractual obligations, terminal maintenance or safety and operation instructions.

The TO can change the daily forecasted quantity to be sent out for month M+1 between the 25<sup>th</sup> calendar day in month M and the last day in month M+1 in case of events beyond its control.

After determining the new monthly schedule, the TO sends the shipper a re-scheduling notification. This notification indicates the same data as the monthly schedule, for each day between the first day the rescheduling relates to and the last day in month M+1. The rescheduling notification also stipulates the reasons or causal events justifying it.

The TO shall make all reasonable efforts to send the re-scheduling notification at least two days' notice.

The shipper is entitled to dispute the re-scheduling within twenty-four hours of notice being given thereof by the TO, in particular by sending it a re-scheduling request for its unloading operations, which will be handled by way of intra-monthly re-scheduling. In the event of a dispute, the TO shall draw up a new monthly schedule in accordance with the procedures described in the article herein.

If there is no dispute, the new monthly schedule replaces the monthly schedule allocated initially.

**Fos Cavaou.**



Modification of the Quarterly Program at the initiative of the Shipper.

The shipper may at any time between the 25<sup>th</sup> calendar day of month M and the last day of month M+1 request a modification of the windows of arrival or the unloaded quantities program for the period left to run until the last day of month M+1.

The TO shall process the abovementioned modification requests in the order they are received.

The TO shall make reasonable efforts to accept modification requests from the shipper, without being able to modify the windows of arrival that are already scheduled for another shipper.

If the global send-out of the terminal is affected by said modification request, the TO shall, as a priority, modify the flexibility and reference send-out of the shipper who made the request. If this measure is not sufficient, the TO may reduce or withdraw the flexibility of the other shippers in order to accommodate the re-scheduling request. If these measures are found to be insufficient, and after first informing the shipper responsible of the change, the TO may also modify the reference send-out of the other shippers.

In case a shipper having subscribed to the continuous service requests the modification, cancellation or rescheduling of the arrival window or the unloaded quantity, the shipper shall compensate the affected shippers.

In case a shipper having subscribed to the uniform service or the spot service and the early send-out service or the send-out postponement service requests a modification, the TO is not required to maintain, for the cargo in question, the rescheduling of the reference send-out.

In case a shipper having subscribed to the uniform service or the spot service requests to subscribe to the send-out postponement or early send-out service, the TO does its utmost to assess the request as quickly as possible.

In the event the TO refuses a modification request by the shipper, the quarterly program notified by the TO shall remain unchanged.

If the TO accepts the shipper's modification request, one (or more) new quarterly program(s) for the month(s) in question shall be allocated to the shipper as a result. The new quarterly program(s) shall apply as from the notification thereof by the TO and shall substitute the program(s) initially allocated. If the shipper refuses, the program(s) initially allocated shall remain unchanged.

Modification of the quarterly program at the initiative of the TO.

The TO may modify for the period left to run until the last day of month M+1 the details of the quarterly program for month M+1 between the 25<sup>th</sup> calendar day of month M and the last day of month M+1.

The TO may modify the shipper's reference send-out if events occur that are beyond the TO's control such as, including but not limited to, changes to or postponements of the arrival window for other shippers.

The new quarterly program(s) shall be notified to the shipper as soon as possible, and at the latest 2 days before being implemented.



#### **1.4.8.5 Weekly send-out program.**

##### **Fos Cavaou.**

##### **Indication of TO instructions for send-out.**

On Thursday of week W-1, the TO shall send the shipper its reference send-out and the forecasted flexibility for each day of week W.

##### **Notification of the weekly delivery program by the shipper.**

On Friday of week W-1, the shipper shall notify its projection for the daily send out for each day of week W. The TO shall then notify the shipper of its stock account forecast at the end of week W and its flexibility for each day of week W+1.

#### **1.4.8.6 Nominations of the shipper to the TO.**

##### **Fos Tonkin and Montoir-de-Bretagne.**

##### **Nominations relating to unloading operations.**

For each window of arrival as regards the monthly schedule, the shipper informs the TO, between loading and unloading the vessel, of the content of the LNG carrier and its estimated time of arrival at the LNG terminal.

##### **Daily nominations relating to send-outs.**

Each day D, the shipper benefiting from the continuous service nominates the daily quantity to be sent-out on day D+1. Each day D, the shipper benefiting from the uniform service or the spot service nominates a quantity equal to the daily forecasted quantity sent-out.

If there is no nomination, the nominated send-out quantity is deemed to be equal to the daily forecasted quantity to be sent-out.

#### **1.4.8.7 Determining the daily scheduled quantity to be sent-out.**

##### **Fos Tonkin and Montoir-de-Bretagne.**

The daily scheduled quantity to be sent-out is defined by the TO according to the shipper's nomination and any technical restrictions.

If the daily nominated quantity to be sent-out by the shipper benefiting from the continuous service differs from the daily forecasted quantity, the TO shall make all reasonable efforts to comply with the send-out quantity nominated by the shipper.

In addition, and in the case of an event beyond its control such as but not limited to, arrival of the vessel outside the window of arrival, suspension of unloading, force majeure or suspension of contractual obligations, inconsistency between the scheduled daily quantities to be sent-out and the quantities scheduled at the network entry, the TO may change the scheduled daily quantity to be sent-out with effect from the time the causal event occurs.

##### **Fos Cavaou.**



Establishment of send-out instructions by the TO.

Each day D the TO shall notify the shipper having subscribed to the continuous service of the flexibility for day D+1.

The TO, acting as a prudent and reasonable TO, shall use its best efforts to offer as much flexibility as possible to the shippers having subscribed to the continuous service, taken into account the operational constraints of the LNG terminal and within the limit of 123% of the nominal send-out. The flexibility for all the shippers having subscribed to the continuous service shall be allocated among them proportionally using the supply ratio.

The TO shall ensure that the total of the positive values or the total of the negative values of the differences between the daily send-out and the reference send-out for the shipper having subscribed to the continuous service is equal to at the most +/- 0.7 multiplied by the nominal send-out of the terminal, itself multiplied by the supply ratio of the shipper having subscribed to the continuous service.

Daily send-out request by the shipper.

Each day D, the shipper shall inform the TO of the quantity of energy it wishes to see delivered on day D+1 at the delivery point. If no request is made, the daily send-out request shall be deemed to be equal to the reference send-out scheduled for day D in the weekly program or, by default, in the quarterly program.

Daily send-out requests made by the shipper having subscribed to the continuous service must comply with the flexibility notified by the TO to the shipper. The shipper having subscribed to the continuous service who require more extensive flexibility shall request this from the TO, which shall analyse the feasibility thereof and respond in a timely manner.

Daily send-out requests by the shipper having subscribed to the uniform service or the spot service shall be equal to the reference send-out.

Determination of the daily send-out program by the TO.

The daily send-out shall be defined by the TO in accordance with the shipper's request and any technical constraints.

When the sum of the daily send-out requests made by shippers corresponds to flow rate parameters that are not technically and economically reasonable, the TO shall make effort to find satisfactory delivery solutions with the shippers and, as a last resort, shall set the daily delivery to comply with the nearest flow rate parameters, in proportion to the requests made.

When the sum of the daily send-out requests made by the shippers is not compatible with the transmission capacity of the transmission network, the TO shall reduce the daily send-out to the level of the transmission capacity, in proportion to the confirmed transmission rights allocated by the transmission network operator to each shipper, in accordance with the allocation rules in force.

In both the aforementioned cases, the TO shall provide the shipper with a new daily send-out program.

Intra-day rescheduling of the daily send-out by the TO.



In the event of a modification to or postponement of a window of arrival, of suspension of unloading under the circumstances of force majeure or unscheduled maintenance, the TO can amend the daily send-out program with effect as from the time at which the triggering event takes place. Notification of the intra-day rescheduling shall specify the reasons therefore.

#### **1.4.9 Congestion management procedures.**

The shippers will send the TO their monthly unloading program before the 20<sup>th</sup> day of month M-1. Then, the TO will establish the monthly nomination program for all the users of the LNG terminal. This program can be modified on request from the shippers (see above). However, LNG terminal management can be affected if any unloading operation programmed is cancelled.

Due to this reason, a penalty for late cancellation of a scheduled unloading operation has been set. This penalty helps to relieve congestion in LNG terminal.

Moreover, in order to prevent congestion a UIOLI mechanism is set up. If a shipper has clearly under-utilised its capacities on a terminal and has refused to sell them on the secondary market and cannot justify the need to retain these capacities, the user will lose the underutilised capacities for the period considered.

#### **1.4.10 UIOLI.**

##### **Fos Tonkin and Montoir-de-Bretagne.**

The main purpose of UIOLI rules is to ensure that the unused capacity is freed up. This criteria is mentioned at “Contract providing access to the LNG terminal – Appendix 1: General Terms and conditions - Version of the 1<sup>st</sup> of January 2010”, article 6 available at Elengy’s website.

##### **Short-term UIOLI.**

The capacities subscribed by a shipper that it does not request in its monthly schedule request for month M+1 shall be made available to shippers requesting access to the LNG terminal during month M+1.

On the 25<sup>th</sup> of month M for month M+1, the TO publishes the available capacity, adjusted for quantities subscribed but not requested by Shippers. The TO updates this information for the current month at the start of the second week of the month.

##### **Long-term UIOLI.**

If the schedule for month M+1 does not show any available windows of arrival, any unannounced cancellations of unloading operations, unless due to force majeure, shall be recorded and the CRE shall be informed. If all of the LNG terminal’s capacities have been subscribed, the CRE may order the shipper in question to return subscribed capacity in the aim of freeing up capacity at the terminal, after analysing the case and its merits.

Furthermore, if there is congestion relating to access to regasification capacity at the LNG terminal, and if asked to do so by the CRE, the TO shall inform CRE of all details regarding firm requests for access capacity at the LNG terminal for the period affected by the congestion.



The unused capacity is then sold by the TO to suppliers that have made such a request for the period considered, in accordance with the *First Come/First Served* principle and on the basis of the access tariff in force. The minimum payment obligation is transferred to the new shipper, if any.

#### **Fos Cavaou.**

The shipper may ask the TO to market capacities the shipper does not plan to use to a third party or another shipper.

TO published on the 25<sup>th</sup> of month m for month m+1 the available terminal access capacities by taking into account the quantities that have been subscribed but not requested by all the shippers for month M+1. The TO publishes this information at the start of the second week of the month for the current month.

The available access capacities shall be marketed by the TO to shippers or third parties who have requested them, for the period in question, on the basis of the "*first come, first served*" principle, at the access tariff and under the conditions in force at the time. During the assignment of the unused capacities, the assignor's obligations shall be assumed by the assignee.

If the quarterly program for month M+1 does not include any available arrival windows, any unloading cancellations without notification, except in case of Force Majeure, shall be recorded by the TO and reported to the CRE. When all the terminal's capacities have been subscribed, the CRE may demand the restitution of the capacities subscribed by the shipper in question in order to free up capacities at the LNG terminal, after assessment on a case-by-case basis.

The unused access capacities shall be marketed by the TO to shippers or third parties who have requested them, for the period in question, on the basis of the "*first come, first served*" principle, at the access tariff and under the conditions in force at the time. During the assignment of the unused capacities, the assignor's obligations shall be assumed by the assignee.

Should access to the LNG terminal's regasification capacities be congested, and at the request of the CRE, TO will provide it with all the information on the reservation requests over the period affected by this congestion.

#### **1.4.11 Method for calculating usable, available and unused capacities.**

##### **Fos Tonkin and Montoir-de-Bretagne.**

The LNG reception monthly capacities for each of the LNG terminals (Fos Tonkin and Montoir-de-Bretagne) are published twice a month on Elengy's website with a specific indication of: <sup>86</sup>

- the total firm capacity,
- the reserved capacity, and
- the firm capacity available.

<sup>86</sup> <http://www.elengy.com/en/commercial-section/primary-capacities.html>



The LNG reception long term annual capacities of each of the LNG terminals (Fos Tonkin and Montoir-de-Bretagne) are also published, with a specific indication of:

- the total firm capacity,
- the firm capacity available.

All these capacities are defined on the basis of the Elengy commitments existing on the date they are updated.

This publication is therefore indicative, as the information may change rapidly. This publication is updated twice a month.

### **Fos Cavaou.**

STMFC publishes in its website the terminal capacity, the subscribed capacity as well as the available capacities<sup>87</sup>. This information is updated two times a month.

## **1.4.12 Send-out requirements.**

### **Fos Tonkin and Montoir-de-Bretagne.**

The related information is contained in the document “Contract providing access to the LNG terminal – Appendix 1: General Terms and conditions - Version of the 1<sup>st</sup> of January 2010”, article 5.4.

The daily scheduled quantity to be sent out is defined by the TO according to the shipper's nomination and any technical restrictions.

If the daily nominated quantity to be sent out by the shipper using continuous service differs from the daily forecasted quantity to be sent out, the TO shall make all reasonable efforts to comply with the send-out quantity nominated by the shipper.

In addition, and in the case of an event beyond its control such as - but not limited to - arrival of the vessel outside the window of arrival, suspension of unloading, force majeure or circumstances, inconsistency between the scheduled daily quantities to be sent out and the quantities scheduled at the network entry, the operator may change the scheduled daily quantity to be sent out with effect from the time the causal event occurs. In this case, the rescheduling notification stipulates the reasons or causal events justifying it.

At Elengy's website, it is detailed that:

- In the uniform service each cargo is sent out in the form of a uniform period lasting 30 days from the default unloading date.
- In the spot service each cargo is discharged as a constant quantity lasting 30 days starting from the unloading end date.

<sup>87</sup> [http://www.cavaou-gnl.com/sicsFront/FosCavaou/fr/OFFRES\\_COMMERCIALES/VENTE/vente.html](http://www.cavaou-gnl.com/sicsFront/FosCavaou/fr/OFFRES_COMMERCIALES/VENTE/vente.html)





Besides, Elengy details in the document “Sharing send-out among Continuous Service Customers - Rules proposal - 25 November 2009”, section 3 that the proportion of send-out going to Continuous Service shippers is equal to the difference between the terminal's total send-out and the combined send-out of Uniform Service customers. In accordance with programme requirements, Continuous Service shippers shall state their desired daily send-out from the terminal for each day of month M+1. Elengy shall allocate the daily send-out accordingly, making reasonable efforts to comply with the shipper's request. In general, the send-out rate is determined as follows:

1. The TO determines a physical send-out programme for the terminal based on notices of monthly schedule requests given to the TO by the shipper by no later than the 20<sup>th</sup> calendar day of each month M. Uniform or spot service shippers are allotted a guaranteed send-out of 1/30 of unloading taking place, with the rest allocated to continuous service shippers.
2. Each month, the TO determines the following month's send-out ratio for continuous service users.
3. The TO determines a reference send-out for each day of the month and for each user by applying the above ratio to the physical send-out proportion allocated to the continuous service.
4. At the same time, the TO determines a reference stock level for each user and for each day of the month.
5. This calculated stock level can become negative from time to time. To ensure continuity of shared send-out, a deficit allowance is set for each user. This allowance is covered by a financial guarantee deposited by the user. Shippers whose stock levels exceed the deficit allowance will be allowed zero scheduled send-outs.
6. Over the course of a given month, the physical send-out programme can change due to reprogramming by shippers. Such changes in send-out will impact, first and foremost, the send-out of those users who introduced the reschedule.
7. If the change has an unavoidable knock-on effect on other users' scheduled send-outs, the user who caused the change shall be liable to pay compensation to the affected users.

Furthermore, section 6 of the document “Sharing send-out among Continuous Service Customers - Rules proposal - 25 November 2009” establishes that when drafting the monthly schedule, the reference send-out for each continuous service customer will be shared among them on a proportional basis by using the send-out ratio. The send-out ratio will be determined for each continuous service customer to ensure that send-out is shared fairly. The ratio is expressed in the following formula:

$$RE(i) = \frac{Q_m(i) + S_d(i) - S_f(i)}{\sum_{j=1}^N Q_m(j) + S_d(j) - S_f(j)}$$

Where:

$Q_m$  is the quantity programmed for the month (m).

$S_d$  is the stock level at the beginning of the month.





$S_f$  is the stock level at the end of the month.

$N$  is the number of continuous service customers.

$S_d$  and  $S_f$  are included in the formula to reflect – when calculating Send-out Ratios - the unloading that took place in the previous month and the indicative unloading programme for the following month.

### **Fos Cavaou.**

According to the document “Contract for Access to the Fos Cavaou Methane Terminal – Appendix 2 – General Conditions - Version dated 2010-02-26”, article 5.1, the TO undertakes to deliver to the shipper at the delivery point, on any day, a quantity equal to the daily send-out scheduled for said day.

Beside, as mentioned before, the daily send-out shall be defined by the TO in accordance with the shipper's request and any technical constraints.

When the sum of the daily send-out requests made by shippers corresponds to flow rate parameters that are not technically and economically reasonable, the TO shall make effort to find satisfactory delivery solutions with the shippers and, as a last resort, shall set the daily delivery to comply with the nearest flow rate parameters, in proportion to the requests made.

When the sum of the daily send-out requests made by the shippers is not compatible with the transmission capacity of the transmission network, the TO shall reduce the daily send-out to the level of the transmission capacity, in proportion to the confirmed transmission rights allocated by the transmission network operator to each shipper, in accordance with the allocation rules in force.

In both the aforementioned cases, the TO shall provide the shipper with a new daily send-out program.

Furthermore, according to the document “Contract for Access to the Fos Cavaou LNG Terminal – Appendix 8 – Calculation Terms and Conditions for the Reference Send-Out - Version dated 2010-02-26”, details the terms and conditions for calculating the reference send-out rate for shippers having subscribed to the continuous service, the uniform service or the spot service.

### **Continuous Service.**

The TO shall define the reference send-out for all the shippers having subscribed to the continuous service according to the quarterly program for all the shippers having subscribed to the continuous service. The reference send-out for all the shippers having subscribed to the continuous service shall be determined using a calculation optimisation model that is subject to constraints (in particular useful storage) that minimises the variance over the entire period and gives a send-out in stages that are as long as possible.

The TO must ensure that the calculation model guarantees that:

- the range that corresponds to the send-out of the shippers having subscribed to the uniform service or spot service disturbs the reference send-out for all the shippers having subscribed to the continuous service as little as possible; and



- the reference send-out for all the shippers having subscribed to the continuous service is maintained even in the event of a delay of 1.5 days by a vessel.

Sum of the reference stock accounts of the shippers having subscribed to the continuous service at the start and end of a quarter:

The TO shall use the best estimate of the stock accounts of the shippers having subscribed to the continuous service at the end of the current month in order to establish the sum of the reference stock accounts of the shippers having subscribed to the continuous service at the start of the following quarter. The final sum of the reference stock accounts shall be determined by the calculation alone, within the limits of a timeframe established by the TO that is as long as possible and compatible with the rest of the annual program.

At the end of the year, the TO shall ensure that the hypotheses and estimates used by the model are consistent with the actual physical figures taken from the material balance at the end of the year.

The reference send-out for all the shippers having subscribed to the continuous service shall be allocated among the shippers in a proportional manner, using a send-out ratio. The reference send-out of a shipper having subscribed to the continuous service shall be zero when the reference stock account is equal to the overdraft authorisation<sup>88</sup>.

The send-out ratio of a shipper having subscribed to the continuous service shall be defined for the entire period as the ratio between the sum of the volumes scheduled for unloading by this shipper over the period, corrected by the shipper's reference stock account at the start and end of the period, on the one hand, and the sum of the volumes scheduled by all the shippers having subscribed to the continuous service over the period, corrected by the sum of the reference stock accounts of the shippers having subscribed to the continuous service at the start and end of the period.

The TO shall use the best estimate of the stock account of the shippers having subscribed to the continuous service at the end of the current month in order to determine the reference stock account at the start of a quarter. Said sum shall be allocated in proportion to the capacities subscribed to on the basis of the continuous service.

The period taken into account for said calculation shall be a quarter.

In the exceptional event that one of the shippers having subscribed to the continuous service has not scheduled any cargo for unloading during one of the months of the quarter, the period taken into account for the calculation shall be a month. Unless there is an agreement to the contrary between the shippers having subscribed to the continuous service, the TO shall correct the stock account for each shipper having subscribed to the continuous service at the end of the first, second and third months, with the aim of cancelling the reference send-out for said shipper for said same month.

#### Uniform Service and Spot Service.

The TO shall define the reference send-out for shippers having subscribed to the uniform service or the spot service by taking into account a daily send-out volume equal to 1/30 of the volume of each

<sup>88</sup> Overdraft authorisation: minimum authorised value of the Stock Account.



cargo after the removal of the gas in kind. The reference send-out for this shipper shall be zero when its reference stock account is zero, except it has subscribed to the delivery anticipation service, for the days of anticipation in question. In this case, this shipper's reference send-out is equal to zero when its reference stock account is less than or equal to its overdraft authorisation.

#### 1.4.13 Gas quality requirements.

##### Fos Tonkin and Montoir-de-Bretagne.

The gas quality requirements are available at the document “Contract providing access to the LNG terminal – Appendix 1: General Terms and conditions, Art. 12.1 - Version of the 1<sup>st</sup> of January 2010”. The unloaded LNG must comply with the following specifications:

**Table 16: Gas quality requirements at the Fos Tonkin and Montoir-de-Bretagne.**

Property	Unit	Min	Max
Wobbe Index (combustion conditions at 0°C and 1.01325 bar) <sup>89</sup>	kWh/m(n) <sup>3</sup>	13.64	15.65
Wobbe Index (combustion conditions at 25°C and 1.01325 bar) <sup>89</sup>	kWh/m(n) <sup>3</sup>	13.60	15.61
Gross Calorific Number (combustion conditions at 0°C and 1.01325 bar)	kWh/m(n) <sup>3</sup>	10.70	12.75
Gross Calorific Number (combustion conditions at 25°C and 1.01325 bar)	kWh/m(n) <sup>3</sup>	10.67	12.72
Total S <sup>89</sup>	mg/m(n) <sup>3</sup>	-	30
H <sub>2</sub> S + COS (as S)	mg of S/m(n) <sup>3</sup>	-	5
RSH (as S)	mg of S/m(n) <sup>3</sup>	-	6
O <sub>2</sub>	ppmv	-	100
Hg	ng/m(n) <sup>3</sup>	-	50
Trace elements	Gas that can be received without undergoing additional treatment on entering the Terminal.		

Source: *Elengy's website.*

Art. 12.3 of the referred document details that “If the value of the Loading Certificate does not comply with the specifications laid down in paragraph 12.1, the Operator shall be entitled either to refuse the corresponding Cargo, or make its acceptance dependent on:

<sup>89</sup> These values were taken from those discussed within the framework of the EASEE-gas association. Target dates for their application are yet to be fixed. Until these dates have been set, LNG with the following characteristics shall temporarily be considered acceptable for the Fos Tonkin and Montoir-de- Bretagne terminals:

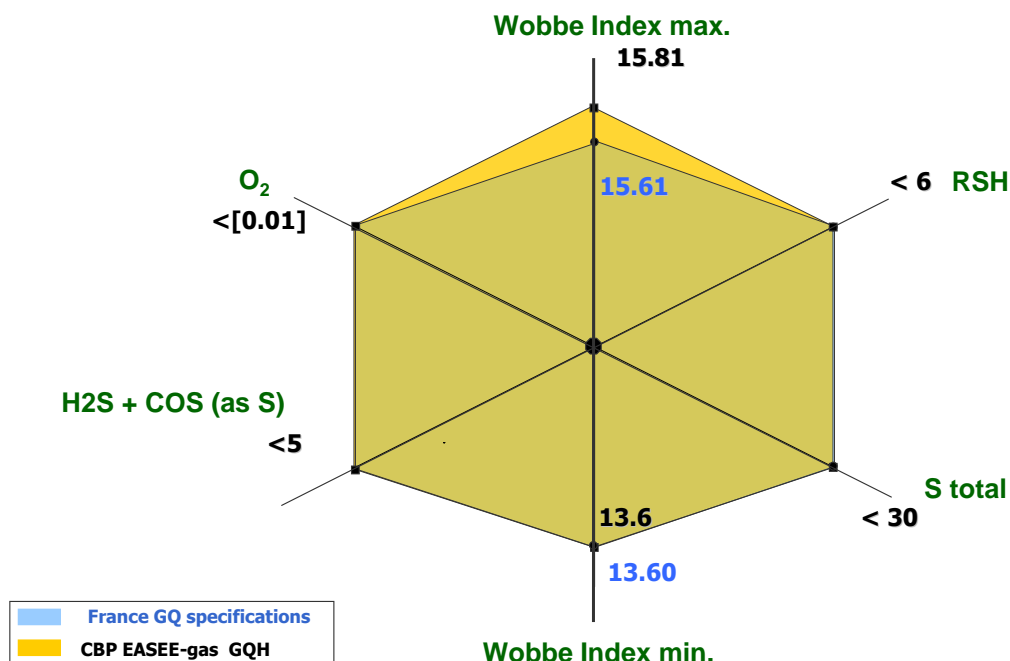
- Wobbe index higher than 13.40 kWh/m<sup>3</sup> (n) (combustion at 0°C),
- Total sulphur content up to 75 mgS/m<sup>3</sup>(n).



(i) the Shipper's payment of an additional compensation intended to cover the costs of establishing the Cargo's conformity, and/or

(ii) making a change to the Cargo Window of Arrival.”

**Figure 14: Gas quality specifications of the unloaded LNG at the entrance of LNG terminal of Fos Tonkin and Montoir-de-Bretagne vs. EASEE-gas specifications of the gas sent out at the entrance of the TSO network (ie at the exit of the LNG terminal).**



**Source:** Elaborated from data on Elengy's website and EASEE-gas CBP 2005-001-01 Gas Quality Harmonisation.

Note that the above figure is provided for informational purposes only, as it compares two different concepts which are not comparable: “France Gas Quality specifications relates” to the LNG to be unloaded; while the “CBP Easee-gas GQH” relates to the gas to be entered into the network (that is the exit flange of the LNG terminal), being recalled that the LNG quality will vary over time.

Moreover, the minimum Wobbe Index lower value which is temporarily considered acceptable (see above) is not indicated on the figure.

### **Fos Cavaou.**

The gas quality requirements are available at the document “Contract for Access to the Fos Cavaou Methane Terminal – Appendix 2 – General Conditions - Version dated 2010-02-26”, article 13. The unloaded LNG must comply with the following specifications:

**Table 17: Gas quality requirements at the Fos Cavaou.**

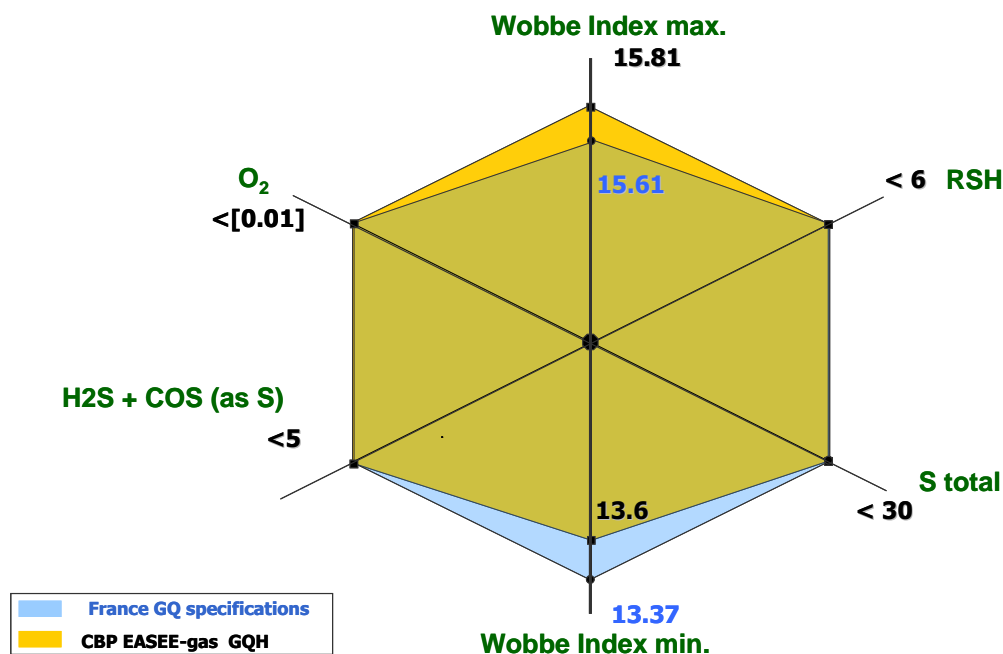
Property	Unit	Min	Max
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Wobbe Index (combustion conditions at 25°C and 1.01325 bar)	kWh/m(n) <sup>3</sup>	13.37	15.61
Gross Calorific Number (combustion conditions at 25°C and 1.01325 bar)	kWh/m(n) <sup>3</sup>	10.67	12.72
Total S	mg/m(n) <sup>3</sup>	-	30
H <sub>2</sub> S + COS (as S)	mg of S/m(n) <sup>3</sup>	-	5
RSH (as S)	mg of S/m(n) <sup>3</sup>	-	6
O <sub>2</sub>	ppmv	-	100
Hg	ng/m(n) <sup>3</sup>	-	50
Other impurities	Components that enable the Gas to be received without undergoing any additional treatment at the Terminal entry.		

Source: STMFC's website.

**Figure 15: Gas quality specifications of the unloaded LNG at the entrance of Fos Cavaou LNG terminal vs. EASEE-gas specifications of the gas sent out at the entrance of the TSO network (ie at the exit of the LNG terminal).**



Source: Elaborated from data on STMFC's website and EASEE-gas CBP 2005-001-01 Gas Quality Harmonisation.

Note that the above figure is provided for informational purposes only, as it compares two different concepts: "France Gas Quality specifications relates" to the LNG to be unloaded; while the "CBP Easee-gas GQH" relates to the gas to be entered into the network (that is the exit flange of the LNG terminal), being recalled that the LNG quality will vary over time.



Moreover, the minimum Wobbe Index lower value which is temporarily considered acceptable (see above) is not indicated on the figure.

#### **1.4.14 Balancing regime/Management of LNG stock levels.**

##### **Fos Tonkin and Montoir-de-Bretagne.**

The way to calculate the LNG inventory level is detailed at the document “Contract providing access to the LNG terminal – Appendix 1: General Terms and conditions - Version of the 1<sup>st</sup> of January 2010”, article 4.

The inventory variation for any given day is equal to the difference between, on the one hand,

- the quantity unloaded on the day considered;
- the LNG inventory transfer quantity received on the day considered,

and on the other

- the daily quantity sent-out on the day considered,
- the gas flared by the TO during unloading;
- the LNG inventory transfer quantity delivered on the day in question;
- the gas taken off, from the quantities unloaded for the day in question.

The inventory variation may be positive or negative.

For a given day, the inventory level is a quantity of energy equal to the algebraic sum of the inventory level on the previous day plus the inventory variation on the day considered.

Before the first unloading date, the inventory level is zero.

##### **Fos Cavaou.**

The procedure to calculate the LNG stock level at Fos Cavaou LNG terminal is available at the document “Contract for Access to the Fos Cavaou Methane Terminal – Appendix 2 – General Conditions - Version dated 2010-02-26”, article 7.

##### **Stock Account.**

The Shipper's Stock Account for any Day whatsoever shall be equal to the difference between, on the one hand,

- the Stock Account for the previous Day,
- the Unloaded Quantity on the Day in question,
- the Transfer Quantity received on the Day in question,
- the Quantity Offset delivered on the Day in question;



And, on the other hand:

- the Daily Send-Out on the Day in question,
- the Transfer Quantity delivered on the Day in question,
- the Gas in Kind made from the Quantities Unloaded, on the Day in question,
- the Quantity Offset received on the Day in question.

The shipper's stock account may be negative, within the limit of the overdraft authorisation. The TO shall stop the shipper's send-out as soon as its overdraft authorisation has been reached.

The day on which the unloaded quantity shall be taken into account is the day during which the unloading ended.

#### **1.4.15 Own consumption record and gas in kind.**

##### **Fos Tonkin and Montoir-de-Bretagne.**

The document "Contract providing access to the LNG terminal – Appendix 1: General Terms and conditions - Version of the 1<sup>st</sup> of January 2010" article 9.7, contains the gas in kind specifications.

The TO shall take off for gas in kind (subject to the provisions herebelow):

- 0.5% of the total Unloaded Quantities at Montoir;
- 0.3% of the total Unloaded Quantities the Fos Tonkin

This taking off is billed reciprocally, for identical amounts, between the shipper and the TO.

For each month M, the tariff corresponding to the valuation of the gas in kind ( $PPG_m$ ) is equal to the total quantities unloaded during the month at the LNG terminal ( $QD_m$ ) multiplied by  $[PREF + C(T)]$ .

PREF equals to the Power Next Gas Futures Monthly Index for the month M, which is published by POWERNEXT SA for the North PEG and is expressed in €/MWh.

C(T) is equal to:

- 0 €/MWh for Montoir,
- 0.6 €/MWh for Fos;

Moreover, an annual record sheet showing use of Gas Taken Off shall be drawn up by the TO for period P, which runs from 6:00 a.m. on the 1<sup>st</sup> of December of year N-1 to 6:00 a.m. on the 1<sup>st</sup> of December of year N.

If this shows that there was a surplus, the TO shall calculate, based on the surplus recorded at the LNG terminal, a quantity Re to be returned to the TU on the basis of the quantities unloaded by that TU in period P in relation to the quantities unloaded at the LNG terminal by all shippers in period P (see Article 9.8 – Gas Restitution).

**Fos Cavaou.**

The quantity that should be taken off at Fos Cavaou LNG terminal is available at the document “Contract for Access to the Fos Cavaou Methane Terminal – Appendix 2: General Conditions - Version dated 2010-02-26”, article 10.6.

The TO makes a deduction of the gas in kind from the total unloaded quantities. The gas in kind is equal to the product of  $TN^{90}$ , the gas in kind term, multiplied by the unloaded quantity.

Said deduction shall give rise to reciprocal monthly invoicing, for identical amounts, between the shipper and the TO.

The amount billed on a monthly basis by TO is based on the quantities unloaded over the month in question.

When a vessel performs an unloading at the end of month M and this continues until the start of month M+1, the quantity unloaded over this period will be allocated to month M+1.

For each month M, the price  $PPG_M$ , corresponding to the value of the Gas in Kind, is equal to the product of the combined total of the quantities unloaded over the month at the LNG terminal ( $QD_M$ ) multiplied by  $PREF_M$ .

$$PPG_M = \Sigma QD_M * PREF_M$$

$PREF_M$  is equal to the sum of the PowerNext Gas Futures Monthly Index for month M, published by POWERNEXT SA for the PEG Nord, expressed in €/MWh and  $C(T)$ , where  $C(T)$  is equal to 0.6 €/MWh. This value will be revised according to the published transport rates.

At least once a year, a balance statement of the use of gas in kind is drawn up by the TO covering period P. Unless otherwise stated by the GTM, period P, for year N, runs from the 1<sup>st</sup> December of year N-1 to the 1<sup>st</sup> December of year N.

If a surplus is recorded, the TO calculates, based on this surplus, a quantity Re to be returned to the TU in proportion to the combined total of the quantities unloaded by this TU in relation to the combined total of the quantities unloaded by all the TUs at the LNG terminal over period P (see Article 10.7 – Gas restitution).

#### ***1.4.16 Charges and/or penalties for imbalance, cancellation and other, including minimum payment obligations.***

##### **1.4.16.1 Penalty for late cancellation of a scheduled unloading operation.**

##### **Fos Tonkin and Montoir-de-Bretagne.**

According to “LNG terminal access contract – Appendix 1: General Terms and conditions, - Version of the 1<sup>st</sup> of January 2010”, article 9.9, available at Elengy’s website, the following penalties can be applied:

<sup>90</sup> Gas in Kind Term (TN): share of the Unloaded Quantities deducted by the GTM to cover the Terminal’s gas consumption





Any shipper cancelling an unloading operation scheduled for month M shall be subjected to a penalty of 50% of the tariff and applied to the cancelled unloading operation if:

- 3 or less days' notice is given; and
- this unloading is not re-scheduled within month M or within the first 5 days of month M+1; and
- the window of arrival could not be used by another terminal user.

This penalty does not apply in the event of force majeure.

#### **Fos Cavaou.**

According to “Contract for Access to the Fos Cavaou Methane Terminal – Appendix 5: Titles and values of the rate terms - Version dated 2010-02-26”, article 10, in case a shipper having subscribed to the uniform service or the spot service makes a late cancellation request less than 3 days before the scheduled arrival window, the shipper in question must pay a penalty amounting to 50% of the cost of regasifying the unloaded, except in case of any cancellations due to a case of force majeure.

#### **1.4.16.2 Charges for exceeding the total guaranteed unloading time.**

##### **Fos Tonkin and Montoir-de-Bretagne.**

According to “LNG terminal access contract – Appendix 1: General Terms and conditions - Version of the 1<sup>st</sup> of January 2010”, article 7.2, with the exception of a case of force majeure, the shipper shall refund the costs, charges and operating losses incurred by the TO as a result of the vessel occupying the LNG terminal berth for a period in excess of the total guaranteed unloading time, for a reason beyond the TO's control.

##### **Fos Cavaou.**

According to “Contract for Access to the Fos Cavaou Methane Terminal – Appendix 2: General Condition - Version dated 2010-02-26”, article 8.5, if the effective port call duration exceeds the port call duration for causes that are attributable to the shipper and said delay causes a delay to another vessel that arrives within its arrival window, the shipper must pay the TO demurrage in accordance with section 1.4.23.8 Demurrage. If the effective port call duration exceeds the port call duration for causes attributable to the TO, the TO must pay demurrage to the shipper.

#### **1.4.16.3 Shipper's minimum payment obligation.**

For Montoir-de-Bretagne and Fos Tonkin LNG terminals the shipper's minimum payment obligation is detailed in article 9.10 of the document “LNG terminal access contract – Appendix 1: General Terms and conditions - Version of the 1<sup>st</sup> of January 2010”.

Shipper's minimum payment obligation in Fos Cavaou is detailed in article 9 of the document “Contract for Access to the Fos Cavaou Methane Terminal – Appendix 5 – Titles and values of the rate terms - Version dated 2010-02-26”.



Minimum payment obligation for the unloaded quantities.

If, at the end of a billing period, the total unloaded quantities each month  $i$  at the LNG terminal ( $QD_i$ ) from the beginning of the said billing period is less than 95% of the contractual quantity unloaded (QDC) with regard to the said billing period, the shipper shall pay the TO an amount equal to:

$$PQD = \left( 0,95 \times QDC - \sum_d^f QD_i \right) \times TQD \text{ Euros}$$

Where:

- $d$  designates the first month in the billing period, and
- $f$  designates the last month in the billing period.

Minimum payment obligation for the number of unloading operations.

If, at the end of a billing period, the total unloading operations performed each month  $i$  at the LNG terminal ( $ND_i$ ) from the beginning of the said billing period is less than 95% of the contractual number of unloading operations (NDC), the shipper shall pay the TO an amount equal to:

$$PND = \left( 0,95 \times NDC - \sum_d^f ND_i \right) \times TND \text{ Euros}$$

Where:

- $d$  designates the first month in the billing period, and
- $f$  designates the last month in the billing period.

Minimum payment obligation for the use of the reception capacity.

If, at the end of a billing period, the mean interval between carriers ( $N_r$ ) multiplied by the total quantities unloaded ( $QD_r$ ) calculated over the said billing period is less than 95% of the mean interval between LNG carriers calculated on the basis of the contractual number of unloading operations (NDC) multiplied by the contractual quantity unloaded (QDC), the shipper shall then pay the Operator an amount equal to:

$$PUCR = (0.95 \times N^* \times QDC - N_r \times QD_r) \times TUCR \text{ Euros}$$

Where  $N^*$  designates the mean interval between LNG carriers calculated on the basis of the contractual number of unloading operations (NDC).

Minimum payment obligation for the seasonal variation.

If, at the end of a billing period, the seasonal difference ( $DS_r$ ) calculated over the said billing period is less than 95% of the seasonal difference calculated on the basis of the contractual schedule, the shipper shall then pay the TO an amount equal to:



$$PMS = (0.95 \times DS^* - DS_i) \times TR$$

where  $DS^*$  designates the seasonal difference calculated on the basis of the contractual schedule 1 (month by month breakdown of the contractual quantity unloaded and the number of unloading operations agreed between the parties, and included in the Special Conditions).

#### 1.4.17 Financial Guarantees.

##### Fos Tonkin and Montoir-de-Bretagne.

Financial guarantees for Montoir-de-Bretagne and Fos Tonkin LNG terminals are detailed in article 10 of the document “LNG terminal access contract – Appendix 1: General Terms and conditions - Version of the 1<sup>st</sup> of January 2010”.

##### Payment obligations guarantee.

The shipper shall provide the TO with a guarantee of its payment obligations under the contract, the amount of which is calculated before each billing period, in accordance with the following formula:

$$\sum_{P_k}^{P_n} 0,95 \times \left[ \left( (QDC_i + QDC_j) \times TQD \right) + \left( (NDC_i + NDC_j) \times TND \right) \right] \text{ Euros}$$

- $P_k$  designates the first future billing period,
- $P_n$  designates  $P_{k+4}$  or, failing that, the last billing period in the contract validity period,
- $i$  and  $j$  designate each of the two months  $m$  of each billing period between  $P_k$  and  $P_n$  inclusive, for which the values of  $((QDC_m \times TQD) + (NDC_m \times TND))$  are highest.
- TND (number of unloading term), unit tariff apply to the number of unloading operations,
- NDC (number of contractual unloading operations), total number of unloading operations that the shipper plan to carry out during a given billing period,
- QDC (contractual quantity unloaded), total quantity of energy, expressed in MWh, that the shipper plans to unload at the LNG terminal during a given billing period,
- TQD (unloaded quantity term), unit tariff applied to the quantity unloaded.

This amount is adjusted to take account of any changes to the contractual schedule. However, the adjustment is only performed when the total adjustments of the guarantee amount exceed an absolute value corresponding to 20% of the current guarantee amount. The respective portions of the billing periods  $P_k$  and  $P_{k+1}$  to  $P_n$  are adjusted accordingly.

The shipper shall, as and when needed, renew the guarantee at least 30 days before it is due, to ensure that the TO has a valid guarantee at any time.

For each consecutive billing period  $P_k$ , the applicable guarantee is divided into two parts:

- The part of the guarantee corresponding to the billing period  $P_k$  takes the form:



- of a guarantee deposit with the TO, or
- a first request guarantee issued by a first class French bank benefiting from a long term credit rating, of A (Standard & Poors) and A2 (Moody's) or greater.
- The part of the guarantee which corresponds to the billing periods  $P_{k+1}$  to  $P_n$  inclusive, takes the form of:
  - a guarantee deposit with the TO, or
  - a first request guarantee issued by a first class French bank benefiting from a long term credit rating of A (Standard & Poors) and A2 (Moody's) or greater, or
  - a first request guarantee issued by the shipper's parent company, when, and as long as, the latter is a company having its head office in an OECD member country and benefits from a long term credit rating equal to or greater than A- (Standard & Poors) and A3 (Moody's).

As a concession to the aforementioned rule, the shipper does not have to provide the part of the guarantee corresponding to:

- the billing period  $P_k$  when, and as long as, the shipper is a company having its head office in an OECD member country and benefits from a long term credit rating equal to or greater than AA- (Standard & Poors) and Aa3 (Moody's);
- the billing periods  $P_{k+1}$  to  $P_n$  inclusive, when, and as long as, the shipper is a company having its head office in an OECD member country and benefits from a long term credit rating equal to or greater than A- (Standard & Poors) and A3 (Moody's).

When any of the conditions which the above concession is subject to are not met, the provisions stipulated above of the article herein apply again and the shipper must comply with these provisions under the same conditions, in terms of deadline in particular, as the ones stipulated for the implementation of the initial guarantee.

Unless otherwise indicated in writing by the shipper within ten days of the contract being signed, it shall be deemed that the shipper has opted for the guarantee deposit form.

When all or part of the guarantee consists of a guarantee deposit, the shipper shall be billed the corresponding amount or any increase in the said amount by the TO before the date of the first unloading operation indicated in the Special Conditions or thirty days before the effective date of the increase and in all cases at the latest thirty days after the date the contract is signed.

The shipper must make the payment at latest within eight banking days of the date of issue of the invoice.

In the event of a decrease in the guarantee amount, the amount corresponding to such a reduction shall be applied by credit issued by the TO to the advantage of the shipper, having deducted, if necessary, the remaining sums due from the shipper to the TO pursuant to the contract or any other contract that may exist between the shipper and the TO.

The guarantee deposit shall bear a monthly interest at the Interbank one month rate offered within the Euro Zone (Euribor 1 month) at the rate applicable on the first day of that month, for the period between the date of payment to the TO and the date of repayment by the TO.



The TO shall pay back the guarantee deposit upon expiry of the contract, after deduction, if appropriate, of any sums remaining due from the shipper to the TO pursuant to the contract or to any other contract existing between the shipper and the TO.

The interest shall be subject to a discount on invoice or a credit issued each month by the TO to the benefit of the shipper.

In all other cases, the shipper shall supply the TO with an original copy of the guarantee before the date of the first unloading operation indicated in the Special Conditions or thirty days before the effective date of the change and in all cases at the latest thirty days after the contract is signed.

Early send-out guarantee.

In the event of subscription to the early send-out service for a month M+1, the shipper shall, before the last day of M, provide the TO with a guarantee in one of the forms outlined in the before of which the amount, calculated by the TO, shall be equal to:

$$QN \times (P_{max} + C(T)) \times 1.5$$

where

QN is the maximum scheduled negative inventory, expressed in MWh, for this shipper for the relevant period by virtue of the early send-out service.

P<sub>max</sub> is the highest value (expressed in €/MWh) of the prices on the PowerNext Gas Futures Monthly Index published by POWERNEXT SA for the North PEG for the twelve months before the period in question.

C(T) is a transport rate.

The guarantee must be valid at least until the end of the month after the month in which an unloading operation is scheduled for which the early send-out service will be requested.

Fos Cavaou.

*Payment guarantee.*

Financial guarantees for Fos Cavaou LNG terminal are detailed in article 11 of the document "Contract for Access to the Fos Cavaou LNG terminal – Appendix 2: General Conditions - Version dated 2010-02-26".

The shipper shall provide the TO with a payment guarantee that covers the shipper's minimum payment obligations vis-à-vis the TO under the contract.

The payment guarantee shall take the form:

- of a guarantee deposit to the TO, or
- a guarantee commitment issued by the French establishment of a first-ranking bank that has a long-term credit rating that is equal to or higher than A (Standard & Poors) and A2 (Moody's),



The amount of the payment guarantee is the sum of the following amounts:

- for the contract period for which the vessels program is known as the annual program or, failing that, as the quarterly program: equal to the amount due for the two months for which the greatest number of unloaded is expected;
- for the contract period for which the vessels program is unknown, the maximum of the following:
  - one sixth of the Shipper's minimum payment obligations as defined in Section 1.4.16.3 Shipper's minimum payment obligation., multiplied by the number of years still to run from the end of the period mentioned in (i) and until the end of the contract term defined in Appendix 1 and rounded up;
  - the minimum of the following:
    - the Shipper's minimum payment obligations as defined in Section 1.4.16.3,
    - the value resulting from the application of tariff to the unloading of two ships and to the contractual unloaded quantity of 2,000,000 MWh.

Shipper does not have to provide the Payment Guarantee when, and for as long as, the shipper benefits from a long-term credit rating that is equal to or higher than A- (Standard & Poors) and A3 (Moody's).

Shippers that cannot benefit from the derogation provided for in the preceding paragraph but that are part of a group for which the parent company is a company that has its registered office in a European Union country and that benefits from a long-term credit rating that is equal to or higher than A- (Standard & Poors) and A3 (Moody's) can, for as long as the condition concerning the level of its rating is met, provide, as a payment guarantee, a guarantee commitment issued by the parent company.

If the shipper or the parent company cannot obtain a guarantee for the term of the contract, the shipper may provide a first demand guarantee for a term of 1 year that is renewable each year. In this case, the annual guarantee may be triggered by the TO in the event of non-renewal 30 days before the end of the validity thereof and in the cases of contract termination.

Where any one of the conditions whatsoever to which the above derogations are subject are not met, shipper must comply with these provisions under the conditions, concerning timeframes in particular, that are identical to those provided for the implementation of the initial payment guarantee.

Where the payment guarantee is in the form of a guarantee deposit, the corresponding amount shall be invoiced by the TO to the shipper at the earliest once month before the date of the first unloading provided for under the contract. Payment must be made by the shipper at the latest on the eighth banking day following the issue of the invoice. The security deposit shall accrue interest each month at the inter-bank, one-month rate offered in the euro zone (Euribor 1 month) at the value of the rate on the first day of said month, throughout the period between the date of payment of the security deposit to the TO and the date of the return thereof by the TO. The security deposit shall be returned by the TO after deduction, where applicable, of the amounts that remain owed by the shipper to the TO under the contract. The interest shall give rise to an invoice discount or a credit note issued by the TO to the shipper each month.



In all the other cases, an original counterpart of the payment guarantee shall be provided by the shipper to the TO at the latest 30 days after the signature of the contract.

*Negative Stock and Offsetting Guarantee.*

The amount of the negative stock and offsetting guarantee shall cover the overdraft authorisation and the offsetting obligation of the shipper having subscribed to the continuous service vis-à-vis the affected shippers. This guarantee shall be provided by the shipper having subscribed to the continuous service to the TO under the conditions described in paragraph 3.2 of the document "Contract for Access to the Fos Cavaou Methane Terminal – Appendix 9 – Negative Stock Account and Offsetting Terms and Conditions - Version dated 2010-02-26".

The shipper undertakes to make available to the TO,

- for shippers having subscribed to the continuous service within 1 month before the start date for the service,
- and for Shippers having subscribed to the Uniform Service or Spot Service, and having subscribed to the Early Send-Out Service, at the latest on the 25<sup>th</sup> of month M for the Cargo in question for month M+1.

a financial guarantee, hereinafter the "*Negative Stock and Offsetting Guarantee*", that covers the overdraft authorisation and its offsetting obligation.

The Negative Stock and Offsetting Guarantee shall take the form of a security deposit paid over to the TO or a guarantee commitment issued by the French establishment of a first rank bank that benefits from a long-term credit rating that is equal to or higher than A (Standard & Poors) and A2 (Moody's). The security deposit shall be remunerated by the TO at an annual rate equal to the statutory interest rate.

The amount of the shipper's Negative Stock and Offsetting Guarantee shall be calculated by the TO in October of each year for the shippers having subscribed to the continuous service, and in case of subscription to the early send-out service for shippers having subscribed to the uniform service or the spot service, by applying to the overdraft authorisation, multiplied by 1.5 for shippers having subscribed to the uniform service or the spot service and increased by seven hundred thousand (700,000) MWh for shippers having subscribed to the continuous service, a price equal to the highest value, expressed in €/MWh, for the calendar year preceding the period in question, of the PowerNext Gas Futures Monthly Index prices published by POWERNEXT SA for the PEG Nord, plus the transport term C(T).

The TO will review the amount of the shipper's Negative Stock and Offsetting Guarantee if the previous maximum price has varied by more than 20%.

The shipper's right to schedule new cargos shall be suspended for as long as the Negative Stock and Offsetting Guarantee have not been reconstituted, after being triggered by the TO.

The shipper does not have to provide the Negative Stock and Offsetting Guarantee when, and for as long as, the shipper benefits from a long-term credit rating that is equal to or higher than A- (Standard & Poors) and A3 (Moody's).

The Shipper that cannot benefit from the derogation provided for in the preceding paragraph but that is part of a group for which the parent company is a company that has its registered office in a





European Union country and that benefits from a long-term credit rating that is equal to or higher than A- (Standard & Poors) and A3 (Moody's) can, for as long as the condition concerning the level of its rating is met, provide, as a Negative Stock and Offsetting Guarantee, a guarantee commitment issued by the parent company covering the obligations of the shipper to the amount of Negative Stock and Offsetting Guarantee.

#### **1.4.18 Secondary market.**

##### **Fos Tonkin and Montoir-de-Bretagne.**

According to the document "LNG terminal access contract – Appendix 1: General Terms and conditions - Version of the 1<sup>st</sup> of January 2010", article 6.1, a shipper may ask the TO to re-sell capacities that it does not plan to use. Moreover, in accordance with article 26, a shipper may sell some or all of its capacities.

The shipper is entitled to transfer some or all of its rights and obligations under the terms of the contract to a third party with the operator's prior written consent. A refusal decision must be justified by well-founded reasons (for example: safety requirements, solvability, etc.).

For the shipper using continuous service, the transfer can only relate to a Contractual Number of Unloading operations (NDC) such that, after the transfer, the transferring party continues to benefit from the continuous service and the transferee benefits or continues to benefit from the continuous service. However, the Shipper benefiting from the continuous service may request the operator to examine the feasibility of a transfer dispensing with the previous conditions and the operator shall make every effort to meet this request.

For the shipper using uniform service or spot service, the transfer may relate to all or part of the Contractual Quantity Unloaded (QDC) and the Number of Contractual Unloading operations (NDC).

The shipper shall inform the TO of a transfer request stipulating the transferring party's identity, and the transfer purpose and term.

The transfer shall be subject to a contract additional clause signed with the transferee and a contract signed with the transferee.

In all cases, the transfer is contingent on the transferee complying with all contractual conditions. During the transfer period, the transferee shall fully stand in for the transferring party.

The information of the performance of the secondary market is available at Elengy's website<sup>91</sup>.

Each of the parties involved in the exchange shall sign an LNG terminal access contract (or an additional clause thereto).

To speed up easy access to its products, Elengy encourages interested companies to immediately sign a Master Agreement for access to its LNG terminals.

In order to enhance the secondary market and ensure market transparency, Elengy publishes a list of interested parties<sup>92</sup>, giving:

<sup>91</sup> <http://www.elengy.com/en/commercial-section/secondary-market.html>





- the names of current customers with an LNG Terminal Access Contract (includes signatories of a Master Agreement) who agree to their name being published,
- the names of potential customers who are interested in regasification and wish their names to be published.

Elengy has designed the so-called Transfer and Acquisition Form or Bulletin Board which enables customers or future customers to post a transfer/acquisition offer for access capacities in the terminal in order to find a buyer. A charge is applied for the use of the Bulletin Board:

- The publication of a capacity transfer/acquisition offer on the secondary market costs €2,000.
- The publication of an anonymous transfer/acquisition offer costs €4,000.

### **Fos Cavaou.**

The information about the functioning of the secondary market is detailed at the document “Contract for Access to the Fos Cavaou Methane Terminal – Appendix 2 – General Conditions - Version dated 2010-02-26”, article 25, as well as in the document “Le Marché Secondaire”<sup>93</sup> available at STMFCs website.

A shipper may assign, without the TO's prior agreement and within the limits and conditions specified below, all or part of its associated rights and obligations under the contract, to a company in which it holds a direct 99% stake and that presents the same level of guarantee as the assignor when the contract was signed.

Besides, the shipper may assign, with the TO's prior written agreement and within the limits and conditions specified below, all or part of its rights and obligations under the contract to a third party. A refusal decision must be justified by serious reasons (e.g. security imperatives, technical capacities). TO's response must be sent within ten 10 days of the request being sent by the shipper.

In the event that the assignment of the contract results in the annual capacities to which the uniform service or the spot service apply exceeding 10% of the marketed capacities published on the TO website, the TO may refuse the assignment.

Notification by the shipper to the TO of the assignment declaration or request shall mention the identity of the assignee, the capacities to be assigned and the duration of the assignment.

The TO deals with the assignment requests on a first-come, first-served basis.

The assignment shall enter into effect, subject to it being accepted, on the date of signature of the contract between the TO and the assignee.

In all cases, the assignment shall be contingent on compliance by the assignee with all the contract performance conditions (in particular the conditions linked to the guarantee).

<sup>92</sup> [http://www.elengy.com/fileadmin/user\\_upload/pdf/Liste\\_des\\_parties\\_interesseesV11.pdf](http://www.elengy.com/fileadmin/user_upload/pdf/Liste_des_parties_interesseesV11.pdf)

<sup>93</sup> [http://www.stmfc.fr/sicsFront/FosCavaou/telechargements/marche\\_secondaire.pdf](http://www.stmfc.fr/sicsFront/FosCavaou/telechargements/marche_secondaire.pdf)



On the date of effect of the assignment, the assignee shall substitute the assignor for the entirety for the assignor's' rights and obligations that form the purpose of the assignment, for the duration of the assignment within the scope of the contract.

Shipper may assign to third party, all or part of the unloading capacity it has purchased, under the conditions mentioned in Article 25 of the General Conditions. The shipper address for this request in writing to the STMFC.

In order to facilitate the functioning of the secondary market, STMFC has developed a bulleting board<sup>93</sup> which enables customers or future customers to post a transfer/acquisition offer for access capacities in the terminal in order to find a buyer

Any shipper who wants to assign or acquire capacity on the secondary market, is invited to post a message on the mailbox [gnlcavaou@cavaou-gnl.com](mailto:gnlcavaou@cavaou-gnl.com), specifying all the necessary elements (capacity, dates ,...) and contact details.

The STMFC undertakes to publish such information in the entry offer / assignment and offer / acquisition. The STMFC is only responsible for publishing the capacity offered and demanded. The STMFC cannot be held responsible for the content or information published or for the successful completion of the transactions to which may lead.

#### **1.4.19 Limitation in vessel size.**

##### **Fos Tonkin and Montoir-de-Bretagne.**

Montoir LNG terminal can accommodate vessels up to 216,000 m<sup>3</sup> (266 000 m<sup>3</sup> in the near future).  
Fos Tonkin LNG terminal can accommodate vessels up to 75,000 m<sup>3</sup> (Medmax size).

The lists of vessels that are registered at those terminals are available at Elengy's website<sup>94</sup>.

##### **Fos Cavaou.**

Fos Cavaou LNG terminal can accommodate vessels up to 266,000 m<sup>3</sup>. The list of vessels registered at Fos Cavaou are available at STMFC's website<sup>95</sup>

#### **1.4.20 Force Majeure.**

##### **Fos Tonkin and Montoir-de-Bretagne.**

The definition of the concept "Force majeure" is in article 14 at the document "LNG terminal access contract – Appendix 1: General Terms and conditions".

It is defined as any event beyond the control of the party invoking it, and which cannot be surmounted through reasonable efforts that the party acting as a prudent and reasonable TO is obliged to make, preventing it from performing all or part of the obligations incumbent upon it under the terms of the contract.

<sup>94</sup> <http://www.elengy.com/en/commercial-section/access-to-terminals/procedures.html>

<sup>95</sup> [http://www.stmfc.fr/sicsFront/FosCavaou/telechargements/liste\\_navires\\_homologues\\_en\\_v4.pdf](http://www.stmfc.fr/sicsFront/FosCavaou/telechargements/liste_navires_homologues_en_v4.pdf)



### **Fos Cavaou.**

The definition of the concept “Force majeure” is in article 15 at the document “LNG terminal access contract – Appendix 2: General conditions”.

The following events and circumstances constitute Instances of Force Majeure under the Contract (hereinafter "Instance(s) of Force Majeure"):

- all events beyond the control of the party invoking them, which events cannot be overcome through the employment of reasonable efforts the party is required to make in its capacity as prudent and reasonable operator, and that make it impossible for the party to perform all or part of any one of its obligations whatsoever that result from the contract;
- the circumstance referred to below, without the circumstance meeting the criteria set forth in the previous paragraph, insofar as the occurrence thereof affects the party that invokes the circumstance and prevents it from performing all or part of its obligations under the contract:
  - strike,
  - machinery breakdown or failure or an operating or equipment accident, which does not result from a lack of maintenance, abnormal use of the facilities or a fault of the citing party,
  - unfavourable climatic or nautical conditions,
  - third party action, which could not be reasonably foreseen by the citing party, despite acting as a prudent and reasonable operator,
  - loss of the construction permit for the terminal, or operating authorisation, despite the reasonable efforts of the citing party, acting as a prudent and reasonable operator,
  - an event or circumstance that affects the transmission system and prevents the operator of the transmission network from performing its terminal delivery obligations.

### **1.4.21 Ship Approval Procedure at LNG terminals.**

#### **Fos Tonkin and Montoir-de-Bretagne.**

The ship approval procedure for Montoir-de-Bretagne and Fos Tonkin LNG terminals is described in article 14 at the document “LNG terminal access contract – Appendix 1: General Terms and conditions - Version of the 1<sup>st</sup> of January 2010” and further explained at the document “Ship access to Montoir de Bretagne or Fos Tonkin LNG Terminals - Approval Procedure -”, Revision 4 dated 25.11.2009, available at Elengy’s website.

The ship approval procedure for Fos Cavaou is detailed at the document “Ship access to Fos Cavaou LNG Terminal - Procedure for scheduling cargoes to terminal”, available at STMFC’s website.



The ship approval procedure at Elengy's terminal is similar to the ship approval procedure at Fos Cavaou LNG terminal. Thus, find hereafter the common explanation.

Only vessels included in the list of vessels authorized to access the LNG terminal and vessels unloading cargo for the first time within the scope of the authorization procedure, are authorized to unload their cargo at the LNG terminal. Such vessels are only added to the said list once their authorization is obtained.

To be added to the list of vessels authorized to access the LNG terminal, a vessel must have successfully undergone all the stages in the authorization procedure. Throughout the validity period, the TO reserves the right to check the acceptability of any vessel, in particular through inspections and, if need be, make the maintaining of its authorization dependent on the implementing of corrective measures, refuse access to the LNG terminal or withdraw its authorization.

The shipper is solely liable for the condition, operating conditions and adapting of its equipment to the LNG terminal. It is solely liable for any damage consequences that may result from the aforementioned conditions not being complied with, as regards the TO and third parties.

The TO may at any time change the configuration of a berth safety system for effectiveness reasons. In that case, it shall inform and cooperate with the shipper.

The Authorization Procedure is defined in accordance with the GLE (Gas Liquefied Europe, European LNG Terminals' Operators Group) LNG tanker authorization procedure.

The Authorization Procedure is published on the Operator's website.

The steps required for LNG vessels to be accepted to deliver cargo lots at Montoir de Bretagne and Fos Tonkin LNG terminals are summarised as follows:

- information exchange and ship / shore interface study,
- confirmation meeting at LNG terminal,
- unloading test at LNG terminal,
- ship safety inspection,
- follow-up and subsequent updating of the list of regular ships according to re-inspections, events, modifications of ship operation profile.

#### **1.4.21.1 Information exchange and ship / shore interface study.**

This information exchange is mandatory to assess possibility to accommodate ship to berth and to enhance safety of operations while alongside and manoeuvring in port.

##### **Documents made available by the terminal operator to the shipper:**

- Terminal information to LNG carriers,
- Shore safety plan (including terminal emergency procedure and unloading procedure),
- Communication procedure between vessel and the terminal operator prior to ship's arrival.



Shipper shall make sure these documents are made available to the ship master before the call.

Documents to be submitted by the shipper / ship owner to the terminal operator:

Shipper / ship owner shall make sure that these documents are circulated well in advance in the process.

In case of a vessel unloading for the first time at the terminal:

- Vessel operational procedures:
  - Unloading procedure,
  - Mooring procedure.
- Vessel safety procedures:
  - Reflex sheets or equivalent for emergency situations alongside and in port,
  - Muster list for emergency situations,
  - Minimum manning in port to cope with emergency situations,
  - List of critical equipments.
- Ship questionnaire duly filled according to OCIMF (VPQ<sup>96</sup>),
- Gas form of the charter party,
- Confirmation list from SIGTTO,
- Squat curves, pilot card and manoeuvring characteristics,
- Main cargo pumps characteristics and curves with delivery pressure at manifold,
- General arrangement drawing and ship / shore interface plan (according to SIGTTO paper n°5 “Communication necessary for matching ship to berth”). If ship / shore interface plan is not available, manifold drawing and fore and aft station drawing (mooring equipments) are required, as well as fire plan and cargo piping system,
- Custody transfer monitoring system description and certification, gas flow meter description and certification if gas burned during discharging if available,
- Cargo tanks tables and cargo lines volumes,
- Ship’s insurance documents (P&I Club membership),
- The “Pre Acceptance Questionnaire for scheduling non regular vessels” dully filled, documented<sup>97</sup>, and certified by ship owner<sup>98</sup>,

<sup>96</sup> Vessel Particulars Questionnaire.



- International ship security certificate.

In case the vessel did not come since twelve months to the terminal:

- The “Pre Acceptance Questionnaire for scheduling non regular vessels” dully filled, documented, and certified by ship owner.

#### **1.4.21.2 Ship / shore interface study and confirmation meeting.**

The shipper, ship owner or shipyard carries out a ship / shore interface study based on previously exchanged information and submitted it to the terminal operator.

After the study phase, a ship / shore confirmation meeting shall be held at the terminal with ship owner and shipper to clarify interface issues. Ship agent, port authority and pilots may participate as well to this confirmation meeting.

This meeting aims to reconfirm all the parameters of the call and to establish the Ship / Shore Safety Plan which gathers:

- technical data, including a mooring pattern agreed with port authorities and
- operational, safety and communication procedures.

All conclusions are indicated in minutes of meeting signed by each party.

#### **1.4.21.3 Unloading test scheduling and Ship / Shore Safety Plan.**

The Ship / Shore Safety Plan and a satisfactory review of the “Pre Acceptance Questionnaire for scheduling non regular vessels” are required for scheduling an unloading test.

An updated version of the Ship / Shore Safety Plan duly signed by both parties is necessary to be able to fill in the IMO checklist.

Unloading test is carried out at shipper’s risks for all interface issues.

#### **1.4.21.4 Ship safety inspection.**

As part of the approval procedure, the terminal operator will inspect the vessel during an unloading test, prior to grant authorisation for scheduling cargoes on a regular basis. This inspection will be made according to OCIMF / SIRE questionnaire and subsequent ELENGY report may be uploaded in the SIRE database.

The ship owner must address the deficiencies and observations with appropriate comments and corrective actions.

<sup>97</sup> With in particular VIQ (Vessel Inspection Questionnaire – SIRE Report).

<sup>98</sup> This document certified by ship owner, including its appendices, shall be reviewed before scheduling.



#### **1.4.21.5 List of ships registered with terminal.**

If the vessel has proceeded to a satisfactory unloading test at the terminal, and ship safety inspection has been successful, the terminal operator may add the vessel's name to the list of regular ships if requested.

Shipper can deliver cargo lots to the terminal using vessels on this list without specific clearance, unless an event or modification occurs.

However, if last visit was made more than twelve months before or if an event occurs, ship owner needs to submit a new "Pre-Acceptance Questionnaire for scheduling non regular vessels" dully filled, documented and certified as per step in case the vessel did not come since twelve months to the terminal for specific clearance.

#### **1.4.21.6 Re-inspections.**

A new inspection may be planned after three years or anytime needed to reconfirm the regular status of the vessel.

#### **1.4.22 Standard contracts.**

See paragraph 1.4 3 Access rules, where more information is available.

##### **Fos Tonkin and Montoir-de-Bretagne.**

A new standard contract to access Fos Tonkin and Montoir-de-Bretagne is available from 1<sup>st</sup> of January 2010, and contains the following appendices

- Appendix 1 – General conditions
- Appendix 2 – Specific conditions
- Appendix 3 - Ship-related Procedures (2006, to be updated)
- Appendix 4 – Measuring, metering and quality
- Appendix 5 - Allocation Rules

Elengy also provides a Master Agreement to further simplify access to terminals, especially for customers wishing to make advance applications, containing detailed capacities in a special clause.

##### **Fos Cavaou.**

The standard contract at Fos Cavaou LNG terminal, available at STMFC's website, contains the following appendices:

- Appendix 1: Specific Conditions;
- Appendix 2: General Conditions;
- Appendix 3: Vessel-related Procedures



- Appendix 4: Measurement, Counting and Quality Procedures;
- Appendix 5: Titles and Values of the Rate Terms;
- Appendix 6: Communication Forms;
- Appendix 7: Terminal Start-Up;
- Appendix 8: Calculation Terms and Conditions for the Reference Send-Out;
- Appendix 9: Negative Stock Account and Offsetting Terms and Conditions;
- Appendix 10: Unloading Procedure.

#### 1.4.23 TPA tariffs.

Until December 2009, the same tariffs were applied to both LNG terminals, Fos Tonkin and Montoir-de-Bretagne.

Since 1<sup>st</sup> January 2010 new tariffs are in force for Montoir-de-Bretagne, Fos Tonkin and Fos Cavaou. CRE's Deliberation proposing new tariffs for the utilisation of LNG terminals from 2010 and for a period of three years, dated 16<sup>th</sup> July 2009, was published on 30<sup>th</sup> September 2009<sup>99</sup>, once it has at had been accepted by the ministers in charge of economy and energy, according to Article 7 of Law 2003-8.

Besides, on 16<sup>th</sup> July 2009 the CRE published a Deliberation on the tariff for the use of LNG terminals<sup>100</sup>, this document states that the tariff proposal takes into account an increased up to 95% of the level of ship-or-pay to foster a higher use of capacity at LNG terminals. The resulting average unit price according to the CRE is:

- €0.90 /MWh for the Montoir terminal,
- €1.14 /MWh for the Fos Tonkin terminal,
- €1.65 /MWh for the Fos Cavaou terminal.

The basic price of tariffs in force since 1<sup>st</sup> January 2010 include five terms:

- an unloading numbers term (TND), which applies to each cargo unloaded,
- a unloaded quantity term (TQD), which applies to the unloaded LNG quantities expressed in MWh (0°C),

<sup>99</sup> CRE, "Délibération de la Commission de régulation de l'énergie du 16 juillet 2009 portant proposition tarifaire pour l'utilisation des terminaux méthaniers". Available at:

<http://www.cre.fr/fr/content/download/8985/157258/file/090716PropositionTarifaireATTM.pdf>

Press release available at: <http://www.cre.fr/fr/content/download/8987/157284/file/CPTarifsTerminauxMethaniers.pdf>

<sup>100</sup> [http://www.cre.fr/en/content/download/9023/157733/file/090716\\_LNGTerminalsTariffs.pdf](http://www.cre.fr/en/content/download/9023/157733/file/090716_LNGTerminalsTariffs.pdf)





- a regasification capacity use term (TUCR), which applies to the average interval of time, calculated over a year, between two arrivals of ships (period limited to a month) as well as the unloaded quantity over a year,
- a regularity term (TR), applied to the difference, as an absolute value, between the quantities of LNG, expressed in MWh (0°C), unloaded in the winter (i.e. between 1<sup>st</sup> October of year N and 31<sup>st</sup> March of year N+1) and the quantities of LNG unloaded in the summer (i.e. between 1<sup>st</sup> April and 30<sup>th</sup> September of year N),
- a gas kind term (TN), which covers the consumptions of gas by the terminal corresponding to the fixed amount of gas needed to treat the cargo

The amounts to be paid for each of these terms are added, in the monthly invoice of each user of the LNG terminal.

A tariff simulator is available on Elengy website.

The tariff is the toll for the service provided under the contract, including the sum of the tariffs defined as follows:

#### **1.4.23.1 Tariff proportional to the quantity unloaded.**

For each month M, the tariff proportional to the unloaded quantity (PQD<sub>m</sub>) is equal to the total quantities unloaded during the month at the LNG terminal (QD<sub>m</sub>) multiplied by the unloaded quantity term (TQD):

$$PQD_m = QD_m \times TQD \text{ Euros}$$

#### **1.4.23.2 Tariff proportional to the number of unloading operations.**

For each month M, the tariff proportional to the number of unloading operations (PND<sub>m</sub>) is equal to the number of unloading operations carried out during the month at the LNG terminal multiplied by the number of unloading operations term (TND):

$$PND_m = ND_m \times TND \text{ Euros}$$

#### **1.4.23.3 Tariff proportional to the use of the regasification capacities.**

For each billing period, the tariff for using regasification capacities (PUCR) is equal to the mean interval between cargoes (N) multiplied by the total quantities unloaded (QD<sub>r</sub>), calculated over the said billing period, multiplied by the vaporisation capacity use term (TUCR):

$$PUCR = N \times QD_r \times TUCR \text{ Euros}$$

#### **1.4.23.4 Seasonal regularity tariff.**

For each billing period, the seasonal regularity tariff (PRS) is equal to the seasonal difference (DS), calculated over the said billing period, and multiplied by the regularity term (TR):

$$PRS = DS \times TR \text{ Euros}$$



#### **1.4.23.5 LNG inventory transfer.**

This term is only taken into account if the shipper has taken out an LNG inventory transfer service.

For each month M, the LNG inventory transfer service use tariff ( $PTS_m$ ) is defined as follows, according to the LNG inventory transfer quantities delivered and received during the month within the LNG terminal ( $QTS_m$ ), the fixed LNG inventory transfer term (TTSF) and the proportional LNG inventory transfer term (TTSP):

$$PTS_m = TTSF + TTSP \times QTS_m \text{ Euros}$$

#### **1.4.23.6 Reduction in the shipper's minimum payment obligations.**

In case of force majeure, suspension of contractual obligations, terminal maintenance or safety and operation instructions the quantities that were not able to be unloaded and the unloading operations that were not able to be carried out in accordance with the contractual schedule during the occurrence of an event or a circumstance pursuant to the said articles are deducted from the contractual quantity unloaded and from the contractual number of unloading operations, respectively, in the calculation of the minimum payment obligations.

#### **1.4.23.7 Port costs and port services costs.**

Shipper shall bear port duties, taxes and costs and the cost of port services for all cargo, its transportation and its import, that may be required to ensure that it is unloaded at the terminal under appropriate safety conditions.

#### **1.4.23.8 Demurrage.**

At Fos Cavaou, demurrage shall be calculated as follows, in proportion to the number of hours, rounded off to the higher hour:

- for vessels for which the vessel capacity is less than 90,000 m<sup>3</sup>: 40,000 €/day
- for vessels for which the vessel capacity is between 90,000 m<sup>3</sup> and 160,000 m<sup>3</sup>: 65,000 €/day
- for vessels for which the vessel capacity exceeds 160,000 m<sup>3</sup>: 80,000 €/day

The amounts stated above may be revised by the Parties every five years under reasonable conditions and on the basis of objective data.

#### **1.4.23.9 Tariff for send-out postponement service**

For each month M, the tariff for using the Send-Out Postponement Service (PRE) shall be defined as follows:

$$PRE = TGD \times N + \sum NJR_i \times TDE$$

where:

TDE is the send-out postponement rate



TGD is the postponement management rate

$NJR_i$  is the Number of Days by which the Send-Out of the  $i^{th}$  Cargo unloaded that month is to be postponed.

N is the number of different cargoes for which the shipper has subscribed to a send-out postponement that month, whether any re-scheduling on the shipper's initiative were retained or not.

#### 1.4.23.10 Tariff for early send-out service

For each month M, the tariff for using the Early Send-Out Service (PAE) shall be defined as follows:

$$PAE = TGD \times N + \sum NJA_i \times TDE$$

where:

TDE is the early send-out rate

TGD is the early send-out management rate

$NJA_i$  is the number of days by which the send-out of the  $i^{th}$  cargo unloaded that month is to be brought forward

N is the number of different cargoes for which the shipper has subscribed to an early send-out that month, whether any re-scheduling on the shipper's initiative were retained or not.

#### 1.4.23.11 Tariff terms.

The following tariff terms result from Ministerial Decision of 20<sup>th</sup> October 2009 sets the Tariff Scale for each Terminal:

##### Fos Tonkin and Montoir-de-Bretagne.

**Table 18: Tariffs terms at Fos Tonkin LNG terminal.**

TND (Unloading Numbers Term)	€40,000 * T
TQD (Quantity Unloaded Term)	Continuous service: €1.024 / MWh (0°C) unloaded Uniform service: €1.024 / MWh (0°C) unloaded Spot service: €0.768 / MWh (0°C) unloaded
TUCR (Gasification Capacity Use Term)	€0.18 x Q x N
TR (Regularity Term)	Continuous service: €0.27 x   Qh - Qe   Uniform service: €0.04 x   Qh - Qe   Spot service: N/A
TN (Gas in Kind Term)	0.3% of quantities unloaded

Source: *Elengy's website.*

**Table 19: Tariffs terms at Montoir-de-Bretagne LNG terminal.**

TND (Unloading Numbers Term)	€40,000 * T
TQD (Quantity Unloaded Term)	Continuous service: €0.84 / MWh (0°C) unloaded Uniform service: €0.84 / MWh (0°C) unloaded Spot service: €0.63 / MWh (0°C) unloaded
TUCR (Gasification Capacity Use Term)	€0.18 x Q x N
TR (Regularity Term)	Continuous service: €0.21 x   Qh - Qe   Uniform service: €0.04 x   Qh - Qe   Spot service: N/A
TN (Gas in Kind Term)	0.5% of quantities unloaded

Source: *Elengy's website.*

**Table 20: Tariffs terms for transfer LNG inventory.**

Symbol and title of the tariff term		Value	Unit
TTSF	Fixed LNG Inventory Transfer Term	500	€ / month
TTSP	Proportional LNG Inventory Transfer Term	0,01	€ / MWh

Source: *Contract providing access to the LNG terminal – Appendix 2: Specific Conditions – Version of the 1<sup>st</sup> of January 2010.*

**Table 21: Tariffs terms for send-out postponement service and early send-out service.**

Symbol and title of the tariff term		Value	Unit
TDE	Send-Out Postponement or Early Send-Out Rate	7 500	€ / day
TGD	Early Send-Out or Early Send-Out Management Rate	10 000	€ / unloading

Source: *Contract providing access to the LNG terminal – Appendix 2: Specific Conditions – Version of the 1<sup>st</sup> of January 2010.*

**Table 22: Tariffs terms for specific services related to cargo.**

1	Booking off spec cargo :  detailed study will assess the possibilities to accommodate the cargo in the current program (LNG mixing)	Fee: 10 000€/study  Extra-costs: depending of the study <sup>1</sup>
2	Additional Terminal assistance for cargo measurement <sup>2</sup>	5000 € / cargo

<sup>1</sup> Plus Laytime extension if any

<sup>2</sup> Requirements exceeding TPA Contract - Appendix 4

Source: *Laytime and Specific Services for 2009 – Revision 4, dated 25.11.2009.*



**Table 23: Tariffs terms for specific services related to ship.**

3	<p>Laytime extension : 6 hours or one slack of tide in Montoir (may be two slacks of tide depending of tidal coefficient) Any period of 6 hours started is due</p> <ul style="list-style-type: none"> <li>- Requested in advance and agreed with ELENGY</li> <li>- Not agreed before the call</li> </ul>	<p>10 000 € / 6 hours undividable</p> <p>20 000 € / 6 hours undividable</p>
4	Nitrogen servicing	2000 € / call <sup>3</sup>
5	Inerting	Quotation request <sup>3</sup>
6	<p>Ship approval :</p> <ul style="list-style-type: none"> <li>- Registering new vessel with terminal</li> <li>- Vessel clearance<sup>4</sup></li> </ul>	<p>5000 € / ship - ship owner</p> <p>3000 € / ship / year</p>
7	Other services : Cooling down, technical stripping, etc...	Quotation request <sup>3</sup>

<sup>3</sup> Plus Laytime extension if any

<sup>4</sup> Using that service, Shipper can deliver cargo lots to the terminal using those vessels without specific clearance if last visit was made less than one year before

**Source:** *Laytime and Specific Services for 2009 – Revision 4, dated 25.11.2009.*

**Fos Cavaou.****Table 24: Tariffs terms at Fos Cavaou LNG terminal.**

TND (Number of Unloadings Term)	50,000 € / unloading
TQD (Unloaded Quantity Term)	Continuous Service : 1.574 €/MWh unloaded Uniform Service : 1.574 €/MWh unloaded Spot Service : 1.181 €/MWh unloaded
TUCR (Regasification Capacity Use Term)	0.18 €
TR (Regularity Term)	Continuous Service : 0.3 € Uniform Service : 0.04 € Spot Service : non-applicable
TN (Gas in kind term)	0.5 %
TGRE (Send-out Postponement Management Term)	10,000 €/subscription
TVRE (Variable Send-out Postponement Term)	7,500 €/day
TGAE (Early Send-out Management Term)	10,000 €/subscription
TVAE (Variable Early Send-out Term)	7,500 €/day
TFTS (Fixed Stock Transfer Term)	500 €/Month
TPTS (Proportionate Stock Transfer Term)	0.01 €/MWh

**Source:** *Contract for Access to the Fos Cavaou LNG Terminal – Appendix 5 – Titles and Values of the Rate Terms - version dated 2010-02-26.*

Besides, the document “STMFC – Services spécifiques vf – Novembre 2009”, available at STMFC’s website, details the tariffs for other specific services available at Fos Cavaou LNG terminal.

**Table 25: Tariffs terms for specific services at Fos Cavaou LNG terminal.**

Ship Approval	6 000	€/vessel
Lay time extension	2 700	€/hour

**Source:** *STMFC – Services spécifiques vf – Novembre 2009.*



#### **1.4.24 Capacity booking procedures.**

##### **Fos Tonkin and Montoir-de-Bretagne.**

The document “Contract providing access to the LNG terminal – Appendix 5 Allocation Rule Version of the 1<sup>st</sup> of January 2010”, describes the necessary procedures shippers have to carry out in order to book capacity at Montoir-de-Bretagne and Fos Tonkin.

All access requests made to a terminal may be made by post, fax or e-mail, to the addresses indicated on the Elengy's website. The TO's response can also be sent by post, fax or by electronic mail, to the addresses specified in the request.

A reservation request may be made at any date during the year, subject, for infra-annual contracts, to the unloading of the first cargo being programmed within 12 months of the acceptance of the TO's request.

##### **Content of the feasibility or reservation request is as follows:**

To be complete, the access request must contain all the following information:

- terminal name: Fos Tonkin or Montoir-de-Bretagne
- request type: feasibility or reservation request
- requester identity: company, address, contact information, fax, e-mail, etc.
- access request start and end dates
- quantity to be unloaded in TWh/month or in TWh/year
- number of cargoes unloaded per month or per year
- type of service requested

The access request may contain the following optional items:

- name(s) of the LNG tanker(s) envisaged by the requester
- LNG unloading port(s)
- unloading date(s) which may be supplied for information only or be binding

The access request providing one or more binding unloading dates may require an examination of the compatibility with unloading programs already established for other shippers, which may give rise to an answer time within at most 7 days.

If the reservation request does not contain all the information required, the TO will ask the requester for additional information within a reasonably short time, as a general rule within two working days from the date request is received.



Content of the reservation request response:

In the event of a positive answer, the TO reiterates the quantity, the number of cargoes unloaded and if need the dates allocated to the requester.

If the requester has not specified the name of the LNG carriers or if the access of such LNG carriers to the LNG terminal is not authorized, its rights of unloading scheduling depend on the access authorization of LNG carriers, given that the LNG carrier authorization procedure requires at least 2 months, from the time all the documents requested by the terminal operator are received and the LNG carrier is made available for inspection within this times.

If the reservation request provides one or more indicative unloading dates, the TO will as close as possible take them into account in drawing up the next unloading program (annual or monthly).

If the reservation request concerns quantities to be unloaded in TWh/year, the terminal shall program each month the unloading of a monthly volume equivalent to 1/12 of these quantities.

In the event of a negative answer, the TO will justify the refusal.

Unloading dates:

See paragraph 1.4.8.1 where the information is already mentioned.

- For the months of January and February of the year "n+1": unloading date requests received before 20<sup>th</sup> October of the year "n" are handled by no later than 1<sup>st</sup> November of the year "n". Unloading date requests for January and February of the year "n+1" received from 20<sup>th</sup> October of the year "n", cannot be accepted by the TO if they change the unloading programs of other shippers.
- For the months of March to December of the year "n+1": unloading date requests received before 15<sup>th</sup> November of the year "n" are handled by no later than 15<sup>th</sup> December of the year "n". Unloading date requests for March to December of the year "n+1" received from 15<sup>th</sup> November of the year "n", cannot be accepted by the TO if they change the unloading programs of the other shippers.
- For the month "m+1" of the year "n": unloading date requests regarding the month "m+1" and received after the 20<sup>th</sup> of the month "m" cannot be accepted if they change the unloading and send-out programs of other shippers.
- And any unloading date requests for the year "n+2" and subsequent years are not handled in advance by the TO.

**Fos Cavaou.**

The access capacities at the Fos-Cavaou LNG terminal offered for booking on the basis of short-term contracts are made available on the primary market and will be allocated according to the first come, first served principle.

Companies interested in booking this capacity are invited to submit their requests by e-mail to the terminal and by fax to +33 1 46 52 36 14 specifying the company's name and address, the expected dates of the calls and the quantities unloaded. The scheduling of the unloading operations in the context of this capacity will be carried out by the GTM, subject to the unloadings already scheduled by the other users of the terminal and to the operational conditions. In case of





incompatibility with the unloadings already scheduled, alternative proposals shall be made by the GTM.

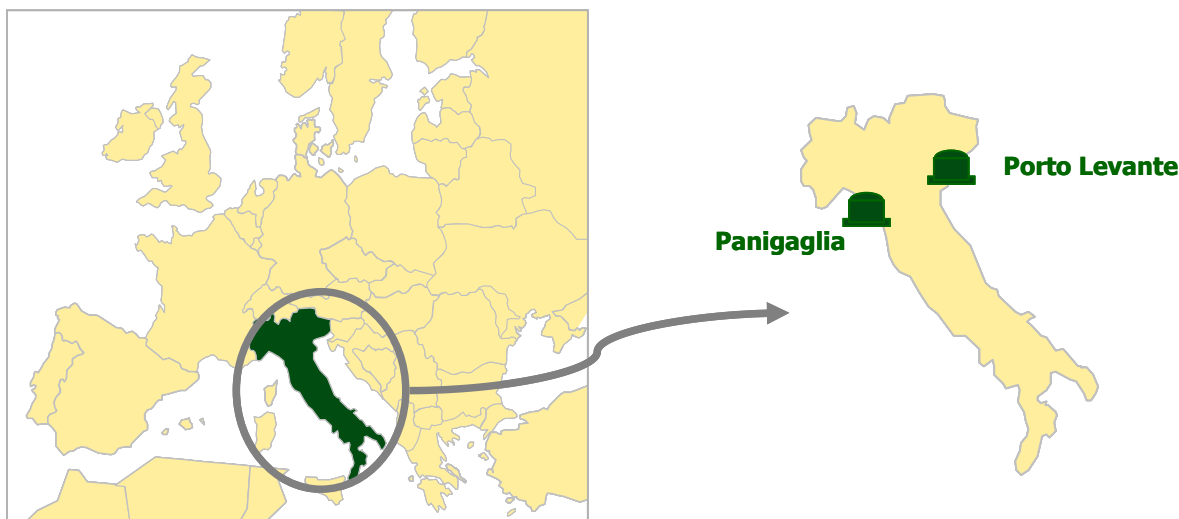
Interested companies may submit a feasibility request and the GTM shall reply as soon as possible; it is the responsibility of the interested company to confirm a binding request. In any case, binding requests have priority over a feasibility request.

## 1.5 .Italy.

### 1.5.1 General overview.


In Italy there are two LNG terminals in operation: Panigaglia, owned by GNL Italia, and Porto Levante, owned by Adriatic LNG. The map below shows the location of the Panigaglia LNG terminal:


**Map 4: Location of the Panigaglia LNG terminal in Italy.**



The details of Panigaglia and Porto Levante LNG terminals are described in the following table:

**Table 26: General information about Italian LNG terminals.**

Italy, Panigaglia		 GNL Italia	
Start-up: 1971			
MAX. HOURLY CAPACITY		NOM. ANNUAL CAPACITY	
current : 284.000 m <sup>3</sup> (N)/h		current : 2,4 bm <sup>3</sup> (N)/year	
by 2011 : 415.000 m <sup>3</sup> (N)/h		by 2011 : 3,4 bm <sup>3</sup> (N)/year	
by 2017 : 916.000 m <sup>3</sup> (N)/h		by 2017 : 7,6 bm <sup>3</sup> (N)/year	
NOMINATION	Yes	ALLOCATION	Pro Rata
MATCHING	Yes	FLOW CONTROL	Yes
SCHEDULE	D/D	MEASUREMENT	Yes
LNG STORAGE CAPACITY		current : 100.000 m <sup>3</sup> LNG	
		by 2017 : 240.000 m <sup>3</sup> LNG	
NUMBER OF TANKS		current : 2	
		by 2017 : 2	
MAX. LNG SHIP CLASS SIZE REC.		70.000 m <sup>3</sup> LNG	
URL AUTHORISED SHIPS		www.gnlitalia.it	
NUMBER OF JETTIES		1	
MIN. SEA DEPTH ALONG SIDE		10 m	
MAX. SEND OUT PRESSURE		70 bar	

Italy, Porto Levante		 Adriatic LNG	
Start-up : 2009			
MAX. HOURLY CAPACITY		NOM. ANNUAL CAPACITY	
1.100.000 m <sup>3</sup> (N)/h		8 bm <sup>3</sup> (N)/year	
NOMINATION	Yes	ALLOCATION	Pro Rata
MATCHING	Yes	FLOW CONTROL	Yes
SCHEDULE	D/D	MEASUREMENT	Yes
LNG STORAGE CAPACITY		250.000 m <sup>3</sup> LNG	
NUMBER OF TANKS		2	
MAX. LNG SHIP CLASS SIZE REC.		152.000 m <sup>3</sup> LNG	
URL AUTHORISED SHIPS		www.adriaticlng.com	
NUMBER OF JETTIES		1	
MIN. SEA DEPTH ALONG SIDE		> 25 m	
MAX. SEND OUT PRESSURE		70 bar	

Source: GLE's LNG map, June 2010.



A new Regasification Code for GNL Italia was approved by the regulator (AEEG) last 22<sup>nd</sup> May 2007. This Code entered in force on 1<sup>st</sup> October 2007, except for dispositions related to capacity allocation procedures, which were in force from 30<sup>th</sup> May 2007. The Regasification Code has been published in Italian and an English version is not available yet.

The access code for the regasification terminal managed by Terminale GNL Adriatico S.r.l. has been submitted to public consultation pursuant to Regulatory Authority for Electricity and Gas resolution n.ARG/gas 55/09.

Apart from Panigaglia and Adriatic LNG, there are other terminals under construction or discussion, although many of them have reported administrative barriers and progress has been slow. Brindisi LNG was been granted an exemption from TPA rules under art. 22 of Directive 2003/55/CE (80% of the terminal capacity for 20 years).

The other terminals have applied or also intend to apply for a temporary exemption from TPA rules, in relation to 80% of the terminal capacity, under art. 22 of Directive 2003/55/CE. The remaining 20% should be available to TPA, as provided by Italian regulation.

Livorno LNG terminal has already obtained an exemption decision from TPA rules (see “[Table 2: Exemptions granted to LNG terminals in the EU under Article 22 of Directive 2003/55/CE.](#)”)

### **1.5.2 Unbundling requirements.**

Resolutions number 11/07 and 253/07, establish that the management of infrastructures which are essential to guarantee market liberalisation (transmission, regasification and storage) should be functionally unbundled from the parent vertically integrated company active in the energy sector.

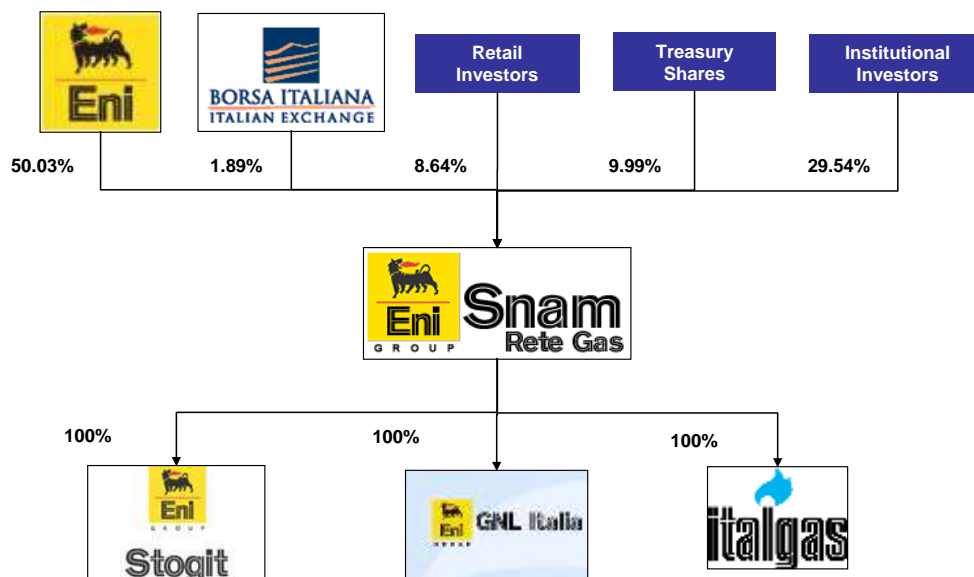
GNL Italia S.p.A., which owns and manages the LNG terminal at Panigaglia (La Spezia), was founded on 27<sup>th</sup> July 2001 in order to receive under conferral, detain and manage the activities carried out by Snam Rete Gas S.p.A. relating to the regasification of LNG. The company began operations on November 1<sup>st</sup>, 2001.

GNL Italia is 100% owned by Snam Rete Gas, the main TSO in Italy.

Snam Rete Gas is a 50.03% subsidiary of the incumbent ENI. As per the provisions of the 2007 Budget Law passed in late 2006 (revising the previous term set by law no. 290/03), ENI will have to sell its shares exceeding 20% of Snam Rete Gas share capital within 24 months of the Snam Rete Gas privatization decree. However, currently, the decree had not yet been issued.



Figure 16: GNL Italia shareholder structure.

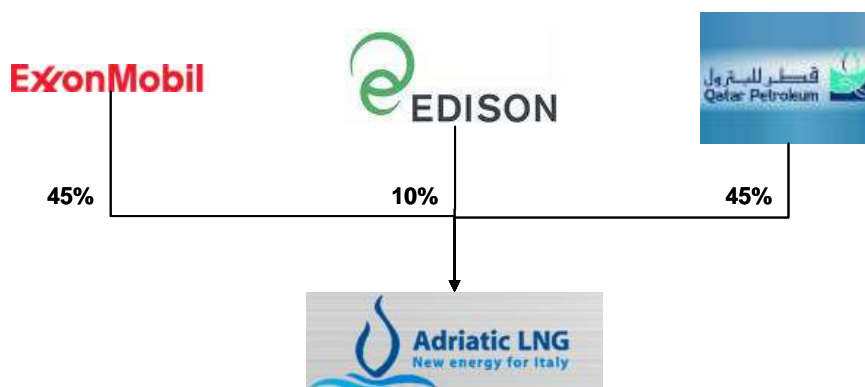


Source: GNL Italia website and self-made.

Adriatic LNG ([www.adriaticlng.it](http://www.adriaticlng.it)) is an Italian company owned by affiliates of ExxonMobil (45%), Qatar Terminals Ltd (45%) and Edison SpA (10%). Qatar Terminal Limited is a 100% affiliate of Qatar Petroleum (QP). Qatar Petroleum is a Qatari state owned corporation.. The company owns and operates an offshore LNG receiving and regasification terminal that will be located in the northern Adriatic Sea.

The terminal has been granted a temporary 25-year exemption from TPA rules under art. 22 of Directive 2003/55/CE in relation to 80% of the terminal capacity. The remaining 20% is available to TPA. Tariffs and access conditions for this portion of capacity are public. The exempted 80% of the capacity will be utilized by Edison for a period of 25 years, to regasify LNG imported from Qatar's North Field, as part of a supply agreement with RasGas II.

Figure 17: Adriatic LNG shareholder structure.



Source: Adriatic LNG website.

### 1.5.3 Access rules.

The main access rules to the LNG terminals in Italy are defined by:

- Delibera n.167/05<sup>101</sup> of the Authority for electricity and gas (Authority), which defines the guarantees of free access to the LNG regasification service and the rules for the regasification code;
- Delibera ARG/gas 92/08<sup>102</sup> of the Authority, which defines the current tariff criteria for the LNG regasification service valid from October 2008 to September 2012;
- TPA tariffs are determined according to the provisions of the Delibera ARG/gas 92/08
  - TPA tariffs in force from 1<sup>st</sup> October 2009 to 30<sup>th</sup> September 2010 were defined by Delibera ARG/gas 102/09<sup>103</sup> of the Authority.
  - TPA tariffs in force from 1<sup>st</sup> October 2010 to 30<sup>th</sup> September 2011 have been defined by Delibera ARG/gas 108/10<sup>104</sup> of the Authority.

### Panigaglia.

According to the above mentioned provisions, GNL Italia has defined its Regasification Code<sup>105</sup> that was approved by the Authority on 22<sup>nd</sup> May 2007 and is in force since the thermal year 2007/2008. The Regasification Code of GNL Italia is published on the GNL Italia website ([www.gnlitalia.it](http://www.gnlitalia.it)).

### Adriatic LNG.

<sup>101</sup> <http://www.autorita.energia.it/docs/05/167-05.pdf>

<sup>102</sup> <http://www.autorita.energia.it/allegati/docs/08/092-08arg.pdf>

<sup>103</sup> <http://www.autorita.energia.it/it/docs/09/102-09arg.htm>

<sup>104</sup> <http://www.autorita.energia.it/it/docs/10/108-10arg.htm>

<sup>105</sup> [http://www.gnlitalia.it/italiano/area\\_business/pdf/codice\\_rigassificazione/Intero\\_documento\\_RevIII.pdf](http://www.gnlitalia.it/italiano/area_business/pdf/codice_rigassificazione/Intero_documento_RevIII.pdf)



As already stated, Adriatic LNG has been granted an exemption under Article 22 of Directive 2003/55 EC, only 20% of the total capacity will be offered under regulated Third Party Access according to procedures established by Italian authorities. The remaining 80% of the terminal capacity is reserved for LNG supply from RasGas to Edison under a 25 year sales and purchase agreement.

The access code for the regasification terminal managed by Terminale GNL Adriatico S.r.l. has been submitted to public consultation pursuant to Regulatory Authority for Electricity and Gas resolution n.ARG/gas 55/09<sup>106</sup>. It is available at Adriatic LNG website<sup>107</sup>.

#### **1.5.4 Services offered.**

##### **Panigaglia.**

The services offered by GNL Italia are detailed in the Regasification Code at chapter 3.

The basic regasification service includes:

- reception of LNG carriers and unloading of their cargo,
- storage in tanks of the LNG unloaded quantities,
- regasification of the LNG.

Moreover, the basic service includes the intake of the regasified quantities into the transmission network at the Panigaglia Entry point through the transmission capacity booked by the Terminal Operator. The quantities intaken into the transmission network by the Terminal Operator are redelivered to the Terminal users at the Virtual Trading Point ("Punto di Scambio Virtuale").

The basic regasification service can be continuous or spot:

- the continuous service is the regasification service that implies the delivery of the LNG according to the monthly delivery program defined at chapter 9 of the Regasification Code.
- the spot service is the regasification service referred to a single unloading in a date given after the definition of the monthly LNG unloading program.

GNL Italia provides also for further services not included in the basic regasification service like e.g. the correction of the Wobbe Index. The description of these services is provided at chapter 3 of the Regasification Code.

##### **Adriatic LNG.**

According to the Adriatic LNG Regasification Code, chapter I GENERAL PRINCIPLES section I.1.1 Definitions, the "Regasification Service" means, collectively, the making available of Subscribed

<sup>106</sup> <http://www.autorita.energia.it/it/docs/09/055-09arg.htm>

<sup>107</sup> <http://www.adriaticlng.com/wps/wcm/connect/ebbae68043a0fa8f9502bd0cf9e1ec53/Codice+di+accesso+ALNG+cn+rev+garanzie+RP+180810.pdf?MOD=AJPERES>



Capacity by the Operating Company to a User and the activities performed by the Operating Company at the Terminal of Unloading, Storage and Regasification, in each case in accordance with article 1.1, letter (c), of the AEEG Resolution no. 120 of 30 May 2001.

Besides, Adriatic LNG provides a redelivery service. This service provided by the TO is governed by the main body of the Access Code, and by the Gas Redelivery Procedure, which has been drafted in order to comply with the provisions of (i) AEEG Resolution no. 167 of 1 August 2005 and with the indications of the related Technical Report (*“Relazione Tecnica”*), which provides that *“the modalities for apportioning the gas redelivered among the various users shall also allow the redelivery to each user with a continuous profile during the course of the month, in order to guarantee the continuity of supplies to the users of the continuous regasification service, which have the availability of regasification capacity allowing a single unloading per month”* and (ii) the Grid Access Contract.

The Redelivery Service is composed of two main activities: the making available of gas to the user at the redelivery point on a provisional basis; and the determination of the final actual quantities of gas to which such user is entitled during the relevant period.

### **1.5.5 Capacity allocation procedures.**

#### **Panigaglia.**

The capacity allocation criteria are detailed in the Regasification Code at chapter 5.

The regasification capacity that is object of allocation is defined by a volume, expressed in  $m^3_{liq}/year$  of LNG, and by a number of unloadings.

The regasification capacity for the continuous service is allocated at the beginning of the thermal year on the basis of the following order of priority as established by Delibera n. 167/05:

- parties with take or pay import contracts signed before 10 August 1998, up to volumes equal to the smaller of the LNG volumes for each thermal year beginning from the thermal year 2001-2002 allocated for regasification at the Panigaglia terminal;
- parties with long-term import contracts;
- parties with annual import contracts.

When the requests exceed available capacity, this is allocated on a pro rata basis in line with the above priority order.

The allocation process that relates to the continuous regasification service refers to capacity booking for pluriannual and annual contracts (see section *“1.5.24 Capacity booking procedures.”*).

Once the yearly regasification capacity is allocated this is distributed by the terminal users along the thermal year according to a process described at Chapter 5 of the Regasification Code.

Any regasification capacity still available after the allocation procedure at the beginning of the thermal year is made available during the current thermal year throughout a booking process that takes place each month. The same priority order described above applies.



The regasification capacity that is still available after this process is offered for spot unloadings after the definition of the monthly unloading program. The capacity is allocated to the subject requesting an amount of regasification capacity nearer to the value offered by GNL Italia for the spot unloading and by draw in case of equal requests.

### **Adriatic LNG.**

#### **Open Season.**

On November 19, 2007 Adriatic LNG announced an "Open Season" to solicit subscriptions by interested parties for non exempted LNG terminal regasification capacity under reference of the Ministerial Decree of 28 April 2006 (Decreto Ministero delle Attività produttive, GU n. 109 of 12-5-2006) and Resolution of Autorita' per l'Energia Elettrica e per il Gas (AEEG) 168/06<sup>108</sup> (Delibera 168/06, GU n. 204 of 2-9-2006).

On 5<sup>th</sup> May 2009 Adriatic LNG announced the result of the public subscription process for the allocation of the non-exempted LNG terminal regasification capacity ("residual regasification capacity") of the terminal, conducted in two sessions (the "Open Season") in accordance with the relevant provisions set out in article 1, paragraph 20, of the Law No. 239 of 23 August 2004, the decree of the Ministry of Productive Activities (Ministero delle Attività Produttive – MAP, now Ministero dello Sviluppo Economico - MSE) of 28 April 2006, and the resolution of the Gas and Electric Power Authority (Autorità per l'energia elettrica e il gas – AEEG) No. 168 of 31 July 2006, as amended from time to time, and with the applicable laws and regulations in force from time to time.

Subject to the technical completion of the terminal, Adriatic LNG had allocated a quota of the residual regasification capacity equal to 1.680.000 m3 LNG per year (equivalent to about 1,0 Bcm/y) for a period of 10 thermal years starting from the thermal year 2009/10.

According to press reports, of the 20% retained for rTPA, BP won 1 Bcm/yr of capacity at the Adriatic LNG terminal. At least 10 other companies bid, but Italian regulators haven't disclosed their identity. The rest of the capacity will be retained for short-term users.

At the time of announcing the results, Adriatic LNG announced that information regarding the Terminal completion status and planned start-up on would be made available upon request by the Non Exempted Capacity Holder(s) on a monthly basis starting from May 2009.

#### **Available capacity.**

The Unsubscribed Capacity will be made available for subscription in accordance with clause 2.4. of the Regasification Code.

Available capacity shall be allocated, on a priority basis, to applicants filing access requests that meet the duration limits indicated below, in accordance with the following ranking priority:

1. Access requests made by applicants that are end clients or consortia of end clients, who import for self-consumption, except for electricity producers, for periods ranging between 5 and ten 10 years;

<sup>108</sup> <http://www.autorita.energia.it/allegati/docs/06/168-06.pdf>





2. Access requests made by applicants that undertake to offer the entire volume of gas to be imported at the Virtual Exchange Point, according to transparent and non-discriminatory conditions, for period ranging between 5 and 10 years;
3. Access requests made by applicants that undertake to offer a quota of at least 20% of the volume of gas to be imported at the Virtual Exchange Point, according to transparent and non-discriminatory conditions, for periods of 5 years;
4. Access requests made by applicants that import from States other than those from which long term importation agreements were in force as of 28 September 2004, for periods of 5 years;
5. Access requests made by applicants which, at the time of the access request, hold a total allocated transportation capacity at entry points to the grid, excluding storage interconnection points, below 25% of the overall transportation capacity allocated at the same entry points, for periods of 5 years; and
6. any other access requests, for periods shorter than 5 years.

In the event that a portion of the available capacity is the object of two or more access requests of equal ranking within one of the categories mentioned under paragraphs (1), (2), (4) and (5) above, the operating company shall award such portion of the available capacity according to the following criteria:

1. largest aggregate volume of LNG over the term of the “Non-Foundation Capacity” agreement;
2. earliest start date for the service;
3. shortest overall duration of the service; and
4. fewest number of unloadings.

In the event that a portion of the available capacity is the object of two or more access requests of equal ranking within the category mentioned under paragraph (3) above, priority will be given to the applicant that, during the requested period, would offer the overall largest volumes of gas at the Virtual Exchange Point.

Available Capacity which has not been allocated pursuant above shall be allocated to applicants undertaking to enter into “Non-Foundation Capacity” agreements of a duration lower than 5 years, in accordance with the ranking priorities indicated above.

Any regasification capacity still available after the allocation procedure at the beginning of the thermal year is made available during the current thermal year throughout a booking process that takes place each month. The same priority order described above applies.

#### Spot capacity.

The regasification capacity that is still available after this process is offered for spot unloadings after the definition of the monthly unloading program. The capacity is allocated to the subject requesting an amount of regasification capacity nearer to the value offered by GNL Italia for the spot unloading and by draw in case of equal requests.



If no access requests for such spot capacity are submitted by the due date for submission of access requests, TO will award such Spot Capacity to Applicants on a first come, first served basis.

### **1.5.6 Long term/short term capacity offering requirements.**

No capacity ratio must be reserved for long term or for short term capacity contracts.

### **1.5.7 Contracts duration.**

According to the dispositions of the delibera n.167/05, the re-gasification capacity is contracted at the beginning of the thermal year for periods equal to one (annual booking) or more than one thermal year (pluriannual booking), up to a maximum of 5, as described at paragraph 1.5.24.2 Capacity booking.

The capacity that is booked during the thermal year is contracted by the terminal users only till the end of the current thermal year.

### **1.5.8 Programming / Nomination procedures.**

#### **Panigaglia.**

For Panigaglia LNG terminal the rules for the definition of the unloading and regasification programs are detailed at Chapter 9 of the Regasification Code.

#### **1.5.8.1 LNG unloading programming procedure.**

##### **Monthly program.**

The monthly LNG unloading program shall contain the following information:

- For month M: the arrival date scheduled for each LNG carrier, the LNG quantities expected to be delivered in each unloading and the name of each LNG carrier.
- For month M+1: the number of expected unloadings and the LNG quantities expected to be delivered in each unloading.
- For month M+2: the number of expected unloadings and the LNG quantities expected to be delivered in each unloading.

The proposed monthly program should be done on the basis of:

- the capacity allocation at the beginning of the thermal year;
- the process for the distribution of the allocated regasification capacity;
- the allocation of the LNG capacities during the thermal year;
- LNG regasification capacity exchanges among users;
- LNG regasification capacity exchanges with the TO.



Six working days before the beginning of month M, the LNG terminal user shall communicate the proposed monthly program. By the fifth working day before the beginning of month M, the TO shall communicate to LNG terminal users the acceptance or rejection of the proposed monthly schedule.

The proposed monthly schedule will not be accepted by the TO if the conditions above are not respected. In case that the proposal only complies with some of the conditions, the acceptance will be limited to those conditions.

The proposed monthly program sent to the users of the LNG terminal, after having been accepted by the TO, is the LNG unloading program. The LNG unloading Program for months M and M+1 is binding for the LNG terminal users. In case of no respect of the unloading program the provisions described at chapter 10 of the Regasification Code will apply.

If the program is not presented within the terms specified or in case of non-acceptance, the LNG unloading program of the user will be considered without unloadings.

The Regasification Code also establishes rules for the definition of the monthly program of the capacity allocated to the terminal user that has not been programmed in the month M-2.

Constraints of the LNG unloading Program.

1. The LNG carrier should be authorised by the terminal, according to the document “Elenco navi metaniere”, published and regularly updated at GNL Italia website, or subject to the unloading test.
2. Each date in which there is an LNG carrier scheduled should be programmed within the dates associated to the LNG terminal user daily regasification capacity prior to elaboration of the monthly LNG unloading program.
3. A time window of at least 1 day between two arrival dates scheduled shall be maintained.
4. Under no circumstances shall be programmed the arrival date coinciding with the last date of the unloading window given to the LNG terminal user to carry out the unloading procedures. If the LNG terminal user has fractions of daily regasification capacity, as a result of exchanges of capacity, the last day will be the last date associated to the total daily regasification capacity.
5. In no case shall be scheduled arrival dates coinciding with the dates associated with the split of unloading window.
6. It is not possible to carry out, inside a sequence of dates associates with daily regasification capacity, a number of unloading higher than the results obtained dividing for 2 (two) the number of daily regasification capacity that constitute the sequence.
7. The interval between two arrival dates must be measured in whole multiple days;
8. When a LNG terminal user holds two sequences of dates associates with daily regasification capacity between two months M and M+1, it has the faculty of anticipate to month M the amount corresponding to month M+1 in order to obtain a single sequence amounting to the sum of two. If the LNG terminal user desires to make use of this faculty, the decision should be communicated to the TO when sending the monthly LNG unloading program proposal, and the LNG terminal user should automatically renounce to the right to carry out changes of the quantity advanced to month M.



9. The maximum LNG quantity, expressed in  $m^3_{liq}$ , the LNG terminal user can deliver within each sequence of dates associated with the daily regasification capacity is given by:

$$Q_{max} = X \cdot 17.500$$

Where X is the number of daily regasification capacity that constitute the sequence.

10. The LNG quantity, expressed in  $m^3_{liq}$ , that the LNG terminal user delivers for each sequence of dates, is calculated as the sum of all the volumes V the user intends to unload in each unloading.
11. The volume V, expressed in  $m^3_{liq}$ , that the LNG terminal user intends to unload for each unloading, must not exceed the technical volume of LNG vessels authorized by the terminal.
12. For each sequence of daily regasification capacity the following condition should be fulfilled:

$$Q \leq Q_{max}$$

13. The total LNG volume in the tank at the beginning of each sequence of daily regasification capacity of the month is set at 35,000  $m^3_{liq}$ .
14. The LNG volume in the tank at the beginning of the gas day should be above 10,000  $m^3$  and below 90,000  $m^3$ .
15. The total LNG volume in the tanks at the end of each sequence of daily regasification capacity of months may not exceed 35,000  $m^3_{liq}$ .
16. The daily production may not exceed 17,500  $m^3_{liq}/g$ , and must be considered equal to 0 when the tanks reach a level corresponding to an LNG volume of 10,000  $m^3_{liq}$ .
17. The LNG volume unloaded must be considered delivered throughout the gas arrival date scheduled.

### **1.5.8.2 LNG unloading rescheduling procedure.**

LNG terminal users can ask for a modification of the monthly unloading program as described below. The requests for reprogramming, once accepted by the TO, imply in all the following cases a redefinition of the LNG unloading program.

#### **LNG Unloadings rescheduling.**

Within the third calendar day before the beginning of month M, the LNG terminal user can ask the TO for the reschedule of LNG unloading program specifying one or more than one of the following reasons:

- Movement of the programmed arrival date within the same month,
- Change of LNG unloading quantities for month M for values above 5%, and
- Change of the name of the LNG carrier.

#### **LNG Unloadings rescheduling from month M-1 to month M and from month M to month M-1.**



Within the third calendar day before the beginning of month M, the LNG terminal user can ask the TO for the shifting from month M-1 to month M or from month M to month M-1 of a LNG unloading arrival date.

Exchange of LNG Unloading arrival dates.

Within the acceptance of the proposed LNG unloading monthly program and the second calendar day before the programmed arrival date, the LNG terminal user can ask the TO for the exchange of programmed arrival dates between:

- Two vessels of the same LNG terminal user, with a difference of LNG quantities expected to be unloaded lower than 5%;
- Two vessels of different LNG terminal users, with a difference of LNG quantities expected to be unloaded lower than 5%.

Exchange of vessel.

Within the second calendar day before the programmed arrival date, the terminal user can request the TO for the exchange of the vessel expected for the unloading if the difference between the quantities to be unloaded by the two vessels is lower than 5%.

### **1.5.8.3 Send-out programming procedure.**

Monthly schedule.

The Monthly Send-out Program shall contain, on daily basis, the following information:

- Total natural gas quantity expected to be sent-out;
- Natural gas quantity expected to be sent-out by LNG terminal user.

The TO will communicate to each LNG terminal user the Monthly Send-out Program within the working day after the acceptance of the proposed monthly LNG unloading program.

Update of the Monthly Send-out Program.

The Terminal Operator is entitled to update the Monthly Send-out Program, in the following cases:

- acceptance of requests for reprogramming the unloadings,
- acceptance of requests for non-compliance with the programming,
- differences between the foreseen LNG quantities to be unloaded in the Monthly LNG Unloading Program and the final quantities delivered,
- allocation of spot unloadings,
- reduction of the regasification capacity.

The update of the Monthly Send-out Program will be binding for the LNG terminal user.

Final Monthly Send-out Program.



The TO, taking into account the actual quantities regasified by the Terminal and the actual quantities delivered by the Terminal users in month M, within the second working day of month M+1 shall inform each LNG terminal user on the Final Monthly Send-out Program, that will contain the following information:

- total LNG quantities regasified,
- total natural gas quantities regasified per terminal user,
- differences between the Final and the last Update of the Monthly Send-out program.

The Final Monthly Send-out Program is binding for the terminal users.

The TO, within the second working day of month M+1, will make available to each terminal user for exchanges at the Punto di Scambio Virtuale, the daily quantities regarding each gas day of the previous month, calculated as the difference between each daily quantity of the Final Monthly Send-out Program and the corresponding quantity of the updated Monthly Send-Out Program.

The LNG terminal user, during the second working day of month M+1, will withdraw the respective daily quantities.

Criteria to develop the Monthly Send-out Program and the Final Monthly Send-out.

The Monthly Send-out Program (or the subsequent updates) as well as the Final Monthly Send-out Program are determined according to the criteria and to the algorithm for the management of the LNG quantities made available to the TO detailed in paragraph 3.4, Chapter 9 of the Regasification code.

**Adriatic LNG.**

For Adriatic LNG terminal this information is detailed at Chapter II Section 3 “Scheduling of Unloading Slots”

**1.5.8.4 Annual Scheduling.**

Annual notification by TO.

In each year, by not later than the 15<sup>th</sup> of November, or the following business day if the 15<sup>th</sup> of November is not a business day, the operating company shall post on the Electronic Communication System the number of and the tentative dates for all unloading slots for the coming year.

Notification by users of preferred annual unloading schedule.

Each “Foundation Capacity” user and each “Non-Foundation Capacity” user must submit in writing to the TO by the 1<sup>st</sup> of January of each year its preferences with respect to the scheduling of unloading slots to which such user has subscribed for the months of April through December of the same year (“Annual Schedule Preferences”), specifying the following:

- its preferred scheduling of unloading slots for each month, corresponding to such user's subscribed capacity for each such month;



- for each unloading slot, the approximate quantity of LNG that the user intends to unload at the LNG Terminal expressed in cubic metres and GJ;
- the tentative identity, tonnage, gross loading capacity and length of the LNG tankers to be used for each unloading slot; and
- the tentative port of origin of the LNG for each unloading slot.

Notification by the TO of annual unloading schedules.

By not later than the 12<sup>th</sup> of January of each year, or the following business day if the 12<sup>th</sup> of January is not a business day, the TO shall notify each “Foundation Capacity” user and each “Non-Foundation Capacity” user of its Annual Unloading Schedule and shall update the Electronic Communication System, showing which unloading slots are assigned and which unloading slots have not been assigned.

Each Annual Unloading Schedule for the months of April through December is indicative only, and subject to modification pursuant to the “Three Month Scheduling”. In developing each Annual Unloading Schedule, the TO shall endeavour to schedule the unloading slots in a fair manner, taking into account the then current Three Month Schedule and the annual schedule preferences of the relevant user.

Where two or more users have expressed conflicting preferences with respect to the scheduling of unloading slots and such users are unable to resolve such conflict by way of the regular and mutual exchange of information between the TO and such users, then the TO shall schedule the relevant unloading slots giving priority to the user which is receiving the service for the largest aggregate quantity, expressed in cubic metres, of LNG over the term of its capacity agreement, subject to such user expressing preferences for unloading slots in a manner that allows scheduling of unloading slots for use by “Foundation Capacity” users and “Non-Foundation Capacity” users other than such user.

#### **1.5.8.5 Three Month Scheduling.**

Notification by users of preferred Three Month Schedules.

Each “Foundation Capacity” user and each “Non-Foundation Capacity” user must submit in writing to the TO by 17:00 hours on the 16<sup>th</sup> day of each month its preferences with respect to the scheduling of unloading slots to which such user has subscribed for the 3 months following the then current month (“Three Month Schedule Preferences”), specifying the following:

- its preferred scheduling of unloading slots for each month, corresponding to such user's subscribed capacity for each such month; in doing so, each user shall follow the then current Three Month Schedule and the Annual Unloading Schedule as nearly as practicable;
- for each unloading slot, the approximate quantity of LNG that the user intends to unload at the LNG terminal expressed in cubic metres and GJ;
- for each unloading slot, the identity and tonnage, gross loading capacity, and length of the LNG tanker to be used; and
- the port of origin of the LNG for each unloading slot.





Notification by the TO of Three Month Schedules.

By no later than the 21<sup>st</sup> of each Month, or the following business day if the 21<sup>st</sup> of the month is not a business day, the TO shall notify each “Foundation Capacity” user and each “Non-Foundation Capacity” user of its Three Month Schedule and shall update the Electronic Communication System, showing which unloading slots are assigned and which unloading slots have not been assigned. The Three Month Schedule shall indicate, for each month, the number of unloading slots allocated to each user, together with the volume of LNG expected to be unloaded, and the date of each unloading slot scheduled.

In developing each Three Month Schedule, the TO shall endeavour to schedule the unloading slots in a fair manner, taking into account:

- the then current Three Month Schedule;
- the three month schedule preferences of the relevant user; and
- the criteria set forth in the first two bullet point of under the section “Notification by users of preferred Three Month Schedules”.

Where two or more users have expressed conflicting preferences with respect to the scheduling of unloading slots and such users are unable to resolve such conflict by way of the regular and mutual exchange of information between the TO and such users, then the TO shall schedule the relevant unloading slots based upon the criteria that no modifications will be made to the allocation of unloading slots from the then current Three Month Schedule.

However, if that criterion is not applicable, then priority will be given to the user which is receiving the service for the largest aggregate quantity, expressed in cubic metres, of LNG over the term of its capacity agreement, subject to such user expressing preferences for unloading slots in a manner that allows scheduling of unloading slots for use by “Foundation Capacity” users and “Non-Foundation Capacity” users other than such user.

Subject to the terms of the “Gas Redelivery Procedure” (detailed in section 1.5.8.7), the TO must include in the Three Month Schedule an estimate of the gas to be sent-out to the relevant user during the following three month period.

Three Month Schedules are binding.

The Three Months Schedule established above, as may be modified from time-to-time pursuant to clause 3.6 of chapter II, shall be binding upon the TO and the users.

Clause 3.6 of chapter II details that either party may at any time request changes to the relevant Annual Unloading Schedule, to the relevant Three Month Schedule or to the Spot Unloading Schedule, as the case may be. Should either Party make such request:

- the TO shall implement such requested changes only in the case that the TO reaches an agreement with each user that would be affected by such changes; and
- each party will use all reasonable endeavours to agree upon any requested change pursuant to and for the purposes of paragraph above.





#### 1.5.8.6 Spot Cargo scheduling.

The Spot Unloading Schedule will be determined by the TO on a case by case.

#### 1.5.8.7 Send-out programming procedure.

This information is detailed at Adriatic LNG Access Code Annex (k).

#### Continuous users.

No later than the 3<sup>rd</sup> business day preceding the beginning of month M, the TO will prepare and issue the initial Monthly Redelivery Programme for each user. The initial Monthly Redelivery Programme, based upon the applicable Three Month Schedule, will show the total quantity of gas (expressed in energy (Gj)) the TO plans to make available at the redelivery point on a provisional basis to such user each day of month M.

The initial Monthly Redelivery Programme will be determined through the following two-step process:

- Step 1: for each day d of month M, the TO will initially estimate the quantity of LNG that will be available in the terminal tanks for each user and, subsequently, estimate the quantities of gas that will be available for redelivery for each user; and
- Step 2: the TO will determine the redelivery profiles (i.e., the quantities of gas that will be redelivered to each user k on each day d of month M) by applying the monthly average shares of the results from Steps 1 and 2 to the total gas redelivery volumes for the month M.

The Monthly Redelivery Programme will be adjusted daily (such adjusted Monthly Redelivery Programme is hereinafter referred to as the "Adjusted Redelivery Programme") and, as adjusted, will serve as the basis for the nominations to the TSO. Such adjustments shall be based on the results from running the above algorithms each day, using the latest known actual data and the latest estimated data.

The TO shall endeavour to communicate the Adjusted Redelivery Programme by no later than 17:00 of each day d for the day d+2.

Each Adjusted Redelivery Programme shall take into account all circumstances contemplated under the main body of the Access Code, including:

- Early or late arrivals of LNG tankers;
- Rescheduling of planned unloadings;
- Differences between the quantities of LNG expected to be unloaded during the month and actual quantities unloaded;
- Scheduling of spot cargoes during the month;
- Reductions in LNG terminal and/or grid capacity;



- The need for sufficient ullage in the LNG terminal's tanks to accommodate the next unloading; and
- Changes in the expected quantities of terminal use gas, excess use gas, correction use gas and lost gas.

After the end of each month, the TO shall provide each user with a gas quantity entitlement report that shows the actual quantities of gas which the user was entitled to receive each day during the previous month.

Should the quantities of gas actually redelivered to each continuous user on each day *d* of the previous month, as shown on the gas quantity entitlement report, differ from the quantities nominated at the Virtual Exchange Point by the TO during the course of that month on the basis of the Initial Redelivery Programme and the Adjusted Redelivery Programme, the TO shall operate at the Virtual Exchange Point in order to make the necessary transactions with the concerned users to match the Final Redelivery Profiles of all the users involved, as indicated in the gas entitlement report.

#### Spot Users.

The TO will develop a Spot Redelivery Programme setting out the quantity of gas that will be redelivered each day *d* of the relevant spot redelivery period for each spot user, taking into account all relevant factors (including those set forth in the user's spot capacity Agreement).

The Spot Redelivery Programme will be adjusted as appropriate (such adjusted Spot Redelivery Programme is hereinafter referred to as the "Adjusted Spot Redelivery Programme") and, as adjusted, will serve as the basis for the nominations to the Transportation Enterprise.

The Adjusted Spot Redelivery Programme shall take into account all circumstances contemplated under the main body of the Access Code, including:

- Early or late arrivals of LNG tankers;
- Rescheduling of planned unloadings;
- Differences between the quantities of LNG expected to be unloaded during the month and actual quantities Unloaded;
- Scheduling of spot cargoes during the month;
- Reductions in LNG terminal and/or grid capacity;
- The need for sufficient ullage in the LNG terminal's tanks to accommodate the next Unloading; and
- Changes in the expected quantities of LNG terminal use gas, excess use gas, correction use gas and lost gas.

#### **1.5.9 Congestion management procedures.**

In order to prevent and to manage congestion situations at both LNG terminals, the Panigaglia Regasification Code and Adriatic LNG Regasification Code provide:



- Priority access criteria: the capacity is allocated according to priority order, as described in the previous paragraph 1.5.5 “Capacity allocation procedures.”, which is defined on the basis of the import contract type and duration.
- Pro rata mechanism: when the request capacity exceeds the available capacity, it is allocated on a pro rata basis in line with the above priority order.

Furthermore both Regasification Codes provide UIOLI procedures so as to ensure that unused capacity is freed up and available to other users.

### **1.5.10 UIOLI.**

#### **Panigaglia.**

The Regasification Code provides the following procedures to free and to make available to third parties the unused booked capacity:

- Start of the thermal year (chapter 5, point 2.4).

In case of the LNG quantity delivered by a user during the previous thermal year is lower than the capacity booked during the previous multi-annual booking processes, it has to release to GNL Italia a regasification capacity equal to:

- a. the difference between the yearly capacity booked for the current thermal year during the multi-annual booking processes and the total LNG quantity delivered by the user during the current thermal year;
- b. the number of unloadings related to the above mentioned capacity.

The capacity freed up by the user is handed by GNL Italia through the subsequent capacity booking procedures at the start of and during the thermal year.

- During the thermal year.

During the thermal year, the TO makes available the regasification capacity unused by the terminal user in the month M on the basis of the Monthly Unloading Program defined in the month M-2 .

In addition, in order to promote an optimal use of the capacities, the Regasification Code allows capacity transfers between the users of the LNG terminal using the secondary market.

#### **Adriatic LNG.**

Any subscribed capacity for which the relevant user has not submitted in writing to the TO by the 1<sup>st</sup> of January of the relevant year its preferences with respect to the scheduling of unloading slots shall be deemed to be released capacity as if the user had notified on the 11<sup>th</sup> of January a “Release Declaration” to the TO pursuant to clause 2.6 of chapter II.

Any subscribed capacity during month M for which the relevant user has not submitted in writing to the TO by 17:00 hours on the 16<sup>th</sup> day of month M-2 its preferences with respect to the scheduling of unloading slots shall be deemed to be released capacity as if the user had notified on the 20<sup>th</sup> day of month M-2 a “Release Declaration” to the TO pursuant to clause 2.6 of chapter II.

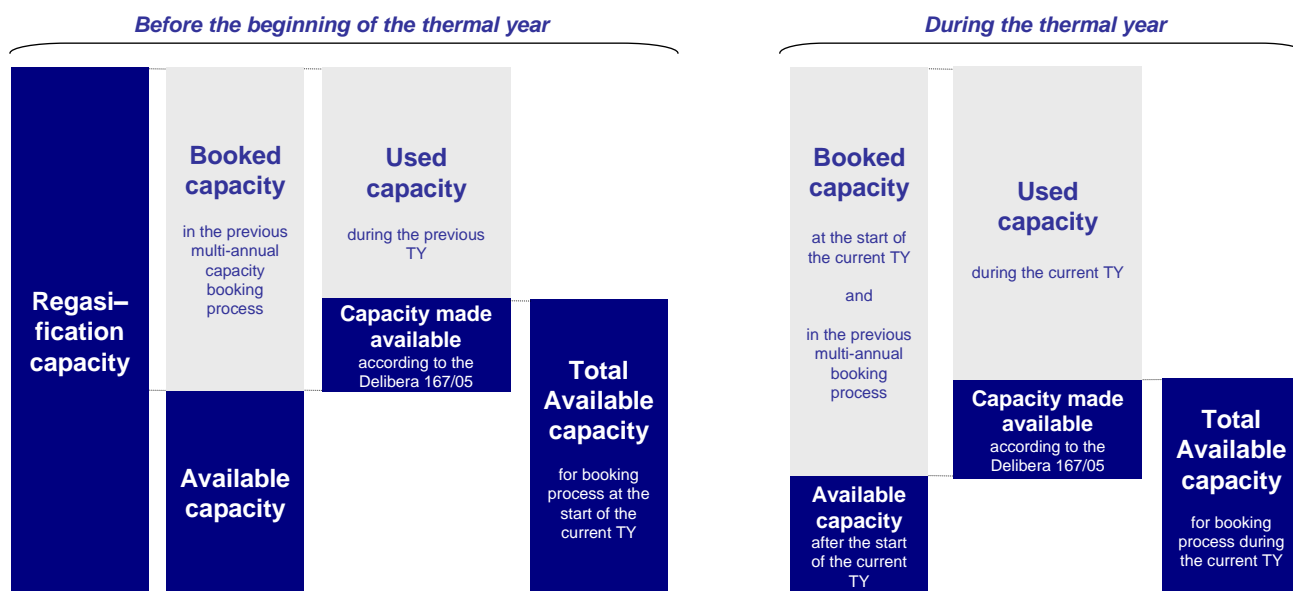


### 1.5.11 Method for calculating usable, available and unused capacities.

#### Panigaglia.

The method for calculating usable, available and unused capacities is detailed in the Regasification Code at Chapters 2 and 5.

**Figure 18: Available capacity calculation at Panigaglia LNG terminal.**



Source: GNL Italia.

Considering the operational margin of safety, the GNL terminal plant allows a maximum regasification capacity of  $17.500 \text{ m}^3_{\text{liq}}/\text{g}$ ; in this way the annual regasification capacity is equal to  $17.500 \text{ m}^3_{\text{liq}}$  multiplied for the working days of the terminal.

Before the start of the thermal year, the available capacity is calculated taking into account the difference between the regasification capacity and the capacity booked during the previous multi-annual capacity booking process. The total available capacity for the booking process at the start of the thermal year is the sum of the available capacity above mentioned and the capacity made available by the terminal users in application of the provisions of articles 7.2 and 11.3 of the Delibera 167/05 of the Authority. In particular:

- article 7.2 provides that users can make available the booked capacity they don't need, as described in the Regasification Code, Chapter 8, point 3;
- article 11.3 provides that users have to make available the capacity booked but unused, as described in the Regasification Code, Chapter 5, point 2.4 and in the previous paragraph 1.1.9.

During the thermal year the total capacity available for the booking process is calculated taking into account the capacity available after the booking process at the start of the thermal year, the capacity already booked during the thermal year, the capacity made available by the terminal users in application of the provisions of articles 7.2 of the Delibera 167/05 and the capacity that is unused in the month M on the basis of the binding unloading program defined in the month M-2.



Besides, at the end of every month M-1 and during the month M, GNL Italia offers spot capacity for the month M. The spot capacity is the capacity available after the booking process at the start of thermal year, the booking process during the thermal year and the unloading monthly programmes.

### **Adriatic LNG.**

The method to calculate the terminal capacity is detailed at section II.2.1 of the Regasification Code.

The terminal capacity shall be determined by considering the technical and operational limits of the terminal, as established by the TO, taking into account the number and duration of unloading slots, storage capacity, send-out capacity, and the available gas pipeline capacity at the Cavarzere entry point.

Due to the special technical aspects of the LNG terminal and the variables that can be ascertained only during the start-up period, the terminal capacity will be determined as follows.

### **Provisional Terminal Capacity.**

The TO shall determine and publish the Provisional Terminal Capacity for the first thermal year and for the immediately subsequent thermal year as soon as it is reasonably able to do so.

By the 1<sup>st</sup> of June of each subsequent thermal year during the start-up period, the TO shall advise the Provisional Terminal Capacity for the subsequent thermal year, which shall be published on the Electronic Communication System no later than the business day after its determination.

It is acknowledged by the TO and all Users that the Provisional Terminal Capacity may be lower than the Final Terminal Capacity. "Foundation Capacity" Users' shall have first priority to utilize the portion of Provisional Terminal Capacity necessary to meet their requirements under the "Foundation Capacity" agreements.

### **Final Terminal Capacity.**

The Final Terminal Capacity must be determined by the TO no later than the 1<sup>st</sup> of June in the final thermal year of the start-up period and shall be published on the Electronic Communication System no later than the business day after its determination.

## **1.5.12 Send-out requirements.**

### **Panigaglia.**

As defined in the Regasification Code the guaranteed daily production may not exceed 17,500 m<sup>3</sup><sub>liq</sub>/day, and must be considered equal to 0 when the tanks reach a level corresponding to an LNG volume of 10,000 m<sup>3</sup><sub>liq</sub>.

### **Adriatic LNG.**

According to the Access Code section II.1.1, the rate of discharge is 12,000 cubic metres per hour against an LNG head of 80 metres at the delivery Point.



### 1.5.13 Gas quality requirements.

#### Panigaglia.

This information is available at the regasification code Chapter 12.

The components of GCV (Gross Calorific Value) at the delivery and redelivery point are the same and are detailed in the next table:

**Table 27: GCV components.**

Property	Value	Unit
C <sub>1</sub>	(*)	
C <sub>2</sub>	(*)	
C <sub>3</sub>	(*)	
iC <sub>4</sub>	(*)	
nC <sub>4</sub>	(*)	
C <sub>6+</sub>	(*)	
N <sub>2</sub>	(*)	
O <sub>2</sub>	<= 0.6	%mol
CO <sub>2</sub>	<= 3	%mol

(\*)These components and their values are limited by the Wobbe Index requirements.

**Source:** *Codice di Rigassificazione, Chapter 12, and self-made.*

The following table details trace gas analysis at the delivery and redelivery point:

**Table 28: Trace components.**

Property	Value	Unit
H <sub>2</sub> S	<=6.6	Mg/Sm <sup>3</sup>
S-RSH	<=15.5	Mg/Sm <sup>3</sup>
S TOT	<=150	Mg/Sm <sup>3</sup>

**Source:** *Codice di Rigassificazione, Chapter 12.*

The physical properties at the delivery point are detailed in the following table.

**Table 29: Physic gas quality requirements at the delivery point.**

Property	Value	Unit
H <sub>2</sub> S	< 6	mg/Sm <sup>3</sup>
S-RHS	< 15	mg/Sm <sup>3</sup>
STOT	< 150	mg/Sm <sup>3</sup>
GCP	38.18 ÷ 43.18	MJ/Sm <sup>3</sup>
Wobbe Index	47.31 ÷ 52.13	MJ/Sm <sup>3</sup>
Wobbe Index Correction	52.13 ÷ 53.17	MJ/Sm <sup>3</sup>
Density	430 ÷ 470	kg/m <sup>3</sup>

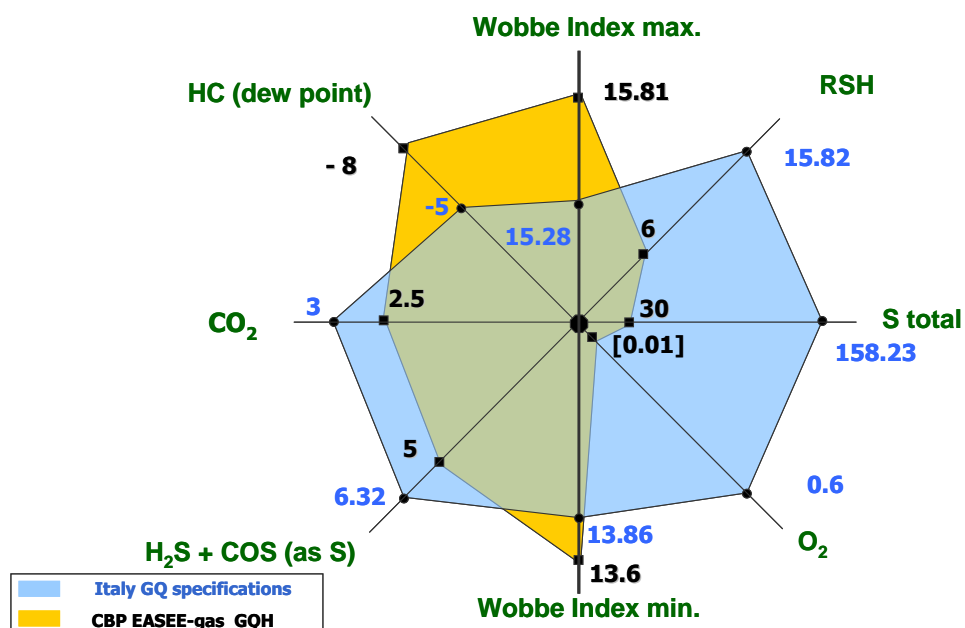
**Source:** *Codice di Rigassificazione, Chapter 12.*

The following table details the physic gas quality requirements at the redelivery point:

**Table 30: Physic gas quality requirements at the redelivery point.**

Property	Value	Unit	Conditions
GCP	34.95 ÷ 42.28	MJ/Sm <sup>3</sup>	
Wobbe Index	47.31 ÷ 52.33	MJ/Sm <sup>3</sup>	
Density	0.5548 ÷ 0.8	kg/m <sup>3</sup>	
Water dew point	<= -5	°C	7000 kPa gauge
Hydrocarbon dew point	<=0	°C	100 ÷ 7000 KPa gauge
Max Temperature	<50	°C	
Min Temperature	>3	°C	

Source: Codice di Rigassificazione, Chapter 12.

**Figure 19: Gas quality specifications at Panigaglia LNG terminal vs. EASSE-gas specifications.**

Source: Elaborated from data on Codice di Rigassificazione, Chapter 12 and EASSE-gas CBP 2005-001-01 Gas Quality Harmonisation.

### Adriatic LNG.

This information is available at the regasification code Annex (h) and Annex (i).

Gas transmitted by the TO to the Cavarzere Entry Point, shall contain equal to or less than the acceptable values for the components and substances listed below:

**Table 31: NG GCV components.**

Property	Value	Unit
C <sub>1</sub>	(*)	
C <sub>2</sub>	(*)	
C <sub>3</sub>	(*)	



C <sub>4</sub> and heavier	(*)	
C <sub>5</sub> and heavier	(*)	
N <sub>2</sub>	(*)	
O <sub>2</sub>	<= 0.6	%mol
CO <sub>2</sub>	<= 3	%mol
H <sub>2</sub> S	<= 6.6	mg/SCM
Total sulfur	<= 150	mg/SCM
Metacaptans	<= 15.5	mg/SCM

(\*)These components and their values are limited by the Wobbe Index requirements.

**Source:** Access Code For the Offshore Regasification Terminal of Terminale GNL Adriatico S.r.l, Annex (h).

Besides, the gas shall contain no traces of the following components:

- Water and/or hydrocarbon in liquid state;
- Solid particulates in such quantities that will damage the material used for transportation of the gas;
- Other gases which may affect the safety or integrity of the transportation system.

Gas transmitted by the TO to the Cavarzere entry point, shall have physical properties that fall within the acceptable ranges listed below:

**Table 32: Physic gas quality requirements at the redelivery point.**

Property	Value	Unit	Conditions
GHV	34.95 ÷ 42.28	MJ/Sm <sup>3</sup>	
Wobbe Index	47.31 ÷ 52.33	MJ/Sm <sup>3</sup>	
Density	0.5548 ÷ 0.8	kg/m <sup>3</sup>	
Water dew point	<= -5	°C	7000 kPa gauge
Hydrocarbon dew point	<=0	°C	100 ÷ 7000 KPa gauge
Max Temperature	<50	°C	

**Source:** Access Code For the Offshore Regasification Terminal of Terminale GNL Adriatico S.r.l, Annex (h).

LNG delivered by or on behalf of a user to the TO at the delivery point, in a gaseous state, shall have a Gross Heating Value in the range of 34.95 MJ/Sm<sup>3</sup> to 45.28 MJ/Sm<sup>3</sup> and a Wobbe Index in the range of 47.31 MJ/Sm<sup>3</sup> to 52.13 MJ/Sm<sup>3</sup>. After the Correction Service Availability Date, the Wobbe Index range will be the following: 47.31 MJ/Sm<sup>3</sup> to 53.40 MJ/Sm<sup>3</sup>.

LNG delivered by or on behalf of a user to the TO at the delivery point, in a gaseous state, shall contain for the components and substances listed below, not more than the following:

**Table 33: LNG GCV components.**

Property	Value	Unit	Conditions
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C <sub>1</sub>	(*)		
C <sub>2</sub>	(*)		
C <sub>3</sub>	(*)		
C <sub>4</sub> and heavier	(*)		
C <sub>5</sub> and heavier	(*)		
N <sub>2</sub>	(*)		
O <sub>2</sub>	<= 0.05	%mol	
CO <sub>2</sub>	<= 0.05	%mol	
H <sub>2</sub> S	<= 4.59	mg/SCM	
Total sulfur	<= 45.88	mg/SCM	
Metacarpans	<= 9.18	mg/SCM	
Mercury	<= 10	Ng/SCM	
Hydrocarbons	>= -5	°C	100 ÷ 7000 KPa gauge
Cargo vapour pressure	140	milibars gauge	

(\*)These components and their values are limited by the Wobbe Index requirements.

**Source:** *Access Code For the Offshore Regasification Terminal of Terminale GNL Adriatico S.r.l, Annex (i).*

#### 1.5.14 Balancing regime/Management of LNG stock levels.

##### Panigaglia.

The management of LNG stock levels is described in the previous section 1.5.8.1 “LNG unloading programming procedure.” *Constraints of the LNG unloading Program*”, from point 10 to point 17.

The daily stock levels are determined as difference between the following groups of terms:

- the quantity unloaded and the LNG inventory transfer quantity received;
- the daily quantity send-out, the LNG inventory transfer quantity delivered and the gas taken off in kind from the quantities unloaded.

The inventory variation obtained by the difference described may be positive or negative.

##### Adriatic LNG.

-

#### 1.5.15 Own consumption record and gas in kind.

On July 2010, the Autorità published at the Delibera ARG 108/10 the gas in kind percentages for Panigaglia LNG terminal and Adriatic LNG terminal for the thermal year 2010-20.

According to this Delibera, the gas in kind percentage for Panigaglia LNG terminal is 1.8% and for Adriatic LNG terminal 0.8%.



### **1.5.16 Charges and/or penalties for imbalance, cancellation and other, including minimum payment obligations.**

The information about Panigaglia LNG terminal is available in the Regasification Code at Chapter 10.

#### **1.5.16.1 Penalties for LNG unloading rescheduling.**

In case of rescheduling of a LNG unloading the LNG terminal user shall pay, in addition to the payment of the regasification fees of the basic regasification service, the following compensations:

- if the reprogramming request is received from the TO within the first day after the definition of the LNG Unloading Monthly program and the eight calendar day before the LNG Unloading arrival date, a compensation amounting to 5,000 €.
- if the reprogramming request is received from the TO between the eight calendar day and the third calendar date day before the LNG Unloading arrival date, an all-in compensation amounting to 5,000 € and a compensation  $C_{rp}$ , equal to:

$$C_{rp} = T \cdot \alpha \cdot C_{qs} \cdot C_d$$

where  $\alpha$  is a weight of 0.7, the value  $T$  varies depending on the number of days in of notice to the TO,  $C_{qs}$  is the charge described at the following paragraph 1.1.22 and  $C_d$  is equal to 17,500 m<sup>3</sup><sub>liq</sub>/day.

**Table 34: Value of the parameter T.**

Days of notice	Value of the parameter T
7	0.2
6	0.4
5	0.6
4	0.8
3	1

**Source:** Codice di Rigassificazione, Chapter 9, point 2.3.

#### **1.5.16.2 Penalties for not complying with the LNG unloading monthly program.**

##### **Pangigaglia.**

##### **Penalties for not carrying out the unloading.**

If the LNG terminal user notify the TO that the unloading of the LNG vessel is not going to be carried out between the first calendar day after the definition of the LNG Unloading Monthly Program and the eight day before the LNG carrier arrival date scheduled, the LNG terminal user shall pay a compensation amounting to 10,000 euros, subject to the payment of fees for the basic regasification related to the unloading in question.



If the notification is done after the eight day before the LNG carrier arrival date, the LNG terminal user shall pay the following penalties:

- A penalty for the non-operation of the unloading,  $C_{md}$ , equal to:

$$C_{md} = T \cdot \alpha \cdot C_{qs} \cdot C_d$$

**Table 35: Value of the parameter T.**

Days of notice	Value of the parameter T
7	0.2
6	0.4
5	0.6
4	0.8
3	1
<3	2

**Source:** *Codice di Rigassificazione, Chapter 10, point 1.1.1.*

- A penalty amounting to 10,000 €, subject to the payment of the regasification fees of the basic regasification service regarding the unloading not done.

If the unloading is not carried out due to reasons attributable to the TO, the LNG terminal user will be exempted by paying the regasification tariff. Besides, the TO shall pay the LNG terminal user a compensation equal to:

$$C'_{md} = T \cdot \alpha \cdot C_{qs} \cdot C_d$$

**Table 36: Value of the parameter T.**

Days of notice	Value of the parameter T
>7	1
7	1.2
6	1.4
5	1.6
4	1.8
<4	2

**Source:** *Codice di Rigassificazione, Chapter 10, point 1.1.1.*

**Penalties for not carrying out the unloading during the unloading window.**

If the LNG carrier does not arrive on time to the LNG terminal, for reasons not imputable to the TO, the TO is not obliged to receive and carry out the unloading of the LNG carrier. However, if the TO is able to perform the unloading, the following penalties will be charged to the user:

- if the LNG carrier arrives before the window time the TO has assigned to the carrier, no penalties will be applied,



- in case of delay, the LNG terminal user will be liable to pay the TO the following penalties:
  - A charge for non-compliance with the unloading window assigned,  $C_{mrc}$ :

$$C_{mrc} = 1.2 \cdot \alpha \cdot C_{qs} \cdot C_d$$

- A compensation of 5,000 €.

If the TO is not able to perform the unloading within the unloading window assigned to the LNG terminal user, the TO should rescheduled the unloading in other window agreed with the user.

Besides, the TO will compensate the LNG terminal user with an amount equal to:

$$C_{mrc} = 1.2 \cdot \alpha \cdot C_{qs} \cdot C_d$$

Penalties for not complying with the TUD<sup>109</sup>.

If the unloading procedures were not completed within the TUD for reasons not attributable to the TO, to finalise the unloading it might be necessary to interrupt the unloading. If the TO authorizes the continuation of the unloading, the TUD will, in accordance with the next unloading window scheduled, be extended and the user will be required to pay a fee,  $C_{tud}$ , to the TO amounting to a maximum of:

$$C_{tud} = 2 \cdot \alpha \cdot C_{qs} \cdot C_d$$

for an extension of two additional days. For extensions lasting less than two days, the fee will be proportionately reduced.

If it is not possible to complete the unloading in compliance with the subsequently scheduled unloading window, the LNG carrier will be required to stop the unloading and leave immediately, in which case the LNG terminal user will be required to pay the TO,  $C_{tud}$ , additionally to the above, a penalty amounting to 5,000 €.

If, for security reasons, it is not possible to stop the unloading, the LNG terminal user will be required to pay the penalty mentioned above,  $C_{tud}$ , and to maintain the TO free of all costs and charges incurred as a result of the failure of compliance with the TUD for reasons not attributable to the TO.

If the unloading procedures were not completed within the TUD, for reasons imputable to the TO, the user of the LNG terminal should notify the TO the intention to interrupt the unloading. If the LNG terminal user intends to continue with the unloading, the TUD will be extended and the TO will be required to pay the user a penalty,  $C'_{tud}$ , equal to:

$$C'_{tud} = 2 \cdot \alpha \cdot C_{qs} \cdot C_d$$

<sup>109</sup> Acronym for "Termine Ultimo di Discarica", time period of 34 hours after the end of window period assigned to the LNG terminal user to carry out the unloading. It is defined as the unloading deadline for delivering the documents relating to the final mooring procedures in the LNG terminal or the disconnection of the arms.



for an extension of two additional days. For extensions lasting less than two days, the fee will be proportionately reduced.

If it is not possible to complete the unloading in compliance with the subsequently scheduled unloading window, the LNG carrier will be required to stop the unloading and leave immediately, in which case the TO will be required to pay the user concerned the amount  $C'_{tud}$ , regarding the volume not unloaded.

If, for security reasons, it is not possible to stop the unloading, the TO will be required to pay the penalty mentioned above,  $C'_{tud}$ , to the LNG terminal user.

### **Adriatic LNG.**

#### **Penalties for not complying the unloading within the laytime<sup>110</sup>.**

If completion of unloading of an LNG tanker occurs after the expiry of the laytime for such LNG tanker, then the TO must pay to the user for whom or on whose behalf such LNG tanker was unloading, demurrage for each hour or fraction thereof by which such completion of unloading occurs after the expiry of such laytime, at a rate per hour which is equal to the following:

- 1,750 USD / hour for LNG tankers with a gross loading capacity of up to (but excluding) 105,000 cubic metres; and
- 3,250 USD / hour for LNG Tankers with a gross loading capacity equal to or greater than 105,000 cubic metres,

In such case user shall invoice TO for the amount of demurrage payable along with relevant documents and calculations in support of such amount. Such demurrage payments shall become due 20 days after the date on which TO receives the invoice.

Pursuant to and for the purposes of the Access Code the payment of demurrage shall be the sole compensation payable by the TO to a user if the unloading of an LNG Tanker which is delivering LNG for or on behalf of such user is not completed within the laytime for such LNG tanker.

Notwithstanding the foregoing, in the event that, after laytime has commenced, TO cancels the corresponding unloading slot, completion of unloading, solely for the purpose of determining demurrage, shall be deemed to have occurred 48 hours after such notice has been provided.

If the Operating Company incurs any demurrage to any user for reasons attributable to another user ("liable user") or to the LNG tanker which delivers LNG for or on behalf of the liable user, then the liable user must pay to the TO an amount equal to the demurrage so incurred.

### **1.5.16.3 Penalties for not complying with the spot unloading program.**

#### **Panigaglia.**

#### **Penalties for not carrying out the unloading.**

<sup>110</sup> Laytime shall be 24 consecutive hours.



In case of a LNG terminal user can not make a scheduled spot unloading for reasons not attributable to the TO, it has to inform the TO as soon as possible. The TO will verify if it is possible to book the spot unloading to another LNG terminal user in the same scheduled arrival date.

If the spot unloading has been reassigned to another LNG terminal user and the quantity planned to unload is equal to the quantity initially assigned to the first user, this first user will have to pay a penalty equal to 3,000 €, in order to cover the costs incurred by the TO for the reassignment of the spot unloading.

Should the spot unloading be allocated to another user, and the LNG quantities planned to unload are different from the ones initially assigned to the first user, the latter will have to pay a penalty equal to 3,000 € to the TO to cover the costs incurred in the verification of the possibility to reallocate the unloading.

If the spot unloading has not been allocated to another user, the user of the LNG terminal will lose the right acquired in the allocation to unload the LNG carrier and will have to pay the TO the next penalties:

- a charge for not carrying out the spot unloading, amounting to:

$$C_{\text{tmd}} = 2 \cdot \alpha \cdot C_{\text{qs}} \cdot C_d$$

- A compensation of 10,000 €.

If the unloading procedures were not carried for reasons imputable to the TO, the TO musts inform the LNG terminal user and will have to pay the user concerned the amount  $C'_{\text{md}} = 2 \cdot \alpha \cdot C_{\text{qs}} \cdot C_d$ .

#### **1.5.16.4 Penalties for not complying with the quality specifications.**

##### **Panigaglia.**

##### **Penalties for not complying with specifications at the landing harbour.**

If the quality specifications of the LNG communicated by the user are not compliant with the ones detailed in the previous paragraph 1.5.13, the TO will be authorized to reject the LNG and the respective unloading giving notification to the user within 12 hours after the above mentioned user communication.

In case of rejection of the LNG, the user will be unauthorized to carry out the unloading and will pay to the TO the same penalties provided in case of not carrying out the unloading, as described in the previous paragraph 1.5.16.2.

##### **Penalties for not complying with specifications at the delivery point.**

If during the unloading operations the quality specifications of the LNG result not compliant with the ones detailed in the previous paragraph 1.5.13, the TO will be authorized to reject the LNG and the user and will pay to the same penalties provided in case of not carrying out the unloading, as described in the previous paragraph 1.5.16.2.

In case of acceptance of LNG not compliant, the user will pay all the extra-costs generated and supported by the TO to unload the LNG.

##### **Adriatic LNG.**



Penalties for not complying with specifications at the unloading.

In the event that any Off-Spec LNG is unloaded by or on behalf of a user with or without the acceptance of the TO, such user shall indemnify and hold the TO harmless from any costs and/or expenses directly incurred by the Operating Company to:

- provide the correction service with respect to such Off-Spec LNG, but excluding the cost associated with the correction service use gas;
- restore, repair, or replace any part of the terminal that is damaged as a result of the unloading of such Off-Spec LNG and/or, after the correction service availability date, the performance of the relevant correction service; and
- satisfy or settle valid third party claims that are brought against the TO as a result of the unloading of such Off-Spec LNG, provided that the TO, before satisfying or settling any such claim, shall consult with such user and shall take into due consideration any comments of such user in relation to the defence of any such claim.

The TO shall use all reasonable endeavours to minimize the costs and expenses referred to in this clause. Save as expressly described in this clause, the user shall incur no further liability to the TO with respect to such Off-Spec LNG.

If any Off-Spec LNG is refused by the TO in the circumstances described in this clause, the user shall continue to be liable to pay to the TO the capacity charge and the grid capacity charge in respect of such Off-Spec LNG.

Penalties for not complying with specifications at the redelivery point.

If, for any reason, the TO makes available Off-Spec gas at the Cavarzere entry point for redelivery to a user the TO must promptly notify such user and the TSO; and if any quantity of such Off-Spec gas is rejected by the TSO

- the capacity charge and variable charge payable by such user will be reduced; and
- the grid capacity charge payable by the user shall be reduced if, and to the extent that, the Off-Spec gas was made available at Cavarzere Entry Point as a result of a grossly negligent or wilful act or omission of the TO or its employees, contractors, agents and/or other third parties acting for it or on its behalf.

**1.5.16.5 Penalties for deviations related to the continuous regasification service.**

**Pangigaglia.**

Penalties for deviations between volume programmed in the month M-2 and volume delivered in the month M.

If the LNG unloaded by the user during the whole thermal year is lower than the LNG expected to be unloaded according to the monthly LNG unloading programs, the user will have to pay an amount equal to  $4,5 \text{ €/m}^3_{\text{liq}}$  multiplied for the difference between the above mentioned variance and the 10% of the LNG present in the monthly LNG unloading programs.

Penalties for deviations between volume unloaded and capacity available in the month M.



If the LNG unloaded by the user in the month M is greater than the capacity owned by the user in the same month, it has to pay, in addition to the variable compensation on the unloaded quantities, an amount equal to the term  $C_{qs}$ , increased of 10%, multiplied for the above mentioned difference.

### **Adriatic LNG.**

#### **Penalties for deviations between volume programmed in the month M-2 and volume delivered in the month M.**

Should a User's aggregate "Net Unloaded LNG" <sup>111</sup> during a thermal year be lower than the aggregate LNG volumes scheduled for unloading during such thermal year, the TO will apply and the user shall pay a charge for scheduling variance as determined in accordance with the formulas below, it being understood that such charge shall be payable by such user only if and to the extent it is due to the TO under applicable regulations. Formula 1 determines whether a charge for scheduling variance is due and Formula 2 determines the amount of such charge, if applicable.

#### Formula 1

If:  $(PQ - AQ) > (0.10 * PQ)$

Where:

PQ = Aggregate annual scheduled quantities of LNG ( $m^3$ ) set forth in month M-2 in each of the Three Month Schedules applicable during the relevant thermal year;

AQ = Aggregate Net Unloaded LNG ( $m^3$ ) during the relevant thermal year,

then Formula 2 shall apply.

#### Formula 2

$$SVC(€) = 4.5 * [(PQ - AQ) - (0.10 * PQ)]$$

Where:

SVC(€) = Scheduling Variance Charge (Euro).

### **1.5.16.6 Penalties for deviations related to the spot regasification service.**

#### **Panigaglia.**

#### **Penalties for deviations between volume unloaded and volume programmed.**

If the LNG unloaded by the user is different as regard to the value expected to be unloaded, the user will have to pay:

<sup>111</sup> "Net Unloaded LNG" means, following completion of unloading, the quantity of LNG that has been unloaded from an LNG tanker less any quantity of LNG corresponding to the quantity of gas that has been transferred back to such LNG Tanker from the terminal via the vapour return line in order to facilitate the unloading. ["GNL Scaricato Netto" in the Italian text]





- a. If the LNG unloaded is lower than the value expected to be unloaded:
  - i. If the difference is greater than the 10%: the variable compensation applied on the LNG unloaded and a compensation equal to the 4,5 €/m<sup>3</sup> multiplied for the difference between the above mentioned variance and the 10% of the LNG programmed for unloading, in addition to the compensation calculated on the LNG programmed for unloading;
  - ii. If the difference is lower than 10%: the variable compensation applied on the LNG unloaded, in addition to the compensation calculated on the LNG programmed for unloading.
- b. If the LNG unloaded is greater than the value expected to be unloaded:
  - i. In addition to the compensations of the spot regasification service calculated on the volume of LNG unloaded, a compensation equal to 10% of C<sub>qs</sub> applied on the above mentioned variance.

### **Adriatic LNG.**

Should the Net Unloaded LNG by a spot user be lower than the volume of LNG corresponding to the spot capacity subscribed under the relevant spot capacity agreement by more than ten percent 10%, the user shall pay a scheduling variance charge. Such charge shall be equal to 4.5 €/m<sup>3</sup> of LNG multiplied by the difference between the variance and 10% of the volume of LNG subscribed under the spot capacity agreement.

Should the Net Unloaded LNG of a spot user be higher by more than 10% of the volume of LNG corresponding to the spot capacity subscribed under the relevant spot capacity agreement such spot user shall pay, in addition to the regasification service charge payable on the additional volumes of Net Unloaded LNG, a charge equal to 10% of the C<sub>qs</sub>, calculated on such difference.

## **1.5.17 Financial Guarantees.**

The financial guarantees the Panigaglia terminal user is requested to provide to access the terminal are described and can be found in the Regasification Code at Chapter 7.

The financial guarantees the ALNG terminal user is requested to provide to access the Terminal are described in the Regasification Code at section III.10.

### **1.5.17.1 Financial guarantees of the continuous service**

#### **Panigaglia.**

##### **Financial guarantees to cover the obligations of the re-gasification contract**

To cover the payment related to the obligations of the regasification contract, the terminal user has to be in possession of a credit rating equal to or greater than Baa3 (Moody's) or BBB (Standard & Poors). In absence of a credit rating, a financial guarantee for an amount equal to one third of the maximum payment obligations established in the contract (calculated as the sum of the payment obligation for the LNG quantities unloaded) shall be presented.

##### **Financial guarantees to cover the obligations deriving from the provision of the service**



According to the Regasification Code, each terminal user shall deposit a financial guarantee to cover the obligations from the provision of the service for an amount up to 3% of the annual payment obligations established in the contract (calculated as the sum of the payment obligation for the LNG quantities unloaded).

*Financial guarantees to cover the missed subscription of the regasification contract*

To cover the payment of the penalty for the missed subscription of the regasification contract for the indicated quantity obligations, the terminal user shall deposit a financial guarantee for an amount equal to 20% of the maximum payment obligations established in the contract (calculated as the sum of the payment obligation for the LNG quantities unloaded).

**Adriatic LNG.**

To cover the payment related to the obligations of the regasification contract, the terminal user has to be in possession of a credit rating equal to or greater than Baa3 (Moody's) or BBB (Standard & Poors).

**1.5.17.2 Financial guarantees of the spot service**

**Panigaglia.**

To cover the payment related to the obligations of the regasification contract and the provision of the service, the terminal user has to be in possession of a credit rating equal to or greater than Baa3 (Moody's) or BBB (Standard & Poors). In absence of a credit rating, a financial guarantee for an amount equal to one third plus 3% of the maximum payment obligations established in the contract (calculated as the sum of the payment obligation for the LNG quantities unloaded).

**Adriatic LNG.**

To cover the payment related to the obligations of the regasification contract, the terminal user has to be in possession of a credit rating equal to or greater than Baa3 (Moody's) or BBB (Standard & Poors).

**1.5.18 Secondary market.**

**Panigaglia.**

The provisions for capacity trading are described at Chapter 8 of the Regasification Code. Terminal users can exchange the regasification capacity they hold, amongst themselves or with GNL Italia, according to the following procedures.

*Capacity exchanges between two LNG terminal users.*

The users interested in the regasification capacity exchange have to send to GNL Italia the respective requests with the following information:

- The capacity expressed in  $m^3_{liq}$  and the exchange period (month/s);
- The daily regasification capacity related to the exchange dates;
- Number of unloadings.



The requests have to be received by GNL Italia within:

- The eight working day preceding the start of the thermal year for yearly capacity exchange;
- The eight working day preceding the start of the month which the exchange is referred, in the case of exchanges requested during the thermal year.

Within the working day following to the above mentioned deadline, GNL Italia will communicate the acceptance/rejection of the transaction to the LNG terminal users involved.

Capacity exchanges between LNG terminal user and GNL Italia.

The LNG terminal user can exchange his regasification capacity with GNL Italia sending a request with the following information:

- The capacity expressed in  $m^3_{liq}$  related to the following month which the transaction is referred;
- The daily regasification capacity related to the exchange dates;
- Number of unloadings.

The request has to be received by GNL Italia within the fifth working day of the preceding month which the exchange is referred. Afterwards GNL Italia will communicate, within the ninth working day preceding the start of the month which the exchange is referred, the acceptance/rejection of the transaction to the LNG terminal user involved.

In addition the LNG terminal user can release to GNL Italia, for the following capacity booking procedure, the regasification capacity it doesn't need. If the released capacity isn't booked during capacity booking procedure, it will return on the LNG terminal user availability.

**Adriatic LNG.**

The provisions for capacity trading are described at section III.12 "Exchanges of Subscribed Capacity" of the Regasification Code

Exchanges of subscribed "Non-Foundation Capacity".

Any "Non-Foundation Capacity" user (the "First Exchanging User") shall have the right to exchange any part of its subscribed "Non-Foundation Capacity" with corresponding subscribed "Non-Foundation Capacity" of another user (the "Second Exchanging User") provided that the exchange is performed in accordance with the provisions described below.

In order to effect an exchange of "Non-Foundation Capacity", both the First Exchanging User and the Second Exchanging User shall send to the TO their respective requests for acceptance of exchange (using the form published by the TO on the Electronic Communication System), indicating:

- the volume of LNG, expressed in cubic metres of LNG with an indicative energy value in MJ;



- the relevant unloading slots, with an indication of the specific dates if the exchange relates to unloading slots in relation to which the Annual Unloading Schedule or the Three Month Schedule have already been provided by the TO; and
- the number of berthings;

which they propose to exchange.

The requests for acceptance of exchange shall be received by the TO:

- in the event of exchanges of subscribed “Non-Foundation Capacity” relating to one or more entire thermal years, by the 8<sup>th</sup> business day prior to the beginning of the earliest thermal year involved; and
- in the event of exchanges of subscribed “Non-Foundation Capacity” requested during the course of a thermal year, by the 8<sup>th</sup> business day preceding the beginning of the earliest month involved.

The requests for acceptance of exchange shall be irrevocable and shall contain a statement pursuant to which the First Exchanging User and the Second Exchanging User acknowledge that the exchange shall become effective only upon acceptance by the TO. The TO shall be entitled to reject a request for acceptance of exchange in the following cases:

- either the request of the First Exchanging User or the request of Second Exchanging User is not received by the TO within the deadlines indicated above;
- the requests for acceptance of exchange of the First Exchanging User and of the Second Exchanging User contain information which are contradictory and/or incomplete;
- the First Exchanging User or Second Exchanging User does not hold the subscribed “Non-Foundation Capacity” that is the object of the exchange according to their respective “Non-Foundation Capacity” agreements;
- the First Exchanging User and the Second Exchanging User do not fulfil all the service conditions with respect to the portions of subscribed “Non-Foundation Capacity” being exchanged;
- at the date when the TO receives the requests for acceptance of exchange, the First Exchanging User and/or the Second Exchanging User are in breach of any of the provisions of the Access Code which would entitle the TO to terminate the relevant “Non-Foundation Capacity Agreement”.

Within two business days from the expiry of the deadlines indicated above, the TO shall communicate to the First Exchanging User and the Second Exchanging User:

- the acceptance of the proposed exchange of subscribed “Non-Foundation Capacity” by returning a copy of the requests duly signed for acceptance by the TO; or, in the event that one or more grounds for rejection set forth above occur,
- the refusal of the request for acceptance of exchange, with an indication of the grounds for the non acceptance.



Upon acceptance of a proposed exchange by the TO, the subscribed capacity of the First Exchanging User and of the Second Exchanging User under the respective “Non-Foundation Capacity” agreements and, if applicable, the term of any such “Non-Foundation Capacity” agreements shall be considered amended in accordance with the information provided by such Parties.

*Exchanges and transfers of subscribed “Foundation Capacity”.*

A “Foundation Capacity” user shall have the right to transfer (“*cedere*”) to or exchange with other persons (“*soggetti*”) any portion of the “Foundation Capacity” subscribed by it under any capacity agreement to which it is a party provided that:

- the transfer or exchange complies with the criteria referred to under article 2, subsection 3, letter k) of the MAP decree of 11 April 2006<sup>112</sup>;
- the person to which the subscribed “Foundation Capacity” is being transferred:
  - provides the information and statements to be included in access requests;
  - provides the documentation to accompany access requests;
  - fulfils the access conditions; and
- the “Foundation Capacity” user provides the TO with a copy of the authorisation by the MSE<sup>113</sup> to transfer the relevant subscribed “Foundation Capacity” pursuant to article 8 of the MAP decree of 11 April 2006, it being understood that such authorisation shall not be required in the event of “non systematic spot transfers of Foundation Capacity aimed at optimising the use of Terminal” (“*cessioni di capacità esentata spot di tipo non sistematico finalizzate all'utilizzo ottimale del Terminale*”).

### **1.5.19 Limitation in vessel size.**

The limitation in vessels size for Panigaglia is detailed in the Regasification Code at Chapter 2. The Panigaglia LNG terminal can accommodate LNG carriers with a maximum capacity of about 65,000 - 70,000 m<sup>3</sup>.

The Adriatic LNG terminal can accommodate LNG carriers with a maximum capacity of 152,000 m<sup>3</sup>

### **1.5.20 Force Majeure.**

**Panigaglia.**

The “Force Majeure” is intended as every event, action, fact or circumstance taking place in the LNG terminal, non-attributable to the TO that invokes it, such that it makes impossible, in all or part,

<sup>112</sup> MAP (Ministry of Productive Activities) decree of 11 April 2006, “Procedures for the granting of exemptions from the third party access to new interconnections with European natural gas transportation networks and to new regasification terminals, and to their expansions as well as for the acknowledgement of priority allocation for new transportation capacity constructed in Italy, in relation to new interconnection infrastructures with States not belonging to the European Union”;

<sup>113</sup> “MSE” means the Ministry for Economic Development, formerly the MAP.



to fulfil the contractual obligations of the TO as established in the Regasification Contract, and while such cause lasts, and that has not been possible to avoid through the continuous effort of a prudent and reasonable operator.

As a consequence the TO is released by any responsibility related to the tasks of the regasification contract.

It is not intended as "Force Majeure" every event, action, fact or circumstance taking place outside the LNG terminal.

In case of "Force Majeure" and while this cause lasts the regasification tariff is reduced proportionally to the reduction of the regasification service.

### **Adriatic LNG.**

This information is detailed at the Regasification Code section III.7.

Force Majeure means any event or circumstance beyond the reasonable control of the party claiming such Force Majeure, which could not be prevented by due care and reasonable expense, which has the effect of making performance by such party of its obligations under its capacity agreement, in whole or in part, impossible and/or unlawful ("Force Majeure" or "Force Majeure Event").

Force Majeure shall include the following:

- war (whether declared or undeclared), civil war, acts of terrorism, riot, civil disturbance, blockade, insurrection;
- acts of God, explosion, fire, flood, atmospheric disturbance, lightning, storm, typhoon, tornado, earthquake, landslide, soil erosion, subsidence, washout or epidemic;
- any change in a regulation or other applicable laws, regulations, administrative or judicial provisions or such like, or coming into effect of a new regulation or other applicable laws, regulations, administrative or judicial provisions or such like, excluding any that concern tax;
- any refusal, revocation, cancellation, or non-renewal of any authorisation, permit, licence and/or concession required by the affected party to perform its obligations under the relevant capacity agreement;
- loss of, damage to, or any failure of all or part of the terminal or of the grid;
- strikes including any national strike (*sciopero generale*), gas or energy sector strike (*sciopero di categoria*), or company strike (*sciopero aziendale*); and
- any condition or situation which presents an imminent threat of loss or damage to any property, or of danger to the life or health of any person.

### **1.5.21 Ship Approval Procedure at LNG terminal.**

#### **Panigaglia.**



According to the Regasification Code “Codice di Rigassificazione” chapter 6, the main steps the Ship Approval Procedure (SAP) shall follow are detailed above and all necessary information is available on the GNL Italia website ([www.gnlitalia.it](http://www.gnlitalia.it)).

#### 1. Ship Approval Procedure.

If a shipper desires to obtain from the TO the authorization to unload a LNG carrier that it is not yet included in the “*Elenco Navi metaniere*” (list of vessels authorized to access the LNG, available at GNL Italia website), all necessary information to carry out the technical appraisal and shall be submitted to the TO. In case of positive outcome of the procedure, TO shall arrange to carry out an unloading test. The conclusions will be communicated via fax from GNL Italia within and not beyond sixty days from the authorization date.

#### 2. Unloading Test.

The unloading test should be passed by any LNG carrier prior to its first berthing in the LNG Panigaglia terminal, and by all the LNG carriers that have made any modifications susceptible to modify the vessel compatibility after the last unloading made in the terminal.

A ship that must carry out an unloading test should be in advance at the La Spezia port, before beginning the mooring procedures to the LNG terminal, so that the TO can proceed with the revision of the documentation of LNG carrier.

After having carried out the aforesaid control of documentation, if the LNG carrier cannot make the unloading test the criteria established in the Regasification Code at chapter 10, point 1.1 shall be applied, except the penalties due to unloading failure fulfilment.

If during the berthing, and before the finish of the unloading, some problems that can affect the workers, unloading operations or the structure security arise, the LNG carrier should leave immediately.

Within ten days from the unloading test, TO shall communicate via fax the result:

- positive: the LNG carrier will be included in the list of vessels authorized to access the LNG, or
- negative: the possible solutions the shipper should adopt to carry out another unloading test are indicated.

#### 3. Authorization and license.

All the LNG carriers that moors in the LNG terminal, in accordance with the International Ship and Port Facility Security Code, shall own the ISSC (International Ship Security Certificate) issued by the competent authority.

LNG carriers authorized to moor in the terminal must present, when TO requested, the Ship Inspection Report issued by an accredit inspector within twelve months previous the unloading, in order to verify that the contained information meets the minimum security requirements.

#### 4. Revoke of the mooring authorization.





TO can revoke the mooring authorization whenever the LNG carrier does not meet the security requirements or has modify the vessel so that the compatibility between the LNG terminal and the carrier is no more guarantee.

Moreover, TO can also revoke the mooring authorization if it is necessary to realize any modifications to the reception structures so the LNG carrier is no more compatible due to legislative provisions.

#### 5. Pre-requirement of the cargo system ("Calibration table").

The "Tables of Calibration" of the LNG carrier cargo and the measure system must be accepted by the custom authorities.

If the "Tables of Calibration" and the measure system of the cargo have not been accepted or have been revoked, the LNG carrier mooring authorization is automatically revoked by TO.

#### Adriatic LNG.

The Ship Approval Procedure at Adriatic LNG terminal is detailed at the document "LNG Carrier Vetting Procedure Terminale GNL Adriatico S.r.l." available at Adriatic LNG website. The procedure described below is taken from the version dated on 15 june 2009, revision 1.0, of the referred document.

Each LNG Carrier proposed for unloading at the ALNG terminal undergoes a quality assurance (vessel vetting) process. This comprises of an assessment of the LNG Carrier plus an assessment of the carrier's operator. The process steps are detailed below:

#### 1. Step 1 – Preparatory Information.

The main objective of this step is to gather all necessary material (for example, information, data, drawings) to conduct the ship/shore interface study (compatibility study).

When ALNG receives a request to unload LNG at the Terminal from a LNG Carrier not listed on the ALNG Acceptable Vessel/Terminal Compatibility List, ALNG sends the documents described in the following table to the requestor.

- Society of International Gas Terminal Operators (SIGTTO) Ship/Shore Questionnaire for Compatibility of Liquefied Gas Ships with Loading/Unloading Jetties. This document provides details on mooring and manifold arrangements, loading arm and gangway data, and other Terminal aspects required to conduct a Ship/Shore compatibility study.
- Terminal Regulations and Information Manual. This document includes information and procedures (shore part) pertaining to safety and operational requirements at the Terminal that is necessary to, for example but not limited to, fill out the International Maritime Organization (IMO) checklist at the Unloading Port.
- Cargo Handling Manual This document describes the procedures for cargo handling.

Note: Users must retrieve port information related to marine aspects for access and berthing at the Terminal directly from the Port Authority in Chioggia (Italy).





Listed below is the information that the user must send to ALNG before the Ship/Shore Interface Study is performed as part of the approval procedure application associated with user's application:

- Ship/Shore Interface Plan This document, if available (for example, new ships contain this item), is provided as per the *SIGTTO Paper #5*, "Communication Necessary for Matching Ship to Berth." If it is not available, the user submits the following documents:
  - General Arrangement
  - Manifold layout
  - Mooring arrangements
  - Parallel body Flat body line (parallel mid body) of the LNG Carrier drawing
  - Details of the landing area for the shore gangway
- SIGTTO Ship/Shore Questionnaire. The user must submit a completed SIGTTO Ship/Shore Questionnaire for Compatibility of Liquefied Gas Ships with Loading/Unloading Jetties.
- Ship Questionnaire. The questionnaire is completed according to the SIGTTO form "Ship Information questionnaire for Gas Carrier" 1998, 2nd edition. Alternatively latest copy of OCIMF Vessel Particular Questionnaire (VPQ) may be provided.
- Certified Custody Transfer Measurement System description. Description of the LNG Carrier Custody transfer system and certificate of accuracy.
- Tank Gauge Tables User must provide approved copies.
- Ship Operational and Safety Procedures while Alongside. Procedures pertaining to the International Safety Management (ISM) code addresses:
  - Mooring
  - Cargo transfer
  - Fire fighting

Complete the information for the ship part necessary to complete the IMO checklist.

- List of Survey Status. This is issued by the Classification Society for an LNG Carrier. Inspection Reports The user must provide the latest copies of these inspection reports:
  - Classification Society
  - Port State Control (Paris MoU).
- Certificate of Entry. The Certificate of Entry must be with a registered Protection & Indemnity (P&I) Club.



- Departure Plan (Membrane Vessels). A safe condition departure plan in event LNG Carrier is required to depart the Terminal prior to cargo completion<sup>114</sup>.

## 2. Step 2 - Ship/Shore Interface Study.

In order to verify both the technical compatibility and the operational aspects, it is important to determine that both the LNG Carrier and ALNG acknowledge each other's operating procedures. This is possible after reviewing of all documents exchanged under the step 1.

After examining the information received in the previous step, ALNG performs an interface study to establish technical acceptability of the LNG carrier at the terminal. The interface study conclusions are provided to the user or the user's designated representative.

In particular, ALNG checks the following minimum criteria:

- Physical and technical compatibility with the terminal dimensions
- Nautical and safety aspects
- Compliance with terminal communication link and ESD system
- Certification of gauge tables<sup>115</sup> covering all cargo tanks in the LNG carrier and Custody Transfer Measurement System<sup>116</sup>.

The TO prepares a proposed mooring arrangement and mooring calculation.

Upon receiving the mooring arrangement, ALNG issues, for operational purposes only, a drawing of the approved mooring arrangement for the specific LNG Carrier.

Following the completion of the document analysis, a preliminary ship/shore Interface meeting may be called. This is attended by representatives of the LNG carrier owner, charterer and terminal, in order to examine berth, ship-shore Interfaces, safety and communications items in relation to the LNG carrier and the terminal.

The minimum agenda of the Preliminary Meeting is:

- Review of Interface Study conclusions.
- Review all parameters of the Ship Shore Safety Plan completion. This includes the documents dealing with safety and security, such as fire fighting, cargo transfer, and mooring. All this is checked and, if necessary, adapted.
- Cargo tank custody transfer management

<sup>114</sup> Reference: Terminal Regulations and Information Booklet.

<sup>115</sup> Certification of gauge tables are approved by the relevant authorities and by ALNG before the first unloading. This certification must be carried out by a qualified organization (for example, the Japanese NKKK).

<sup>116</sup> Custody Transfer Measurement system specifications and methods must comply with the latest recommendations of the GIIGNL LNG Custody Transfer Handbook.



- Agent assignment and tasks.

Any LNG Carrier that successfully completes the two previous steps is considered a “compatibility pre-approved” LNG Carrier for its initial voyage to the Unloading Port, subject to a successful vetting analysis

### 3. Step 3 - Ship Safety Inspections.

Introduction ALNG may require, at any time and at its own discretion, an LNG carrier inspection prior to the first berthing. This inspection is performed by an ALNG endorsed inspector and is done according to the inspection guidelines accepted by ALNG.

These inspection guidelines are consistent with the Oil Companies International Marine Forum (OCIMF) inspection guidelines and SIGTTOs latest recommendations for crew safety standard and training on LNG carriers.

The following table describes the ship safety inspection process.

**Table 37: Adriatic LNG safety inspection process.**

Step	Who does it	Action
1.	Inspector	The Inspector hands over a list of remarks and/or deficiencies, arising from such inspection, if any, to the Master of the LNG Carrier at an exit meeting held onboard the LNG Carrier.
2.	ALNG	Sends the list of remarks and/or deficiencies to the user.
3.	User	The user forwards them to the LNG Carrier Operator and/or the Charterer.
4.	ALNG	Upon receipt and review of the implementations of corrective actions, ALNG decides whether to receive the LNG Carrier at the terminal.
5.	User	The user promptly notifies or procures that ALNG is notified if any of its LNG Carriers, pre-approved or approved according to this vetting procedure, have been rejected or have failed a ship safety inspection at another LNG terminal.
6.	User	The user provides ALNG with all relevant technical details and information in that respect.

**Source:** *LNG Carrier Vetting Procedures Terminale GNL Adriatico S.r.L.. 15<sup>th</sup> June 2009, revision 1.0.*

### 4. Step 4 - Unloading Test and Ship Compatibility Approval.

Depending on the outcome of the previous steps, an LNG Carrier is deemed either technically approved or approved pending corrective action, for a single cargo unloading, subject to successful voyage screening which constitutes the unloading test. Otherwise, the LNG carrier is rejected.

If the LNG carrier is approved pursuant to steps 1, 2 and 3, a single cargo unloading is permitted and conducted.



During unloading, the LNG carrier undergoes the unloading test. This determines whether the LNG carrier crew understands the terminal interface and establishes ship/shore compatibility.

Before unloading the LNG cargo, a pre-discharge meeting is held on-board. During this meeting, the following occurs:

- A review of the terminal regulations and information manual is completed in order to have a understanding of the terminal requirements, including but not limited to:
  - Mooring, piloting and towing; and
  - Fire fighting; and
  - Cargo transfer; and
  - Cargo tank management; and
  - Unloading communication; and
  - Operational procedures
- A terminal regulations and information manual is signed by the lng carrier's master and ALNGs representative duly authorized to fulfill this function.
- The LNG carrier's master and alngs representative duly authorized to fulfil this function checks and signs the "IMO Ship/Shore safety checklist and guidelines"

Upon completion of these actions, the LNG cargo delivery can take place.

Depending on the findings of the unloading test, ALNG determines if an LNG carrier is technically compatible and suitable for unloading at the terminal. ALNG advises if:

- The LNG carrier is approved for a 36 months approval period, without being subjected to further unloading tests.
- The LNG carrier is accepted in future for another unloading test pending implementation of corrective action to the LNG carrier provided by ALNG.
- The LNG carrier is not accepted in future at the ALNG terminal (without completion of the full approval procedure).

Any approval or conditions is based upon the LNG carrier's state at the moment of the approval or condition definition. In case of change in the commercial, technical capabilities or specification, the LNG carrier shall, as soon as practical, notify the change to ALNG. Based on the change assessment it is ALNG option to review its approval or condition.

##### 5. Step 5 - LNG Carrier Compatibility Approval Follow-Up.

Before and during each call at the terminal, the user must provide timely assistance to ALNG, to clarify and solve any urgent issues that arise before or during each call of one of user's LNG carriers.



The user must keep ALNG informed of any modifications to the LNG carrier, or any changes in its condition or maintenance status related to technical, safety and/or managerial issues. Based on these modifications, ALNG assesses if the LNG carrier requires a new approval.

ALNG may require additional safety and technical inspections, in order to check the continued compliance of the LNG carrier with safety and operational requirements of the terminal. These inspections, at ALNG option, may occur during the berthing time or at any other time and place.

### **1.5.22 Standard contracts.**

#### **Panigaglia.**

The Regasification Code contains all the contractual conditions for the access to and for the supply the regasification service, which is written on the basis of the criteria set by the Regulator. The contractual conditions of the Network Code are automatically accepted by the counterparties by signing the standard contract.

The standard contract is available at GNL Italia website.

#### **Adriatic LNG.**

The Access Code for the Offshore Regasification Terminal of Terminale GNL Adriatico S.r.l. contains all the contraction conditions to access to the LNG terminal taking into account article 24 of the Decree which requires that access to LNG terminals shall be regulated by an access code issued by the operating companies in compliance with criteria set and approved by the AEEG.

Besides, the Access Code contains in its Annex (a) the standard contracts to any type of capacity agreement (i.e. "Foundation Capacity" and "Non-Foundation Capacity").

### **1.5.23 TPA tariffs.**

The TPA tariff is calculated according to the next formula:

$$TL = Cqs * QS + Cna * NA + (CVL + CVL^P + CVL^U) * E$$

Where:

- QS: is the contractual LNG quantities unloadable during the thermal yaear, expressed in m<sup>3</sup><sub>liq</sub>/year.
- Cqs: is the unitary compensation associated to the contractual quantities of LNG, expressed in €/m<sup>3</sup><sub>liq</sub>/year .
- NA: is the yearly number of unloadings foreseen to be booked.
- Cna: is the unitary compensation associated to the unloading foreseen to be booked, expressed in €/unloading.
- E: is the energy quantity associated to the regasified LNG volumes, expressed in GJ/year.
- CVL: is the variable unitary compensation for the energy associated to the regasified volumes, expressed in €/GJ.



- $CVL^P$ : is the integrative variable unitary compensation for the energy associated to the regasified volumes (net after consumptions and losses), expressed in €/GJ.
- $CVL^U$ : is the integrative variable unitary compensation for the LNG terminal consumption and losses, expressed in €/GJ. This term only applies to Panigaglia LNG terminal.

The TPA tariff of the spot service is calculated according to the next formula:

$$TL^{SPOT} = \alpha * Cqs * QS + Cna * NA + (CVL + CVL^P + CVL^U) * E$$

The term  $\alpha$  is a corrective coefficient for consumptions and losses, applied to the contractual quantities. This coefficient for the third regulated period (from 2008 to 2013) is set at 0.7.

On August 6<sup>th</sup> 2008, the Autorità published at the Delibera ARG 118/08 the tariff proposal for the thermal year 2008-2009, which is available at the Autorità and at GNL Italia websites. Not only does this proposal include the tariff values for Panigaglia LNG terminal, but for the first time for Adriatic LNG terminal. However, the TPA tariffs for Adriatic LNG have not been applied as the terminal did not operate yet during the thermal year 2008-2009

On 28<sup>th</sup> July 2009, the Autorità published at the Delibera ARG 102/09<sup>117</sup> the tariff proposal for the thermal year 2009-2010, which is available at the Autorità's website. This proposal included the tariff values for Panigaglia LNG terminal and Adriatic LNG terminal, which its start up was planned for 2009.

On 19<sup>th</sup> July 2010, the Autorità published at the Delibera ARG 108/10<sup>118</sup> the tariff proposal for the thermal year 2010-2011, which is available at the Autorità's website. This proposal included the tariff values for Panigaglia LNG terminal and Adriatic LNG terminal. This tariffs proposal also include a new transitory term  $CM^G$  for the thermal year 2010-2011 which refers to the service performed by measuring the gas.

### **Panigaglia.**

The next tables summarise the values for both the continuous and the spot service at Panigaglia LNG terminal:

<sup>117</sup> Delibera ARG/gas 102/09, "Approvazione delle proposte tariffarie per il servizio di rigassificazione relative all'anno termico 2009-2010 per le società Gnl Italia S.p.A. e Terminale GNL Adriatico S.r.l., in attuazione della deliberazione dell'Autorità per l'energia elettrica e il gas 7 luglio 2008, ARG/gas 92/08"

Available at: <http://www.autorita.energia.it/it/docs/09/102-09arg.htm>

<sup>118</sup> Delibera ARG/gas 108/10, "Approvazione della proposta tariffaria per il servizio di rigassificazione relative all'anno termico 2010-2011 per la società Gnl Italia S.p.A. e determinazione della tariffa di rigassificazione per la società Terminale Gnl Adriatico S.r.l., in attuazione della deliberazione dell'Autorità per l'energia elettrica e il gas 7 luglio 2008, ARG/gas 92/08"

Available at: <http://www.autorita.energia.it/allegati/docs/10/108-10argtab.pdf>


**Table 38: Regasification tariffs for the continuous service at Panigaglia LNG terminal for the thermal year 2010-2011.**

Cqs (€/cm liq)	4.943744
Cna (€/unloading)	33,568.637014
CVL (€/GJ)	0.027305
CVL <sup>P</sup> (€/GJ)	0.000147
CVL <sup>U</sup> (€/GJ)	0.003632

Source: *Delibera ARG 108/10, table 1.*

**Table 39: Regasification tariffs for the spot service at Panigaglia LNG terminal for the thermal year 2010-2011.**

Cqs (€/cm liq)	3.460621
Cna (€/unloading)	33,568.637014
CVL (€/GJ)	0.027305
CVL <sup>P</sup> (€/GJ)	0.000147
CVL <sup>U</sup> (€/GJ)	0.003632

Source: *Delibera ARG 108/10, table 2.*

### **Adriatic LNG.**

On 22<sup>nd</sup> December 2008, the AEEG published Delibera ARG/gas 198/08<sup>119</sup> extending the time limit for the conclusion of the procedures pursuant to Delibera ARG/gas 118/08 of 6<sup>th</sup> August 2008 for the approval of tariff proposals for the regasification service for the thermal year 2008-2009 of the company Terminale GNL Adriatico S.r.l. The time limit for the approval of the tariffs of the company Terminale GNL Adriatico S.r.l. was postponed until 31<sup>st</sup> March 2009 because further analysis of operating costs was required.

On 9<sup>th</sup> March 2009, the AEEG approved, by way of implementation of AEEG Delibera ARG/Gas 118/08 of 6<sup>th</sup> August 2008, of the tariff proposal for the regasification service for thermal year 2008-2009 put forward by Terminale GNL Adriatico S.r.l. The Delibera ARG/gas 28/09<sup>120</sup> confirmed the tariff proposals for thermal year 2008/2009 put forward by Terminale GNL Adriatico included in Tables 3 and 4 attached to Delibera ARG/gas 118/08. The AEEG indicated that it further envisaged

<sup>119</sup> Delibera ARG/gas 198/08, "Proroga del termine di conclusione del procedimento previsto dalla deliberazione 6 agosto 2008 - ARG/gas 118/08, per l'approvazione della proposta tariffaria per il servizio di rigassificazione relativa all'anno termico 2008-2009 della società Terminale GNL Adriatico S.r.l."

Available at: <http://www.autorita.energia.it/it/docs/08/198-08arg.htm>

<sup>120</sup> Delibera ARG/gas 28/09, "Approvazione della proposta tariffaria per il servizio di rigassificazione relativa all'anno termico 2008-2009 della società Terminale GNL Adriatico S.r.l. in attuazione della deliberazione dell'Autorità per l'energia elettrica e il gas 6 agosto 2008, ARG/Gas 118/08"

Available at: <http://www.autorita.energia.it/it/docs/09/028-09arg.htm>





that, for the purpose of giving due recognition to the complexities involved in commissioning the terminal, it would exclude from the calculation of operational costs for the third thermal year of the regulatory period the appointment of personnel for commissioning as well as the higher expenses incurred by the use of temporary support staff.

On 19<sup>th</sup> March 2009, Adriatic LNG published a note on the “Calculation methodology of the tariff for the regasification service for the third regulatory period pursuant to the Resolution AEEG ARG/gas 92/08 of 07 July 2008 Unit Charge Applied by Adriatic LNG for the Thermal Year 2008-2009”<sup>121</sup> claiming that the terms Cqs, Cna and CVL had been calculated by the AEEG utilising a load factor equal to 0.7.

Find below the the tariff proposal for the thermal year 2010-2011, which is available at the Authority’s website, published at the Delibera ARG 108/10<sup>118</sup> previously mentioned.

**Table 40: Regasification tariffs for the continuous service at Adriatic LNG terminal for thermal year 2010-2011.**

Cqs (€/cm liq)	36.036125
Cna (€/unloading)	62 1999.991456
CVL (€/GJ)	0.204820

*Source: Delibera ARG 108/10, table 3.*

**Table 41: Regasification tariffs for the spot service at Adriatic LNG terminal the thermal year 2010-2011.**

Cqs (€/cm liq)	25.225287
Cna (€/unloading)	621999.991459
CVL (€/GJ)	0.204820

*Source: Delibera ARG 108/10, table 4.*

Adriatic LNG publishes the tariffs for the continuing regasification service for the use of the terminal for the period October 1, 2010 through September 30, 2011 in its website<sup>122</sup>.

<sup>121</sup> Available at:

[http://www.adriaticlng.com/wps/portal/!ut/p/c5/04\\_SB8K8xLLM9MSSzPy8xBz9CP0os3hzJ193PydvlwMDV2cTA08LdwNvMxcLQwMzE\\_1wkA7cKgLNIfGOICjgb6fR35uqn5wap5-pH6UOW67zPUjc1LTE5Mr9Quys9Mc8x0VAdDsD6g/dl3/d3/L0IJSkIna2shL0ICakFBQ3IBQkV/SQ0IBISEvWUZOQzFOS18yN3chLzdFN0JNR05CSzlwMEVDNDBJOEcwSzZEODEwNjc/?WCM\\_PORTLET=PC\\_7\\_7BMGNBK200EC40I8G0K6D81067\\_WCM&WCM\\_GLOBAL\\_CONTEXT=/wps/wcm/connect/web2/site/en/Business/Regasification+service/Thermal+year+2008+09](http://www.adriaticlng.com/wps/portal/!ut/p/c5/04_SB8K8xLLM9MSSzPy8xBz9CP0os3hzJ193PydvlwMDV2cTA08LdwNvMxcLQwMzE_1wkA7cKgLNIfGOICjgb6fR35uqn5wap5-pH6UOW67zPUjc1LTE5Mr9Quys9Mc8x0VAdDsD6g/dl3/d3/L0IJSkIna2shL0ICakFBQ3IBQkV/SQ0IBISEvWUZOQzFOS18yN3chLzdFN0JNR05CSzlwMEVDNDBJOEcwSzZEODEwNjc/?WCM_PORTLET=PC_7_7BMGNBK200EC40I8G0K6D81067_WCM&WCM_GLOBAL_CONTEXT=/wps/wcm/connect/web2/site/en/Business/Regasification+service/Thermal+year+2008+09)

<sup>122</sup> [http://www.adriaticlng.com/wps/wcm/connect/fc823180443cafb68b96df3a35ca4cf0/Esempio+numerico+Tariffe+di+rigassificazione+servizio+continuativo\\_ENG.pdf?MOD=AJPERES](http://www.adriaticlng.com/wps/wcm/connect/fc823180443cafb68b96df3a35ca4cf0/Esempio+numerico+Tariffe+di+rigassificazione+servizio+continuativo_ENG.pdf?MOD=AJPERES)





**Table 42: Regasification tariffs for the continuous service at Adriatic LNG terminal for thermal year 2010-2011.**

Cqs (€/cm liq)	26.552934
Cna (€/unloading)	458724.993701
CVL (€/GJ)	0.150920

**Source:** *Adriatic LNG website.*

The above mentioned Cqs, Cna and CVL have been calculated by applying a load factor equal to 95 % ("Applied Load Factor") to the regasification tariff defined in accordance to the criteria defined under Resolution AEEG ARG/Gas 92/08 dated 7<sup>th</sup> July 2008. For the thermal year 2010-2011, this implies a reduction with respect to the maximum regasification tariff applicable under the AEEG ARG/gas 108/10 dated 21 July 2010 which utilized a load factor equal to 0,7. In the event that the actual load factor defined by Resolution AEEG ARG/gas 118/08 shall be modified by the AEEG during the thermal year 2010-2011, the above mentioned Cqs, Cna and CVL will be revised pursuant to the following criteria:

- i. Load Factor below 0,7: no change
- ii. Potential increase of load factor from 0,7 up to the "Applied Load Factor": no change
- iii. Potential increase of the LF above the "Applied Load Factor": the revised load factor will be used

Without prejudice to what is foreseen below, the above mentioned Applied Load Factor (eventually revised pursuant to (iii) above) will be applied, always considering the criteria defined in resolution AEEG ARG/Gas 92/08, for the whole current regulatory period 1<sup>st</sup> October 2008 – 30<sup>th</sup> September 2012 (Third Regulatory Period). Accordingly, unless urgent changes to the applicable regulation occur, the Cqs, the Cna and the CVL applicable for the 2011-2012 will be defined by the TO, once the maximum regasification tariff is approved by AEEG for the above mentioned thermal year, using the Applied Load Factor established for the thermal year 2008-2009 in accordance with the criteria defined in the AEEG Resolution ARG/Gas 92/08.

In the event that the load factor defined by AEEG for one or more thermal years following 2010-2011 thermal year would result above the Applied Load Factor (even as revised pursuant to the preceeding (iii)), the applicable Cqs, Cna and CVL shall be revised, only for the relevant thermal year, by applying the greater load factor defined by AEEG. It is understood that the above mentioned process will be applicable also in the event that the increase in the load factor above the Applied Load Factor occurs during a given thermal year.

After the Third regulatory period, the Cqs, the Cna and the CVL as defined by the AEEG will be applied.

Without prejudice to the regasification service contracts already signed, subject to the maximum tariff established by AEEG and to non-discriminatory and transparency obligations under the applicable law, such tariff may be modified by Terminale GNL Adriatico during the thermal year.



### **1.5.24 Capacity booking procedures.**

#### **1.5.24.1 Access requirement to the transportation service.**

Access to the transportation service is provided to all parties complying with the requirements hereunder described:

- a. have signed import contract/s of LNG;
- b. hold vessels authorized by GNL Italia to unload the LNG;
- c. be authorized by the Ministry for Economic Development to import gas, in case of importation of LNG produced in countries outside the European Community, or, as an alternative, declare the EU country in which the LNG is produced;
- d. financial guarantees, as described in the previous paragraph 1.1.16 “Financial Guarantees”.

#### **1.5.24.2 Capacity booking**

##### ***Panigaglia.***

The subjects complying with the previous requirements can participate to the following capacity booking processes:

##### **Capacity booking at the start of thermal year.**

It relates to the continuous regasification service, takes place in July. This process refers to the booking of:

- multi-annual capacity, up to a maximum duration of 5 year and starting from the second thermal year subsequent to the current. The capacity, expressed in m<sup>3</sup>liq/year of LNG, and the number of unloadings is booked.
- annual capacity for the following thermal year and the capacity, expressed in m<sup>3</sup>liq/year of LNG, and the number of unloadings is booked.

By the 1<sup>st</sup> of July of each thermal year the requests of regasification capacity have to be submitted to the TO giving indications of the capacity volume, expressed in m<sup>3</sup>liq/year and number of unloadings requested for each year with all the documentation proving the possession of the access requisites.

Subsequently the TO communicates to each subject the regasification capacity allocated according to the priorities described at paragraph 1.1.4. This process ends by 1<sup>st</sup> August of each year.

Afterwards the regasification contract is signed and the regasification capacity is defined, in terms of LNG volume and unloadings distribution along the following thermal year.

##### **Capacity booking during the thermal year.**

It relates to the continuous regasification service and takes places every month M-1, starting from the last working day of the month M-2. It's implemented for one or more than one month of the current thermal year and the capacity, expressed in m<sup>3</sup>liq/year of LNG, and the number of unloadings, are booked.



By the 5<sup>th</sup> working day preceding the end of the month M-1 the requests of regasification capacity have to be submitted to the TO with all the documentation proving the possession of the access requisites.

The regasification capacity is allocated to the requesting subjects according to the priorities described at paragraph 1.5.5.

Afterwards the regasification contract or the addendum to the existing regasification contract is signed by 7<sup>th</sup> working day preceding the start of the month M.

#### Spot Capacity booking.

It relates to the spot regasification service and takes place every month M, starting from the end of the month M-1. It's implemented for the reception of the spot unloadings available in month M and the regasification of the unloaded LNG quantities.

The requests shall be submitted to the TO by:

- 4<sup>th</sup> working day preceding the start of the month M for the unloadings within the first 5 days of the month;
- The last working day of the month preceding the start of the month M for the unloadings between 6<sup>th</sup> and 15<sup>th</sup> day of the month;
- 3<sup>rd</sup> working day of the month M for the unloadings between 6<sup>th</sup> and 15<sup>th</sup> day of the month.

The TO assigns the spot unloading, according to the dispositions described at paragraph 1.1.4, by the first working day following the term for submitting the requests.

The request together with the confirmation by the TO form the spot regasification contract.

Each spot unloading remains also available for request beyond the terms defined above till 3<sup>rd</sup> working day preceding the unloading date. The TO assigns the spot unloading by the first working day following the day of request to the first subject that has required it.

#### Adriatic LNG.

Any person meeting the requirements of the Access Code may become an applicant for available capacity by submitting an Access Request to the TO in accordance with the *Annual Subscription Process* or the *Monthly Subscription Process*, as set forth herein.

#### Capacity booking at the start of thermal year.

Available capacity for the immediately following and subsequent thermal years shall be awarded to applicants through the "Annual Subscription Process".



On the first 1<sup>st</sup> of June of each thermal year, the TO shall reclassify all unsubscribed “Foundation Capacity”<sup>123</sup> and all released “Foundation Capacity” for the immediately following thermal year as unsubscribed “Non-Foundation Capacity”<sup>124</sup> and released “Non-Foundation Capacity”, respectively. On such date the TO shall update the Electronic Communication System to show the accordingly revised available capacity.

All applicants shall submit access requests for available capacity by no later than 17:00 hours on the 1<sup>st</sup> of July. Any such access request shall be irrevocable until 23:59 hours on the 31<sup>st</sup> of July.

By the 11<sup>th</sup> of July the TO will issue with respect to each access request, an acceptance, a modified acceptance, an interim notice, or a notice of rejection.

Each applicant receiving a modified acceptance shall submit its acceptance to the TO no later than 17:00 hours, on the 24<sup>th</sup> of July. If such acceptance is not received by the TO by such date, the applicant shall be deemed to have rejected such modified acceptance.

By the 26<sup>th</sup> of July the TO shall notify each applicant that has accepted a modified acceptance that provides for a condition precedent whether such condition precedent has been met; and send to each applicant that has received an interim notice the acceptance or rejection of its access request.

Following completion of the Annual Subscription Process and by no later than the 27<sup>th</sup> of July, or the following business day if the 27<sup>th</sup> of July is not a business day, the TO shall update the Electronic Communication System accordingly.

The results of the Annual Subscription Process shall be communicated to the AEEG within 15 days from its completion.

Capacity booking during the thermal year.

Each month, a portion of available capacity shall be made available for subscription through the "Monthly Subscription Process". Such portion of available capacity shall be (a) all available capacity for the period commencing on the month immediately following the subscription month and ending on the 30<sup>th</sup> of September of the immediately following thermal year, in the case the subscription month is either August or September; or (b) all available capacity for the period commencing on the month immediately following the subscription month and ending on the 30<sup>th</sup> of September of the then current thermal year, in the case the subscription month is any month other than August or September.

All applicants shall submit access requests for such available capacity by no later than 17:00 hours on the 1<sup>st</sup> business day of the subscription month. Any such access request shall be irrevocable until 23:59 hours on the 10<sup>th</sup> business day of the subscription month.

<sup>123</sup> “Foundation Capacity” means the portion of Terminal Capacity that the Operating Company has the right to allocate to one or more Users pursuant to MAP decree dated 26 November 2004, which was issued in accordance with Law no. 239 of 23 August 2004 on “Reform of the energy sector and delegation to the Government for the reorganisation of the applicable energy laws and regulations”, and which was submitted by the MAP to the EU Commission on 3 December 2004 pursuant to article 22 of directive 2003/55/EC. [“Capacità Esentata” in the Italian text].

<sup>124</sup> “Non-Foundation Capacity” means Terminal Capacity less Foundation Capacity. [“Capacità Regolata” in the Italian text].



By the 3<sup>rd</sup> business day of the subscription month the TO will issue, with respect to each access request, an acceptance, a modified acceptance, an interim notice, or a notice of rejection, as the case may be.

Each applicant receiving a modified acceptance shall submit its acceptance to the TO no later than 17:00 hours on the 6<sup>th</sup> business day of the subscription month. If such acceptance is not received by the TO by such date and time, the applicant shall be deemed to have rejected such modified acceptance.

The TO shall award the then current available capacity in ranking order to the higher ranking applicant(s) that have accepted its (their) modified acceptances or have received interim notices and the available capacity shall be reduced accordingly.

By the 8<sup>th</sup> business day of the subscription month TO shall notify each applicant that has accepted a modified acceptance that provides for a condition precedent whether such condition precedent has been met; and send to each applicant that has received an interim notice the acceptance or rejection of its access request.

Following completion of the Monthly Subscription Process and by no later than the 9<sup>th</sup> business day of the subscription month the TO shall update the Electronic Communication System accordingly.

The results of the Monthly Subscription Process shall be communicated to the AEEG within the 15<sup>th</sup> day of the month following the month within which the Monthly Subscription Process has occurred.

#### Spot Capacity booking.

All applicants shall submit their access requests for spot capacity by no later than the due date and time for submission. Any such access request shall be irrevocable until 17:01 hours of the latest date by which the access request shall be accepted.

By 17:00 hours on the date, the TO will issue, with respect to each access request, an acceptance or a notice of rejection, as the case may be.

Save for the cases where the TO can use transportation capacity already booked under the grid access contract, the TO shall not be bound to accept an access request for spot capacity in the event that it has not been able to obtain the necessary transportation capacity by the TSO in order to redeliver the gas resulting from the LNG that would be unloaded by the applicant.

The results of the Spot Subscription Process shall be communicated to AEEG within the 15<sup>th</sup> day of the month following the month within which a Spot Subscription Process has occurred.



## 1.6 Portugal.

### 1.6.1 General overview.

The Sines LNG Terminal is located in Sines, Portugal. TPA to gas infrastructures, including the LNG terminal, is possible in Portugal from 1<sup>st</sup> of July (the beginning of the gas year) 2007.

**Map 5: Location of the Sines LNG terminal in Portugal.**



**Table 43: General information about the Sines LNG terminal.**

Portugal, Sines		REN Atlântico	
Start-up : Jan. 2004			
MAX. HOURLY CAPACITY		NOM. ANNUAL CAPACITY	
current : 900.000 m <sup>3</sup> (N)/h		current : 5,5 bn m <sup>3</sup> (N)/year	
by 2012 : 1.350.000 m <sup>3</sup> (N)/h		by 2012 : 8.3 (N)/year	
NOMINATION	Yes	ALLOCATION	Pro Rata
MATCHING	Yes	FLOW CONTROL	Yes
SCHEDULE	D/D	MEASUREMENT	Yes
(*) At the moment there is no TPA to the system.			
LNG STORAGE CAPACITY		current : 240.000 m <sup>3</sup> LNG	
		by 2012 : 390.000 m <sup>3</sup> LNG	
NUMBER OF TANKS		current : 2	
		by 2012 : 3	
MAX. SHIP CLASS SIZE REC.		215.000 m <sup>3</sup> LNG	
URL AUTHORISED SHIPS		www.ren.pt	
NUMBER OF JETTIES		1	
MIN. SEA DEPTH ALONG SIDE		13,5 m	
MAX. SEND OUT PRESSURE		84 bar	

Source: GLE's LNG map, June 2010.



### 1.6.2 *Unbundling requirements.*

Sines LNG terminal is 100% owned by REN Átlantico, company 100% owned by REN, a pure energy infrastructures operator.

The Portuguese natural gas market, as an emerging market, benefited for years from derogation under Directive 98/30/CE and Directive 2003/55/CE. Therefore the liberalization process in Portugal did not begin during 2006, 10 years after receiving the first gas supplies.

Decree-Law no. 30/2006<sup>125</sup>, published on the 15 February 2006, was adopted to transpose to the Portuguese domestic law Directive 2003/55/CE, concerning the common rules for the single natural gas market, thus materializing the strategic guidelines of the Council of Ministers' Resolution no. 169/2005, of the 24 October 2005. This decree-law established the new organizational framework of the National Natural Gas System, including the general principles governing the activities of natural gas reception, storage, transmission, distribution and supply, as well as the natural gas supplier-switching activity and market organization. It created the legal basis for activity unbundling, as mentioned in Directive 2003/55/CE.

Decree-Law no. 140/2006<sup>126</sup>, of the 26 July 2006, while implementing Decree-Law no. 30/2006, imposed unbundling in legal terms and in terms of assets of business operations in the natural gas sector. It also defined the legal regimes applicable to such activities, including the legal bases for the concessions.

According to Article 21 of Decree-Law 30/2006, REN Átlantico should be independent in legal terms from other entities engaged direct or through related companies in any other activities related to the natural gas sector. Furthermore, REN Átlantico cannot be part of social bodies or participate in the structure of companies that have assets in any other natural gas activity.

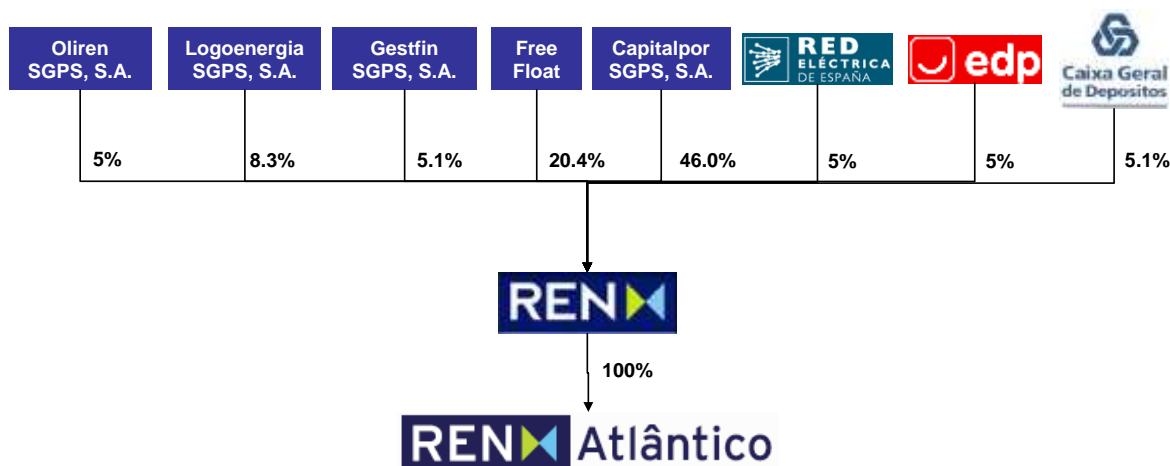
Besides, by law, no company or person is allowed to neither hold more than 10% of the shares of the TSO (REN). Moreover, companies that develop activities in the gas sector are not allowed to hold more than 5% of the share capital.

<sup>125</sup> [http://www.edpgassu.pt/getfile.php?xp=2&src=file93\\_pt&ext=pdf](http://www.edpgassu.pt/getfile.php?xp=2&src=file93_pt&ext=pdf)

<sup>126</sup> <http://www.iapmei.pt/iapmei-leg-03.php?lei=4697>



Figure 20: REN Atlântico shareholder structure.



Source: REN website and self-made.

### 1.6.3 Access rules.

ERSE ([www.erse.pt](http://www.erse.pt)) is the regulatory authority for the Portuguese energy market empowered by the Portuguese government.

The main conditions to access Sines LNG terminal are contained in the following documents:

- Metodologia dos estudos para a determinação da capacidade no terminal de GNL (Methodology to calculate the capacity at the LNG terminal)<sup>127</sup>.
- Mecanismo de atribuição da capacidade no terminal de GNL (Methodology to allocate capacity at the LNG terminal)<sup>128</sup>.
- Condições gerais do contrato de uso do terminal de GNL (General Conditions of the LNG terminal contract)<sup>129</sup>.

In July 2010 a new 3-year regulatory period started in Portugal. The new regulation was approved by Despacho nº 4878/2010<sup>130</sup>, published in the Official Gazzette (Diário da República, 2.ª Série) on 18<sup>th</sup> March 2010, after a public consultation launched by ERSE. ERSE issued several regulation documents from which we can highlight the following ones:

<sup>127</sup>

[http://www.erse.pt/pt/gasnatural/regulamentos/acessoasredesinfraestruturaseasinterligacoes/Documents/Metodologia\\_Estudo\\_Det\\_Capacidade\\_Terminal%20GNL.pdf](http://www.erse.pt/pt/gasnatural/regulamentos/acessoasredesinfraestruturaseasinterligacoes/Documents/Metodologia_Estudo_Det_Capacidade_Terminal%20GNL.pdf)

<sup>128</sup>

[http://www.erse.pt/pt/gasnatural/regulamentos/acessoasredesinfraestruturaseasinterligacoes/Documents/Mecanismo\\_Atrib\\_Capacidade\\_Terminal%20GNL.pdf](http://www.erse.pt/pt/gasnatural/regulamentos/acessoasredesinfraestruturaseasinterligacoes/Documents/Mecanismo_Atrib_Capacidade_Terminal%20GNL.pdf)

<sup>129</sup>

[http://www.erse.pt/pt/gasnatural/regulamentos/acessoasredesinfraestruturaseasinterligacoes/Documents/Condi%C3%A7%C3%B5es\\_Gerais\\_Contrato\\_Uso\\_Terminal%20GNL.pdf](http://www.erse.pt/pt/gasnatural/regulamentos/acessoasredesinfraestruturaseasinterligacoes/Documents/Condi%C3%A7%C3%B5es_Gerais_Contrato_Uso_Terminal%20GNL.pdf)

<sup>130</sup>

[http://www.erse.pt/pt/gasnatural/regulamentos/operacaodasinfra-estruturas/Documents/Despacho%204878\\_2010.pdf](http://www.erse.pt/pt/gasnatural/regulamentos/operacaodasinfra-estruturas/Documents/Despacho%204878_2010.pdf)





- Regulamento de Qualidade de Serviço (Service Quality Rules)<sup>131</sup>.
- Regulamento de Relações comerciais (Commercial Relations Rules)<sup>132</sup>.
- Regulamento de Acesso às Redes e Infra-estruturas (TPA Rules)<sup>133</sup>.
- Regulamento de Operação das Infra-Estruturas (Facilities Operation Rules)<sup>134</sup>.
- Regulamento Tarifário do Sector do Gás Natural<sup>135</sup>.
- Tarifas e Preços para o Ano Gás 2010-2011<sup>136</sup> (Tariffs for 2010-2011 Gas Year).

The nominated capacity used according to the contracts celebrated by the Terminal User and his supplier prior to issuing of the European Directive EC/2003/55/EC has been automatically allocated to the User, namely the contracts celebrated between Galp Transgás and Nigeria LNG.

The Regasification Code is still under revision and should be approved by ERSE and the System Technical Manager.

The rules issued by ERSE establish the public disclosure of maximum available capacity, the Ship discharge capacity, truck loading capacity and regasification capacity. The capacity should be allocated according to the contracts signed and in case of congestion capacity an auction should be performed.

The Terminal has proposed a capacity allocation based on the “slot” concept. In fact the ship reception capacity depends on the storage capacity, which is affected by regasification capacity. One slot is a time frame reservation for a ship to unload in the LNG terminal as well as the aggregated storage and the necessary send-out capacity for the regasification of the unloaded LNG within the slot duration. This is considered by the Terminal as the best solution to maximize and avoid congestions in the ship discharge capacity.

#### **1.6.4 Services offered.**

The services offered are:

- Ship receiving and unloading.
- LNG Storage.
- LNG regasification.
- LNG Truck Loading.

<sup>131</sup> [http://www.erse.pt/pt/gasnatural/regulamentos/qualidadedeservico/Documents/RQS\\_GN\\_Fev2010.pdf](http://www.erse.pt/pt/gasnatural/regulamentos/qualidadedeservico/Documents/RQS_GN_Fev2010.pdf)

<sup>132</sup> <http://www.erse.pt/pt/gasnatural/regulamentos/relacoescomerciais/Paginas/default.aspx>

<sup>133</sup> [http://www.erse.pt/pt/gasnatural/regulamentos/acessoasredesinfraestruturaseasinterligacoes/Documents/RARII\\_GN\\_Fev2010.pdf](http://www.erse.pt/pt/gasnatural/regulamentos/acessoasredesinfraestruturaseasinterligacoes/Documents/RARII_GN_Fev2010.pdf)

<sup>134</sup> [http://www.erse.pt/pt/gasnatural/regulamentos/operacaodasinfra-estruturas/Documents/ROI\\_GN\\_Fev2010.pdf](http://www.erse.pt/pt/gasnatural/regulamentos/operacaodasinfra-estruturas/Documents/ROI_GN_Fev2010.pdf)

<sup>135</sup> [http://www.erse.pt/pt/gasnatural/regulamentos/tarifario/Documents/RT%20GN\\_Articulado\\_Final\\_vs%20Portal.pdf](http://www.erse.pt/pt/gasnatural/regulamentos/tarifario/Documents/RT%20GN_Articulado_Final_vs%20Portal.pdf)

<sup>136</sup> <http://www.erse.pt/pt/gasnatural/tarifaseprecos/treg10a11/Documents/Despacho%2010423-2010.pdf>



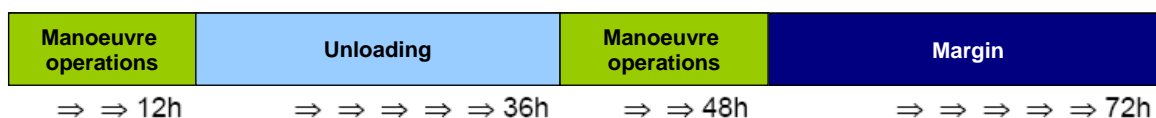
- Cool down and Gassing up.
- Ship Loading.
- Ship Approval.

#### Ship receiving and unloading:

The maximum unloading flow is 4,000 m<sup>3</sup>/h of LNG by arm, with a maximum of 10,000 m<sup>3</sup>/h. This maximum flow might be occasionally reduce because of maintenance activities or unloading arms unavailability, which should be detailed at the Maintenance Annual Plan of the National Transmission Network, Storages and LNG Terminals Infrastructures (i.e. “Rede Nacional de Transporte, Infra-estruturas de Armazenamento e Terminais de GNL”) or in the Unavailability Plan, both published by the System Technical Manager according to the “Manual de Procedimentos da Operação da Sistema”.

The effective time to unload a LNG carrier at Sines LNG terminal is 24 hours. The average time between the arrival of the LNG carrier at Sines port, the mobilization of the naval train to tug the vessel and land team and the manoeuvres of docking, mooring and inspection by port authorities and customs will last over 12 hours. Taking into account one tolerance day due to the Day-Light factor and possible delays because of bad weather, the minimum technical duration of all the unloading and manoeuvre operations for one slot is 72 hours.

**Figure 21: Unloading slot duration.**



**Source:** *Metodologia dos estudos para a determinação da capacidade no terminal de GNL.*

#### LNG storage:

There are two storage tanks at Sines LNG terminal with a nominal capacity of 120,000 m<sup>3</sup> each.

#### LNG Regasification:

The maximum regasification capacity is 900,000 m<sup>3</sup>(n)/h, taking into account the simultaneous functioning of the 4 vaporizers and sea water bombs. The nominal regasification capacity is 675,000 m<sup>3</sup>(n)/h, considering the simultaneous functioning of 3 vaporizers.

#### LNG Truck Loading:

The LNG terminal has two stations to load trucks in a continuous regime. These stations are equipped with one loading arm and one arm to return the steam. The maximum loading flow is 50 m<sup>3</sup>LNG/h per station, this flow might be occasionally reduced due to maintenance activities and loading arms unavailability.

### **1.6.5 Capacity allocation procedures.**

The capacity allocation procedures are detailed at “Mecanismo de atribuição da capacidade no terminal de GNL”, available at ERSE’s website.



Capacity linked to supply long-term contracts with Take-or-Pay clauses, signed before the publication of Directive 2003/55/EC, will be allocated to the corresponding users of the LNG terminal, without prejudice to the obligation to participate in the programming procedures.

If the total requested capacities are above the capacities available for commercial purposes or there are inconsistencies in the allocation of slots, the System Technical Manager in coordination with the TO shall make the allocation under the “Mecanismo de Resolução de Congestionamentos no Terminal de GNL”.

On the other hand, if the total requested capacities are below the capacities available for commercial purposes or there are not inconsistencies in the allocation of slots, the TO will inform on the new capacities available for commercial purposes, in the form of slots, available for the monthly programming procedure.

The reception of LNG carriers at the LNG terminal is conditioned by the allocation of capacity at the interconnection point between the LNG terminal and the transmission network to which is connected, unless the shipper has shown regular adjustments between the programmed reception of cargos and the LNG truck loading.

#### **1.6.6 Long term/short term capacity offering requirements.**

There is no capacity ratio that must be reserved for long term or for short term capacity contracts for the existing LNG terminal.

#### **1.6.7 Contracts duration.**

Contracts duration information is detailed at “Condições gerais do contrato de uso do terminal de GNL, Cláusula 4ª – Duração, Art. 1”

Contracts have duration of one gas year, being automatically renewed for similar periods, unless otherwise is stated by the counterparty 60 days before the end of the contract.

#### **1.6.8 Programming / Nomination procedures.**

The programming / nomination procedures are detailed at the document “Mecanismo de Atribuição de Capacidade no Terminal de GNL” available at ERSE’s website.

##### **1.6.8.1 Unloading of Cargos Annual Program.**

Users of the LNG terminal shall submit the TO their annual program for unloading LNG carriers at least 45 days before the start of the gas year. This process should be done by a procedure available at the TO’s website, and the LNG terminal user should detail the duration and volume (m<sup>3</sup>) of the slot.

TO will allocate the requests and inform the System Technical Manager.

If the LNG of a cargo is owned by more than one shipper, the LNG terminal user that it is making the programming procedure shall specify the assignment of the LNG quantities and their slots among shippers, taking into account the storage of quantities of each shipper.

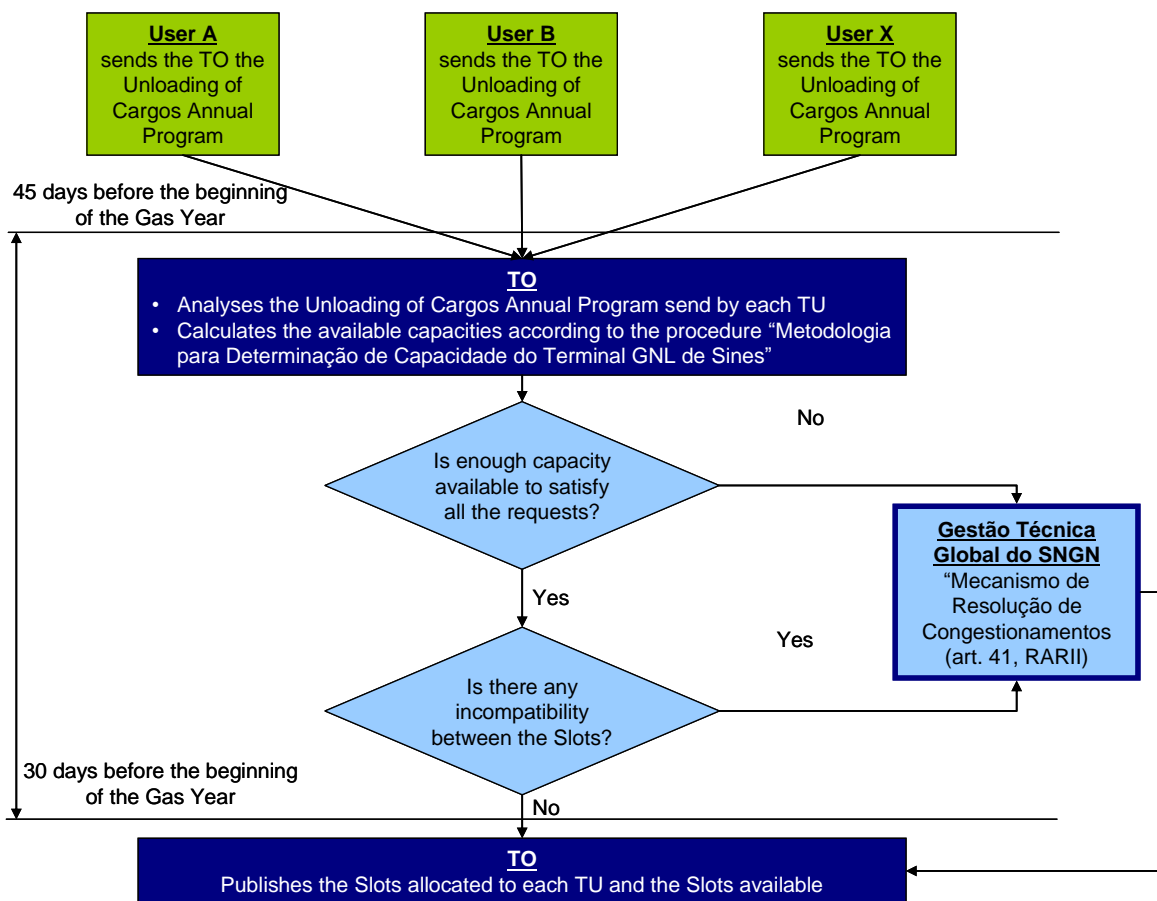
In these cases, for the acceptance of the unloading of cargos program, the capacities planned and allocated to the users of the LNG terminal at the interconnection point between the LNG terminal and the transmission network or LNG truck loading point shall be specified.



30 days before the beginning of the gas year the System Technical Manager shall inform the TO and the LNG terminal users about the capacity allocated to each user, and the TO will publish the Annual Cargoes Program (i.e “Plano Anual de Navios”). During the same period, the System Technical Manager shall disclose in its website the capacity programmed within the scope of the supply long-term contracts under Take-or-Pay clauses.

The following table shows the annual programming procedure:

**Figure 22: Annual Programming Procedure.**



Source: ERSE, “Mecanismo de atribuição capacidade no terminal de GNL”.

### 1.6.8.2 Unloading of Cargos Monthly Program.

Before the 12<sup>th</sup> day of the previous month, users of the LNG terminal shall submit the TO, in writing, the confirmation of the LNG carriers detailed at the Annual Cargos Program and the schedule of additional capacity for the 3 following months. Users of the LNG terminal should indicate the range of 3 days for the Estimated Time of Arrival (ETA) and the quantities in energy and volume planned to discharge the next month.

At this stage, LNG terminal users may request the TO to modify the capacity allocation dates and the reception of LNG carriers capacity allocation, being subject to the availability of TO in coordination with the System Technical Manager.



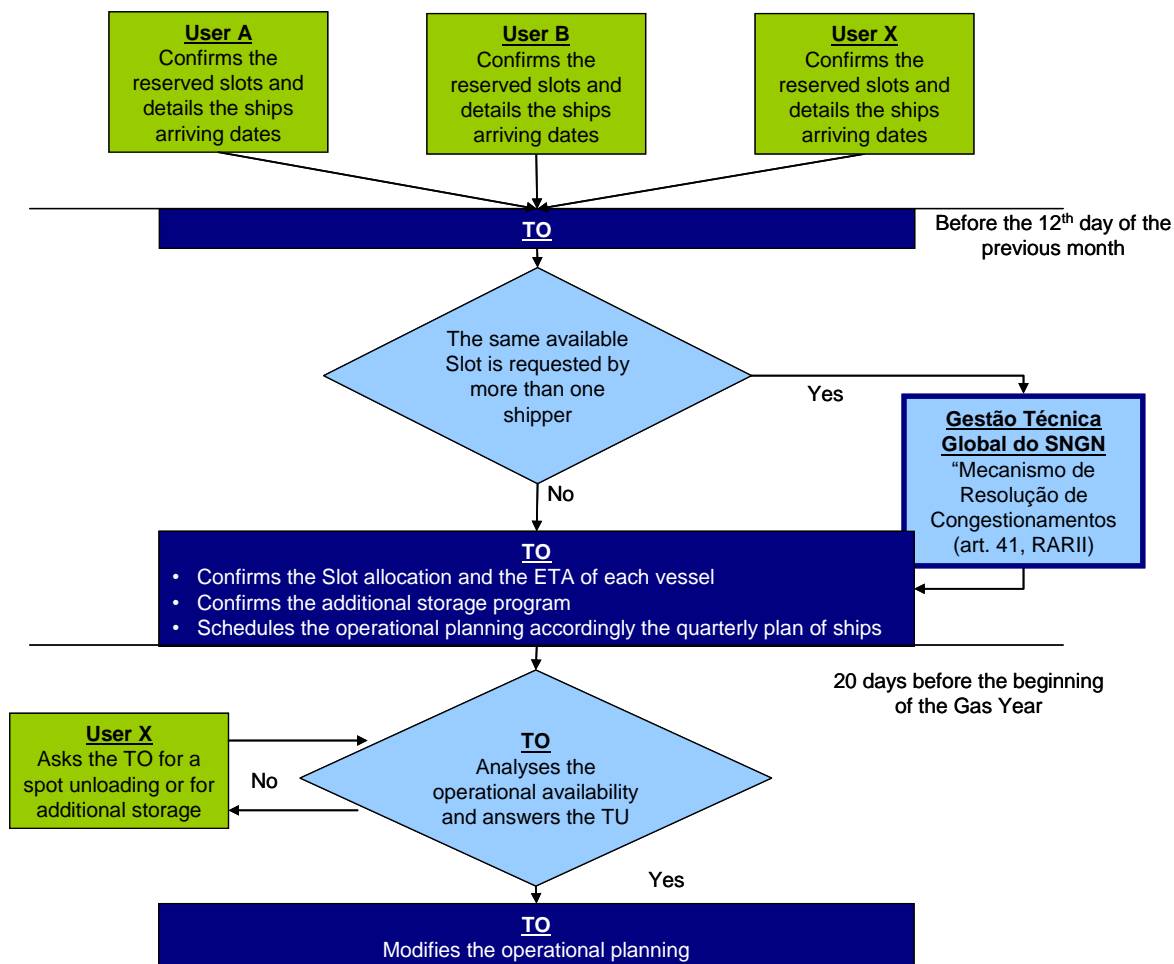
Before the 20<sup>th</sup> of the previous month, the System Technical Manager will inform the TO and users of the LNG terminal about the capacities allocated, and the TO will publish the Monthly Cargoes Program (i.e “Plano Mensal de Navios”) detailing the slots assigned, the ETA of each cargo and the extra LNG storage needed. In this case the extra LNG storage will be measured in number of slots (days for additional storage). The Monthly Cargos Program will include information on the number of slots that users of the LNG terminal might have for storage the LNG, taking into account that this number should not be less than one slot.

At any time the LNG terminal user may request the TO a slot for unloading of a spot cargo, or for additional storage not foreseen. The TO, in coordination with the System Technical Manager, may not provide the LNG terminal user with the requested slot based on technical reasons, or because of no capacity is available for commercial purposes.

The following table shows the monthly programming procedure:



Figure 23: Monthly Programming Procedure.



Source: ERSE, "Mecanismo de atribuição da capacidade no terminal de GNL".

### 1.6.8.3 Truck loading Programming Procedure.

Users of the LNG terminal will submit the TO every Friday before 18:00 the Weekly Loading Program (i.e. "Plano Semanal de Cargas de GNL") for the next week. LNG terminal users are able to submit modifications until the day before the gas day. These reviews will be only occasional, made in a reasonable manner due to last minute changes on the supply or logistics.

Before 18:00 of each Thursday, the TO will inform users of the LNG terminal about the capacities assigned.

The TO will simulated the feasibility and availability of the Weekly Loading Program in coordination with the System Technical Manager, and inform users of the LNG terminal about the final program.

If the LNG transfer into a LNG truck is owned by more than one shipper, the amount of energy transferred will be determined by the TO.



Additionally the TO has to participate in the transmission network programming procedure, this procedure is detailed at “Mecanismo de atribuição da capacidade na RNTGN” available at ERSE’s website.

### **1.6.9 Congestion management procedures.**

This information is detailed in article 43 of the document “Regulamento do acesso às redes, às infra-estruturas e às interligações do sector do gás natural” available at ERSE’s website.

If there is the unviability of a program or nomination in the LNG terminal, due to congestion in, the final allocation of available capacity to the different market players during the congestion will be carried out through an auction organized by REN as Global Technical Manager.

The Global Technical Manager, in coordination with the TO, should provide mechanisms to solve congestion in the LNG terminal, including the organization of auctions for capacity allocation for different timeframes and details.

### **1.6.10 UIOLI.**

According to the study issued by ERGEG in November 2009 “ERGEG study on congestion management procedures & antihoarding mechanisms in the European LNG terminals”, UIOLI mechanisms are used every month comparing the monthly request with the annual allocation. Thus, contractual congestion and capacity hoarding is diminished and, as a result, underutilisation is prevented.

### **1.6.11 Method for calculating usable, available and unused capacities.**

This information is detailed at “Metodologia dos estudos para a determinação da capacidade no terminal de GNL” available at ERSE’s website.

#### **1.6.11.1 Method for calculating usable and available unloading capacities.**

##### Maximum technical ship receiving capacity.

The maximum technical capacity for receiving LNG carriers, slot/year, is calculated according to the following formula:

$$C_{tm}^{E,IRAR,NM}(RN) = \frac{365}{DTMS}$$

Where:

DTMS: one slot minimum technical duration in days.

##### Maximum effective ship receiving capacity.:

The maximum effective capacity considering technical restrictions, in slots per year is:

$$C_{mr}^{E,IRAR,NM}(RN) = \frac{365 - NDI}{DTMS}$$



Where:

NDI: total number of unavailable days per year at the port or at the LNG terminal.

DTMS: one slot minimum technical duration in days.

Available ship receiving capacity for commercial purposes.

Considering the available capacity for commercial purposes as an approximation of the average length of time associated with the uncertainty in the schedule of the arrival of LNG carriers, the available LNG carrier receiving capacity for commercial purposes is calculated according to the following formula:

$$Cfc^{E,IRAR,NM}(RN) = \frac{365 - NDI}{DTMS + (IC/2)}$$

Where:

IC: Contractual uncertainty of ship arrival in days (typically 3 days).

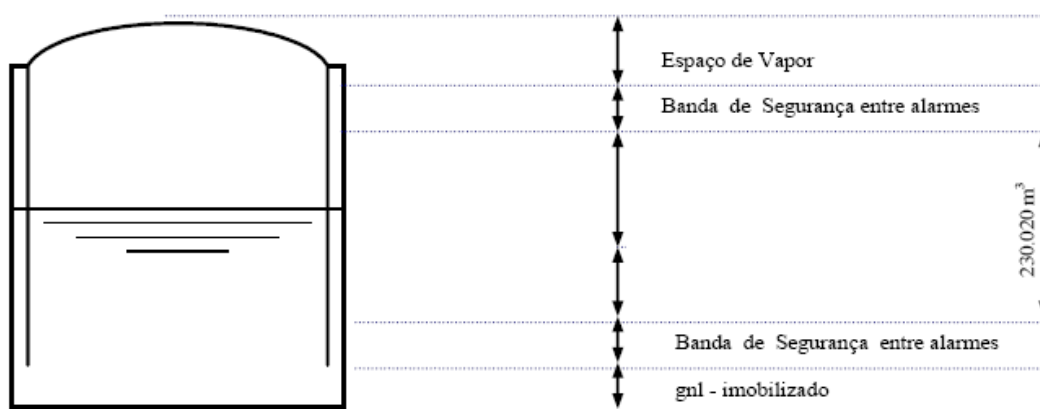
NDI: total number of unavailable days per year at the port or at the LNG terminal.

DTMS: minimum technical duration of a slot in days.

**1.6.11.2 Method for calculating usable and available storage capacities.**

The maximum usable capacity is 230,020 m<sup>3</sup> GNL, as it is shown in the following figure:

**Figure 24: Storage capacity at Sines LNG terminal.**



**Source:** ERSE, “Metodologia dos estudos para a determinação da capacidade no terminal de GNL”

Maximum technical storage capacity.

The maximum technical capacity for storage LNG at Sines terminal is calculated according to the following formula:





$$C_{tm}^{E,TRAR,NS}(A) = \frac{NMNSA \times 365}{DSA_s}$$

$$NMNSA = \frac{2 \times VAMU - VNS}{2 \times VNS}$$

Where:

NMNSA: average number of standard LNG carriers that can be stored.

DSA<sub>s</sub>: slot storage duration, in days considering a standard LNG carrier.

VAMU: maximum LNG storage volume, 230,020 m<sup>3</sup> of LNG.

VNS: standard LNG carrier volume, 125,000 m<sup>3</sup> of LNG.

The duration of a LNG storage slot in days (DSA<sub>s</sub>) is:

$$DSA_s = \frac{VNS \times 580}{W_{ag}^{S,TRAR,RNTGN}(\max.) / 365}$$

Where:

$W_{ag}^{S,TRAR,RNTGN}(\max.)$ : maximum natural gas quantity, in m<sup>3</sup>(n), that can be send-out by the LNG terminal through the connected transmission network, during the gas year, taking into account the technical restrictions.

#### Maximum effective storage capacity.

The maximum effective capacity for storage LNG, taking into account the technical restrictions, in slots per year, is the same as the maximum technical capacity calculated in the previous section.

#### Available capacity for commercial purposes for storage capacity.

The available capacity for commercial purposes is calculated as follows:

$$C_{fc}^{E,TRAR,NM}(A) = C_{mr}^{E,TRAR,NS}(A) \times f_{cc}(A)$$

$$f_{cc}(A) = \frac{C_{mr}^{E,TRAR,NM}(A)}{C_{mr}^{E,TRAR,NS}(A)}$$

Where:

$C_{mr}^{E,TRAR,NM}(A)$ : maximum effective capacity for storage LNG, taking into account the technical restrictions, in slots per year.



$C_{mr}^{E, TRAR, NS}(A)$ : maximum effective capacity for storage LNG, taking into account the technical restrictions, in slots per year.

$f_{cc}(A)$ : corrective capacity factor due to deviation between the average of expected LNG carriers and the standard LNG carrier taken as basis for calculations (125.000 m<sup>3</sup>).

Considering that the duration of LNG storage slot ( $DSA_M$ ) is calculated by the following formula:

$$DSA_M = \frac{VNM \times 580}{W_{ag}^{S, TRAR, RNTGN}(\max.) / 365}$$

Where:

$DSA_M$ : slot storage duration in days, taking into account VNM.

$W_{ag}^{S, TRAR, RNTGN}(\max)$ : maximum natural gas quantity, in m<sup>3</sup>(n), that can be send-out by the LNG terminal through the connected transmission network, during the gas year, taking into account the technical restrictions.

VNM: average volume of the scheduled LNG carriers at the LNG terminal, in m<sup>3</sup>.

Replacing the different expressions for calculating  $f_{cc}(A)$  and taking into account that:

$$C_{mr}^{E, TRAR, NS}(A) = C_{tm}^{E, TRAR, NS}(A)$$

$$C_{mr}^{E, TRAR, NM}(A) = C_{tm}^{E, TRAR, NM}(A)$$

It results that:

$$f_{cc}(A) = \frac{C_{mr}^{E, TRAR, NM}(A)}{C_{mr}^{E, TRAR, NS}(A)} = \frac{2VAMU - VNM}{2VAMU - VNS} \left( \frac{VNS}{VNM} \right)^2$$

Where:

VAMU: maximum LNG storage volume, 230,020 m<sup>3</sup> of LNG.

VNS: standard LNG carrier volume, 125,000 m<sup>3</sup> of LNG.

### 1.6.11.3 Method for calculating usable and available regasification capacities.

#### Maximum technical regasification capacity.

The maximum technical regasification capacity, considering as basis for calculation the regasification of a standard LNG carrier, is calculated by:

$$C_{tm}^{E, TRAR, NS}(R) = \frac{Q_{\max} \times 8760}{VNS \times 580}$$

Where:



$Q_{\max}$ : maximum regasification flow, 900,000 m<sup>3</sup>(n)/h.

VNS: standard LNG carrier volume, 125,000 m<sup>3</sup> of LNG.

Maximum effective regasification capacity.

The maximum effective regasification capacity taking into account the technical restrictions, in slots per year considering a standard LNG carrier, is calculated as follows:

$$Cmr^{E,TRAR,NS}(R) = \frac{Q_{nom} \times 8760 \times (1 - k_{ind})}{VNS \times 580}$$

$$k_{ind} = \frac{TPP}{8760}$$

Where:

$Q_m$ : nominal regasification flow, equivalent to 675,000 m<sup>3</sup>(n)/h.

$k_{ind}$ : unavailability factor, which reflects the forecast regasification unavailability considering the scheduled stops for maintenance and inspections.

TPP: forecast stopped time of LNG terminal for the gas year in hours.

VNS: standard LNG carrier volume, 125,000 m<sup>3</sup> of LNG.

Usable regasification capacity for commercial purposes.

The usable regasification capacity for commercial purposes, in slots per year, is calculated as follows:

$$Cfc^{E,TRAR,NM}(R) = Cmr^{E,TRAR,NS}(R) \times (1 - k_{tu}) fcc(R)$$

$$fcc(R) = \frac{VNS}{VNM}$$

$$k_{tu} = \frac{W_{ag}^{S,TRAR,RNTGN}(\max.) - W_{ag}^{S,TRAR,RNTGN}}{W_{ag}^{S,TRAR,RNTGN}(\max.)}$$

$$W_{ag}^{S,TRAR,RNTGN}(\max.) = Cmr^{E,TRAR,NM}(R) \times VNM \times 580$$

$f_{cc}(R)$ : corrective capacity factor, due to deviation between the average expected LNG carriers and the standard LNG carrier as basis for the calculations (125.000 m<sup>3</sup>).

$k_{tu}$ : LNG terminal used factor, that reflects the restrictions caused by interoperability issues between the LNG terminal and the connected transmission network.



$W_{ag}^{S, TRAR, RNTGN}(\max)$ : maximum natural gas quantity, in  $m^3(n)$ , that can be send-out by the LNG terminal through the connected transmission network, during the gas year, taking into account the technical restrictions.

$W_{ag}^{S, TRAR, RNTGN}$ : maximum natural gas quantity, in  $m^3(n)$ , forecasted by the TSO regarding the natural gas quantity that can be sent-out by the LNG terminal and delivered into the transmission network during the gas year.

$C_{mr}^{E, TRAR, NS}(R)$ : maximum effective capacity for regasify a standard LNG carrier, taking into account the technical restrictions, in slots per year.

#### **1.6.11.4 Method for calculating usable and available transferring capacities between vessels.**

##### Maximum technical capacity.

The maximum technical capacity for transferring LNG between ships is the minimum value of the maximum technical capacity of the ship receiving, LNG storage and regasification processes:

$$C_{tm}^{E, TRAR, NM} = \min[C_{tm}^{E, TRAR, NM}(RN), C_{tm}^{E, TRAR, NM}(A), C_{tm}^{E, TRAR, NM}(R)]$$

Where:

$C_{tm}^{E, TRAR, NM}(RN)$ : maximum technical capacity for receiving LNG carriers, in slots per year.

$C_{tm}^{E, TRAR, NS}(A)$ : maximum technical capacity for storage LNG, in slots per year, taking into account a standard LNG carrier VNS.

$C_{tm}^{E, TRAR, NS}(R)$ : maximum technical regasification capacity

##### Maximum effective capacity.

The maximum effective capacity for transferring LNG between ships, considering the technical restrictions, is the minimum value of the maximum effective capacity of the ship receiving, LNG storage and regasification processes, in slots/year:

$$C_{mr}^{E, TRAR, NM} = \min[C_{mr}^{E, TRAR, NM}(RN), C_{mr}^{E, TRAR, NM}(A), C_{mr}^{E, TRAR, NM}(R)]$$

Where:

$C_{mr}^{E, TRAR, NM}(RN)$ : maximum effective ship receiving capacity, taking into account the technical restrictions, in slots per year.

$C_{mr}^{E, TRAR, NM}(A)$ : maximum effective LNG storage capacity, taking into account the technical restrictions, in slots per year.

$C_{mr}^{E, TRAR, NS}(R)$ : maximum effective regasification capacity, in slots per year, taking into account the regasification of a standard LNG carrier.

##### Available capacity for commercial purposes.



The available capacity for commercial purposes for transferring LNG between ships is the minimum value of the available capacities for commercial purposes of the ship receiving, LNG storage and regasification processes, in slots per year:

$$Cfc^{E,TRAR,NM} = MIN[Cfc^{E,TRAR,NM}(RN), Cfc^{E,TRAR,NM}(A), Cfc^{E,TRAR,NM}(R)]$$

Where:

$C_{fc}^{E, TRAR, NM}(A)$ : available LNG storage capacity for commercial purposes, in slots per year, considering the volume of an scheduled average LNG carrier.

$C_{fc}^{E, TRAR, NM}(RN)$ : available ship reception capacity for commercial purposes, in slots per year.

$C_{fc}^{E, TRAR, NM}(R)$ : available regasification capacity for commercial purposes, in slots per year.

#### 1.6.11.5 Duration of an Slot

The average duration of a slot (DMS) is calculated taking into account the available capacity for commercial purposes:

$$DMS = \frac{365}{Cfc^{E,TRAR,NM}}$$

#### 1.6.11.6 Method for calculating usable and available truck loading capacities.

The capacity in continuous filling of trucks is given by:

$$Cfc^{S,TRAR,CC} = Ctm^{S,TRAR,CC} k_{ro}$$

Where:

$C_{tm}^{S, TRAR, CC}$ : maximum technical capacity for truck loading, in window/year.

$k_{ro}$ : operational restriction coefficient, that takes into account the delays resulting from operations of cooling and / or inertization of tanks, maintenance and routine inspection and security, application, verification and updating of tanks documentation, changes in the scale of arrival of the tanks and other routine operations made by the operation team.

#### 1.6.12 **Send-out requirements.**

Currently there is no limitation for Storage time or send-out obligations in ERSE rules.



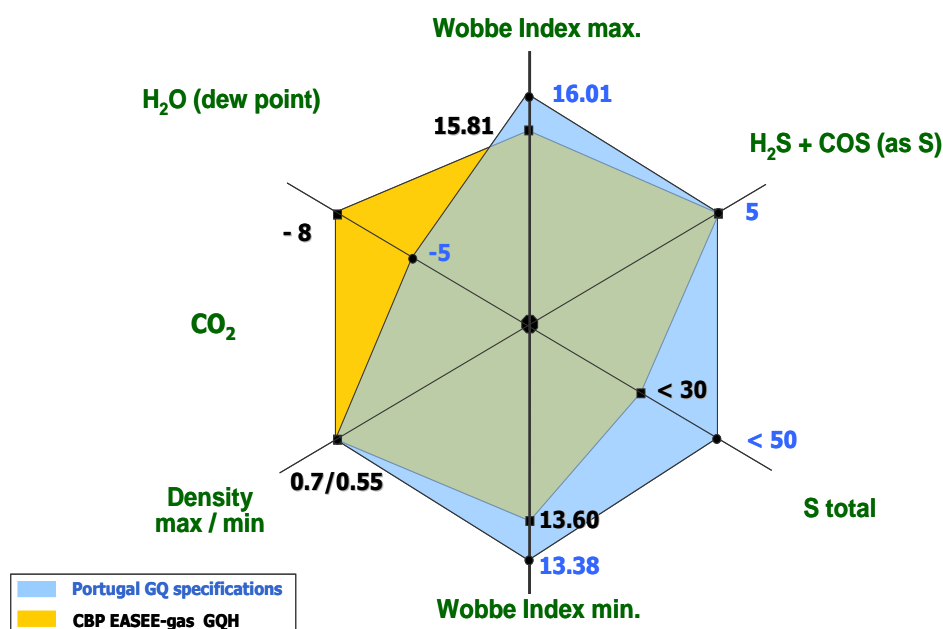
### 1.6.13 Gas quality requirements.

**Table 44: Gas quality requirements at Sines LNG terminal.**

Property	Unit	Min	Max
Wobbe Index	MJ/m <sup>3</sup> (n)	48.17	57.66
Density	Relative density	0.5549	0.7001
Water Dew Point	°C	-	-5°C
Total S	mg/m(n) <sup>3</sup>	-	50
H <sub>2</sub> S	mg/m <sup>3</sup> (n)	-	5

Source: REN Atlântico.

**Figure 25: Gas quality specifications at Sines LNG terminal vs. EASSE-gas specifications.**



Source: Elaborated from data facilitated by REN Atlântico and EASSE-gas CBP 2005-001-01 Gas Quality Harmonisation.

### 1.6.14 Balancing regime/ Management of LNG stock levels.

The balancing regime is detailed at the document “Manual de Procedimentos do Acerto de Contas do Sector do Gás Natural” available at ERSE’s website.

There are two different types of balancing regime: (1) the physical balancing regime, which refers to the total amount of energy manage at the LNG terminal, and (2) the commercial balancing regime, which deals with the quantities of energy manage by each user of the LNG terminal.

Regarding the minimum stock level (heel gas), balances should also be carried out.



### 1.6.14.1 Physical balancing regime.

#### Daily balance.

Before 13:00 hours each day the TO shall send to the “Acerto de Contas” the daily physical balance, detailing the gas values of the day before, corresponding to:

$$EI_d^{TRAR} - EF_d^{TRAR} + E_d^{TRAR} - S_d^{TRAR} - PA_d^{TRAR} - DM_d^{TRAR} = 0$$

$$E_d^{TRAR} = W_d^{E,TRAR,NM}$$

$$S_d^{TRAR} = W_d^{S,TRAR,RNTGN} + \sum_k W_d^{S,TRAR,CCK}$$

$$EI_d^{TRAR} = EF_{d-1}^{TRAR}$$

Where:

$EI_d^{TRAR}$ : LNG terminal initial stock, in energy terms in the day d.

$EF_d^{TRAR}$ : LNG terminal final stock, in energy terms in the day d.

$E_d^{TRAR}$ : entries into the LNG terminal the day d in energy terms.

$S_d^{TRAR}$ : exists from the LNG terminal the day d in energy terms.

$DM_d^{TRAR}$ : measured differences in the LNG terminal in the day d in energy terms.

$PA_d^{TRAR}$ : losses and own consumption in the LNG terminal in day d in energy terms.

$W_d^{E,TRAR,NM}$ : natural gas quantities, in energy terms, referring to entries to the LNG terminal from LNG ships, in day d.

$W_d^{S,TRAR,RNTGN}$ : natural gas quantities, in energy terms, referring to exits from the LNG terminal to the transmission network, in day d.

$W_{i d}^{S,TRAR,CCK}$ : natural gas quantities, in energy terms, referring to exits from the LNG terminal to trucks, in day d.

#### Monthly balance.

Before 13:00 hours of the third working day of each month, the TO shall send the monthly physical balance of its infrastructure, detailing the consolidated daily quantities of the previous month.

#### Annual balance.

Before the close of business of the fourth working day of July, the TO shall send the annual physical balance of its infrastructures, detailing the consolidated monthly values of the previous year.



### 1.6.14.2 Commercial balancing regime.

#### Daily balance.

Before 17:00 hours of the next day of the gas day, users of the LNG terminal will inform the TO of all the exchanges done in the LNG terminal and the counterparties involved.

Before 13:00 hours of each day, the TO should send to the “Acerto de Contas” the daily commercial balance of each user of the LNG terminal, detailing the quantities of the previous day, corresponding with:

$$EF_{i,d}^{TRAR} = EI_{i,d}^{TRAR} + E_{i,d}^{TRAR} - S_{i,d}^{TRAR} \times (1 + \gamma_{TRAR}) + I_{i,d}^{TRAR}$$

$$E_{i,d}^{TRAR} = W_{i,d}^{E,TRAR,NM}$$

$$S_{i,d}^{TRAR} = W_{i,d}^{S,TRAR,RNTGN} + \sum_k W_{i,d}^{S,TRAR,CCK}$$

$$EI_{i,d}^{TRAR} = EF_{i,d-1}^{TRAR}$$

Where:

$EF_{i,d}^{TRAR}$ : LNG terminal final stock, in energy terms, in the day d of the LNG terminal user i.

$EI_{i,d}^{TRAR}$ : LNG terminal initial stock, in energy terms, in the day d of the LNG terminal user i.

$E_{i,d}^{TRAR}$ : entries into the LNG terminal, in energy terms, in the day d of the LNG terminal user i.

$S_{i,d}^{TRAR}$ : exits from the LNG terminal, in energy terms, in the day d of the LNG terminal user i.

$I_{i,d}^{TRAR}$ : natural gas exchanges in the LNG terminal, in energy terms, in the day d of the LNG terminal user i.

$\gamma_{TRAR}$ : corrective factor for losses and own consumption in the LNG terminal.

$W_{i,d}^{E,TRAR,NM}$ : natural gas quantities, in energy terms, referring to entries to the LNG terminal from LNG ships, in the day d of the LNG terminal user i.

$W_{i,d}^{S,TRAR,RNTGN}$ : natural gas quantities, in energy terms, referring to exits from the LNG terminal to the transmission network, in the day d of the LNG terminal user i.

$W_{i,d}^{S,TRAR,CCK}$ : natural gas quantities, in energy terms, referring to exits from the LNG terminal to trucks, in the day d of the LNG terminal user i.





The term  $I_{i,d}^{TRAR}$  is positive when the user of the LNG terminal increases its stock at the LNG terminal due to exchanges. On the other hand, the term  $I_{i,d}^{TRAR}$  is negative when the user of the LNG terminal owes natural gas in the LNG terminal to another user.

#### Monthly balance.

Before 13:00 hours of the third working day of each month, the TO will send the monthly commercial balance of each user of the LNG terminal, detailing the consolidated daily quantities of the previous month.

Before 13:00 hours of the fourth working day of each month, the “Acerto de Contas” will inform each user of the LNG terminal of its monthly commercial balance, detailing the consolidated daily quantities of the previous month. This balance will be carried out by infrastructure and aggregated, resulting for the sum of the quantities in each infrastructure used.

The monthly balance should contain the verified adjustments of the quantities of the two previous months.

#### Annual balance.

Before the close of business of the fourth working day of July, the TO will send the annual commercial balance of its infrastructures, detailing the consolidated monthly values of the previous year.

Before the close of business of the fifth working day of July, the “Acerto de Contas” will inform each user of the LNG terminal of its annual commercial balance, detailing the consolidated monthly quantities of the previous year. This balance will be carried out by infrastructure and aggregated, resulting for the sum of the quantities in each infrastructure used.

#### **1.6.14.3 Minimum stock level (heel gas) balance regime.**

The procedure to calculate the adjustments to be regarding the minimum stock level in the LNG terminal, in order to share up the differences in the measures between the users of the LNG terminal, is carried out according to the following formula:

$$A_i^{TRAR} = \frac{\sum_d E_{i,d}^{TRAR} + \sum_d S_{i,d}^{TRAR}}{\sum_d \sum_i E_{i,d}^{TRAR} + \sum_d \sum_i S_{i,d}^{TRAR}} \times \sum_d DM_d^{TRAR}$$

Where:

$A_i^{TRAR}$ : adjustment of the stock level of the LNG terminal user.

$E_{i,d}^{TRAR}$ : entries into the LNG terminal, in energy terms, in day d of the LNG terminal user i.

$S_{i,d}^{TRAR}$ : exits from the LNG terminal, in energy terms, in day d of the LNG terminal user i.

$DM_d^{TRAR}$ : measurement differences in the LNG terminal in day d.



### **1.6.15 Own consumption record and gas in kind.**

The gas in kind percentage for the thermal year 2010-2011 is detailed at the document “Despacho de aprovação das tarifas e preços para o gás natural e outros serviços regulados para o ano gás 2010-2011”, which is available at ERSE website ([www.erse.pt](http://www.erse.pt)). This value is 0.0% (i.e. shippers do not need to provide any gas in kind to access the LNG terminal).

### **1.6.16 Charges and/or penalties for imbalance, cancellation and other, including minimum payment obligations.**

#### **1.6.16.1 Imbalance penalties.**

In order to guarantee an appropriate management of the LNG terminal the following imbalance penalties, detailed at the “Manual de Procedimentos do Acerto de Contas do Sector do Gás Natural” point 6.2, shall be applied:

- If a quantity is nominated but not used after the end of the gas day, the user of the LNG terminal will have to pay a penalty, equivalent to 5 times the LNG storage tariff per day of delay till the third day, and 15 times the LNG storage tariff for the following days of delay. The obligation to pay these penalties ends when the necessary volume for the next cargo has been released. For this purpose, from the fourth day of delay, the System Technical Manager can, without announcement, move the natural gas to another place where possible to store, charging the costs to the user of the LNG terminal.
- If a user of the LNG terminal does not make use of a slot allocated during the monthly programming, will have to pay a penalty equivalent to the sum of the unloading tariff and the LNG storage tariff. In order to calculate this penalty, the slot time and the storage required to unload the LNG carrier during the scheduled period shall be taken into account.
- If during several days, starting from day d, the user of the LNG terminal does not maintain the minimum stock level required in the LNG terminal, will start a penalty period according to the following terms:
  - a daily penalty equivalent to one time the value of natural gas regarding the quantities below the minimum.
  - an additional daily penalty equivalent to one time the natural gas value regarding the quantities diverted in case that the user of the LNG terminal does not replace the stock before the end of the third day of imbalance. This penalty will be applied after the third day of imbalance. However, in case that the commercial balance has not been made available to the user of the LNG terminal before 17:00 hours of the day second day of imbalance, the additional daily penalty will be applied the following day when the commercial balance has been communicated to the user of the LNG terminal.

The penalty period will end the day before the stock has been replaced up to the minimum established.

The value of natural gas will be calculated according to the arithmetic mean of the last seven prices of the natural gas in “Henry Hub” or in the “National Balancing Point”.



### 1.6.17 Financial Guarantees.

In terms of financial guarantees the information can be found in “Condições gerais do contrato de uso do terminal de GNL, Cláusula 12ª – Garantia”.

The TO can call for a financial guarantee provision in order to ensure the conditions established in the contract. The guarantee shall be provided in form of a bank guarantee at first request, or, if agreed between the parties under particular conditions in form of cash, check, electronic transfer, or other performance bond that offers the TO the same guarantees.

The value of the guarantee provided to the TO is calculated on the basis of the charges referred to in Clause 11<sup>th137</sup> Art. 1 of the before mentioned document, and ensure a period of (45 + n) days of estimated billing, being “n” the number of days, with a maximum of 15 days, as agreed under the particular conditions of the contract.

The execution of the guarantee by the TO is preceded by a pre-warning to the user of the LNG terminal of “n” days.

The TO might require a change in the value of guarantee when it has been verified an increase in the capacity use or a tariff change. The partial or total execution of the guarantee for satisfying the TO credits gives the right to re-establish or reinforce it before 10 business days.

### 1.6.18 Secondary market.

As the unbundling process has not being totally implemented, and there is only one Terminal User, the secondary market procedures are still not implemented.

However, on 22<sup>nd</sup> June 2010, ERSE approved Despacho nº10422/2010 which aim was to provide a mechanism to encourage regulated exchanges between LNG terminal users and market participants already active in the natural gas market (market participant).

The principles of the incentive mechanisms for regulates exchanges of LNG (“*Trocas Reguladas*”) is introduced by article 97 of the *Regulamento Tarifário do Sector do Gás Natural*. TUs who intend to supply Sines LNG terminal an annual quantity greater than or equal to 2 TWh, approximately equivalent to 4 LNG cargoes of 70,000m<sup>3</sup>, are allow to subscribe this service.

TUs refered to in the previous paragraph must already have subscribed an Access Contract with the TO.

The incentive mechanism consists of a physical delivery of a volume of LNG from the TU to the market participant, and a return of the same overall volume of energy.

The delivery of the quantities at the LNG terminal is responsibility of the TU. After the arrival of the cargoes, the volume of LNG agreed will integrate the individual stocks of the market participant. Transfers of property between the TUs and market participants occur at the LNG terminal.

<sup>137</sup> Cláusula 11º - Art.1: The operator of the LNG terminal has the right to receive a payment for the use of their physical infrastructure and related services, by the application of the tariffs for the use of the reception, storage and regasification terminal, as defined in the Fee Regulation.



The maximum quarterly, monthly and weekly quantities which constitute the return obligations for the market participant to the TU are defined in the Contract of regulated exchanges between the parties.

The quarterly quantities of LNG (VT) to be delivered are the following maximum values:

- For the first 2 TWh/year:
  - Quarterly: VT
  - Montly:  $(VT / 3) * 1.20$
  - Weekly:  $(VT / 12) * 1.25$
- For the remaining quantities:
  - Quarterly: VT
  - Montly:  $(VT / 3) * 1.10$
  - Weekly:  $(VT / 12) * 1.20$

#### **1.6.19 Limitation in vessel size.**

The information about the limitation in vessel size is detailed at the document “Metodologia dos estudos para a determinação da capacidade no terminal de GNL” point 2.1.

The LNG terminal can accommodate vessels from 35,000 m<sup>3</sup> to 165,000 m<sup>3</sup>.

#### **1.6.20 Force Majeure.**

-

#### **1.6.21 Ship Approval Procedure at LNG terminal.**

All ships need to be approved by the Terminal prior their arrival to Terminal facilities. The ship vetting at Sines LNG Terminal is performed according to the GTE (Gas Transmission Europe) LNG Ship Approval Procedure.

#### **1.6.22 Standard contracts.**

The standard contract is mentioned in the “Regulamento do Acesso às Redes, às Infra-estruturas e às Interligações do Sector do Gás Natural” Capítulo II, Secção I, Art. 6 point 2, which is available at ERSE website.

Furthermore, ERSE published the “Condições gerais do Contrato de Uso do Terminal de GNL” in the Despacho n.º 24 145/2007 on 22<sup>nd</sup> October 2007.



### 1.6.23 TPA tariffs.

The “Regulamento Tarifário do Sector do Gás Natural”, approved in February 2010, establishes the criteria and methods for the calculation of regulated tariffs, including TPA tariffs to infrastructures. Article 105 deals with TPA tariffs to LNG terminals.

TPA tariffs are published annually by ERSE for the gas year, which runs from 1<sup>st</sup> July to 30<sup>th</sup> June of the following year.

TPA tariffs to use Sines LNG terminal are based on three concepts, which refer to the unloading, storage and regasification of the LNG.

In order to provide more flexibility to the users of the LNG terminal, tariffs for short-term contracts have also been established.

According to ERSE, from 1<sup>st</sup> July 2010 till 30<sup>th</sup> June 2011 tariffs, for the period 2010-2011, are:

- LNG Unloaded: 0,00016535 €/kWh
- LNG Storage: 0,00003068 €/kWh/day
- LNG Regasification:
  - Long-term contracts:
    - 0,006453 €/(kWh/day)/month
    - 0,00015292 €/kWh
  - Short-term contracts:
    - 0,006453 €/(kWh/day)/month
    - 0,00153580 €/kWh
- LNG Truck loading: 127,43 €/truck

### 1.6.24 Capacity booking procedures.

REN indicates on its website that for information requests and subsequent bookings the company can be contacted at [contratacao.atr@ren.pt](mailto:contratacao.atr@ren.pt).



## 1.7 UK.

### 1.7.1 General overview.

Currently, there are three LNG terminals in operation in the UK: Isle of Grain, South Hook LNG and Dragon LNG.

This section contains only information on access conditions to the Isle of Grain LNG, South LNG and Dragon LNG terminals (i.e. the subsections below do not apply to the Teesside GasPort facility or to any other LNG terminal under construction).

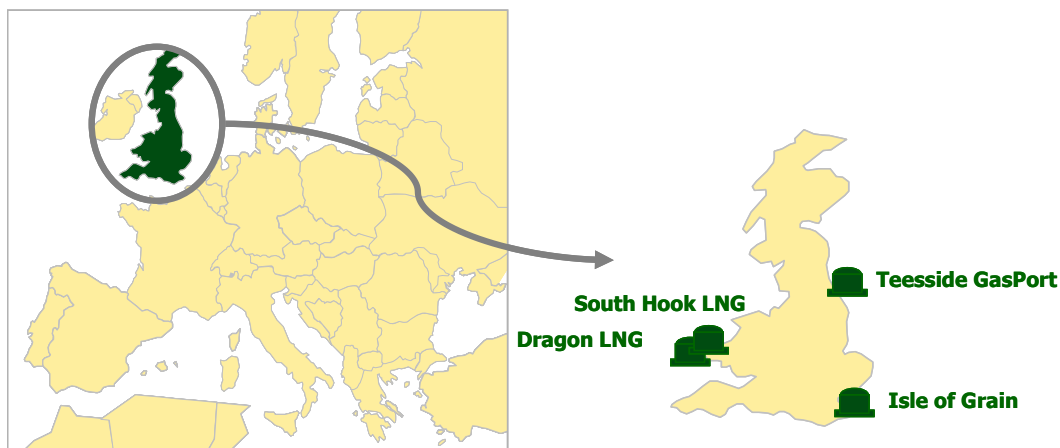
The Teesside GasPort was placed in service in February 2007. It was the world's first dockside LNG vaporization and natural gas receiving facility.

There are other terminals planned (Canvey Island, Anglesey LNG, Teeside LNG). Details on these projects are provided in section **¡Error! No se encuentra el origen de la referencia..**

All terminals operate, or intend to operate, under a temporary exemption under art. 22 of Directive 2003/55/CE.

The map below shows the location of the LNG terminals in operation and of the Teesside GasPort facility:

**Map 6: Location of LNG terminals and Teesside GasPort facility in Great Britain.**



The characteristics of the Isle of Grain LNG terminal are detailed in the following table:

#### **Isle of Grain.**

Grain LNG has been the quickest project to come onstream in the UK, and the first LNG terminal in Europe operating under an exemption. National Grid, the owner of the terminal, converted one of its peakshaving LNG facilities into an LNG import terminal. The facility was commissioned in July 2005 and the first commercial cargo arrived in September 2005.

**Table 45: General information about the Isle of Grain LNG terminal.**

UK, Isle of Grain (Grain LNG) <span>nationalgrid</span>	
Start-up: 2005	
MAX. HOURLY CAPACITY	NOM. ANNUAL CAPACITY
current: 1.750.000 m <sup>3</sup> (N)/h	current: 13.4 bm <sup>3</sup> (N)/year
by 2011: 2.650.000 m <sup>3</sup> (N)/h	by 2011: 19.5 bm <sup>3</sup> (N)/year
NOMINATION Yes	ALLOCATION Pro Rata
MATCHING Yes	FLOW CONTROL Yes
SCHEDULE D/D	MEASUREMENT Yes
LNG STORAGE CAPACITY	current: 770.000 m <sup>3</sup> LNG
	by 2011: 970.000 m <sup>3</sup> LNG
NUMBER OF TANKS	current: 7
	by 2011: 8
MAX. SHIP CLASS SIZE REC.	current: 205.000 m <sup>3</sup> LNG
	by 2011: 265.000 m <sup>3</sup> LNG
URL AUTHORISED SHIPS	www.grainlng.com
NUMBER OF JETTIES	current: 1
	end 2010: 2
MIN. SEA DEPTH ALONG SIDE	12,5 m
MAX. SEND OUT PRESSURE	70 bar

Source: GLE's LNG map, July 2010.

All the information in this section about the Isle of Grain LNG terminal has been obtained from National Grid Grain LNG ([www.nationalgrid.com/uk/grainlng](http://www.nationalgrid.com/uk/grainlng)) and LNG Grain Access ([www.lngga.com](http://www.lngga.com)) websites. The NERA Economic Consulting study on "Third Party Access to LNG terminals", prepared in 2006 for ERGEG, has also been used as an input.<sup>138</sup>

### Teesside GasPort.

The Teesside GasPort facility is owned by Exceleerate Energy.

It is a dockside application of the "Energy Bridge" technology. Energy Bridge is a proprietary offshore LNG regasification and delivery system developed by Exceleerate Energy. This system involves the use of purpose built LNG carriers for the transportation and vaporization of LNG ("Energy Bridge Regasification Vessels", EBRVs) through specially designed offshore and near shore receiving facilities (such as Teesside GasPort).

Using the dockside delivery method, an EBRV will arrive at a GasPort which has a shore-mounted high-pressure gas arm that will connect to the EBRV's high pressure gas manifold. Natural gas vaporized onboard will be delivered from the EBRV at downstream pipeline pressure. According to Exceleerate, "this allows an EBRV to function as a highly flexible LNG receiving terminal", and "the low cost of construction of a GasPort (typically one-tenth that of a conventional LNG receiving terminal) allows for short-term or seasonal service, in addition to long-term deliveries".

<sup>138</sup> NERA Economic Consulting, "Third Party Access to LNG terminals", November 2006. Available at: [http://www.nera.com/image/PUB\\_LNG\\_Terminals\\_Nov2006.pdf](http://www.nera.com/image/PUB_LNG_Terminals_Nov2006.pdf)





Teesside GasPort can accommodate deliveries at a baseload rate of up to 400 million cubic feet per day (mmcf/d) with peak rates of up to 600 mmcf/d. According to Excelerate, its on-site nitrogen blending facilities allow Teesside GasPort to accommodate LNG of virtually any specification to be delivered and still meet stringent NTS standards.

More information on Teesside GasPort and the Energy Bridge technology can be found in Excelerate Energy website, [www.excelerateenergy.com](http://www.excelerateenergy.com).

### **South Hook LNG.**

South Hook LNG is a liquefied natural gas receiving terminal at Milford Haven, Pembrokeshire, Wales.

The terminal comprises a jetty, which will allow the docking of large tankers, and five tanks into which the LNG is pumped as well as a regasification plant.

LNG is supplied from the Qatar Liquefied Gas Co. Ltd. (II) LNG plant built at Ras Laffan. The LNG from Qatar travels from its origin in the Arabian Gulf through the Red Sea and Suez Canal to its destination in the deep water harbour at Milford Haven in a fleet of dedicated LNG ships. ExxonMobil Gas Marketing Europe buys the gas transiting through the terminal.

The first commissioning cargo arrived at South Hook LNG terminal on March 12, 2009. The LNG carrier 'Tembek' arrived in the vicinity of the coastal waters of the Milford Haven to begin the berthing and commissioning process at the South Hook LNG Terminal. The 'Tembek' was the first ever LNG carrier to arrive in the Haven and was the first LNG carrier to berth at the South Hook LNG terminal.

During August 2009 South Hook LNG terminal has been injecting 20 million-25 million cubic meters (700-880 million cubic feet) per day into the UK grid.<sup>139</sup>





Further information about South Hook LNG terminal can be found at South Hook website (<http://www.southhooklng.co.uk/>)

<sup>139</sup> World Gas Intelligence, "MARKET INSIGHT: LNG Overflow Coming?" Vol. XX, No. 38, September 23, 2009.





Table 46: General information about South Hook terminal.

<b>UK, Milford Haven</b> <b>South Hook LNG</b> <b>Start-up: 2009</b>		   	
<b>MAX. HOURLY CAPACITY</b> 2.440.000 m <sup>3</sup> (N)/h		<b>NOM. ANNUAL CAPACITY</b> 21 bm <sup>3</sup> (N)/year	
<b>NOMINATION</b>	-	<b>ALLOCATION</b>	-
<b>MATCHING</b>	-	<b>FLOW CONTROL</b>	-
<b>SCHEDULE</b>	-	<b>MEASUREMENT</b>	-
<b>LNG STORAGE CAPACITY</b>		775.000 m <sup>3</sup> LNG	
<b>NUMBER OF TANKS</b>		5	
<b>MAX. LNG SHIP CLASS SIZE REC.</b>		265.000 m <sup>3</sup> LNG	
<b>URL AUTHORISED SHIPS</b>		www.southhooklng.co.uk	
<b>NUMBER OF JETTIES</b>		2	
<b>MIN. SEA DEPTH ALONG SIDE</b>		-	
<b>MAX. SEND OUT PRESSURE</b>		-	

Source: GLE's LNG map, June 2010.

### **Dragon LNG.**

The Dragon LNG terminal has been developed at Waterston, Milford Haven in Wales.

The Dragon LNG Terminal facilities consist of: an LNG unloading jetty, LNG storage tanks and LNG regasification. The terminal has the capacity to receive and unload up to 217,000 cubic metre capacity carriers in approximately 24 hours. Combined with the new Liquefied natural gas storage tanks giving a maximum gas send out rate to the NTS of 1,200,000 standard cubic metres per hour.

Dragon LNG terminal received its first shipment of LNG from MS Methane Lydon Volney on 14<sup>th</sup> July 2009. The cargo of 145,000 cubic metres of LNG from Atlantic LNG in Trinidad was being used to commission the new terminal. After two more commissioning cargoes the terminal commenced commercial operation in August 2009. During August 2009, Dragon LNG injected about 4 MMcm per day into the UK grid.<sup>140</sup>





On 1<sup>st</sup> September 2009 Dragon LNG published a press release communicating that Dragon LNG's new liquefied natural gas terminal at Waterston, Milford Haven in South West Wales had successfully completed its commissioning phase and has commenced commercial operation.<sup>141</sup>

Further information about Dragon LNG terminal can be found at Dragon LNG website (<http://www.dragonlng.co.uk>)

<sup>140</sup> World Gas Intelligence, "MARKET INSIGHT: LNG Overflow Coming?" Vol. XX, No. 38, September 23, 2009.

<sup>141</sup> [http://www.dragonlng.co.uk/press\\_release.pdf](http://www.dragonlng.co.uk/press_release.pdf)

**Table 47: General information about Dragon LNG terminal.**

<b>UK, Milford Haven</b> <b>Dragon LNG</b> <b>Start-up : 2009</b>	
   	
MAX. HOURLY CAPACITY 1.140.000 m <sup>3</sup> (N)/h	NOM. ANNUAL CAPACITY 6 bm <sup>3</sup> (N)/year
NOMINATION -	ALLOCATION -
MATCHING -	FLOW CONTROL -
SCHEDULE -	MEASUREMENT -
LNG STORAGE CAPACITY	320.000 m <sup>3</sup> LNG
NUMBER OF TANKS	2
MAX. LNG SHIP CLASS SIZE REC.	217.000 m <sup>3</sup> LNG
URL AUTHORISED SHIPS	www.dragonlng.co.uk
NUMBER OF JETTIES	-
MIN. SEA DEPTH ALONG SIDE	-
MAX. SEND OUT PRESSURE	-

Source: GLE's LNG map, June 2010.

### 1.7.2 Unbundling requirements.

#### Isle of Grain.

Grain LNG is 100% owned by National Grid. National Grid is an international electricity and gas company and one of the largest investor-owned energy companies in the world. National Grid plc's ordinary shares are listed on the London Stock exchange. National Grid main shareholders as of 31<sup>st</sup> March 2010:

**Table 48: National Grid's major shareholders.**

Major Shareholder	% of voting rights
Blackrock Inc.	4.99
Legal and General Group plc	4.35
Crescent Holding GmbH	4.34
Capital Group Companies, Inc.	3.75
FMR Corp	3.06

Source: National Grid website.

National Grid is subject to ownership unbundling.

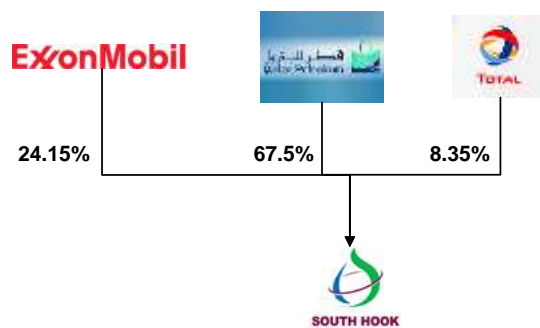
The Gas Act from 1986, amended by Gas Act from 1995, prohibits the holder of a public gas transporter's licence to hold a gas supplier's or gas shipper's licence.

#### South Hook LNG.

South Hook LNG terminal is owned by South Hook LNG Terminal Company Ltd, that has three shareholders: Qatar Petroleum (67.5%), Exxon Mobil (24.15%) and Total (8.35%).



Figure 26: South Hook LNG shareholder structure.

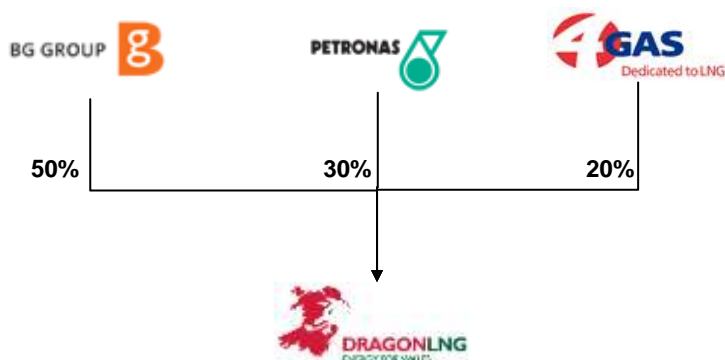


Source: South Hook LNG website.

### Dragon LNG.

The terminal is currently participated by BG Group (50%), Petronas (30%) and 4Gas (20%).

Figure 27: Dragon LNG shareholder structure.



Source: Dragon LNG website.

### 1.7.3 Access rules.

The three terminals in operation have been granted an exemption from Directive European Directive 2003/55/EC requirement to have TPA to the terminals.

### Isle of Grain.

OFGEM granted the Isle of Grain LNG terminal an exemption from European Directive 2003/55/EC requirement to have TPA to the terminal on the condition that National Grid Grain LNG Ltd. had in place effective “Use It or Lose It” arrangements so that other companies could import gas through the facility if BP and Sonatrach were not using the facility.

OFGEM has the power to amend or revoke this exemption if UIOLI arrangements are not satisfactory.



On January 25<sup>th</sup> 2008, BP, Sonatrach and National Grid LNG published the document “Access to secondary capacity in Phase 1 of the Isle of Grain import and regasification terminal”, which main purpose is to provide guidance to interested shippers who may wish to access secondary capacity at Phase 1 of Isle of Grain LNG terminal. This document mainly describes the nature of the secondary capacity that will be made available and the auction process by which it will be offered.

### **South Hook LNG.**

The relevant information regarding the access rules that apply to South Hook LNG terminal is available at South Hook website (<http://www.southhooklng.co.uk>).

South Hook LNG has published in its website a guide describing the facilities available at the LNG terminal, the nature of the secondary terminal capacity a party may access and the different methods of accessing to such capacity. It also sets out the process by which a party may become an additional user at the terminal and a step-by-step guide of how to participate in a capacity auction, should an additional user decide to access secondary terminal capacity in this way. The rules for access and use of the Terminal are contained in the Terminal Access Code (TAC).<sup>142</sup>

The relevant legal documents applicable to use of the terminal are:

- Terminal Access Code (TAC). The TAC contains the terms and conditions applying between the TO and users (both the Base User and Additional Users) on which terminal capacity may be held and used.
- Terminal Access Agreement (TAA). The TAA is a short bilateral agreement between a User and the TO. It incorporates and gives contractual effect to the TAC.
- South Hook Manual (SHM). The SHM sets out detailed technical and procedural requirements in support of the TAC, including the web-based Terminal Access System (TAS) for commercial communications, LNG tanker vetting, ship-shore procedures. It also includes the detailed auction procedures and the TO's credit policy. The TAC makes the SHM binding on users.
- Network Entry Provisions (NEPs). The NEPs are provisions relating to gas specification and measurement (relevant to the terms of a User's service at the Terminal) incorporated in the Network Entry Agreement (NEA) between the TO and National Grid Gas in respect of the UK National Transmission System (NTS).

However, these documents have not been found at South Hook LNG website.

### **Dragon LNG.**

Dragon LNG was granted an exemption from regulated Third Party Access from Ofgem on the construction of an initial capacity of 6 bcm per year; and an expanded capacity of up to 6 bcm per year, to be constructed in one or more phases.

The users of Dragon LNG will be BG and Petronas. BG and Petronas have entered into 20-year terminal use agreements with Dragon LNG for 50% each of the terminal capacity. Petronas has entered into an agreement to onsale its output of the first phase to Centrica (2.2 Mtpa or 3 bcm per year).

<sup>142</sup> [http://www.southhooklng.co.uk/features/GuidanceDocument\\_ProspectiveAdditionalUsers.pdf](http://www.southhooklng.co.uk/features/GuidanceDocument_ProspectiveAdditionalUsers.pdf)



Dragon LNG Limited and its long term customers, BG International Limited and Petgas Trading (UK) Limited expect to provide details of its anti hoarding mechanism on the Dragon website within the next month. Unused slots will be made available to the secondary market by customers before the end of October 2009.

The relevant information about the access rules that apply to Dragon LNG is available at its website. There are three main documents which contain the relevant information to access to Dragon LNG terminal:

- Guide to Secondary Capacity<sup>143</sup>. This document explains the first steps to become qualified and describes the anti-hoarding mechanism at the Dragon LNG terminal
- Customer Information Form<sup>144</sup>. This document is required to proceed to qualification. Applicants must sign this in order to receive further documentation and to proceed to the second stage of the qualification process
- Confidentiality Agreement for either BG International Limited (BG) and/or Petgas Trading (UK) Limited (Petronas)<sup>145</sup>. This document is required to proceed to qualification. Applicants must complete this in order to receive further documentation and to proceed to the second stage of the qualification process.

Additionally, there are a number of documents associated with the secondary market, which are not publicly available. These are listed and described below:

- Dragon LNG Secondary Capacity Access Auction Code. This code details the qualification procedures and auction processes, includes forms (including the Final Offer) required for applicants to complete the qualification process and for qualified Bidders to take part in the auction process. It is only provided to applicants who successfully complete the Customer Information Form and the Confidentiality Agreement, including payment of a fee of £1,000 plus VAT to each Primary Shipper.
- LNG and Gas Delivery Terms and Conditions. Together with the Final Offer from a Qualified Bidder which is accepted by the Primary Shipper, forms the contract between the Primary Shipper and the winning bidder ("the Customer"). Details all the terms and conditions relevant to the delivery of the service described above. Latest version provided to Applicants on becoming a Pre-Qualified Bidder, following payment of a fee of £5,000 plus VAT to each Primary Shipper.
- Dragon LNG Terminal Regulations.

#### **1.7.4 Services offered.**

##### **Isle of Grain.**

The services provided by the Isle of Grain LNG terminal are enumerated on the LNG Grain Access website. These services comprise berthing and unloading slots, LNG storage and regasification.

<sup>143</sup> [http://dnas.dragonlng.co.uk/files/Final%20version%20-%20Guide\\_to\\_Secondary\\_Capacity\\_\(September%202009\).pdf](http://dnas.dragonlng.co.uk/files/Final%20version%20-%20Guide_to_Secondary_Capacity_(September%202009).pdf)

<sup>144</sup> <http://dnas.dragonlng.co.uk/files/Dragon%20UIOLI%20CUSTOMER%20INFORMATION%20FORM.pdf>

<sup>145</sup> [http://dnas.dragonlng.co.uk/files/Final%20UIOLI\\_Confidentiality\\_Agreement.pdf](http://dnas.dragonlng.co.uk/files/Final%20UIOLI_Confidentiality_Agreement.pdf)



### **South Hook LNG.**

The Base User's<sup>146</sup> (SHB) Terminal Capacity rights comprise:

- Firm rights to berth LNG tankers with loaded capacities between 125,000m<sup>3</sup> and 267,000m<sup>3</sup> within identified arrival windows (Berthing Slots), and to unload an agreed quantity and quality of LNG;
- Firm temporary LNG storage space within the Terminal that initially matches the firm LNG quantity to be unloaded (LNG Space); and
- Firm rights on any given day to have regasified LNG redelivered at the tailgate of the Terminal immediately prior to the entry flange to the NTS (Redelivery Capacity).

The Base User can transfer terminal capacity to an Additional User only as an SHB comprising a specified berthing slot and an amount of firm redelivery capacity and LNG space for a defined SHB period. The Base User can also transfer firm redelivery capacity to Additional Users that already hold an SHB, for any gas day(s) in the SHB period. The additional firm redelivery capacity will be added to the existing SHB.

### **Dragon LNG.**

The Primary Shippers' capacity rights consist of the rights to:

- berth and unload LNG tankers ("berth slot");
- store LNG prior to regasification; and
- regasify and send out gas into the National Grid National Transmission System.

## **1.7.5 Capacity allocation procedures.**

### **Isle of Grain.**

All primary capacity at the terminal has been auctioned through open season processes and is fully contracted as follows:

- BP/Sonatrach have a 3.3 Mtpa, 20-year contract to use the terminal to berth and unload LNG ships and store LNG, before regasification and nomination of gas for delivery into the UK's National Transmission System.
- 6.5 Mtpa of expansion capacity has been contracted to Centrica, GDF SUEZ and Sonatrach, again on a long term basis from winter 2008/09.
- 5 Mtpa of expansion capacity has been contracted to Centrica, E.ON and Iberdrola, again on a long term basis from Winter 2010/11.

<sup>146</sup> South Hook Gas Company Ltd (SHG or Base User) has acquired all firm primary capacity rights at the Terminal (Terminal Capacity).





The contractual arrangements allow the primary capacity holders to sell importation capacity (berthing slots, space or deliverability) to secondary users. Parties interested in obtaining secondary capacity therefore need to contact the primary capacity holders above in the first instance.

### **South Hook LNG.**

South Hook Gas Company Ltd, a UK Joint venture of Qatar Petroleum Gas Trading (QGII) Limited (70%) and ExxonMobil Qatargas (II) Limited (30%) has purchased 100% of primary capacity at the terminal.

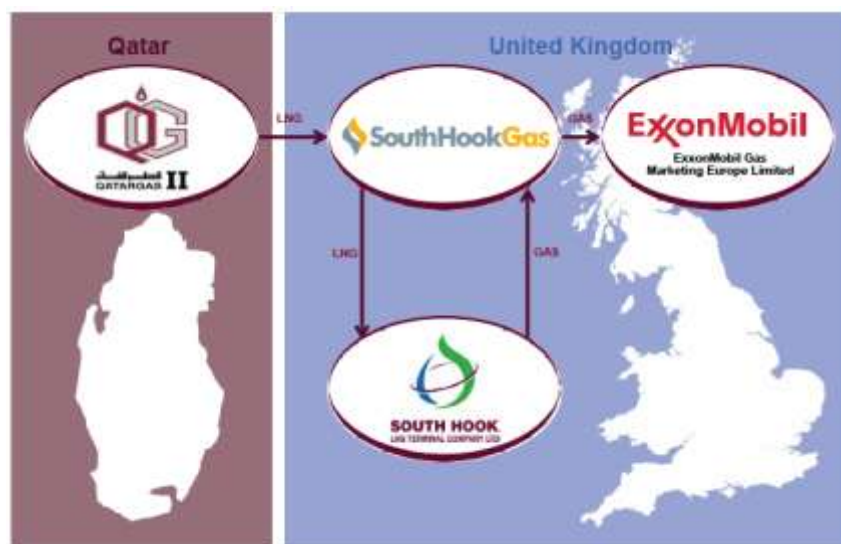
South Hook is a vertically integrated project. South Hook LNG has entered into a capacity agreement with South Hook Gas Company (Base User or SHB), who has contracted the full capacity of each phase by the shareholders of the LNG terminal.

According to the document “Guidance Document for Prospective Additional Users”, available at South LNG website, Additional Users can purchase secondary terminal capacity from SHG as Base User, and hold such capacity, in the form of a South Hook Bundle (or SHB). Once an SHB has been created and purchased by an Additional User, it can be sold to other Additional Users.

There are a number of ways by which an Additional User can access secondary terminal capacity:

- by agreeing to purchase an SHB with the Base User;
- by participation in an auction conducted by the TO (as and when secondary terminal capacity is available in defined timescales); and
- by agreeing SHB transfers with other Additional Users.

**Figure 28: South Hook LNG commercial relationships.**



Source: South Hook LNG website.

### **Dragon LNG.**



All capacity rights at the Dragon LNG terminal have been sold to BG Group and Petgas (“the Primary Shippers”) for a period of 20 years, who are also shareholders of the project.

According to the “Guide to Secondary Capacity Access”, third parties can access capacity at the Dragon LNG terminal via the following methods:

- Bilateral agreement with one of the primary shippers for use of capacity at the Dragon LNG terminal,
- An ex ship arrangement with one of the primary shippers, or
- The anti-hoarding mechanism in the event that agreement has not been reached under the first two methods, and the primary shipper has identified a berth slot that will not be used.

### **1.7.6 Long term/short term capacity offering requirements.**

There are no requirements.

### **1.7.7 Contracts duration.**

#### **Isle of Grain.**

A twenty year contract is in place with BP/Sonatrach to enable them to import LNG into the UK from other countries.

#### **South Hook LNG.**

All capacity rights have been sold for a period of 25 years.

#### **Dragon LNG.**

All capacity rights at the Dragon LNG terminal have been sold to BG Group and Petgas (“the Primary Shippers”) for a period of 20 years.

### **1.7.8 Programming / Nomination procedures.**

No information on programming and nomination procedures of neither of the LNG terminals currently in operation is available.

### **1.7.9 Congestion management procedures.**

See “1.7.5 Capacity allocation procedures.” above.

### **1.7.10 UIOLI.**

#### **Isle of Grain.**

As already stated, OFGEM granted the Isle of Grain LNG terminal an exemption from European Directive 2003/55/EC requirement to have regulated access to the terminal on the condition that National Grid Grain LNG Ltd. had in place effective “Use It or Lose It” arrangements so that other companies could import gas through the facility if BP and Sonatrach were not using the facility.





### **South Hook LNG.**

OFGEM granted exemption to South Hook LNG from rTPA conditional on effective mechanism to ensure that capacity is not hoarded: UIOLI agreements.

Base users that do not plan to use their capacity are entitled to sell it to additional users.

### **Dragon LNG.**

OFGEM granted exemption to Dragon LNG from rTPA conditional on effective mechanism to ensure that capacity is not hoarded: UIOLI agreements.

## **1.7.11 Method for calculating usable, available and unused capacities.**

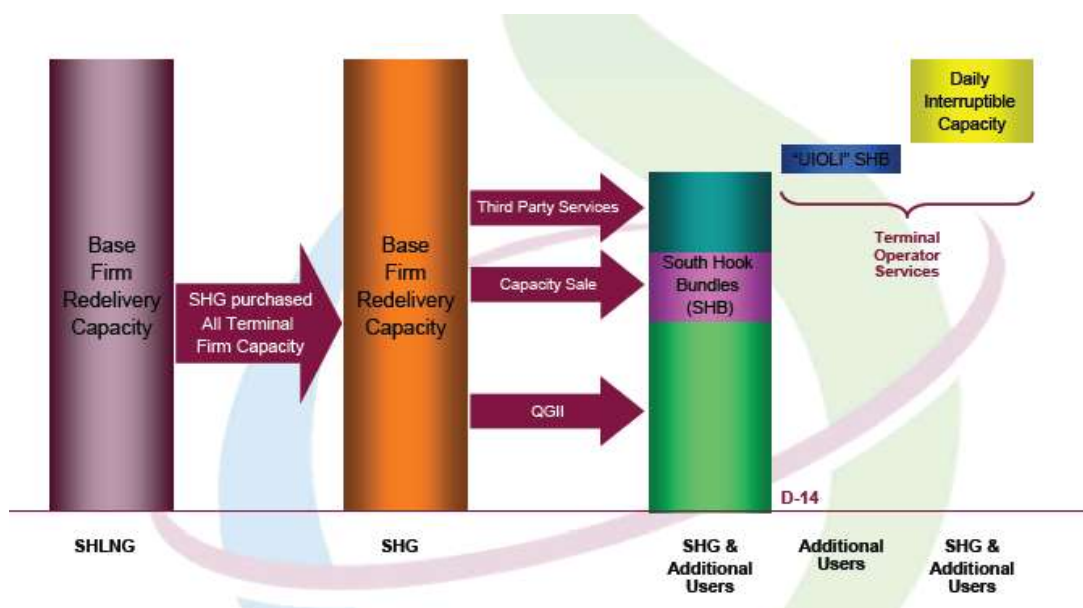
### **Isle of Grain.**

No information on the calculation method is available.

### **South Hook LNG.**

The following figure shows the different types of capacity offered at South Hook Terminal as presented at the Ofgem LNG seminar on 11<sup>th</sup> February 2009.<sup>147</sup>

**Figure 29: South Hook LNG capacity timeline.**



**Source:** Industry LNG Seminar, Institute of Mechanical Engineers 11 February 2009.  
Abdulrahman Al Mannai. Commercial Manager.

### **Dragon LNG.**

<sup>147</sup> [http://www.southhooklng.co.uk/features/ofgem\\_presentation.pdf](http://www.southhooklng.co.uk/features/ofgem_presentation.pdf)



No information on the calculation method is available.

### **1.7.12 Send-out requirements.**

#### **Isle of Grain.**

Isle of Grain does not offer any information on send-out requirements. According to the NERA Economic Consulting study on “Third Party Access to LNG terminals”, the send-out rate is over 6.5 to 7 days.

#### **South Hook LNG.**

According to the document “Guidance Document for Prospective Additional Users”, the rate of nitrogen ballasting capacity may limit the redelivery capacity rate that can be achieved.

In certain circumstances the TO may comply with its obligation to redeliver regasified LNG on any particular day to an Additional User by delivering gas at the NBP to that Additional User (or its nominee).

Arrangements for NBP delivery are set out in the TAC. Additional Users must put in place standing arrangements to facilitate NBP delivery. Under the TAC these arrangements are required to be put in place before (and as a pre-condition to) the first occasion on which an Additional User acquires an SHB.

The Additional User will be responsible for arrangements for delivery of its regasified LNG into the NTS from the terminal. These arrangements will include holding a Shipper Licence, being a party to National Grid's Network Code, acquiring the necessary NTS entry capacity, and Claims Validation arrangements. The Additional User may itself be a shipper or make its own independent arrangements with third parties in respect of the shipping of the regasified LNG through the NTS. Under certain circumstances the Base User may transfer NTS entry capacity to an Additional User in connection with a Release SHB.

#### **Dragon LNG.**

Dragon LNG does not offer any information on send-out requirements.

### **1.7.13 Gas quality requirements.**

#### **Isle of Grain.**

Isle of Grain does not offer any information on gas quality requirements.

Grain LNG has installed, at the request of its current customers, a Nitrogen blending facility to blend a defined quality of LNG to within GSMR specification.

#### **South Hook LNG.**

According to the document “Guidance Document for Prospective Additional Users”, nitrogen ballasting facilities have been designed and constructed on the assumption lean LNG produced in Qatar will be delivered at the terminal.

#### **Dragon LNG.**



Dragon LNG does not offer any information on gas quality requirements.

#### **1.7.14 *Balancing regime/Management of LNG stock levels.***

##### **Isle of Grain.**

Isle of Grain does not offer any information on its balancing regime or the management of LNG stock levels. According to the NERA Economic Consulting study on “Third Party Access to LNG terminals”, the TO tries to keep the tanks full for maximum flexibility of send-out.

##### **South Hook LNG.**

South Hook LNG does not offer any information on its balancing regime or the management of LNG stock levels.

##### **Dragon LNG.**

Dragon LNG does not offer any information on its balancing regime or the management of LNG stock levels.

#### **1.7.15 *Own consumption record and gas in kind.***

Neither LNG terminal offers any information on its consumption record or gas in kind requirements for shippers.

#### **1.7.16 *Charges and/or penalties for imbalance, cancellation and other, including minimum payment obligations.***

None of the LNG terminals in operation in the UK offer any information on charges and/or penalties for imbalance, cancellation or other.

#### **1.7.17 *Financial guarantees.***

##### **Isle of Grain.**

Isle of Grain does not offer any information on financial guarantees requirements. According to the NERA Economic Consulting study on “Third Party Access to LNG terminals”, secondary capacity user has to pay the fee upfront.

##### **South Hook LNG.**

According to the document “Guidance Document for Prospective Additional Users”, a party wishing to have access to secondary terminal capacity at the terminal must pay a non-refundable application fee of £10,000.

Besides, additional users must comply with the TO's credit policy set out in the SHM, as mentioned before this document is not publicly available. The credit requirements relate to the redelivery charge (and potentially any other amounts which the additional user may owe the TO).

For each SHB, credit requirements must be satisfied no later than 15 days before the start of the SHB period.



### **Dragon LNG.**

According to the document “Guide to Secondary Capacity Access”, the applicant who wishes to contract secondary capacity must make a payment of £6,000 plus VAT to each Primary Shipper, in accordance with the relevant payment procedures.

### **1.7.18 Secondary market.**

#### **Isle of Grain.**

The primary capacity holders can sell capacity to secondary users when they do not intend to use it. This means a combination of:

- An available berthing slot.
- Sufficient tank space to unload a LNG carrier.
- Sufficient send-out capability to ensure that sufficient space can be made available for the next scheduled berthing slot.

The secondary capacity at the LNG terminal is accessible to potential shippers through arrangements with BP/Sonatrach or through interruptible capacity made available at National Grid Grain LNG as the TO.

Parties interested in obtaining secondary capacity therefore need to contact the primary capacity holders in the first instance.

Additionally a bulletin board, published at National Grid Grain LNG website, is available for parties to express interest in buying or selling capacity at the LNG terminal.

On 31<sup>st</sup> July, 2006, the Primary Shipper announced that the two existing arrangements would be complemented by a third, the "Secondary Capacity Mechanism", which has been developed by the BP/Sonatrach after “extensive consultation with industry players”. In finalising the definitive legal documentation to support these arrangements a number of complex issues have arisen such that the Secondary Capacity Mechanism cannot yet be made available. The Secondary Capacity Mechanism will not work until these issues are solved.

To the extent that primary capacity (or secondary capacity) is not being utilized then in accordance with the terminal's exemption from Third Party Access requirements, Grain LNG will operate a UIOLI facility at the terminal.

#### **South Hook LNG.**

The functioning of the secondary market is described in the document “Guidance Document for Prospective Additional Users”.

Where there is forecast to be sufficient unused redelivery capacity and scope for an additional berthing slot, the TO will offer an additional SHB (a release SHB) to Additional Users.

Release SHBs have a fixed 7 day duration (SHB period) and are offered 14 days ahead of the berthing slot. The TO will define the amounts (or ranges for the amounts) of terminal capacity



available to be comprised in the release SHB. Additional users can apply via an EBB for release SHBs and offer the price (£/GWh of redelivery capacity) they are willing to pay.

If the TO's forward projections show that the Base User's Inventory levels do not allow enough LNG space for a release SHB but there is berth availability, the TO may offer an advance Release SHB. Under this mechanism, the SHB period commences before the unloading (i.e. before the berthing slot) and inventory is loaned by the Base User to the Additional User for this period to enable it to redeliver LNG consistent with the SHB.

Release SHBs are offered by the TO on behalf of the Base User; and an Additional User whose application is accepted enters into a release Capacity Transfer Agreement (in the form contained in the TAC) with the Base User for the SHB, under which the terminal capacity is transferred by the Base User to the Additional User, and the Additional User pays the offered price to the Base User. Under the Release Capacity Transfer Agreement, the Additional User must comply with the Base User's credit requirements.

In certain cases, applicants for a Release SHB have the option of applying for a matching amount of NTS entry capacity for each Gas Day in the SHB Period.

Auctions will be held and administered by the TO. They will be conducted as follows:

- Fourteen days in advance (D-14) of each day (D) the TO will assess whether a release SHB can be made available. If so, the TO will advertise an auction to all additional users, specifying day D (the date of the berthing slot), the duration of the SHB period and whether matching NTS entry capacity is available.
- Between D-14 and D-10 additional users may make 'bid enquiries'. A bid enquiry specifies LNG cargo size, LNG composition and name of approved LNG tanker. The TO will respond (via the TAS) to each bid enquiry indicating whether it is feasible within the range of terminal capacity identified for the auction and (if so) confirm the berthing slot date. If the berthing slot date is later than day D the SHB would be an advance release SHB. Page 10 of 12
- Where the TO indicates that a bid enquiry is feasible, it will notify the additional user of the reserve price (if any) and the additional user may confirm the bid by posting the offered price. If a bid enquiry is not confirmed it has no effect.
- The TO may, at any time while the auction remains open, cancel the auction, in which case all bid enquiries and confirmed bid enquiries lapse.
- On D-10 the TO will select the winning bid (applying the selection criteria in the SHM), subject to any reserve price; and announce the auction result.
- The TO will execute the release capacity transfer agreement in respect of the relevant release SHB on behalf of the Base User, which will operate as acceptance of the Additional User's bid.
- The Additional User must then comply with the terms of the release capacity transfer agreement, including credit requirements and payment of the offered price. The additional user must also pay the capacity transfer fee and any other costs that may arise from making its application.

### **Dragon LNG.**



The functioning of the secondary market is described in the document “Guide to Secondary Capacity Access”.

Access to the service described above will be via an auction. Only qualified bidders (will be allowed to participate in an auction. A notice (“Auction Notice”) that an auction is going to take place will be placed on the Dragon website at least 12 days prior to the relevant berth slot (the “Scheduled Day of Arrival”). Any qualified bidder may request further details about the auction from the relevant primary shipper, following which the primary shipper will e-mail the qualified bidder the specific conditions associated with the auction (e.g. maximum cargo size to be accepted, reserve price, indicative transportation related charges etc.).

The qualified bidder who submits the highest valued conforming bid (measured in terms of total net profit, i.e. the total bid price in pence per therm multiplied by the quantity of LNG in therms) will win the auction.

A reserve price will be used to ensure that at least the costs of providing the service are covered. Costs may arise where the primary shipper, in providing sufficient storage space for the third party LNG, is forced to send out gas early at a lower price than would have been available if the gas had been sent out later. The reserve price may also be used to ensure that the primary shipper receives a reasonable share of the market value of the slot. The reserve price is calculated using market prices. An indicative reserve price is notified to all qualified bidders when the auction is announced. A final reserve price is notified to qualified bidders at the start of the last day of the auction. This is to enable the reserve price to take account of any changes in market prices since the indicative reserve price was announced.

In order to participate in an auction qualified bidders will also need to have in place sufficient credit support in the form of a letter of credit issued by a bank or financial institution satisfactory to the primary shipper (“Letter of Credit”). To minimise potential costs to qualified bidders, a short term letter of credit is required of all bidders in an auction. The winning bidder is required to put in place a longer term letter of credit, whilst the short term letters of credit are returned to all the unsuccessful bidders after the auction close.

An indicative timetable for an auction is shown below. Note that this timetable will be lengthened to take account of non business days, so that the timetable below shows the minimum time period during which an auction can take place.

- D-13. Primary shipper confirms to Dragon that berth slot is not scheduled to be used.
- D-12. Auction announced on Dragon website. Qualified bidders may request further information from the relevant primary shipper. Any qualified bidder who requested further information will receive an e-mail from the primary shipper including the indicative reserve price, and other slot specific terms and conditions (including the timetable for the auction).
- D-10. Qualified bidders send electronic copy of short term letter of credit to primary shipper and details of vessel and cargo they propose to deliver. If vessel and cargo accepted, primary shipper notifies qualified bidder.
- D-9. 10.00. Primary shipper e-mails final reserve price to qualified bidders whose ships have been accepted and who arranged an acceptable short term letter of credit.
- D-9 12.00. Deadline for qualified Bidders to send final bids (“Final Offers”) and the original letters of credit.



- D-9 24.00. Primary shipper completes evaluation of bids and notifies winning qualified bidder (who becomes the customer) by accepting his final offer. Primary shipper issues an initial invoice to winning bidder including the base charge (the winning bid value), estimation of transportation charges, nitrogen, etc. based on quantities and quality of LNG notified by winning bidder.
- Letters of credit returned to losing bidders.
- D-8 to D-1. Primary shipper empties tanks at the Dragon LNG terminal in order to accommodate the customer's LNG cargo.
- D-6. The customer pays the initial invoice and sends electronic copy of long term letter of credit. Customer sends original of long term letter of credit to primary shipper.
- D-4. Upon receipt of original of long term letter of credit, primary shipper returns short term letter of credit to the customer.
- D 0. Scheduled day of arrival and unloading of the customer's ship. The primary shipper takes title to the LNG delivered by the customer.
- D+1 to D+10. Delivery of gas to the customer at the NBP.

Failure to comply with all the terms and conditions of the auction and the service may result in the cancellation of the auction or service at any time.

Note that each primary shipper is responsible for managing the use of its own berth slots, administration of its auction process and calculation of its reserve price. However the underlying procedures and principles, and the contractual terms and conditions are common to both primary shippers.

### **1.7.19 Limitation in vessel size.**

#### **Isle of Grain.**

The Isle of Grain LNG terminal is able to handle LNG carriers from 70,000m<sup>3</sup> up to 205,000m<sup>3</sup>.

#### **South Hook LNG.**

South Hook LNG terminal can accommodate LNG carriers up to 265,000m<sup>3</sup>.

#### **Dragon LNG.**

Dragon LNG terminal has the capacity to receive and unload up to 217,000m<sup>3</sup> capacity carriers in approximately 24 hours.

### **1.7.20 Force majeure.**

Isle of Grain, South Hook LNG and Dragon LNG do not offer any information on the definition of "force majeure" in its contractual conditions.





### **1.7.21 Ship vetting at LNG terminal.**

#### **Isle of Grain.**

The ship vetting requirements can be obtained once a confidential agreement with Grain LNG has been fulfilled.

Isle of Grain does not offer any public information on ship vetting at the LNG terminal. According to the NERA Economic Consulting study on “Third Party Access to LNG terminals”, ships are vetted by a specialist authority as well as by Grain. Procedure could take as little as 4 or 5 days in an urgent case.

#### **South Hook LNG.**

The document “Guidance Document for Prospective Additional Users” establishes that a user may only use an LNG tanker which is approved by the TO. Vetting and approval procedures are covered in the SHM, this document is not public available.

Additional users are also encouraged to submit a list of the LNG tankers they propose to use for deliveries of LNG to the terminal and to make this submission well ahead of the arrival window for the relevant tanker. The TO will make a charge for the vetting procedure and details of this and other terms and conditions applicable to the vetting of LNG tankers are set out in the relevant section in the SHM.

#### **Dragon LNG.**

No public information is provided about ship vetting at Dragon LNG terminal.

### **1.7.22 Standard contracts.**

#### **Isle of Grain.**

Isle of Grain does not offer any information on the “standard contracts” to access the facility.

#### **South Hook LNG.**

A “Terminal Access Agreement (TAA)” is mentioned by South Hook LNG in the document “Guidance Document for Prospective Additional Users” when listing the relevant legal documents applicable to use the LNG terminals. As mentioned before, this document is a short bilateral agreement between a user and the TO.

#### **Dragon LNG.**

Dragon does not offer any information on the “standard contracts” to access the facility. However, the “Customer Information form”, which must be completed in order to receive further documentation, and the “Confidentiality Agreement” are available at Dragon LNG website.

### **1.7.23 TPA tariffs.**

No TPA tariffs are published.





### **1.7.24 Capacity booking procedures.**

#### **Isle of Grain.**

Parties interested in obtaining access to the LNG terminal (to utilize secondary or UIOLI capacity) must comply with the Grain LNG General Terms & Conditions. These can be obtained, together with other applicable conditional documents such as the Terminal Operating Procedures and Ship Vetting requirements, by entering into a confidentiality agreement with Grain LNG. The confidentiality agreement can be obtained by writing, stating your interest in the terminal.

Detailed information regarding secondary booking procedures are detailed at the document “Access to secondary capacity in phase 1 of the Isle of Grain LNG import and re-gasification terminal”, available at the Shipper’s website.

Applicants who wish to apply for access to secondary capacity must take the following steps:

1. Download the Confidentiality & Escrow Agreement found at [www.lngga.com](http://www.lngga.com), add in their company name and details where indicated on the form and print off and execute four (4) originals of this Agreement. No amendments will be accepted other than those relating to the identity of the Applicant and its contact details. If an Applicant makes changes to the form of the Confidentiality & Escrow Agreement of any substantive provisions, this will be rejected.
2. Send
  - a. the executed originals of the Confidentiality & Escrow Agreement by registered delivery post to the address below, and
  - b. an email to the Grain LNG Agency to advise them the document has been sent.

Counter-signed executed originals will be returned to the Applicant by the Auction Administrator, along with details of the respective methods of payment for BP and Sonatrach.

Upon receipt by the Applicant of the signed executed originals of the Confidentiality & Escrow Agreement, and details of the payment methods:

3. Pay the Auction Information Fee of £1,000 plus VAT to BP Gas Marketing Limited and £1,000 plus VAT to Sonatrach Gas Marketing UK Limited using the payment method specified by the Auction Administrator. BP and Sonatrach will each issue a receipted VAT invoice.

The Applicant will then receive a copy of the Auction User Guide (in PDF format) by email.

4. To participate in an auction the Applicant will be required to fulfill the pre-qualification and qualification requirements set out in the Auction User Guide.

#### **South Hook LNG.**

A party wishing to have access to secondary terminal capacity at the terminal must become an Additional User. In order to become an Additional User the party must:



- demonstrate to the TO that the necessary arrangements are in place for the redelivery of regasified LNG to the NTS;
- pay a non-refundable application fee of £10,000; and
- sign a Terminal Access Agreement (TAA) (by which the TAC is made binding).

In order to become an Additional User the following steps must be followed:

1. Download the standard Confidentiality Agreement that can be found at [www.southhooklng.com](http://www.southhooklng.com), complete all details as required, print and execute 2 originals of that agreement. Applicants are advised that this is a standard document applicable to all applicants and material amendments will not be accepted.
2. Send by registered post to the TO:
  - a. the executed originals of the Confidentiality Agreement; and
  - b. a letter of application stating:
    - i. name and address of the applicant's registered office or equivalent;
    - ii. a brief summary of the applicant's interest and participation in the LNG/Gas market;
3. Upon receiving the executed Confidentiality Agreement and letter of application, the Terminal Operator will send the applicant:
  - counter-signed executed original of the Confidentiality Agreement;
  - payment instructions for the application fee of £10,000.
    - The applicant must pay the application fee in accordance with the payment instructions.
4. Upon receiving the payment of the application fee, the Terminal Operator will send the applicant copies of the following documents:
  - Terminal Access Agreement (TAA);
  - Terminal Access Code (TAC);
  - South Hook Manual (SHM);
  - Network Entry Provisions (NEPS).
5. The applicant must:
  - complete and execute 2 originals of the TAA; and
  - send the form and 2 originals of the TAA by registered post to TO.



After successful verification of the relevant information supplied by the applicant, the Terminal Operator will counter sign and return executed originals of the TAA.

### **Dragon LNG.**

Third parties who may wish to access to secondary capacity are required to be qualified in advance of an auction. This includes ensuring that third parties are credit worthy counter-parties, and that their ships are fit to use the Dragon LNG terminal. The qualification forms used by the primary shippers are the same, however, each primary shipper will apply its own rules and procedures when assessing a third party for qualification, for example for credit. If a third party is only qualified by one of the primary shipper, it will only be allowed to participate in auctions for slots administered by the Primary Shipper which has qualified that third party.

There is a 3 step qualification process:

1. The third party ("the Applicant") downloads the Confidentiality Agreement and the Customer Information Form from the Dragon LNG website. The Customer Information Form asks for basic information on the Applicant (e.g. Company Name, Company Registration Number etc.). The Applicant returns the signed Confidentiality Agreement, completed Customer Information Form and makes a payment of £1,000 plus VAT to each primary shipper, in accordance with the relevant payment procedures.
2. Assuming that the primary shipper is satisfied with the Customer Information Form and the Confidentiality Agreement, the Primary Shipper will send the Applicant a copy of the Auction Code. This details the further qualification requirements, which include, amongst other things, required credit checks. If the Applicant wishes to proceed, he returns the relevant information outlined in the Auction Code (e.g. Pre-Qualification Form, NBP Counter Party Form), and makes a payment of £5,000 plus VAT to each Primary Shipper, in accordance with the relevant payment procedures<sup>2</sup>. If the Primary Shipper is satisfied with the information provided, the Applicant becomes a pre-qualified bidder ("Pre-Qualified Bidder").
3. The Primary Shipper sends the LNG and Gas Delivery Terms and Conditions, and Terminal Regulations to the Pre-Qualified Bidder. To become a qualified bidder ("Qualified Bidder"), the Pre-Qualified Bidder must complete a qualification form to the satisfaction of the Primary Shipper and have the vessel(s) he intends to use at the Dragon LNG terminal successfully vetted by the Primary Shipper. (Note: BG and Petgas have agreed that they will respect the vetting procedures of the other, so a vessel successfully vetted by one Primary Shipper should be acceptable to the other). A bidder is only a Qualified Bidder in respect of bids submitted using a successfully vetted vessel.

Applicants, Pre-Qualified Bidders and Qualified Bidders are responsible for ensuring that the information on which their bidding status is based is accurate and up to date at all times. Failure to do so, or a change in circumstances, can result in the withdrawal of their bidding status. Third parties may apply at any time to become a Pre-Qualified or Qualified Bidder.

The winning Qualified Bidder contracts with the relevant Primary Shipper. The contract consists of the Final Offer accepted by the Primary Shipper and the LNG and Gas Delivery Terms and Conditions. The Primary Shipper uses its contractual rights with the Dragon LNG terminal to ensure that it can meet its obligations under the LNG and Gas Delivery Terms and Conditions. There is no direct contractual relationship between the Customer and Dragon LNG Limited (other than a Confidentiality Agreement), thereby simplifying the contractual arrangements for third parties.



To summarise, only Qualified Bidders can take part in auctions for the service provided. Qualified Bidders must have satisfied the Primary Shippers of the following:

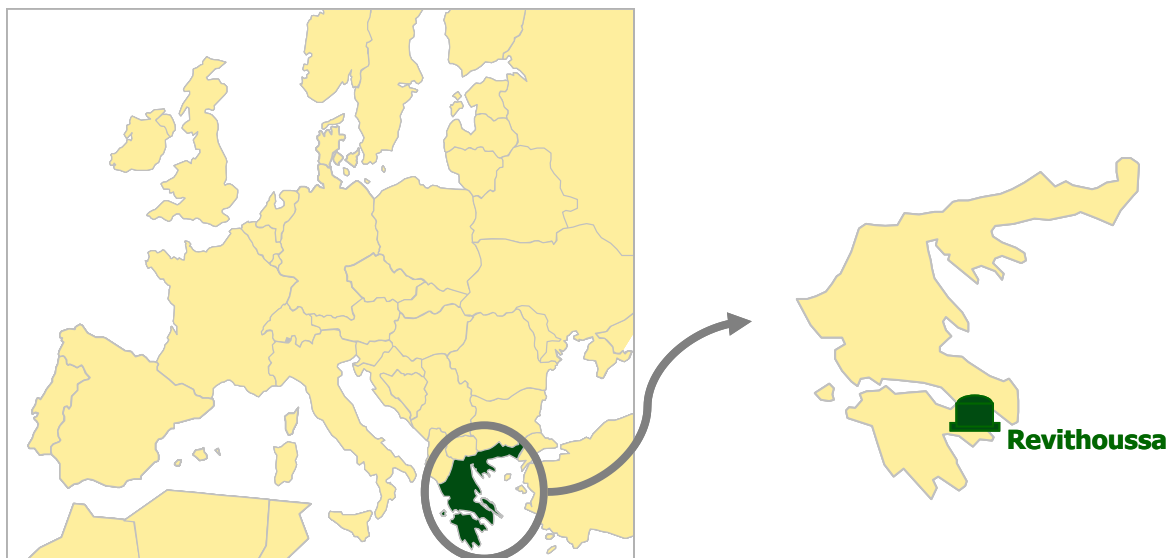
- Identity of the company
- Creditworthiness
- Accession to the Uniform Network Code and possession of a valid Shipper's Licence, and ability to trade gas at the NBP or the appointment of a shipper as an agent on its behalf
- Access to vessels that have been successfully vetted and comply with the regulations governing use of the Dragon LNG terminal.

## 1.8 Greece.

### 1.8.1 General overview.


There is one LNG terminal in Greece, owned and operated by DESFA (Hellenic Gas Transmission System Operator) S.A.

**Map 7: Location of the Revithoussa LNG terminal in Greece.**



The characteristics of the Revithoussa LNG terminal are detailed in the following table:

**Table 49: General information about the Revithoussa LNG terminal.**

<b>Greece, Revithoussa</b>		 <b>DESFA</b> National Gas Transmission System Operator	
<b>Start-up : 2000</b>			
<b>MAX. HOURLY CAPACITY</b>		<b>NOM. ANNUAL CAPACITY</b>	
current : 750.000 m <sup>3</sup> (N)/h		current : 5,3 bn <sup>3</sup> (N)/year	
by 2015: 990.000 m <sup>3</sup> (N)/h		by 2015: 7,4 bn <sup>3</sup> (N)/year	
<b>NOMINATION</b>	Yes	<b>ALLOCATION</b>	Pro Rata
<b>MATCHING</b>	No	<b>FLOW CONTROL</b>	Yes
<b>SCHEDULE</b>	D/D	<b>MEASUREMENT</b>	Yes
<b>LNG STORAGE CAPACITY</b>		current : 130.000 m <sup>3</sup> LNG	
		by 2015 : 225.000 m <sup>3</sup> LNG	
<b>NUMBER OF TANKS</b>		current : 2	
		by 2015 : 3	
<b>MAX. LNG SHIP CLASS SIZE REC.</b>		135.000 m <sup>3</sup> LNG	
<b>URL AUTHORISED SHIPS</b>		www.desfa.gr	
<b>NUMBER OF JETTIES</b>		1	
<b>MIN. SEA DEPTH ALONG SIDE</b>		13,8 m	
<b>MAX. SEND OUT PRESSURE</b>		64 bar	

Source: GLE's LNG map, June 2010.

Under the provisions of the Second Gas Directive, Greece qualified as an emerging country and, as such, was been exempted from TPA obligations. This exemption was temporary and expired on the 10<sup>th</sup> anniversary of the first gas delivery made pursuant to the first long-term natural gas contract.

DESFA prepared in 2008 a draft code of operations for accessing the National Natural Gas System (NNGS). This document was forwarded in 2008 to the Greek Regulatory Authority (RAE), and finally approved in April 2010. However, the Network Code is only available in Greek.

Thus, the information that follows is based, unless otherwise stated, on the draft code of operations mentioned above, which was published on 10<sup>th</sup> September 2008 by the Greek Regulatory Authority for public consultation<sup>148</sup>. The draft code is only available in Greek<sup>149</sup>.

<sup>148</sup> The draft code in Greek is available at [http://www.rae.gr/K2/ESFA/Code\\_final.pdf](http://www.rae.gr/K2/ESFA/Code_final.pdf)

Comments from up to 11 stakeholders submitted by late November 2008/early December 2008 are available at [http://www.rae.gr/K2/Consult\\_ESFA\\_code.html](http://www.rae.gr/K2/Consult_ESFA_code.html)

<sup>149</sup> In order to provide comments during the consultation process, one of the stakeholders, Trans Adriatic Pipeline, translated most of the document into English. The referred translation is available at [http://www.rae.gr/K2/Consult\\_ESFA\\_code/I-81219\\_TAP.pdf](http://www.rae.gr/K2/Consult_ESFA_code/I-81219_TAP.pdf). This unofficial translation, which the company believes to be accurate, has not been used as an input for this report.

An English version of RAE's previous code proposal, dated August 2004, was still available at RAE's website (English version) as of September 2009. Note that the information in this report is not based on that draft proposal. [http://www.rae.gr/en/legislation/sub2/3.Draft\\_Network\\_Code\\_RAE\\_2004.doc](http://www.rae.gr/en/legislation/sub2/3.Draft_Network_Code_RAE_2004.doc)



### 1.8.2 Unbundling requirements.

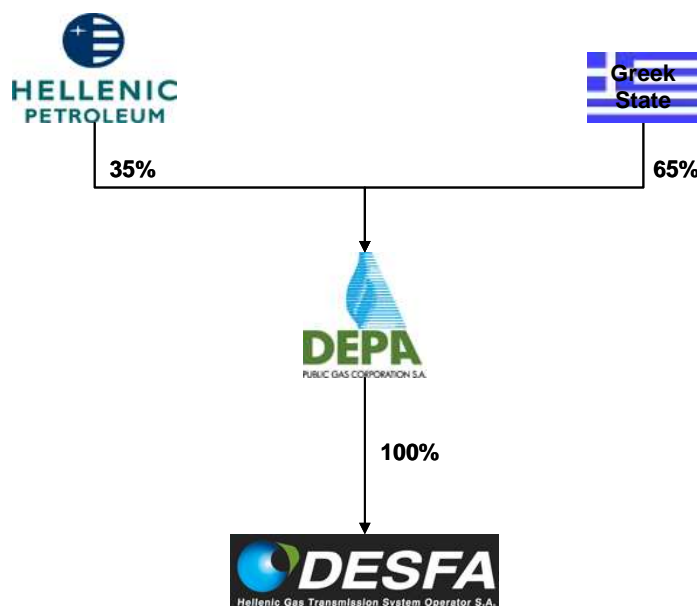
Revithoussa LNG terminal is 100% owned by DESFA, the Hellenic gas transmission system operator.

DESFA was established in April 2007 after the completion of the legal separation of the transmission and trading activities of the Public Gas Corporation (DEPA SA), in accordance with Law 3428/2005 for the liberalization of the natural gas market.

DEPA's share capital amounts to 991.2 million Euros. Participating in this by 35% is The Hellenic Petroleum S.A. company and the remaining 65% belongs to the Greek State.

The Public Gas Corporation (DEPA) lies within the jurisdiction of the Ministry of Development.

**Figure 30: DESFA shareholder structure.**



Source: DEPA website and self-made.

On 1<sup>st</sup> September 2009 the Greek government said<sup>150</sup> that it plans to strip DEPA from its pipeline grid and ask it to return some capital to shareholders before selling a stake to investors. DESFA would be separated from the group and form a stand-alone, state-run entity, the country's privatisation committee decided. According to a finance ministry statement, this move reflects Greece's desire to maintain control over the country's natural gas grid network.

DESFA's separation and the share capital return will make it easier to attract high-profile investors for DEPA and will also boost state revenue, according to the finance ministry. Greece initially planned to list DEPA on the stock exchange but said earlier in 2009 that it would seek a strategic investor for the company instead.

<sup>150</sup> Reuters: "Greece to restructure gas monopoly DEPA before sale", 1 September 2009. Available at: <http://www.reuters.com/article/rbssEnergyNews/idUSL121320820090901>





### 1.8.3 Access rules.

According to the Law 3428/2005 which regulates the Greek Natural Gas Market, DESFA S.A. (Hellenic Gas Transmission System Operator) owns and operates the Greek Natural Gas Transmission System (NGTS) as well as the Revithoussa LNG terminal.

TPA rules to the LNG terminal, along with the rules for accessing the Greek Natural Gas Transmission System, are set in the Network Code which was approved in April 2010.

Third party access to the NGTS during the transitional period (until the approval of the System Code of Operations), followed the terms and provisions of Ministerial Decision No 1227 (Official Gazette B' 135 / 05.02.2007), establishing the procedure for the conclusion and the contents of the standard transmission contract for the access and use of the Transmission System.

TPA tariffs were determined by Ministerial Decision 4955/2006 following a proposal by RAE.

The access conflicts which took place in late 2009 and early 2010 at Revithoussa LNG terminal, described below, triggered the final approval of the Network Code. In this regard, on 12<sup>th</sup> January 2010, DESFA issued a press release clarifying the situation on natural gas deregulation<sup>151</sup>.

So far, the National Natural Gas System (ESFA), where to the Liquefied Natural Gas (LNG) facility on Revythoussa Island is included, was being utilized by DEPA (Public Gas Corporation SA) by virtue of specific transitional provisions of Law 3428/2005.

LNG facility use by third parties, excluding DEPA, could only be carried out, according to DESFA, pursuant to law only after establishment of ESFA Management Code (that would include the Model Agreement for LNG Facility Use), approved by a Ministerial Decision in agreement with the Regulatory Authority for Energy (RAE). The reason given by DESFA was that any access by more than one User to the limited storage area of Revythoussa without any Rules would bring about a chaotic situation jeopardising the Natural Gas consumers' supply safety.

Therefore, DESFA SA, being responsible and in charge of ESFA and its operation, in compliance with the legislation provisions, had drawn up and submitted to RAE for almost 1,5 year a draft Management Code of ESFA. However, to January 2010, RAE had not delivered its opinion on this draft although public consultation was completed.

Private companies appeared as occasional users of ESFA and asked to use the LNG facility and the Transmission System for a limited time period; this was unfeasible, according to DESFA, due to the inexistence of Management Code and ESFA short term use invoice; for these reasons DESFA did not consent to the access requested.

The private companies took recourse to the NRA (RAE) and the Courts; in addition, one of these companies, though not having concluded any agreement with DESFA, brought a ship with LNG cargo requesting to moor on Revythoussa Island and to unload the cargo in the tank.

The competent Courts dismissed on 4<sup>th</sup> December 2009 as non legal, by virtue of two rulings, the judicially submitted application by the company to upload the LNG cargo on Revythoussa Island. Further to the above, the private company removed the ship and its cargo.

<sup>151</sup> <http://www.desfa.gr/default.asp?pid=54&rlD=303&la=2>





According to DESFA SA, in light of the above delay by RAE to take the necessary actions for ESFA Management Code issuance, and in an effort to facilitate the opening of the market and based on the legislation's special provisions for transitional arrangements, the company sent a draft Model Agreement for LNG Facility Use to RAE at the beginning of December 2009 along with a request towards the Regulatory Authority to forward it by priority for approval by means of a Ministerial Decision, in order to facilitate third party access to the LNG facility until the Code issuance.

However, according to DESFA, RAE, instead of delivering an opinion on the issue, as laid down by law, in order to issue the relevant Ministerial Decision, sent an opinion to DESFA on invoice equivalence between ESFA long term users and occasional ones.

RAE opinion was, from the point of view of DESFA, erroneous, because ESFA use invoice, being adjustable and based on the System development and management cost recovery, did not regard ESFA use for a less than a year period (Ministerial Decision 4955/06). It was underlined that in all European countries, the short term use invoice (i.e for a time span of less than a year) is burdened with a surcharge in order to avoid converting long term agreements into short term ones, as this would cause problems to the System management cost recovery by the Administrators and to natural gas market sound operation.

The aforementioned RAE opinion introduced, from the point of view of DESFA, unfair competition to the detriment of ESFA long term users as it placed them on an equal footing with occasional users-customers contravening both the provisions of legislation in force and common practice as well as other preceding RAE opinions.

In the light of the above serious problems incurred in the Natural Gas market, according to DESFA's version, by RAE delay to deliver its opinion, as law requires, on the submitted Management Code of the System, or at least, on the draft Model Agreement for LNG Facility Use, as well as its erroneous opinion concerning ESFA short term use invoice, DESFA sent RAE on 11<sup>th</sup> January 2011 a new complaint letter. With this letter, DESFA repeated the request towards RAE asking it to exercise its constitutional role with continuity and consistency Community and National Law in order to institute the requisite Rules for the deregulated natural gas market operation in line with the rule of law and supply safety for natural gas consumers.

On 13<sup>th</sup> April 2010, DESFA announced the publication of the Network Code by RAE<sup>152</sup> (i.e. Greek Law 3428/2005 as amended and in force, the Ministerial Decree No. Δ1/Α/5346/2010 «Network Code» Government Gazette B' 379/01.04.2010 and the decision of the Regulatory Authority for Energy (RAE) No. 611/2010 for the approval of the Standard Transportation Agreement (STA) and Standard LNG Terminal Usage Agreement (SLTUA)).

#### **1.8.4 Services offered.**

According to the draft System Code prepared by DESFA the regulated services offered are the reception and unloading of LNG carriers, the temporary storage of the unloaded LNG, the re-gasification and the subsequent injection into transport system and the execution of the necessary measurements.

Any other service is considered as additional service and is not covered by the TPA tariff.

The LNG facility consists of:

<sup>152</sup> <http://www.desfa.gr/default.asp?pid=3&rID=401&la=2>



- Two storage tanks, with a total capacity of 135,000 m<sup>3</sup> LNG (useful capacity 126,500 m<sup>3</sup>).
- Vaporization Units with total capacity of 1,000 m<sup>3</sup> LNG/hour (about 14 million Nm<sup>3</sup>/day).
- A twin offshore pipeline of 600m length and 24" diameter, which connects the LNG terminal with the NGTS.
- Facilities for unloading ships with maximum length of 290m, draught which does not exceed the difference [12.7m - 10% x vessel draught] for berthing and under keel clearance (distance between the keel and the sea bottom) of at least 1 m.

### **1.8.5 Capacity allocation procedures.**

According to the draft System Code's TPA rules to the LNG terminal capacity is allocated on a First Come/First Served basis.

Besides, market rules (i.e. auctions) should occur in the future for the management of the congestion.

### **1.8.6 Long term/short term capacity offering requirements.**

The draft System Code mentions that the Production Capacity an LNG terminal user is entitled to reserve at an LNG entry point, should not exceed the Reserved Capacity for Transmission at that point (reserved either by the terminal user or the transmission system users who are served by the terminal user), and should be at least equal to the maximum value of the Minimum Production Capacity that is calculated for the terminal user.

The terminal user's Minimum Production Capacity is related to the number and the volume of the LNG cargoes that are stored concurrently in the LNG terminal, during the contract period. The above calculation is based on the limitation that an LNG cargo shall be re-gasified within 12 days upon the completion of its unloading in the tanks of the LNG terminal, unless additional storage space is acquired. Additional storage space is offered to the LNG terminal users free of charge, if available.

Until late 2009 the terminal has been mainly used by DEPA, while a small part of its re-gasification capacity has been used by DESFA for balancing purposes. However, in December 2009 private companies appeared as occasional users of the LNG terminal and asked to use the facilities for a short term period (see section 1.8.3 above).

### **1.8.7 Contracts duration**

According to the draft System Code, the minimum duration of LNG Agreements shall be one year.

Long term capacity contracts are permitted, however, specific provisions oblige the TO to expand capacity, once physical congestion is anticipated.

RAE website states that the duration of the contract can be between 1 and 15 years.

### **1.8.8 Programming / Nomination procedures.**

Since the Gas Year of 2010 had already started when RAE approved the Network Code, it was not possible to comply with the deadlines established in the Network Code for the drafting of the Annual and Monthly LNG programming for the year 2010.



The compliance with the deadlines allowed the preparation of the first Monthly LNG Program for June 2010. DESFA invited interested LNG Shippers to submit a LNG Nomination for the period from 1<sup>st</sup> June 2010 to 31<sup>st</sup> December 2010 and a LNG Monthly Nomination for the period from 1<sup>st</sup> May 2010 to 31<sup>st</sup> May 2010.

#### **1.8.8.1 Annual Planning of LNG Shipment Discharge.**

The TO is responsible for planning the LNG carriers unloading at the LNG terminal. Users of the terminal shall provide the TO with any information required for the effective coordination of these unloadings.

At most twelve weeks before the beginning of each year, users shall inform the TO of their intended LNG Shipment Discharge Planning for each month of the coming year. This declaration includes:

- Total number of LNG carriers the user wishes to unload during each month.
- Quantity of each certified LNG carrier, name of the loading LNG terminal and the name of LNG certified vessel that shall transport that load.
- Unloading time, which according to user is required for discharging each LNG carrier.
- Desirable Commencement Date of Unloading of each LNG carriers, and the Initial Unloading Period (a four Days period which includes the Commencement Date of Unloading).

At most ten weeks prior the start of the year, the TO shall develop the Initial Annual LNG Shipment Discharge Plan, where the TO communicates to each user who has submitted the information specified above. On preparing the plan, the TO especially considers users' information, the reserved capacity by each LNG terminal user according to his signed and applicable LNG Agreement, the available capacity of LNG storage tanks, the discharging Capacity of each LNG vessel and the LNG terminal, the terminal's Production Capacity the LNG terminal and Transmission System Maintenance Schedules, the necessity for satisfying all users' declarations in the most economic way, the LNG Facility's rules regarding safety during operation, and the rules of safe navigation in the LNG terminal's port area.

The TO further considers the LNG Facility's Load Balancing requirements, the Facility's usage for Balancing the Load of the Transmission System, as well as the obligation not to discriminate among users. This plan includes the Initial Unloading Period and the Commencement Date of Unloading for each LNG cargo.

Within seven days from the notice of the Initial LNG Shipment Discharge Plan, the LNG terminal's users may submit to the TO remarks relating to the dates of the Initial LNG Shipment Discharge Plan. Within seven days from the receipt of the above remarks, the TO shall prepare, and communicate to the LNG terminal's users, the Final Annual LNG Shipment Discharge Plan. The Final Annual LNG Shipment Discharge Plan is updated by the TO every month (after the completion of the Monthly Planning of LNG Shipment Discharge) and / or in case a new LNG Agreement is signed between the TO and an LNG user and / or in case of Force Majeure.

#### **1.8.8.2 Monthly Planning of LNG Shipment Discharge.**

At most twenty eight days prior to the beginning of each month, each user of the LNG terminal shall declare to the TO the following data relating to each load that the user plans to discharge at the LNG terminal during the coming month:



- The day and the six-hour period within that day, within which each LNG discharge will commence, which must lie within the 4-day period that is specified in the Final Annual LNG Shipment Discharge Plan.
- The quantity of the LNG load, the name of the loading terminal, the name of the certified LNG vessel, as well as the unloading time, which according to user is required for discharging each LNG carrier.
- Scheduled LNG loads during the two month period that follows the next month, according to the Final Annual LNG Vessel Discharge, which the LNG terminal user wishes to cancel. The Discharging Times reserved for these scheduled LNG loads, may be disposed by the TO to other users, according to the procedure described below.

At most fifteen days before the start of the coming month, TO shall update the NGTS Electronic Information System with the Initial Monthly LNG Shipment Discharge Plan and the total LNG Discharge Times available to be reserved by the LNG terminal users for the next three months.

At most ten days before the beginning of the coming month, all interested users of the LNG terminal may submit to the TO applications for reserving part of the Discharging Times available as above for the next month, as well as of the aforesaid available Discharging Times for the two months that follow the next month, regardless of whether the LNG Discharge Times have already been reserved, or not. This application includes:

- The day and the six-hour period within that day, within which each LNG unloading shall commence.
- The quantity of each LNG load, the name of the loading terminal, the name of the certified LNG vessel, as well as the unloading time, which according to user is required for discharging each LNG carrier.

At most four days before the start of the coming month, the TO shall develop the Final Monthly LNG Shipment Discharge Plan, which is communicated to any LNG terminal user who has submitted an application as above. The TO also updates the NGTS Electronic Information System accordingly. This Plan includes, for each LNG terminal user, the day, and a 6-hour period within that day, during which an LNG unloading shall commence, as well as the name of the LNG carrier, the Discharge Times available, within which unloading should be complete, and the available storage Capacity of the terminal for each day of the coming month. This plan is binding for both the users and the TO.

In the case of a cancellation of a planned discharge after the communication of the Final Monthly LNG Shipment Discharge Plan by the TO to all users, the user that cancelled the discharge is subject to penalties, which are equal to the product of the quantity (measured in MWh) of the LNG load that was cancelled, with a per unit price, which is set by the TO.

*Preparation of a binding unloading program for the period from 1<sup>st</sup> May 2010 to 31<sup>st</sup> May 2010.*

Within the framework of the recently approved Network Code, in particular Chapter 11 “Operation of LNG Facility and LNG Rendering Services”, DESFA invited the shippers to submit a Monthly Nomination Programming of Unloading LNG Cargo (Monthly LNG Nomination) by the 20<sup>th</sup> of April, 2010 for the period from 1<sup>st</sup> May 2010 to 31<sup>st</sup> May 2010, pursuant to the provisions of Article 85, Paragraph 2 section A of the Network Code.



The TO, based on the LNG Monthly Nominations will develop an Initial LNG Monthly Program, within the first 2 days from the deadline of the submission date (22<sup>nd</sup> April 2010), according to Article 86, Paragraph 3 of the Network Code.

Shippers, who submitted the LNG Monthly Nominations, may submit objections or declarations of not participating on the programming of unloading LNG cargo for the aforementioned period, until the 24<sup>th</sup> April 2010.

The TO, taking into consideration the objections / declarations of the non-participating shippers, will elaborate the final monthly unloading LNG cargo program (Final Monthly LNG Program) from 1<sup>st</sup> May 2010 to 31<sup>st</sup> May 2010, no later than 27<sup>th</sup> April 2010. According to the provisions of Article 84, Par. 2 of the Network Code, only the LNG shippers are entitled to participate in the Final Monthly LNG Program, that is to say those Shippers who have concluded an STA and an SLTUA with the transmission operator by the 26<sup>th</sup> April 2010 (as it is required according to the Network Code).

*Preparation of an unloading program for the period from 1<sup>st</sup> June 2010 to 31<sup>st</sup> June 2010.*

Within the framework of implementing the Network Code, in particular Chapter 11 “Operation of LNG Facility and LNG Rendering Services”, DESFA invited the shippers to submit Nominations for the Programming of LNG Cargoes Unloading (LNG Nomination) by the 23<sup>rd</sup> April 2010, for the period from 1<sup>st</sup> June 2010 to 31<sup>st</sup> December 2010, pursuant to the provisions of Article 82, Paragraph 2 section A of the Network Code.

The TO, based on the above LNG Nominations, elaborated an Initial Unloading LNG Cargo Program (Initial LNG Program) by the 30<sup>th</sup> of April, 2010, for the period from 1<sup>st</sup> June 2010 to 31<sup>st</sup> December 2010, according to Article 83, Paragraph 3 of the Network Code.

Shippers, who submitted LNG Nominations, were granted a period for submitting objections or new LNG Nominations for the abovementioned period, until 4<sup>th</sup> May 2010.

The TO, taking into consideration the objections or the new LNG Nominations of the abovementioned Shippers for the period from 1<sup>st</sup> June 2010 to 31<sup>st</sup> December 2010, developed the final unloading LNG cargo program (Final LNG Program) by 10<sup>th</sup> May 2010.

### **1.8.9 Congestion management procedures.**

According to RAE website, the TO informs RAE when:

- The total booked send-out capacity exceeds two thirds of the total send-out capacity and also when,
- The available send-out capacity is inadequate to fulfil a user's request.

Subsequently, the TO proposes to RAE either an increase of available capacity through new infrastructure, or offer of interruptible contracts or capacity release through auctions.

RAE decides on the method to be finally adopted.

In case of capacity release, RAE would require existing capacity holders to release their booked capacity, so that the total send-out capacity can be reallocated through the auction.



Besides, capacity booked by a single LNG terminal user cannot exceed a third of the total send-out capacity of the terminal.

### **1.8.10 UIOLI.**

In the event that the user of the LNG terminal would not use, for an extended time period, the total or partial amount of the Production Capacity that he has booked, then the TO notifies in writing both the LNG terminal user and RAE of its intention to release the unused capacity of that user.

If the user of the LNG terminal justifies the unused capacity, specifying a period of no more than six months following the notice from the TO, within which he plans to use the Capacity, the TO cannot proceed with the release of his unused capacity, unless it presents valid grounds which must be endorsed by RAE. In the case that the user does not use the unused Capacity during the six months that follow the notice from the TO, the TO immediately proceeds to the release of the Capacity in question. Subsequently, the TO amends the LNG Agreement with the user in question.

In case of a partial release of a user's Capacity for two consecutive natural years, the TO, considering all possibilities, may release the entire amount of contracted capacity with immediate termination of the LNG Agreement with the user in question.

The release of reserved Production Capacity is accompanied by the cancellation of future LNG discharges, taking into account any relevant proposals from the user.

### **1.8.11 Method for calculating usable, available and unused capacities.**

-

### **1.8.12 Send-out requirements.**

The TO is entitled to proceed with natural gas production at a maximum quantity equal to the sum of the Production Declarations of all users of the Transmission System which are contracted to the users of the LNG terminal. Further information on send-out requirements is included in Section "1.8.14 Balancing regime/ Management of LNG stock levels.", below.

### **1.8.13 Gas quality requirements.**

**Table 50: Gas quality requirements at the Revithoussa LNG terminal.**

Property	Unit	Min	Max
Wobbe Index	KWh/Nm <sup>3</sup>	13.10	16.37
Gross Calorific Number	KWh/Nm <sup>3</sup>	11.16	12.68
Total S	mg/Nm <sup>3</sup>	-	30
H <sub>2</sub> S	mg/Nm <sup>3</sup>	-	5.
Molecular Weight	Kg/Kmol	16.52	18.88
Specific gravity	Kg/m <sup>3</sup>	430	478
CH <sub>4</sub>	mole %	85	97
N <sub>2</sub>	mole %	-	1.24

Source: DESFA.





#### **1.8.14 Balancing regime/ Management of LNG stock levels.**

The Daily Cumulative LNG Reserve for a terminal user is defined as the LNG quantity (measured in MWh) that is stored at the LNG storage facility for that user at the end of each day. The Daily Cumulative LNG Reserve for any user of the terminal for any given day (d), is the sum of his Daily Cumulative LNG Reserve for the previous day (day d-1) and the quantity of LNG that was injected to the terminal by the user at day (d), minus the quantity of LNG that is Produced at the terminal for the user at day (d), minus the terminal losses which are allocated to the user at day (d), plus the difference between the quantities of LNG that were purchased and the quantities of LNG that were sold from the user at day (d).

Each Day, the TO notifies every User with whom he has signed an LNG Agreement, of his Daily Cumulative LNG Reserve at the end of the previous day.

##### Mandatory LNG Production

The TSO is entitled to proceed with Mandatory LNG Production, increasing the quantity of LNG to be produced, for any user of the terminal, in the case where, according to a well founded assessment, the acceptance of the Declaration of Production from users of the Transmission System for a specific day, is deemed to lead that terminal user to exceed the storage capacity that has been allocated to him by the TO.

##### Reduction of LNG Production

The TO is entitled to proceed with total or partial reduction of LNG Production down to the quantity that equals the total Daily Cumulative LNG Reserve of a certain terminal user, in the event that according to his well-founded assessment, satisfaction of the Transmission System's users Production Declarations will cause the terminal user to exceed his Daily Cumulative LNG Reserve.

The TO is obligated to notify the user in writing explaining the reasoning behind the decision and calling him to modify his Declarations. If the user does not modify the declarations, the declarations are modified by the TO.

#### **1.8.15 Own consumption record and gas in kind.**

Own consumption as well as LNG terminal losses are covered by the LNG users, pro-rata to their regasified LNG quantity or to their LNG reserves (if re-gasification is not taking place) if they are lower than the relevant limits approved by RAE. Own consumption and losses exceeding these limits are reimbursed by TO.

#### **1.8.16 Charges and penalties for imbalance, cancellation and other, including Ship-or-Pay and minimum payment obligations.**

According to the draft System Code, if the LNG terminal user exceeds the scheduled unloading time for reasons other than Force Majeure, a penalty shall be paid. This charge is fixed at 1,500 € for each exceeding hour. The LNG terminal user shall pay this penalty only in case that the delay has forced the TO to postpone the beginning of the unloading of another LNG carrier.

On the other hand, if the TO does not allow the beginning of an unloading within the specified unloading period, then the TO should pay 1.500€/h for each hour of delay beyond the unloading time period.



Furthermore, according to RAE website, no explicit penalties for imbalance are detailed.

#### **1.8.17 Financial Guarantees.**

The financial guarantees that each terminal user should provide, is specified in the LNG Agreement that each user signs with the TO.

#### **1.8.18 Secondary market.**

-

#### **1.8.19 Limitation in vessel size.**

The facilities can accommodate LNG vessels with a length of maximum 290m and a draft of maximum 11,43m.

#### **1.8.20 Force Majeure.**

According to the Draft System Code, Force Majeure is understood as “any unpredictable and exceptional condition or fact, apart from contracting parties will, which could not be possibly attributed to their error or omission, and keeps one of the parties from meeting his obligations that, despite diligence displayed, could not be overcome.”

#### **1.8.21 Ship Approval Procedure at LNG terminal.**

The TO shall prepare a list containing LNG carriers, which are certified as suitable for unloading LNG shipments at the LNG terminal (LNG Certified Vessel List), in accordance with the process described below.

Any LNG terminal user may submit a request to the TO, for certification of LNG carriers that the terminal user intends to use.

Within three months from the receipt of such a request by any user of the terminal, the TO should conclude the LNG Vessel's certification process, and register, in the LNG Certified Vessels List, each LNG vessel that complies with provisions of the LNG Vessels Certification regulations. In case of a refusal by the TO to certify a certain vessel, the TO should notify both the LNG terminal user and RAE of the reasons that led him to reject the request. The aforementioned three-month period may be reasonably extended, either following an agreement between the TO and the terminal user or arbitrarily by RAE, after a justified request from the TO.

The TO is obligated to provide the LNG terminal users with all reasonably required information, relating to technical specifications necessary for LNG carriers unloading in the LNG terminal.

The LNG Vessel Certification Regulations basically specifies:

- The Minimum technical requirements regarding vessel design and operation, the safety requirements for mooring, berthing and discharge of LNG loads, as well as those requirements regarding telecommunications and safety facilities of the LNG terminal.
- Certificates of vessel inspections and the vessel's appropriateness for operations





- Procedures required for LNG vessels certification for unloading in LNG terminal, which shall include among others:
  - Preliminary information exchange between TO and users,
  - Certification of LNG vessels and LNG Facility compatibility,
  - LNG vessel inspection
  - Discharging test, and
  - Periodical LNG vessel re-inspection.
- Conditions related to the settlement of any dispute or disagreement between the TO and users of the terminal, that refer to issues dealt with by the LNG Vessel Certification Regulations.

### **1.8.22 Standard contracts.**

The standard contract is mentioned at the Draft System Code, and is called LNG Facility Usage Agreement (LNG Agreement). It is available as an Appendix to the Draft System Code.

RAE website states that an “interim” contract for the use of the LNG terminal to make things work the soonest possible would be available by autumn 2006. However, this “interim” contract has not been published neither at DEPA nor RAE website’s, at least in English.

The press release published by DESFA in its website on 13<sup>th</sup> April 2010, mentions that the Standard Transportation Agreement (STA) and the Standar LNG Terminal Usage Agreement (SLTUA) has been approved by RAE.<sup>152</sup>

### **1.8.23 TPA tariffs.**

In March 2006, TPA tariffs for the use of the LNG terminal were published for the interim period, until the entry into force of the Tariff Regulation.

Current tariffs for TPA the LNG terminal were set by the Ministerial Decision 4955/2006. The methodology for the calculation of tariffs is based on rate-of-return regulation. For each year over a certain period, the annual required revenue of the TO is calculated taking into account both capital and operating expenses.

The tariff for the use of the LNG terminal has been derived following the socialization of 95% of the corresponding capital and operating costs into the tariff for the use of the Natural Gas Transmission System. In a largely underutilised facility with high capital costs, this was considered necessary for the initial stage of the market opening, in order to reduce the access charges and thus provide incentives for the increased utilization of the LNG terminal.

LNG tariffs refer to booking of and use of vaporization capacity and –implicitly- to the respective LNG reception services and temporary storage. There is no tariff for long-term storage services as yet.

The tariff coefficients are the following:

**Table 51: Tariffs at the Revithoussa LNG terminal.**

Year	Capacity Charge (€/peak day MWh/year)	Commodity Charge (€/MWh/year)
1.1.2008-31.12.2008	22.703	0.017130
1.1.2009-31.12.2009	23.842	0.017989
1.1.2010-31.12.2010	24.128	0.018205

**Source:** DESFA.

TPA tariff is yearly updated with the CPI.

The capacity charge is applied to the maximum daily reserved send-out capacity during the respective year, while the commodity charge is applied to each MWh of LNG vaporized during the year.

For the LNG terminal, the capacity charge is applied ex-post (at the end of each year) to the actual maximum daily capacity used during the year. If the difference between reserved and actually used capacity is outside specific tolerance limits set by the TO, extra charges are imposed.

#### **1.8.24 Capacity booking procedures.**

A user of the LNG terminal who wants to reserve capacity at the Revithoussa LNG terminal has to sign an LNG Agreement. This contract entitles the LNG terminal user to reserve LNG Production Capacity, Injection Capacity, Discharging Time and Temporary Storage Space at the LNG terminal.

In order to sign an LNG Agreement, the user of the LNG terminal submits an application to the TO (at least 45 days prior the first LNG load discharge), which is signed by the applicant's legal representative and is accompanied by the following documents:

- Certificate issued by RAE, certifying that the applicant has been registered in the NGTS User's Record.
- Statement referring to the Production Capacity which the user wishes to reserve at the LNG terminal, the respective LNG injection capacity and unloading times as well as the LNG shipment Discharge Plan.
- Statement referring to the name and technical particulars of LNG carriers the user intends to use for LNG transportation and delivery to the LNG terminal, as these are required by the LNG Vessel Certification Regulations.
- Statement of commencement date and required duration of the LNG Agreement, according to user's requirements.
- Details of the bank account which is dedicated by the applicant for the purposes of LNG Agreement.

The TO is obligated to invite the applicant within a period of five working days to sign the LNG Agreement, according to the TO's assessment.

The rejection of such an application should be justified by the TO and is subject to RAE's approval.



RAE automatically deletes from the NGTS User's Record, any LNG terminal user who has failed to meet overdue financial obligations, arising from an LNG Agreement or from the implementation of regulations of this Code.

For the rendering of any storage services at the LNG terminal, a separate Storage Agreement shall be prepared.



## **2 Monitoring TPA to LNG terminals in Europe, 2000-2009.**

This section includes the publicly available data on effective usage and TPA access at European LNG terminals in Belgium, France, Italy, Spain, Portugal and UK. As regards other European LNG terminals, information will be included in future versions of this report if it becomes available, or we become aware of its availability, in the future.

Three main set of data are shown:

- Number of cargoes delivered per terminal,
- Volumes unloaded or sent-out; and
- The part of these cargoes/volumes that correspond to third parties.

Where available, information on third parties has also been included (name of the shippers and shares/effective usage at a terminal or national level).



## 2.1 Belgium.

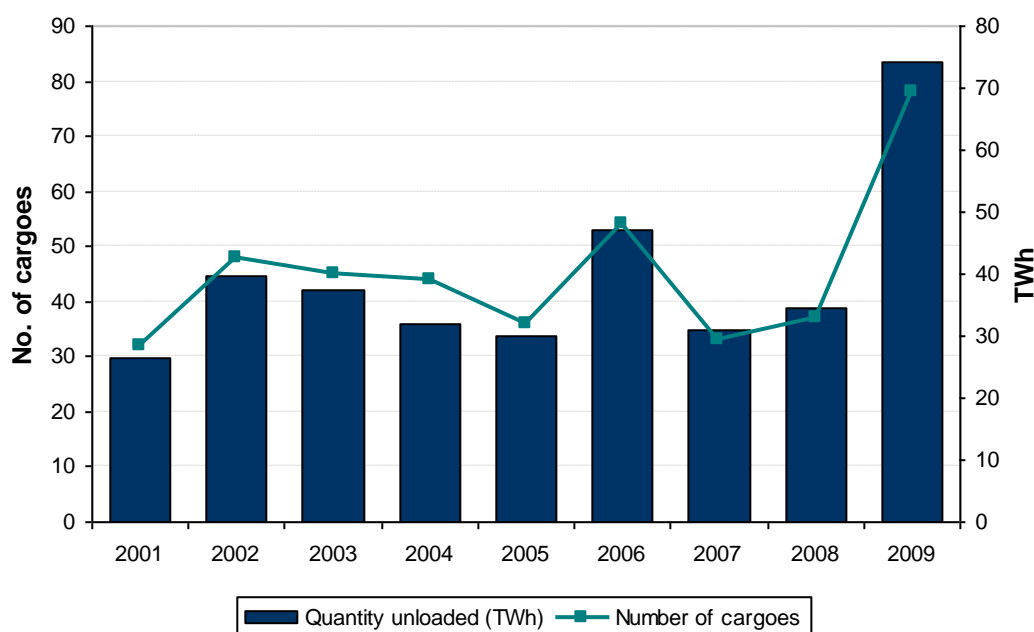
The Zeebrugge LNG terminal has been in operation since 1987; more than 1,200 cargos have been unloaded at the terminal since then.

The LNG terminal saw a particularly high level of activity in 2009, with 78 ships unloaded compared to 37 in 2008. The ships transported 4.83 million tonnes of LNG, equivalent to 6.3 billion cubic metres of natural gas. The majority of these ships were loaded at Ras Laffan in Qatar while others also arrived delivering LNG from Norway, Egypt, Nigeria and Trinidad & Tobago.

In addition, four vessels were loaded with LNG at the terminal in 2009. Since this new service was launched in August 2008 and until 31<sup>st</sup> December 2009 a total of 10 LNG ships have berthed at the terminal for loading.

The following figure shows the number LNG ships unloaded and energy sent-out at the Zeebrugge LNG terminal since 2001:

**Figure 31: LNG ships unloaded and energy sent-out at the Zeebrugge LNG terminal, 2001-2009.**



**Source:** Fluxys, 2005-2009 Annual Reports, GIIGNL database 2007-2009 and self-made

Until 2006, capacity was fully booked by Distrigas to import gas from Algeria. In view of the expiry of the contract with Distrigas for the use of the LNG terminalling capacity in the terminal of Zeebrugge in 2006, Fluxys LNG sent out an Information Memorandum to LNG companies in January 2003. The purpose of the memorandum was to sound the market for interest in reserving long-term capacity which comes available at the LNG terminal as from 2007.

Following this market consultation, in 2004 Fluxys LNG signed new long-term contracts (up to 20 years) with three terminal users: Qatar Petroleum/ExxonMobil (which have assigned their capacity to EDF Trading for 4.5 years, as described below), with 50% of the capacity, Distrigas, 28%, and



Suez Global LNG, 22%. These contracts jointly account for an annual throughput capacity of around 9 bcm of natural gas.

In view of this, it was decided to double the terminal's capacity. The enhancement works included the construction of a fourth LNG storage tank and almost double the available capacity for regasifying the LNG and injecting it into the transmission grid.

As mentioned in previous sections, since April 2008, the fourth LNG storage tank and additional regasification facilities are in operation. These new facilities double the throughput capacity from 4.5 to 9 billion cubic metres of natural gas a year. The terminal is now able to receive 110 cargoes per year.

On 27<sup>th</sup> June 2007, Qatar Petroleum and ExxonMobil announced that they had transferred for a period of 4 years and a half, their contract with Fluxys LNG to EDF Trading. In February 2008, Suez LNG Trading announced the leasing of part of its capacity rights at Zeebrugge LNG terminal to ConocoPhillips.

**Table 52: Capacity reservation at Zeebrugge LNG terminal.**

Company	Before 2007	From 2007	Years
Qatar Petroleum / ExxonMobil (through affiliate companies)	-	50%	20
Distrigas	100%	28%	20
Suez Global LNG	-	22%	15 (from 2008)

**Source:** *Fluxys, 2006 Annual Report.*

At the end of 2007, Fluxys LNG launched a market consultation (open season) to assess the level of demand for additional terminalling capacity at the Zeebrugge LNG terminal.

An Information Memorandum<sup>153</sup> regarding the market consultation was sent to a wide range of LNG companies. The document outlined the scope of the services Fluxys LNG proposed to make available.

According to Fluxys, several players in the LNG sector registered an interest in services requiring an additional jetty. Fluxys LNG has launched detailed studies into building a second jetty at the Zeebrugge LNG Terminal to enable, among others, LNG ships with regasification facilities on board to berth there. For its part, Exmar is prepared to book long-term capacity with Fluxys LNG. The two companies have signed a Memorandum of Understanding setting out their agreement. Other market players have also expressed interest in loading small LNG ships.

<sup>153</sup>

[http://www.fluxys.com/en/About%20Fluxys/Infrastructure/LNGTerminal/~/\\_media/Files/Services/LNG%20Terminalling/Fluxys\\_InformationMemorandum\\_TRML2007%20pdf.ashx](http://www.fluxys.com/en/About%20Fluxys/Infrastructure/LNGTerminal/~/_media/Files/Services/LNG%20Terminalling/Fluxys_InformationMemorandum_TRML2007%20pdf.ashx)



## 2.2 France.

Elengy publishes in its website the list of the interested parties where appear:

- names of current customers having subscribed an access contract to the LNG terminal (including the signatories of a Master Agreement) and having given their agreement so that to their name is mentioned,
- names of potential customers who declared an interest in the LNG regasification activity and said that they wanted their name to be mentioned.

The companies which appear in this list as parties that have signed a regasification contract to access an LNG terminal, and have agreed to have their name published, are as of October 2010:<sup>154</sup> Dong Natargas A/S, EDF Trading Ltd, ENOI S.p.A., E.On Ruhrgas AG, Gas Natural Europe, Gazprom Global LNG Limited, GDF Suez, Gunvor International B.V., RBS Sempra Commodities, RWE Supply & Trading Switzerland S.A, Sonatrach, Statoil ASA, Total Gas & Power Ltd and Vitol S.A.

The table below shows the number of users of French LNG terminals informed by the CRE in 2010:

**Table 53: Number of users at French LNG terminals.**

	Fos Tonkin	Montoir de Bretagne
2010	2	6

Source: CRE<sup>155</sup>.

In 2010, shippers unloaded 14 vessels at the French terminals using the “band/ spot” service.

During 2010 the quantity unloaded was:

- Montoir-de-Bretagne 73 TWh corresponding to 77 cargos,
- Fos Tonkin 51 TWh corresponding to 128 cargos.

<sup>154</sup> An updated list is published by Elengy at:

<http://www.elengy.com/en/commercial-services/secondary-market.html>

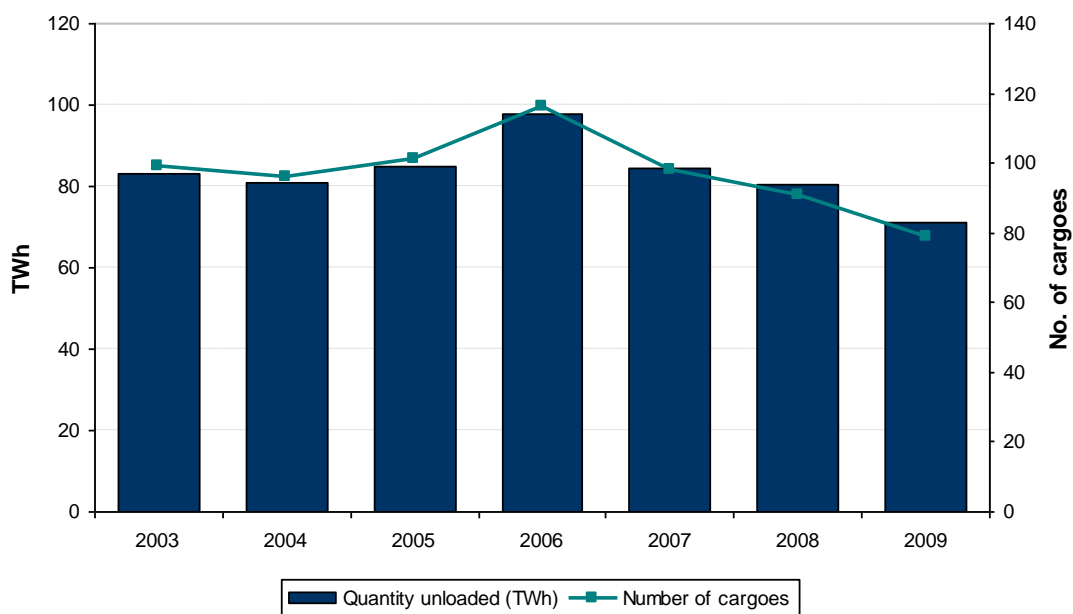
The list published as of October 2010 was:

[http://www.elengy.com/fileadmin/user\\_upload/pdf/Liste\\_des\\_parties\\_interesseesV11.pdf](http://www.elengy.com/fileadmin/user_upload/pdf/Liste_des_parties_interesseesV11.pdf)

<sup>155</sup> [http://www.afgaz.fr/upload/banque/Presentation\\_Florence\\_Dufour\\_10032011.pdf](http://www.afgaz.fr/upload/banque/Presentation_Florence_Dufour_10032011.pdf)

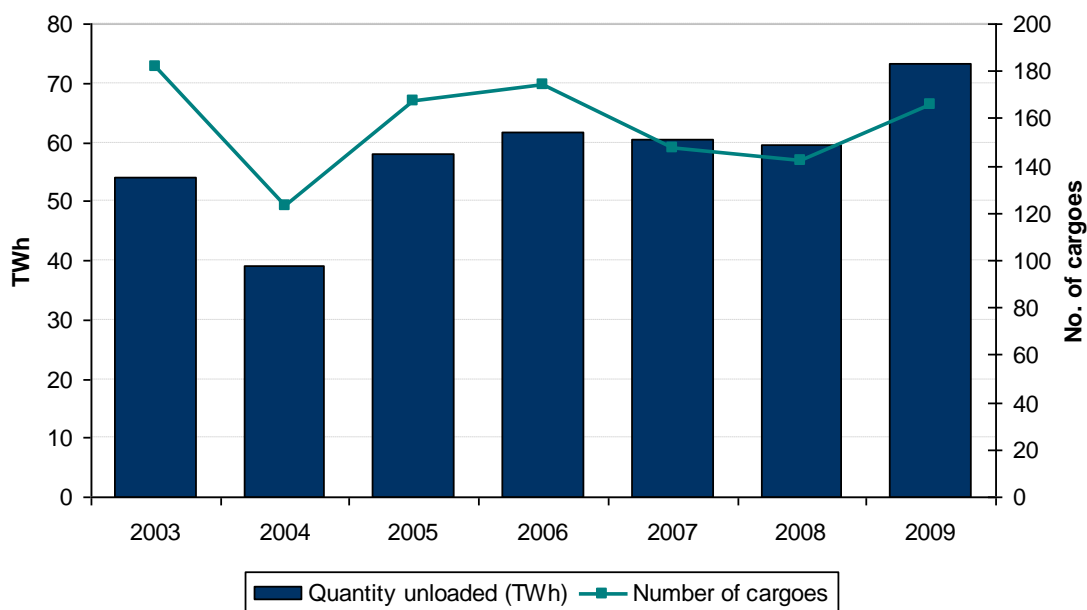


**Figure 32: LNG ships unloaded and quantities unloaded at the Montoir-de-Bretagne LNG terminal, 2003-2009.**



*Source: Elengy website, CRE 2004, 2005 and 2006 Annual Reports, and self-made.*

**Figure 33: LNG ships unloaded and quantities unloaded at the Fos Tonkin LNG terminal, 2003-2009.**



*Source: Elengy Infrastructures website, CRE 2004, 2005 and 2006 Annual Reports, and self-made.*





On June 27<sup>th</sup>, 2007, STMFC (Société du Terminal Méthanier de Fos Cavaou) sold all the terminal access capacity it had put up for sale: 0.825 billion m<sup>3</sup> per year over a 3-year period running from April 2008 to March 2011. Six companies submitted applications that, together, represented almost five times the available capacity, a response that reflects the market's interest for this operation.

Following the examination of all the applications, the allocation rules made it possible to give equal top priority to the following 4 companies: Essent Energy Trading B.V., Distrigaz S.A., ENI S.p.A and EDF S.A.

The remaining 90% of the capacity at Fos Cavaou had been previously allocated to the sponsors of the project and owners of the terminal: GDF SUEZ and Total.

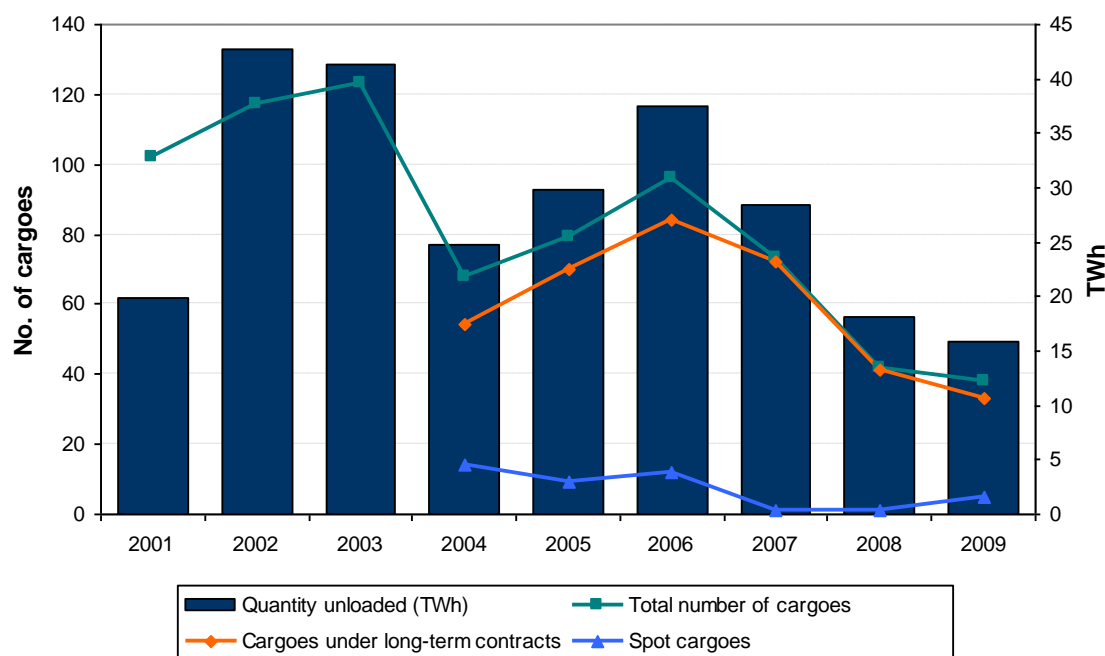


## 2.3 Italy.

Snam Rete Gas offers very complete information on effective access to the Panigaglia LNG terminal through Snam Rete Gas' Annual Report.

The following figure shows the number LNG ships unloaded and energy sent-out at the Panigaglia LNG terminal since 2001:

**Figure 34: LNG ships unloaded and quantities unloaded at the Panigaglia LNG terminal, 2001-2009.**



**Source:** Snam Rete Gas, Annual Reports 2001-2009.

The remarkable drop in regasified volumes in 2004 was due to the effect of the accident at the LNG production plant at Skikda in Algeria owned by Sonatrach, which led to reduced availability of LNG on the market.

The terminal has been traditionally accessed by ENI under a long-term contract. Other Italian companies have accessed the terminal since 1999, e.g. Enel and Edison Gas. This has allowed to ensure a high utilisation rate. For example, LNG is processed for Enel on the basis of swap agreements in force since 1<sup>st</sup> October 1999 with Gaz de France under which Enel receives Nigerian LNG. Other players have accessed the terminal basically on the basis of spot agreements when re-gasification capacity becomes available.

The following table shows the volumes of gas regasified by operator since 2001:

**Table 54: Volumes of gas regasified by operator at the Panigaglia LNG terminal, 2001-2009.**

Volumes regasified (bcm)	2001 <sup>156</sup>	2002	2003	2004	2005	2006	2007	2008	2009
Eni	0.79	3.26	3.00	1.62	0.73	1.50	1.11	0.29	0.10
Enel	0.67			0.16	1.34	1.49	1.25	1.23	1.01
Gas Natural				0.24	0.26	0.02			
Others <sup>157</sup>	0.20 <sup>158</sup>	0.31	0.46	0.05	0.16	0.12	0.02	0.00	0.21
<b>TOTAL</b>	<b>1.66</b>	<b>3.57</b>	<b>3.46</b>	<b>2.07</b>	<b>2.49</b>	<b>3.13</b>	<b>2.38</b>	<b>1.52</b>	<b>1.32</b>

**Source:** *Snam Rete Gas, Annual Reports 2001-2009.*

During 2008, two parties had continuous regasification contracts, 42 tankers unloaded gas at the LNG terminal in Panigaglia compared to 73 in 2007 leading to the regasification of 1.52 billion cubic metres. One of these was a spot cargo (one in 2007).

In 2009, 38 cargos were unloaded at Panigaglia and accounted for 1.32 bcm. Five of these cargoes were spot.

In September 2010, Gas Natural Fenosa announced that:<sup>159</sup>

- it would sell 0.5 bcm of own LNG in Italy, for which it had obtained the necessary regasification capacity in Panigaglia for the period 2010-2011; and that
- it had secured regasification capacity to cover its demand in Italy for the period 2012-2015.

The sale of the first LNG cargo was signed in August 2010, the delivery of which was expected for November 2010, and Gas Natural Fenosa had planned the arrival of one vessel per month until September 2011.

<sup>156</sup> Snam Rete Gas was formed in November 2000 and took on Snam S.p.A.'s natural gas transmission and LNG regasification activities on 1 July 2001. These volumes of LNG were regasified from July 1st 2001 to December 31st 2001.

<sup>157</sup> In years 2002 and 2003 no information about the companies which had accessed Panigaglia LNG terminal is available; due to this reason the mentioned value can include Enel and Gas Natural volumes.

<sup>158</sup> This LNG volume has been regasified by Edison Gas.

<sup>159</sup> "Gas Natural Fenosa will sell 0.5 bcm of own LNG in the Italian market until September, 2011", 23rd September 2010, <http://portal.gasnatural.com/servlet/ContentServer?gpage=3-10-1&centralassetname=3-NOT-230910-GNLITALIA&centralassettype=Noticia>

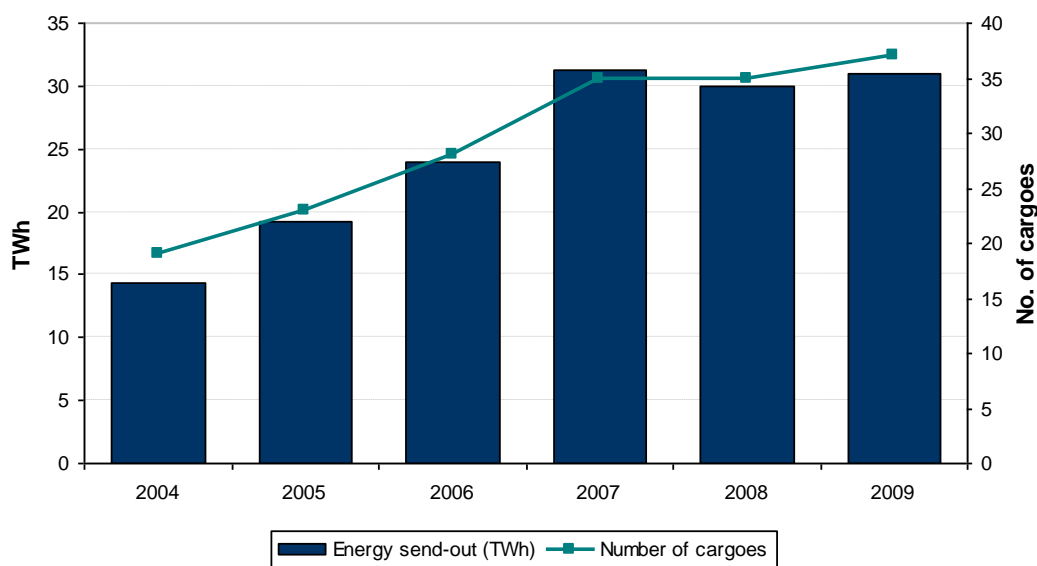


## 2.4 Portugal.

In 2009, 37 LNG carriers were unloaded at Sines that accounted for 30.934 GWh. Activity at the terminal has remained very stable from 2007 to 2009. For example, the previous year, in 2008, 30.476 GWh were unloaded at Sines LNG terminal by 35 LNG carriers all of them came from Nigeria except one Methania LNG which loading was done at Zeebrugge LNG terminal in December.

The following figure shows the number LNG ships unloaded and energy sent-out at the Sines LNG terminal since 2004:

**Figure 35: LNG ships unloaded and energy sent-out at the Sines LNG terminal, 2004-2009.**



Source: REN, Annual Report 2007-2009.

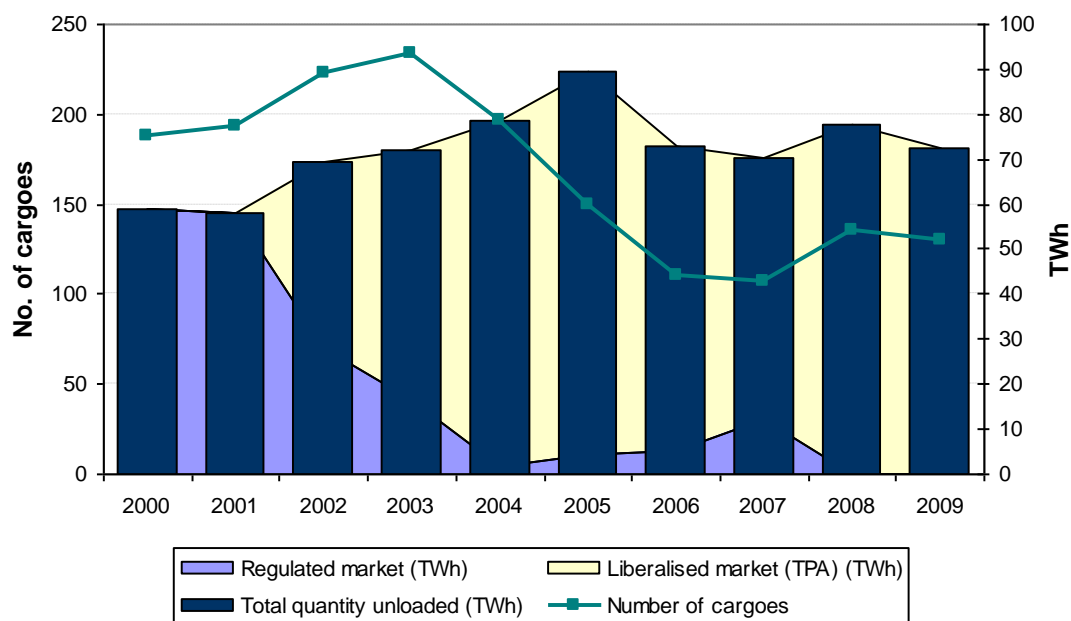


## 2.5 Spain.

Information on effective access to the Spanish LNG terminals can be found on Enagás' website (particularly on its monthly and annual operation and statistical reports) and on CNE's website.

The following figures show the number LNG ships unloaded and the energy unloaded at each of the terminals since 2000:

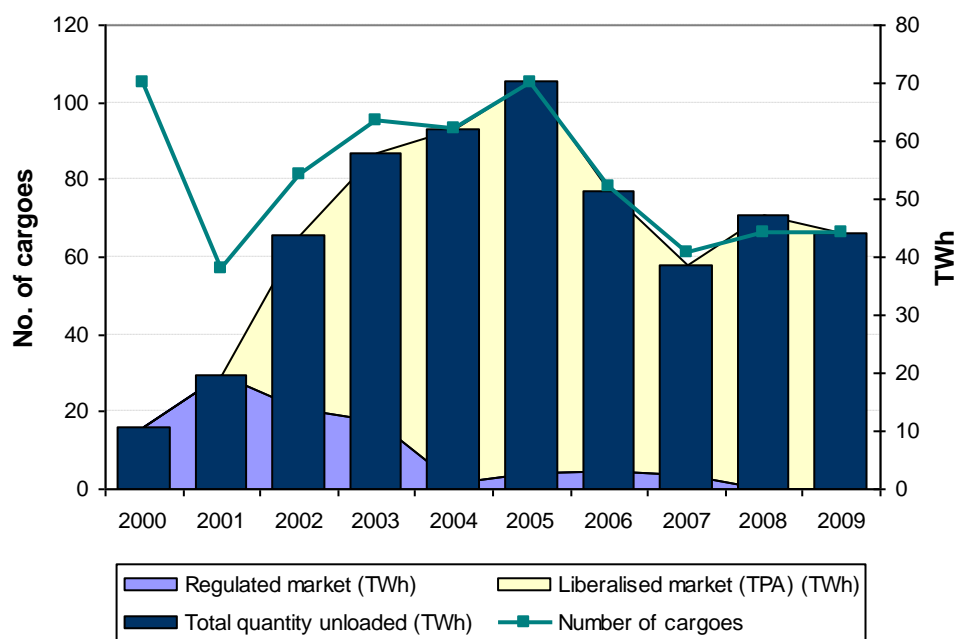
**Figure 36: LNG ships and energy unloaded at the Barcelona LNG terminal, 2000-2009.**



Source: Enagás.

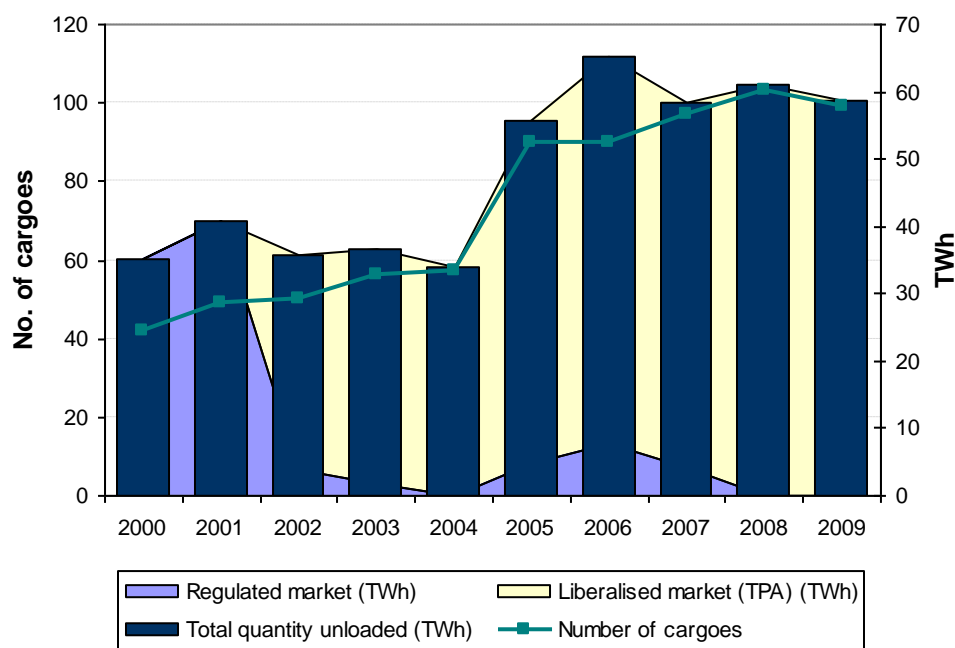


**Figure 37: LNG ships and energy unloaded at the Cartagena LNG terminal, 2000-2009.**



Source: Enagás.

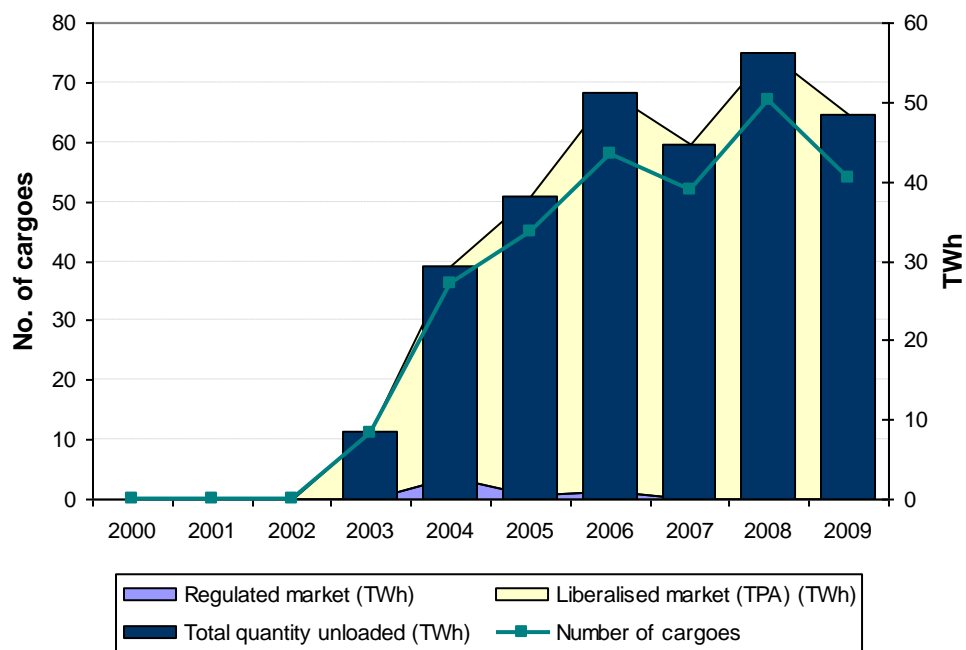
**Figure 38: LNG ships and energy unloaded at the Huelva LNG terminal, 2000-2009.**



Source: Enagás.

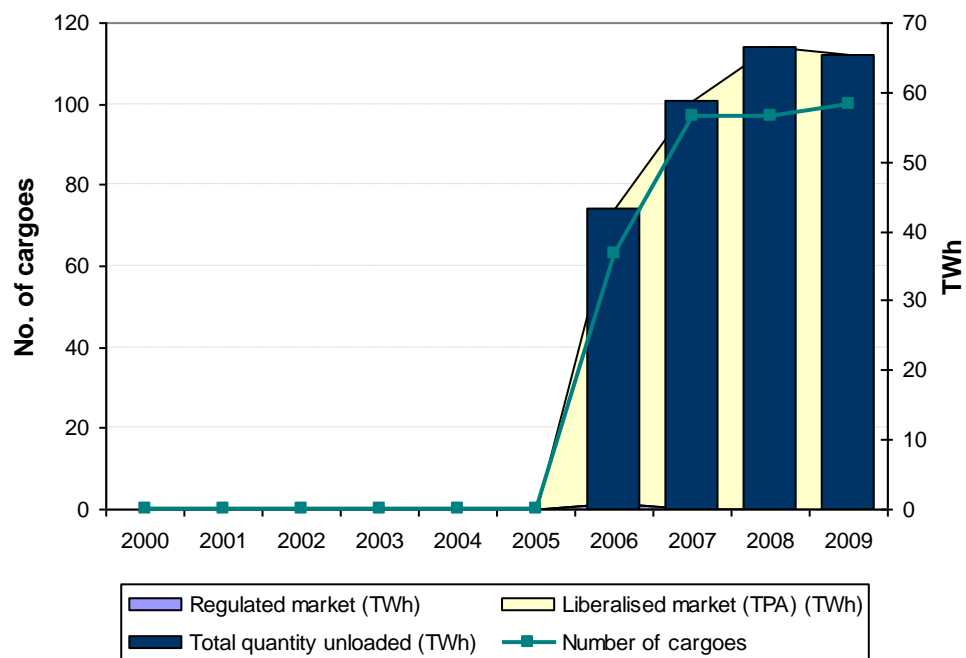


**Figure 39: LNG ships and energy unloaded at the Bilbao LNG terminal, 2003-2009.**



Source: Enagás.

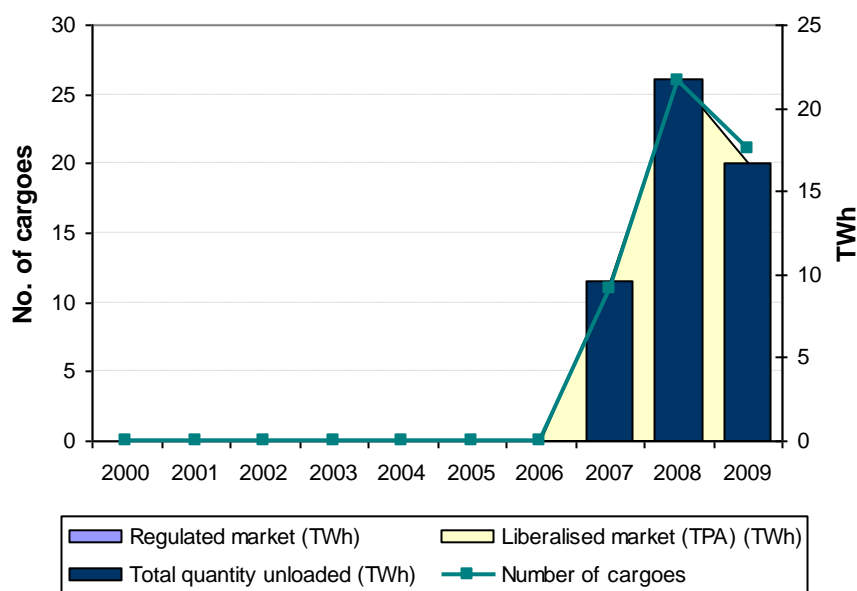
**Figure 40: LNG ships and energy unloaded at the Sagunto LNG terminal, 2006-2009.**



Source: Enagás.



**Figure 41: LNG ships and energy unloaded at the Mugardos LNG terminal, 2007-2009.**



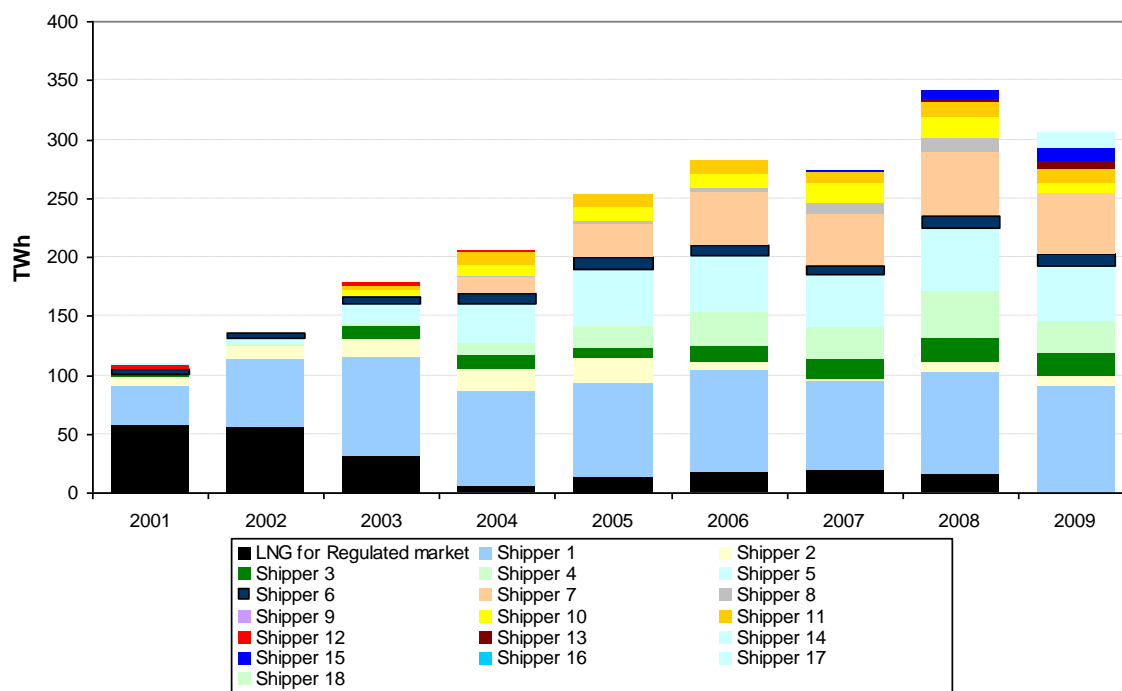
**Source:** *Enagás*.

Although the LNG unloaded per shipper in each terminal is not available, data of aggregated unloading is. There are more than 10 shippers making use of Spanish LNG terminals on a regular basis. All of these access Enagás' terminals, and some of the also BBG, Saggas and Reganosa terminals:





**Figure 42: Shippers with access to LNG terminals in Spain, 2001-2009.**



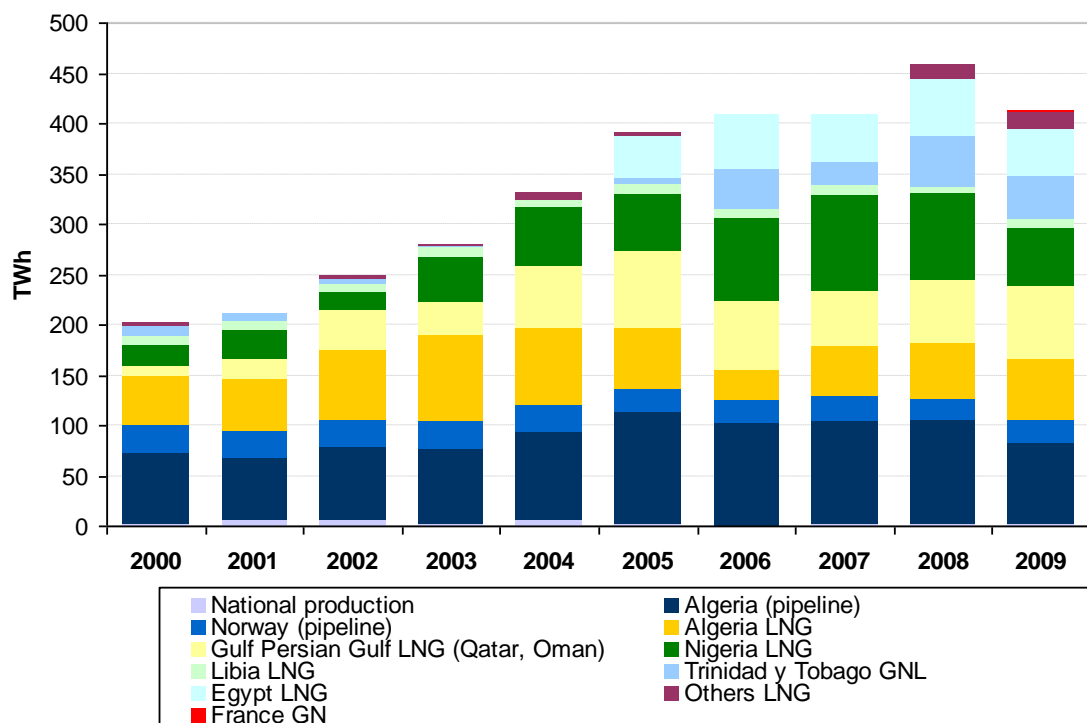
**Source:** Enagás, CNE and self made.

Among the shippers are Gas Natural Fenosa, Endesa, Iberdrola, Unión Fenosa Gas, Naturgas/Hidrocantábrico, BP, Shell, GDF Suez, Cepsa, Incogás, Electrabel and Sonatrach.

Spain also enjoys a high degree of diversification in terms of LNG origins, as shown in the following figure:



Figure 43: Origins of gas (incl. LNG) imported to Spain, 2001-2009.



Source: Enagás and CNE.

The Spanish case shows the potential of LNG to contribute to Security of Supply in Europe through diversification of suppliers/origins.

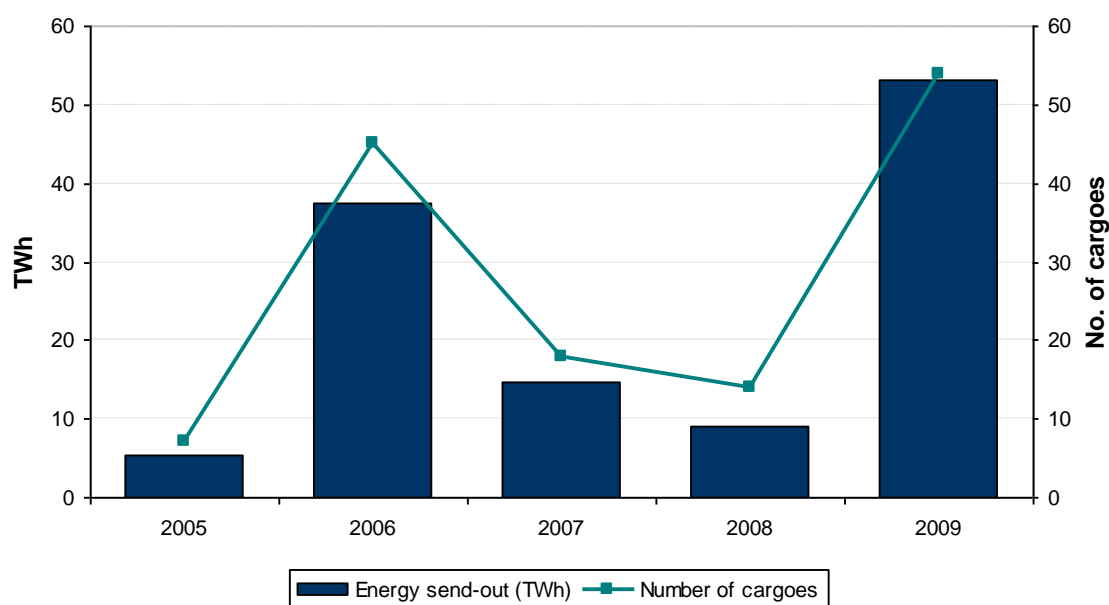


## 2.6 UK.

All primary capacity at Grain LNG terminal has been contracted through open season processes according with the start up of the successive expansions:

- BP/Sonatrach acquired the first phase of 3.3 million tonnes of LNG per annum in October 2003;
- Sonatrach, GDF-Suez and Centrica acquired the second phase of 6.5 million tonnes LNG per annum in March 2005, and
- E.ON, Iberdrola and Centrica acquired the third phase of 5 million tonnes LNG per annum in May 2007. This expansion is expected to be in operation for winter 2010/2011.

**Figure 44: Energy unloaded at Grain LNG terminal, 2005-2009.**



**Source:** Grain LNG.



### 3 TPA tariff comparison 2010.

This section includes a tariff comparison for the year 2010, taking into account TPA access tariffs in force as of September 2010.

The analysis presented herein is in no way a measure of competitiveness between terminals or regions and should not be interpreted as such. The absolute alignment of all services is not possible. In addition (or, in some cases, due) to the fact that the services have not been aligned, the differences could be attributable, amongst numerous other factors, to the following parameters:

- Tariff structure/methodologies: e.g. allocation of costs (capacity/commodity split, treatment of gas losses and fuel gas, cross-subsidies between different gas infrastructures, types of users and/or generations, or allocation to LNG terminal users of transmission costs linked directly to the project.
- Levels of service: e.g. balancing flexibility offered with regasification contract, overrun tolerances, booked capacity period.
- Type of service: e.g. in case of short-term/spot services, tariffs might differ substantially depending on whether a portion of the terminal capacity is reserved for these services, or the booking is based on spare slots available at short notice that might have involved capacity (ship-or-pay) payments by the long-term user.
- Infrastructure: no. of LNG tanks and vaporizers, capacity of unloading facilities, geographic location, age of assets (the latter is particularly relevant not only because depreciation but because of the changes in the price of certain elements, e.g. nickel steel and other commodities' prices; the availability of engineering companies at a given moment might impact construction prices significantly).
- Regulatory framework for allowed revenues: e.g. Regulatory Asset Base (RAB) definition rules, asset life and depreciation assumptions, rate of return on the RAB, allowances/incentive mechanisms for funding investment and maintenance, taxation regime.

Note also that the comparison refers only to LNG terminal access costs, and does not include any information on upstream and downstream costs, which may vary significantly. In particular, no consideration is given on the level of downstream costs to supply end users or to get access to a liquid trading hub.

An immediate conclusion is that comparing LNG access charges is a complex task due to the fact that tariffs applied by TOs differ in terms of charging structure and refer to different levels and types of services. Simple comparisons of regasification volumes, LNG vessels size, level of usage of LNG tanks, etc. can be made but the resulting differences between tariff levels require a detailed examination of the historical, geographical, physical and economic drivers behind tariff determination. This implies that, based on the mere comparison of tariff levels for certain access cases, it would be misleading to draw any regulatory or commercial conclusions, and that a potential alignment of TO tariff levels would be inappropriate.



The methodology employed for the 2008 and 2009 tariff comparison for long-term capacity contracts in previous reports, based on the unit price of a service including all necessary main basic services, ie. tanker reception, LNG unloading, operational storage, vaporization and send-out), has been preserved for 2010. The comparison has also been enlarged to include a comparison of spot/short-term capacity contracts.

As the content of the service may differ significantly between operators, the comparison provides only a estimation of the price paid to access each terminal, keeping in mind that the comparison does not account for the different levels of service included in the LNG tariffs of each terminal, in particular with respect to storage allowances and send-out provisions, the nature of the short-term/spot service (whether capacity is reserved for these services or the booking is based on spare slots available at short notice), and other particularities (e.g., some terminals may not offer capacity on the primary market as they are fully booked in the long-term).

As in previous editions, the comparison is limited to access cost to the LNG terminal from the point of view of shippers, and does not take into account any upstream or downstream costs, or makes any attempt at analysing the drivers in the determination of access tariffs or their potential evolution.

The resulting unit access prices for long-term capacity contracts have been calculated assuming that a certain volume of gas per year is unloaded under the relevant "standard service" for each LNG terminal, under a long-term contract (>1 year), and making use of a certain type of ship..

For short-term capacity contracts, the calculation is made for a certain type of ship (implying a certain volume of gas) under the relevant "standard spot/short-term service" (a single ship or in any case > 1 year).

It is important to remark that the standard service(s) provided by each terminal is/are adapted to the physical characteristics of their facilities or the business models on which the access rules are based. The levels of service included in the LNG tariffs of each terminal/country have not been aligned. Results shall only be considered as estimates.

Moreover it is important to note that this tariff comparison does not include exempted terminals, as their tariffs / prices are not published.

In the case of long-term contracts, different cases have been calculated for Spain (load factors of 90%, 75% and 60%), where contracts made by shippers are based on the reservation of certain amount of regasification capacity, and then shippers enjoy a large flexibility to choose their level of regasification and LNG storage. The "standard cases" for the rest of the terminals are likely to imply a load factor around 70% or higher.

Except Adriatic LNG terminal which is of a quite different type (gravity base offshore terminal), the results regarding all the other terminals, are aproximately in the same global range. However, they highlight differences in the LNG charges applied by TSOs.

### 3.1 Scope of the analysis.

The analysis covers LNG access tariffs published for European terminals under regulated access as of September 2010, except Greece (as data was not available in English).

**Table 55: Countries/companies included in the tariff comparison.**

Countries	Companies
Belgium	FLUXYS EXCELLENCE IN GAS TRANSPORT
France	elengy A member of GDF SUEZ STMFC Société du Terminal Méthanier de Fos Caillet
Italy	Eni GNA Italia Adriatic LNG
Spain	enagas BBG7 BARRIL DE BIOCAS saggas reganosa
Portugal	REN Atlântico

Two different calculations of terminal access fees has been applied, first to long-term contracts (>1 year) under the standard regasification conditions in place in each country, and second to spot/short-term capacity contracts.

Gas in kind has been included as part of TPA tariffs. A 17.02 €/MWh<sup>160</sup> price has been considered which is the 2010 average price for Zeebrugge Market according to Dow Jones. It is important to bear in mind that spot prices for gas might differ from the price of gas paid by shippers under their sales and purchase agreements.

### 3.2 TPA tariffs in 2010.

The following tables include the TPA tariffs in force as of September 2010.

<sup>160</sup> Average price for Zeebrugge in 2010



### 3.2.1 Belgium.

**Table 56: TPA tariffs to the LNG terminal in Belgium, 2003.**

LNG Terminal Access rates (2003*)		
Slot	750,443	€/slot
<b>Storage</b>		
Additional Storage	96.39	€/m3 LNG/year
Days of basic storage	10.35	days
Daily Storage	67.473	€/m3 LNG/365 per year
Storage Rights linearly decreasing over 20 tides	140,000	m3
<b>Send-out</b>		
Additional Send-out	1.95	€/kWh/h/year
Daily Send-out	1.95	€/kWh/h/365 per year
Send-out Rights	4,200	MWh/h
<b>Commodity Element</b>		
Gas in kind	1.30%	sent-out quantity

(\*) Tariffs expressed as values of July 2003. The monthly index, starting in August 2003, is calculated as follows:

$$0.65 + 0.35 \cdot I_{m-1} / I_{m0}$$

**Source:** Fluxys LNG website.

Access tariffs to the LNG terminal in Belgium are monthly updated by a formula that varies according to the Belgian Consumer Price Index. The following table shows the monthly slot price for 2010.

**Table 57: Slot price variation at the LNG terminal in Belgium in 2010.**

Month	Slot price
January 2010	778,222 €
February 2010	779,559 €
March 2010	780,782 €
April 2010	781,869 €
May 2010	782,889 €
June 2010	784,067 €
July 2010	784,044 €
August 2010	784,157 €
September 2010	778,222 €

**Source:** Fluxys LNG.

In order to make the tariff comparison, the September's slot price has been considered, 778,222 €.



According to Fluxys “Terminalling Code – Appendix C, Art. 5.1.2” and “Fluxys LNG Terminal Services; Conditions & Tariffs applicable as from 01 April 2007 Point 3, note 5” the gas in kind is 1,30%; however, according to Fluxys the actual fuel gas reimbursement percentage in 2010 accounted for 1%.

**Table 58: TPA tariffs to the LNG terminal in Belgium, 2010.**

LNG Terminal Access rates			
sep-10			
	2003	2010	
Slot	750.443	<b>784.339</b>	€/slot





**Source:** *Fluxys LNG.*





### 3.2.2 France.

Table 59: TPA tariffs to LNG terminals in France, 2010.

LNG Terminal Access rates 1 <sup>st</sup> January 2010					 
Fos Tonkin	TQD	Unloaded Quantity Term	1.024	€/MWh	Continuous service
			1.024	€/MWh	Uniform service
			0.768	€/MWh	Spot service
	TND	Term of Number of Unloadings	40,000	€/unloading	
	TUCR	Regasification Capacity Utilization Term	0.180	€ x Q x N	
	TR	Regularity Term	0.270	€ x  Qh - Qe	Continuous service
			0.040	€ x  Qh - Qe	Uniform service
			n/a		Spot service
	TN	Payment in kind*	0.30%	of unloaded quantities	
Montoir	TQD	Unloaded Quantity Term	0.840	€/MWh	Continuous service
			0.840	€/MWh	Uniform service
			0.630	€/MWh	Spot service
	TND	Term of Number of Unloadings	40,000	€/unloading	
	TUCR	Regasification Capacity Utilization Term	0.180	€ x Q x N	
	TR	Regularity Term	0.210	€ x  Qh - Qe	Continuous service
			0.040	€ x  Qh - Qe	Uniform service
			n/a		Spot service
	TN	Payment in kind*	0.50%	of unloaded quantities	
Fos Cavaou	TQD	Unloaded Quantity Term	1.574	€/MWh	Continuous service
			1.574	€/MWh	Uniform service
			1.181	€/MWh	Spot service
	TND	Term of Number of Unloadings	50,000	€/unloading	
	TUCR	Regasification Capacity Utilization Term	0.180	€ x Q x N	
	TR	Regularity Term	0.300	€ x  Qh - Qe	Continuous service
			0.040	€ x  Qh - Qe	Uniform service
			n/a		Spot service
	TN	Payment in kind*	0.50%	of unloaded quantities	
T Number of unloadings per year Q LNG quantities (MWh) unloaded per year Qe LNG quantities (MWh) unloaded during summer season Qh LNG quantities (MWh) unloaded during winter season N Average duration between two ship arrivals, expressed in month fractions: $N = \min(12/T; 1)$					


(\*) TO shall take off 0.50% of the total unloaded quantities as payment for gas in kind for Montoir and Fos Cavaou and 0.30% for Fos Tonkin. However, the part of the gas off taken that is not used by the TO is returned to users. In 2010, the quantities so returned represent about 3/4 of the quantities off taken, so that actual payment in kind is only about 0.13% for Montoir, 0.14% in Fos Cavaou and 0.08 for Fos Tonkin.

Source: *Elengy and STMFC websites*



### 3.2.3 Italy.


**Table 60: TPA tariffs to the Panigaglia LNG terminal in Italy, 2010/2011.**

LNG Terminal Access rates			 <b>GNL Italia</b>
1 <sup>st</sup> October 2010 - 30 <sup>th</sup> September 2011			
<b>TL = Cqs * QS + Cna * NA + (CVL + CVL<sup>P</sup> + CVL<sup>U</sup>) * E + CM<sup>Q</sup> * QS</b>			
QS			contractual LNG quantities
Cqs	4.943744 €/year/cm		variable term applied to contractual LNG quantities
NA			number of unloadings
Cna	33,568.6 €/unloading		variable term applied to effective number of unloadings
E			send-out gas
CVL	0.027305 €/Gj		variable term applied to send-out gas
CVL <sup>P</sup>	0.000147 €/Gj		'integrative' variable term applied to send-out gas
CVL <sup>U</sup>	0.003632 €/Gj		
CM <sup>Q</sup>	0.058692 €/year/cm		measurement service
Gas in kind	1.8%		of unloaded quantities

Source: GNL Italia website.

At Panigaglia LNG terminal, the gas in kind percentage for the thermal year 2010-2011 is detailed at the Delibera ARG/gas 108/10, and it will be 1.8% of the unloaded quantities.


**Table 61: TPA tariffs to the Panigaglia LNG terminal in Italy for the spot service, 2010/2011.**

LNG Terminal Access rates			 <b>GNL Italia</b>
1 <sup>st</sup> October 2010 - 30 <sup>th</sup> September 2011			
<b>TL = Cqs * QS + Cna * NA + (CVL + CVL<sup>P</sup> + CVL<sup>U</sup>) * E</b>			
QS			contractual LNG quantities
Cqs	3.460621 €/year/cm		variable term applied to contractual LNG quantities
NA			number of unloadings
Cna	33,568.6 €/unloading		variable term applied to effective number of unloadings
E			send-out gas
CVL	0.027305 €/Gj		variable term applied to send-out gas
CVL <sup>P</sup>	0.000147 €/Gj		'integrative' variable term applied to send-out gas
CVL <sup>U</sup>	0.003632 €/Gj		
CM <sup>Q</sup>	0.058692 €/a/mcliq		
Gas in kind	1.8%		of unloaded quantities

Source: GNL Italia website.




Table 62: TPA tariffs to the Adriatic LNG terminal in Italy, 2010/2011.

LNG Terminal Access rates				
1 <sup>st</sup> October 2010 - 30 <sup>th</sup> September 2011				
TL = Cqs * QS + Cna * NA + CVL * E + CM <sup>Q</sup> * QS				
	Tariffs published by the AEEG	Tariffs published by Adriatic LNG		
QS				contractual LNG quantities
Cqs	36.036125	26.552934	€/year/cm	variable term applied to contractual LNG quantities
NA				number of unloadings
Cna	622,000.0	458,725.0	€/unloading	variable term applied to effective number of unloadings
E				send-out gas
CVL	0.204820	0.150920	€/Gj	variable term applied to send-out gas
CM <sup>Q</sup>	0.350235	0.350235	€/year/cm	messurement service
Gas in kind	0.8%	0.8%		of unloaded quantities

Source: AEEG and Adriatic LNG website

At Adriatic LNG terminal, the gas in kind percentage for the thermal year 2010-2011 is detailed at the Delibera ARG/gas 108/08, and it will be 0.8% of the unloaded quantities.

Table 63: TPA tariffs to the Adriatic LNG terminal in Italy for the spot service, 2010/2011.

LNG Terminal Access rates				
1 <sup>st</sup> October 2010 - 30 <sup>th</sup> September 2011				
TL = Cqs * QS + Cna * NA + (CVL + CVL <sup>P</sup> ) * E				
	Tariffs published by the AEEG	Tariffs published by Adriatic LNG		
QS				contractual LNG quantities
Cqs	25.225287	18.587054	€/year/cm	variable term applied to contractual LNG quantities
NA				number of unloadings
Cna	622,000.0	458,725.0	€/unloading	variable term applied to effective number of unloadings
E				send-out gas
CVL	0.204820	0.150920	€/Gj	variable term applied to send-out gas
CM <sup>Q</sup>	0.350235	0.350235	€/a/mcliq	measurement service
Gas in kind	0.8%	0.8%		of unloaded quantities

Source: AEEG and Adriatic LNG website



### 3.2.4 Portugal.

**Table 64: TPA tariffs to the LNG terminal in Portugal, 2010-2011.**

LNG Terminal Access rates 1st July 2010			REN Atlântico
Unloading term	0,00016535	€/kWh	
Regasification fix term	0,006453	€/kWh/day/month	
Regasification variable term	0,00015292	€/kWh	
Storage Fee	0,00003068	€ / kWh / day	
<b>Commodity Element</b>			
Gas in kind	0,00%	(provided by the TO)	

Source: ERSE website.

Shippers do not need to provide any gas in kind to access Sines LNG terminal.

**Table 65: TPA tariffs to the LNG terminal in Portugal for the spot service, 2010-2011.**





LNG Terminal Access rates 1st July 2010			REN Atlântico
Unloading term	0.00016535	€/kWh	
Regasification fix term	-	€/kWh/day/month	
Regasification variable term	0.0015358	€/kWh	
Storage Fee	0.00003068	€ / kWh / day	
<b>Commodity Element</b>			
Gas in kind	0.00%	(provided by the TO)	

Source: ERSE website



### 3.2.5 Spain.

Table 66: TPA tariffs to LNG terminals in Spain, 2010.

LNG Terminal Access rates 2010		
   		
<b>Unloading fix term</b>		
Cartagena, Huelva and Sagunto	27.893	€/unloading
Mugardos	0	€/unloading
Barcelona and Bilbao	13.946	€/unloading
<b>Unloading variable term</b>		
Cartagena, Huelva and Sagunto	0,000056	€/kWh
Mugardos	0,000000	€/kWh
Barcelona and Bilbao	0,000029	€/kWh
<b>Send out</b>		
Tfr (Fix Term)	0,016099	€/kWh/day/month
Tvr (Variable Term)	0,000096	€/kWh
Storage included in regasification tariffs	0	days of consumption
<b>Storage Fee</b>		
Tv	0,028907	€ / MWh / day
<b>Commodity Element</b>		
Gas in kind	0,03%	(provided by the TO)

**Source:** Ministerial Order ITC/3520/2009.

The gas required to operate Spanish facilities is supplied by the TO, in September 2010 it has been set in 0.03%; however, from 1<sup>st</sup> October it will be 0.01%.

For contracts whose duration is less than 12 months, a multiplier factor applies to the send out fixed term, depending on the month.



**Table 67: Monthly and daily coefficients for short-term and spot contracts at Spanish LNG terminals in 2010.**

	Daily	Monthly
January	0.10	2.00
February	0.10	2.00
March	0.10	2.00
April	0.03	0.50
May	0.03	0.50
June	0.03	0.50
July	0.03	0.50
August	0.03	0.50
September	0.03	0.50
October	0.10	2.00
November	0.10	2.00
December	0.10	2.00

Source: Ministerial Order ITC/3520/2009

### 3.3 Standard long-term service considered for each LNG terminal.

The resulting unit prices have been calculated assuming that a certain volume of gas per year is unloaded under the relevant “standard service” for each LNG terminal, under a long-term contract (≥1 year), and making use of a certain type of ship.

#### 3.3.1 Belgium.

As mentioned in the document “Conditions & Tariffs for Fluxys LNG Terminal services as from 01-04-2007”, in the expanded regime, a slot includes the receiving, unloading, LNG storage and regasification services during 10.35 days for a 140,000 LNG vessel. 110 slots of 140,000m<sup>3</sup> of LNG can be scheduled per year at the terminal.

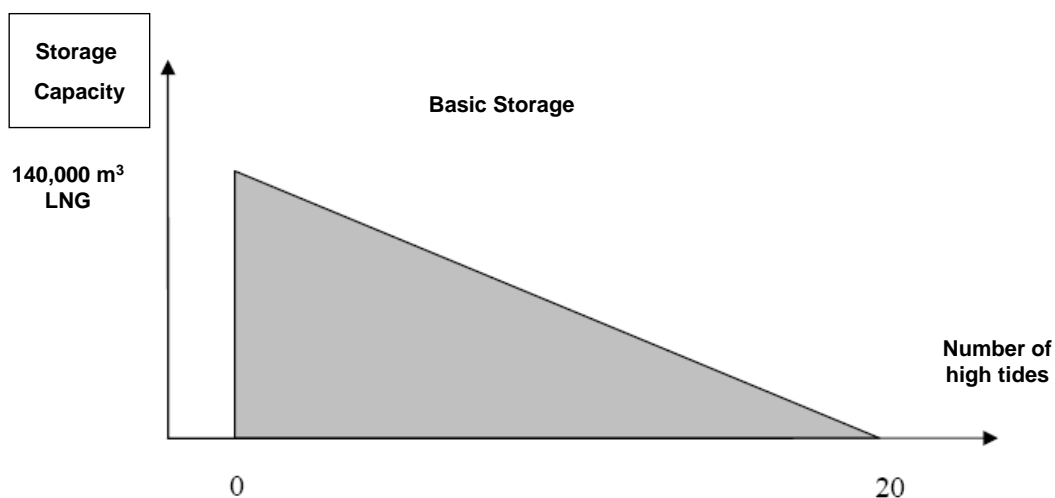
According to Fluxys “Terminalling Code – Appendix C, Art. 5.1.2” and “Fluxys LNG Terminal Services; Conditions & Tariffs applicable as from 01 April 2007 Point 3, note 5” the gas in kind is 1,30%; however, the actual fuel gas reimbursement percentage in 2010 accounted for 1%.<sup>161</sup> Thus, the latter has taken into account for the tariff calculation.

TPA tariffs for Zeebrugge LNG terminal have been applied according to these conditions.

<sup>161</sup> According to data provided by Fluxys.

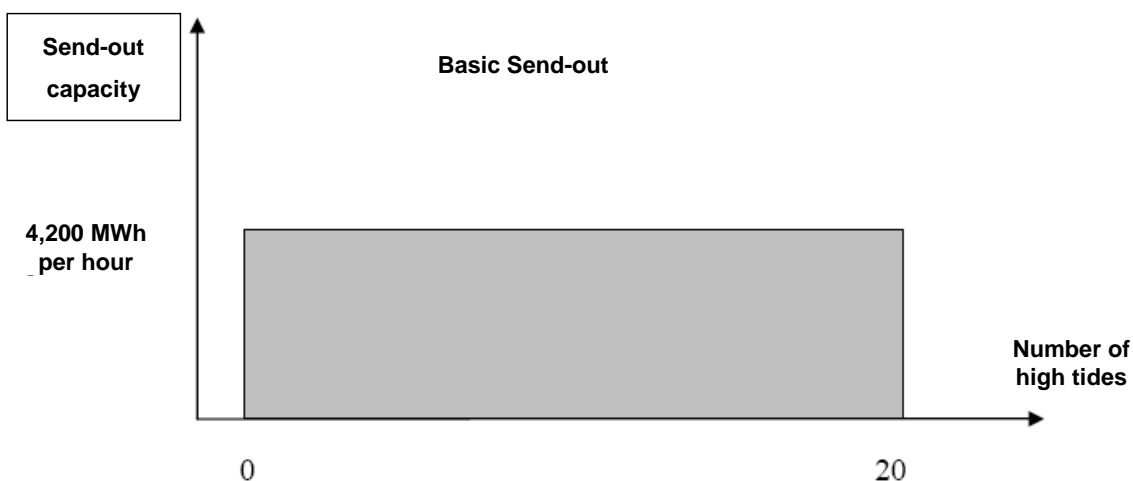


**Figure 45: LNG storage included in a standard slot.**



**Source:** *Programme Indicatif de Terminalling 1er Janvier 2010 – 31 Decembre 2010.*

**Figure 46: Regasification profile under a standard slot.**



**Source:** *Programme Indicatif de Terminalling 1er Janvier 2010 – 31 Decembre 2010.*

The unit price at Zeebrugge LNG terminal to unload, storage and regasify a standard vessel of  $140,000 \text{ m}^3$  is:

Slot (reception, unloading, LNG storage & regas): 0.818 €/MWh

Gas in kind: 0.172 €/MWh



0.99 €/MWh
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It must be borne in mind that any deviation from the standard regasification profile or LNG storage included in the slot would imply higher costs, according to the TPA tariffs for additional services. Also, given that the slot takes into account a standard vessel of 140,000 m<sup>3</sup> of LNG, the unloading of vessels of smaller size would affect the unit price indicated in the calculation.

### 3.3.2 France.

French LNG terminals, Montoir de Bretagne, Fos Tonkin and Fos Cavaou, share the same tariff structure. However, the new tariff terms that entered into force on 1<sup>st</sup> January 2010 define a separate tariff for each of these LNG terminals. This approach allows defining tariffs reflecting the particular situation and costs of each terminal.

The three terminals propose also the same kind of services. Through the “continuous”, “uniform” or “spot” services, shippers can accommodate their flexibility requirements, in term of scheduling, number of cargoes to be unloaded, size of the ships, duration of the contract, send out, taking into account the characteristics of the downstream infrastructures.

Fos Cavaou LNG terminal is able to receive any size of ship up to 270,000 m<sup>3</sup>, while Montoir is also able to receive vessels up to 260,000 m<sup>3</sup>. However, Fos Tonkin LNG terminal is limited to the MedMax class size (75,000 m<sup>3</sup> LNG) due to the width of the access channel (see section 1.4.19).

In order to make the comparisons, the following assumptions have been applied to French LNG terminals

- For Montoir de Bretagne and Fos Cavaou LNG terminal, a standard carrier of 140,000 m<sup>3</sup> which represents a typical cargo at those terminals,<sup>162</sup> has been considered for the calculations.
- For Fos Tonkin LNG terminal, a standard carrier of 70,000 m<sup>3</sup>, which represents a typical cargo at that terminal, has been considered for the calculations.
- The TO shall take off 0.50% of the total unloaded quantities as payment for gas in kind for Montoir and Fos Cavaou and 0.30% for Fos Tonkin. However, the part of the gas off taken that is not used by the TO is returned to users. In 2010, the quantities so returned represent about 3/4 of the quantities off taken, so that actual payment in kind is only about 0.13% for Montoir, 0.14% in Fos Cavaou and 0.08 for Fos Tonkin.<sup>163</sup>
- In addition to spot, two different types of long-term services which can be contracted on a long-term basis<sup>164</sup> are considered:
  - **Continuous service**, which is a service for shippers that have subscribed for an annual average of at least 10 cargoes over one year period at a terminal. This service is dedicated to large or medium shippers. According to the conditions

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These services can also be contracted on a medium or short term basis.





described in section 1.4.4, users are provided with a send-out as steady as possible depending on the LNG terminal's global unloading program, being precised that the terminal operator makes reasonable efforts to satisfy any send-out requested by the shipper.<sup>165</sup>

- **Uniform (“bandeau”) service**, which is a service for shippers unloading at most one cargo a month at a terminal. This service is dedicated to small or medium shippers. According to the conditions described in section 1.4.4, as part of this service, each cargo is sent out with a uniform daily quantity over a period of 30 days from the default unloading date. The uniform service includes thus a storage service over a period of 30 days<sup>166</sup>.

Under the hypothesis of regular deliveries, the unit tariff under the uniform service at a given LNG terminal is the same whatever the number of unloading (up to 12). Moreover for 10 to 12 LNG carriers per year, both uniform and continuous services result in the same unit tariff.

Under the continuous service, the higher the number of unloadings, the lower the tariff, reflecting thus a shorter stay of the each LNG cargo in the storage tanks.

For the continuous service four different net annual volumes delivered have been considered for Montoir and Fos Cavaou: 6, 4, 2 and 1 bcm/yr (volumes delivered to the LNG terminal equal the net volumes plus gas in kind). And three for Fos Tonkin: 4, 2 and 1 bcm/yr (volumes delivered to the LNG terminal equal the net volumes plus gas in kind). These hypotheses imply that a minimum of 12 cargoes per year have been considered.

**Table 68: Tariff comparison results for a vessel of 70,000 m<sup>3</sup> at Fos Tonkin.**

#### Fos Tonkin

€/ MWh	Continuous service			Uniform service
	4 bcm/y	2 bcm/y	1 bcm/y	12 - 1 cargo
Charge for unloaded quantities (TQD)	1.02	1.02	1.02	1.02
Charge per vessel unloaded (TND)	0.08	0.08	0.08	0.08
Charge for regas capacity utilisation (TUCR)	0.02	0.04	0.09	0.18
Charge for seasonal swing (TR)	0.00	0.00	0.00	0.00
Gas in Kind	0.01	0.01	0.01	0.01
<b>Total</b>	<b>1.14</b>	<b>1.16</b>	<b>1.21</b>	<b>1.30</b>

**Table 69: Tariff comparison results for a vessel of 140,000 m<sup>3</sup> at Montoir de Bretagne.**

#### Montoir-de-Bretagne

€/ MWh	Continuous service				Uniform service
	6 bcm/y	4 bcm/y	2 bcm/y	1 bcm/y	12 - 1 cargo
Charge for unloaded quantities (TQD)	0.84	0.84	0.84	0.84	0.84
Charge per vessel unloaded (TND)	0.04	0.04	0.04	0.04	0.04
Charge for regas capacity utilisation (TUCR)	0.03	0.04	0.09	0.17	0.18
Charge for seasonal swing (TR)	0.00	0.00	0.00	0.00	0.00
Gas in Kind	0.02	0.02	0.02	0.02	0.02
<b>Total</b>	<b>0.93</b>	<b>0.95</b>	<b>0.99</b>	<b>1.08</b>	<b>1.08</b>

Owned by GDF SUEZ

Owned by GDF SUEZ

**Table 70: Tariff comparison results for a vessel of 140,000 m<sup>3</sup> at Fos Cavaou.****Fos Cavaou**

€/ MWh	Continuous service				Uniform service
	6 bcm/y	4 bcm/y	2 bcm/y	1 bcm/y	12 - 1 cargo
Charge for unloaded quantities (TQD)	1.57	1.57	1.57	1.57	1.57
Charge per vessel unloaded (TND)	0.05	0.05	0.05	0.05	0.05
Charge for regas capacity utilisation (TUCR)	0.03	0.04	0.09	0.17	0.18
Charge for seasonal swing (TR)	0.00	0.00	0.00	0.00	0.00
Gas in Kind	0.02	0.02	0.02	0.02	0.02
<b>Total</b>	<b>1.68</b>	<b>1.69</b>	<b>1.74</b>	<b>1.82</b>	<b>1.83</b>

For information, it is also worth noting that the Deliberation on the tariff for the use of LNG terminals published by CRE on 16<sup>th</sup> July 2009<sup>167</sup>, indicates the following average unit prices:

- €0.90 /MWh for the Montoir terminal (an increase of 8.3% over the previous price). The increase in operating costs is offset by heavy booking of terminal's capacity;
- €1.14 /MWh for the Fos Tonkin terminal (an increase of 36.3% over the previous tariff). This is due mainly to increased operating costs and a fall in booked capacity after 2010;
- €1.65 /MWh for the Fos Cavaou terminal.

The average unit prices reported by the CRE are very close to the results obtained in this section, taking into account that gas in kind has been included, and that the vast majority of ships are delivered under the continuous service.

**3.3.3 Italy.**

GNL Italia and Adriatic LNG share identical tariff structures.

GNL Italia, alongside the access rates, publishes an example of the application of the TPA tariffs for the continuous service that reflects the “standard service” provided by the terminal. Such service is based on the following assumptions for the continuous service:

- The capacity of a standard LNG carrier unloading at the terminal is 70,000 m<sup>3</sup>.
- Gas is regasified according to the send-out program of the terminal until the gas is exhausted.

Under these assumptions, the unit price at Panigaglia LNG terminal to unload, storage and regasify a standard vessel is:

Charge for contractual LNG quantities (Cqs):	0.728 €/MWh
Charge per vessel unloaded (Cna):	0.071 €/MWh
Variable regasification charge (CVL, CVL <sup>P</sup> , CVL <sup>U</sup> ):	0.112 €/MWh
Transitory measurement charge (CM <sup>G</sup> ):	0.009 €/MWh



Gas in kind:

0.315 €/MWh

<b>1.23 €/MWh</b>
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Slightly higher rates would applied to 40,000 cm vessels given that the unloading term is fixed (and equal to 33,568.6 €/unloading).

Gas in kind (1,80%) accounts for around 26% of the tariff under the assumption of gas valued at 17.2 €/MWh. Therefore, access tariffs to Paniaglia LNG terminal are very sensitive to gas prices.

Adriatic LNG TPA “standard service” used to calculate the unit price is based on the “standard service” provided by Adriatic LNG in its example of the application of the TPA tariffs for the continuous service, adapting the vessel size to the terminal capacity. Therefore, Adriatic LNG standard service is based on the following assumptions for the continuous service:

- The capacity of a standard LNG carrier unloading at the terminal is 140,000 m<sup>3</sup>.
- Gas is regasified according to the send-out program of the terminal until the gas is exhausted.

The unit price at Adriatic LNG terminal to unload, storage and regasify a standard vessel would be, according to the tariffs published in its website:

Charge for contractual LNG quantities (Cqs): 3.870 €/MWh

Charge per vessel unloaded (Cna): 0.478 €/MWh

Variable regasification charge (CVL): 0.543 €/MWh

Transitory measurement charge (CM<sup>G</sup>): 0.051 €/MWh

Gas in kind: 0.139 €/MWh

<b>5.08 €/MWh</b>
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### 3.3.4 Portugal.

Given the structure of TPA tariffs, the unit access price to the Sines LNG terminal in Portugal varies according to the number of cargoes unloaded per year or per month under a long-term contract. Therefore making a comparison based on the assumption of regular deliveries following a “standard service” pattern might lead to different results.

Thus, in order to make a comparison, different assumptions have been considered in terms of number of LNG carriers per year and load factor:

- Three load factors have been considered: 90%, 75% and 60%. The first one is an

illustrative example that would reflect the price to access the LNG terminal, enjoying a rather continuous send-out rate.<sup>168</sup> The other two would reflect more typical services, making use of the flexibility provided by the terminals to adapt the send-out rate to downstream needs.

- Sines LNG terminal can accommodate 7 slots per month, which implies 84 cargoes per year. Thus, two different numbers of cargoes per year have been considered: 36 and 12, which implies 3 and 1 cargoes per month respectively.
- A standard cargo of 140,000 m<sup>3</sup>

**Table 71: Tariff comparison results.**

€/ MWh	NUMBER OF TANKERS	
	36	12
90%	<b>0,68</b>	<b>0,96</b>
75%	<b>0,70</b>	<b>0,94</b>
60%	<b>0,75</b>	<b>0,94</b>

**Table 72: Tariff comparison results for a vessel of 140,000 m<sup>3</sup> and a load factor of 90%.**

€/ MWh	36	12
Unloading term	0,17	0,17
Regas fix term	0,24	0,24
Regas variable term	0,15	0,15
Storage fee	0,12	0,40
Gas in Kind	0,00	0,00
<b>TL</b>	<b>0,68</b>	<b>0,96</b>

**Table 73: Tariff comparison results for a vessel of 140,000 m<sup>3</sup> and a load factor of 75%.**

€/ MWh	36	12
Unloading term	0,17	0,17
Regas fix term	0,28	0,28
Regas variable term	0,15	0,15
Storage fee	0,10	0,33
Gas in Kind	0,00	0,00
<b>TL</b>	<b>0,70</b>	<b>0,94</b>

**Table 74: Tariff comparison results for a vessel of 140,000 m<sup>3</sup> and a load factor of 60%.**

€/ MWh	36	12
Unloading term	0,17	0,17
Regas fix term	0,35	0,35
Regas variable term	0,15	0,15
Storage fee	0,08	0,26
Gas in Kind	0,00	0,00
TL	<b>0,75</b>	<b>0,94</b>

It should be noted that in the above calculations balancing costs have not been considered. Sines LNG terminal has the so-called “trocas reguladas” (“regulated exchanges”) service, which allows shippers that unload an annual quantity equal to or higher than 2 TWh (approximately 4 cargoes of 70,000 m<sup>3</sup>) to be balanced in the Portuguese market through regulated exchanges with the incumbent. For further information see section 1.6.18

### 3.3.5 Spain.

Spanish LNG terminals share the same tariff structure and most of tariff terms are similar. Different unloading terms are in place for each terminal.

The effective access service to LNG terminals in Spain may vary considerable among shippers. The service is based on the reservation of regasification capacity and the different services available at LNG terminals (regasification LNG storage, etc) are billed separately and each shipper is able to customize the service to its own needs in terms of vessels size, send-out rate and LNG storage; in that sense it is difficult to define a standard service. Different shippers follow different strategies, and the terminals are designed to accommodate shippers' requirements (e.g. irregular send-out requirements or different LNG vessels size), given the scarcity of alternative flexibility instruments in the gas system.

Thus, in order to make a comparison, different assumptions have been considered in terms of LNG carrier size and load factor, as well as on annual volumes unloaded:

- Three different net annual volumes delivered have been considered: 4.0, 2.0 and 1.0 bcm/yr (volumes delivered to the LNG terminal equal the net volumes plus gas in kind). This hypothesis imply that a minimum of 12 cargoes per year have been considered.
- Four standard LNG carriers for the terminals have been considered: 140,000 m<sup>3</sup>, 125,000m<sup>3</sup>, 70,000 m<sup>3</sup> and 40,000 m<sup>3</sup>. However, the use of the smaller carriers is increasingly marginal.<sup>169</sup>
- Three load factors have been considered: 90%, 75% and 60%. The first one is an illustrative example that would reflect the price to access the LNG terminal, enjoying a rather continuous send-out rate.<sup>170</sup> The other two would reflect more typical services,

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making use of the flexibility provided by the terminals to adapt the send-out rate to downstream needs.

- No storage is included in the regasification tariff (before, a right for storing up to certain level of LNG was included in the regasification tariff, reducing the need to contract additional LNG storage). Thus, the storage required for managing the LNG stocks level has been calculated and the relevant LNG storage toll has been applied.<sup>171</sup>

The unit prices at Spanish LNG terminals to unload, storage and regasify a vessel is, under the assumptions mentioned above, reflected in the following table:

**Table 75: Tariff comparison results for 4 bcm/year consumption.**

### Cartagena, Huelva, Sagunto

		LNG TANKER SIZE (LNG m <sup>3</sup> )			
LOAD FACTOR	€/ MWh	140,000	125,000	70,000	40,000
	90%	0.86	0.85	0.85	1.24
	75%	0.96	0.95	0.95	1.44
	60%	1.11	1.11	1.12	1.72

### Barcelona, Bilbao

		LNG TANKER SIZE (LNG m <sup>3</sup> )			
LOAD FACTOR	€/ MWh	140,000	125,000	70,000	40,000
	90%	0.81	0.81	0.79	1.17
	75%	0.92	0.91	0.90	1.36
	60%	1.07	1.07	1.07	1.65

### Mugardos

		LNG TANKER SIZE (LNG m <sup>3</sup> )			
LOAD FACTOR	€/ MWh	140,000	125,000	70,000	40,000
	90%	0.77	0.76	0.73	1.09
	75%	0.87	0.86	0.84	1.28
	60%	1.03	1.02	1.01	1.57



Table 76: Tariff comparison results for 2 bcm/year consumption.

**Cartagena, Huelva, Sagunto**

LOAD FACTOR	LNG TANKER SIZE (LNG m <sup>3</sup> )				
	€/ MWh	140,000	125,000	70,000	40,000
	90%	0.95	0.93	0.89	0.89
	75%	1.03	1.02	0.99	0.99
	60%	1.17	1.16	1.14	1.16

**Barcelona, Bilbao**

LOAD FACTOR	LNG TANKER SIZE (LNG m <sup>3</sup> )				
	€/ MWh	140,000	125,000	70,000	40,000
	90%	0.91	0.89	0.83	0.81
	75%	0.99	0.98	0.93	0.92
	60%	1.13	1.12	1.09	1.08

**Mugardos**

LOAD FACTOR	LNG TANKER SIZE (LNG m <sup>3</sup> )				
	€/ MWh	140,000	125,000	70,000	40,000
	90%	0.87	0.85	0.77	0.73
	75%	0.94	0.93	0.87	0.84
	60%	1.09	1.07	1.03	1.00

Table 77: Tariff comparison results for 1 bcm/year consumption.

**Cartagena, Huelva, Sagunto**

LOAD FACTOR	LNG TANKER SIZE (LNG m <sup>3</sup> )				
	€/ MWh	140,000	125,000	70,000	40,000
	90%	1.15	1.10	0.98	0.94
	75%	1.20	1.16	1.06	1.04
	60%	1.30	1.28	1.20	1.20

**Barcelona, Bilbao**

LOAD FACTOR	LNG TANKER SIZE (LNG m <sup>3</sup> )				
	€/ MWh	140,000	125,000	70,000	40,000
	90%	1.11	1.06	0.92	0.86
	75%	1.15	1.12	1.00	0.96
	60%	1.25	1.23	1.14	1.12

**Mugardos**

LOAD FACTOR	LNG TANKER SIZE (LNG m <sup>3</sup> )				
	€/ MWh	140,000	125,000	70,000	40,000
	90%	1.06	1.02	0.87	0.79
	75%	1.11	1.07	0.94	0.88
	60%	1.21	1.19	1.09	1.04

Slightly higher rates are observed for larger ships in most cases. This is due to the higher need of storage in those cases, under the usage hypothesis adopted. However, larger ships benefit from a

lower unit tariff per unloading given that there is a fixed unloading charge for Spanish terminals. Depending on the case, one factor or the other may prevail. Higher rates are also generally observed for lower volumes. This is due to the higher need of storage in those cases, under the usage hypothesis adopted. Again, depending on the case, the effect might not be the same in different cases.

Given the large capacity of the LNG terminals in Spain, and the size of LNG vessels that can be effectively discharged, in practice any player can have access to the market at the competitive fees for a vessel of 140,000 m<sup>3</sup> and a load factor of 90%, or chose to pay a higher fee to follow a different commercial strategy (in particular if a lower load factor is required).

The tables below reflect the disaggregation of unit prices at the Spanish LNG terminals to unload, storage and regasify a standard vessel of 140,000 m<sup>3</sup>:

**Table 78: Tariff comparison results for a vessel of 140,000 m<sup>3</sup> and a load factor of 90%.**

€/MWh	Huelva, Cartagena y Sagunto			Barcelona y Bilbao			Mugardos		
	4 bcm/y	2 bcm/y	1 bcm/y	4 bcm/y	2 bcm/y	1 bcm/y	4 bcm/y	2 bcm/y	1 bcm/y
Unloading fix term	0.03	0.03	0.03	0.01	0.01	0.01	0.00	0.00	0.00
Unloading vble term	0.06	0.06	0.06	0.03	0.03	0.03	0.00	0.00	0.00
Regas fix term	0.59	0.59	0.58	0.59	0.59	0.59	0.59	0.59	0.59
Regas variable term	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Storage fee	0.07	0.16	0.33	0.08	0.18	0.38	0.08	0.18	0.38
Gas in Kind	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
<b>Total</b>	<b>0.85</b>	<b>0.93</b>	<b>1.10</b>	<b>0.81</b>	<b>0.91</b>	<b>1.11</b>	<b>0.77</b>	<b>0.87</b>	<b>1.06</b>

**Table 79: Tariff comparison results for a vessel of 140,000 m<sup>3</sup> and a load factor of 75%.**

€/MWh	Huelva, Cartagena y Sagunto			Barcelona y Bilbao			Mugardos		
	4 bcm/y	2 bcm/y	1 bcm/y	4 bcm/y	2 bcm/y	1 bcm/y	4 bcm/y	2 bcm/y	1 bcm/y
Unloading fix term	0.03	0.03	0.03	0.01	0.01	0.01	0.00	0.00	0.00
Unloading vble term	0.06	0.06	0.06	0.03	0.03	0.03	0.00	0.00	0.00
Regas fix term	0.71	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Regas variable term	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Storage fee	0.06	0.13	0.27	0.07	0.15	0.31	0.07	0.15	0.31
Gas in Kind	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
<b>Total</b>	<b>0.95</b>	<b>1.02</b>	<b>1.16</b>	<b>0.92</b>	<b>0.99</b>	<b>1.15</b>	<b>0.87</b>	<b>0.94</b>	<b>1.11</b>

**Table 80: Tariff comparison results for a vessel of 140,000 m<sup>3</sup> and a load factor of 60%.**

€/MWh	Huelva, Cartagena y Sagunto			Barcelona y Bilbao			Mugardos		
	4 bcm/y	2 bcm/y	1 bcm/y	4 bcm/y	2 bcm/y	1 bcm/y	4 bcm/y	2 bcm/y	1 bcm/y
Unloading fix term	0.03	0.03	0.03	0.01	0.01	0.01	0.00	0.00	0.00
Unloading vble term	0.06	0.06	0.06	0.03	0.03	0.03	0.00	0.00	0.00
Regas fix term	0.88	0.87	0.87	0.88	0.87	0.86	0.88	0.87	0.86
Regas variable term	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Storage fee	0.04	0.10	0.21	0.05	0.11	0.25	0.05	0.11	0.25
Gas in Kind	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
<b>Total</b>	<b>1.11</b>	<b>1.16</b>	<b>1.28</b>	<b>1.07</b>	<b>1.13</b>	<b>1.25</b>	<b>1.03</b>	<b>1.09</b>	<b>1.21</b>

### 3.4 Spot / short term service considered for each LNG terminal.

The resulting unit prices have been calculated assuming that one LNG carrier is unloaded under the relevant “standard service” for each LNG terminal, under a short-term/spot contract (>1 year), and making use of a certain type of ship.

#### 3.4.1 Belgium.

No spot service is available at Zeebrugge LNG terminal on the primary market.





### 3.4.2 France.

The spot service, which is intended for cargoes subscribed after the 20<sup>th</sup> day of Month M-1 for delivery during a given Month M. As part of this service, the cargo is sent out with a uniform daily quantity over a period of 30 days from the default unloading date.

In order to make the comparisons, the following assumptions have been applied to French LNG terminals

- For Montoir de Bretagne and Fos Cavaou LNG terminal, a standard carrier of 140,000 m<sup>3</sup> which represents a typical cargo at those terminals, has been considered for the calculations.
- For Fos Tonkin LNG terminal, a standard carrier of 70,000 m<sup>3</sup>, which represents a typical cargo at that terminal, has been considered for the comparison.

The rate at Montoir de Bretagne LNG terminal for a vessel of 140,000 m<sup>3</sup> under the spot service is:

Charge for unloaded LNG quantities (TQD):	0,630 €/MWh
Charge per vessel unloaded (TND):	0.041 €/MWh
Charge for regas capacity utilisation (TUCR):	0.018 €/MWh
Gas in kind:	0.013 €/MWh

**0.87 €/MWh**

The rate at Fos Cavaou LNG terminal for a vessel of 140,000 m<sup>3</sup> under the spot service is:

Charge for unloaded LNG quantities (TQD):	1,181 €/MWh
Charge per vessel unloaded (TND):	0.052 €/MWh
Charge for regas capacity utilisation (TUCR):	0.180 €/MWh
Gas in kind:	0.024 €/MWh

**1.48 €/MWh**

The rate at Fos Tonkin LNG terminal for a vessel of 70,000 m<sup>3</sup> under the spot service is:

Charge for unloaded LNG quantities (TQD):	0,768 €/MWh
Charge per vessel unloaded (TND):	0.083 €/MWh
Charge for regas capacity utilisation (TUCR):	0.180 €/MWh
Gas in kind:	0.014 €/MWh



**1.04 €/MWh**

### 3.4.3 Italy.

GNL Italia, alongside the access rates, publishes examples of the application of the spot TPA tariffs that reflects the “spot service” provided by the terminal. The assumptions considered for the comparison are:

- The capacity of a standard LNG carrier unloading at the terminal is 70,000 m<sup>3</sup>.
- Gas is regasified according to the send-out program of the terminal until the gas is exhausted.

Under these assumptions, the unit price at Panigaglia LNG terminal to unload, storage and regasify a spot vessel is:

Charge for contractual LNG quantities (Cqs):	0.509 €/MWh
Charge per vessel unloaded (Cna):	0.071 €/MWh
Variable regasification charge (CVL, CVL <sup>P</sup> , CVL <sup>U</sup> ):	0.112 €/MWh
Transitory measurement charge (CM <sup>G</sup> ):	0.009 €/MWh
Gas in kind:	0.315 €/MWh

**1.02 €/MWh**

Adriatic LNG TPA alongside the access rates, publishes an example of the application of the TPA tariffs that reflects the “spot service”. The following assumptions have been considered for the comparison:

- The capacity of a standard LNG carrier unloading at the terminal is 140,000 m<sup>3</sup>.
- Gas is regasified according to the send-out program of the terminal until the gas is exhausted.

On the basis of the tariffs published by the Adriatic LNG, the unit price at Adriatic LNG terminal to unload, storage and regasify a spot vessel is:

Charge for contractual LNG quantities (Cqs):	2.709 €/MWh
Charge per vessel unloaded (Cna):	0.478 €/MWh
Variable regasification charge (CVL, CVL <sup>P</sup> , CVL <sup>U</sup> ):	0.543 €/MWh
Transitory measurement charge (CM <sup>G</sup> ):	0.051 €/MWh
Gas in kind:	0.139 €/MWh



**3.92 €/MWh**

#### 3.4.4 Portugal.

In order to make the spot comparison, the following assumptions have been considered:

- The standard LNG cargo considered is 140,000 m<sup>3</sup>.
- The load factor of the LNG terminal is 100%.
- The LNG quantities unloaded are regasified in around 10 days.

Under these assumptions, the spot price at Sines LNG terminal to unload, storage and regasify a standard vessel is:

Charge for unloaded LNG quantities:	0.165	€/MWh
Charge for regas capacity utilisation:	0.000	€/MWh
Charge for energy regas:	1.563	€/MWh
Charge for storage:	0.166	€/MWh
Gas in kind:	-	€/MWh

**1.87 €/MWh**

#### 3.4.5 Spain.

In order to make the spot comparison, different assumptions have been considered in terms of LNG carrier size and load factor:

- The standard LNG carrier for the terminals has been considered 140,000 m<sup>3</sup>.
- The load factor of the LNG terminal is 100%

Two different cases have been considered:

- One cargo is unloaded and regasified over a period of 30 days. In this case the monthly coefficient detailed in [section 3.2](#) shall be applied,
- One cargo is unloaded and regasified over a period of 10 days. In this case the daily multiplier detailed in [section 3.2](#) shall be applied.



**Table 81: Tariff comparison results for a vessel of 140,000 m<sup>3</sup> and regasifying the gas in 30 days.**

€/MWh	Huelva, Cartagena y Sagunto		Barcelona y Bilbao		Mugardos	
	30 days		30 days		30 days	
	Min	Max	Min	Max	Min	Max
Unloading fix term	0.03	0.03	0.01	0.01	0.00	0.00
Unloading vble term	0.06	0.06	0.03	0.03	0.00	0.00
Regas fix term	0.27	1.07	0.27	1.07	0.27	1.07
Regas variable term	0.10	0.10	0.10	0.10	0.10	0.10
Storage fee	0.42	0.42	0.42	0.42	0.42	0.42
Gas in Kind	0.01	0.01	0.01	0.01	0.01	0.01
<b>Total</b>	<b>0.87</b>	<b>1.68</b>	<b>0.83</b>	<b>1.64</b>	<b>0.79</b>	<b>1.59</b>

**Table 82: Tariff comparison results for a vessel of 140,000 m<sup>3</sup> and regasifying the gas in 10 days.**

€/MWh	Huelva, Cartagena y Sagunto		Barcelona y Bilbao		Mugardos	
	10 days		10 days		10 days	
	Min	Max	Min	Max	Min	Max
Unloading fix term	0.03	0.03	0.01	0.01	0.00	0.00
Unloading vble term	0.06	0.06	0.03	0.03	0.00	0.00
Regas fix term	0.48	1.61	0.48	1.61	0.48	1.61
Regas variable term	0.10	0.10	0.10	0.10	0.10	0.10
Storage fee	0.13	0.13	0.13	0.13	0.13	0.13
Gas in Kind	0.01	0.01	0.01	0.01	0.01	0.01
<b>Total</b>	<b>0.80</b>	<b>1.93</b>	<b>0.76</b>	<b>1.88</b>	<b>0.71</b>	<b>1.84</b>

It should be noted that in Spain the spot service is not commonly used by shippers. The Spanish system has been designed with extra capacity for security of supply reasons, so capacity is always available at the LNG terminals. Besides, the standard service is based on the booking of regasification capacity. Thus, under the long-term regasification contract shippers willing to unload an additional cargo are always allowed to do so as long as there is spare send-out capacity at the LNG terminal.

### 3.5 Summary of tariff comparison results.

The figure below summarizes the results obtained for each country/company under the previous hypothesis:



Figure 47: Tariff comparison results (overall).

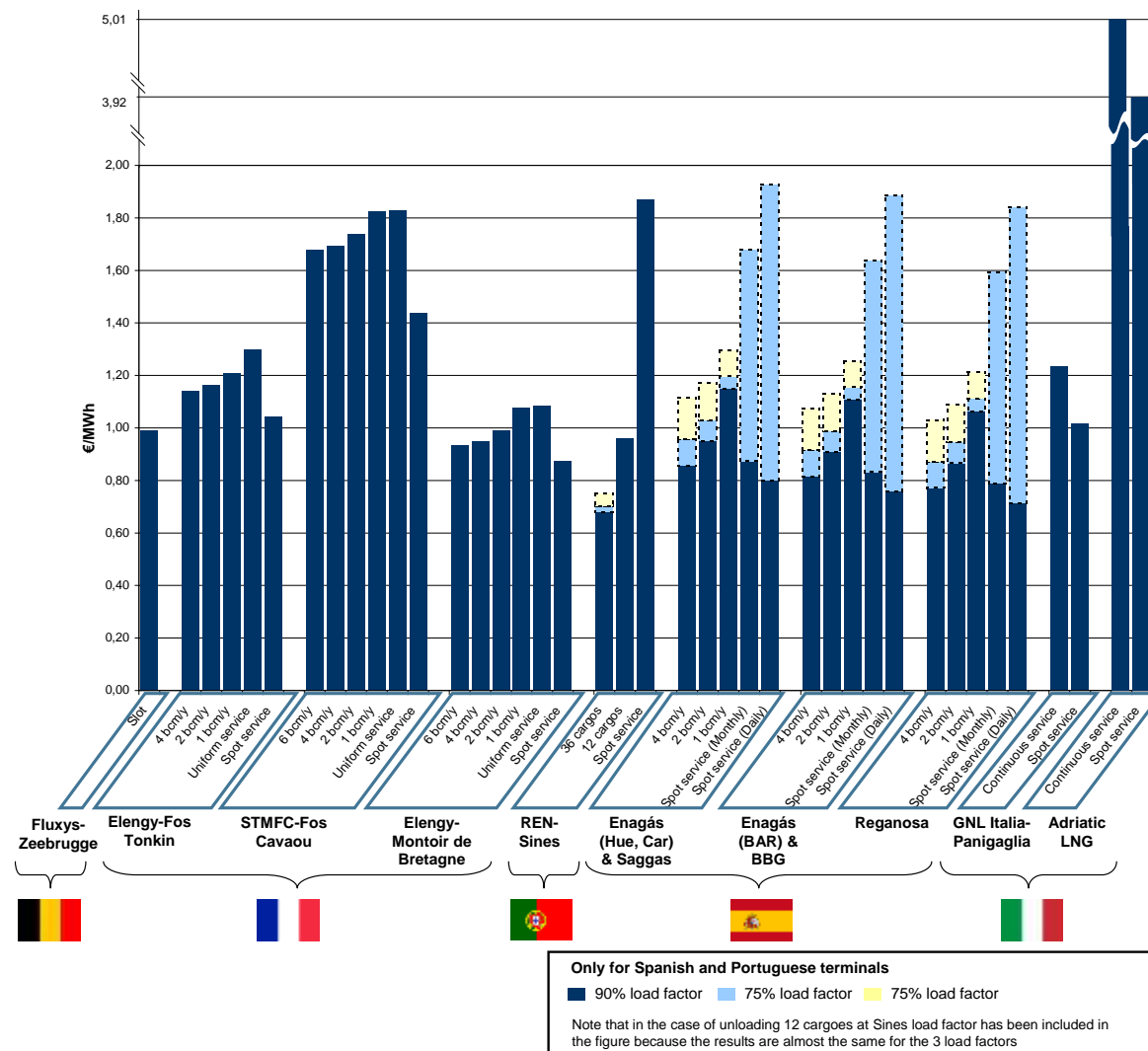




Figure 48: Tariff comparison results (Long-term).

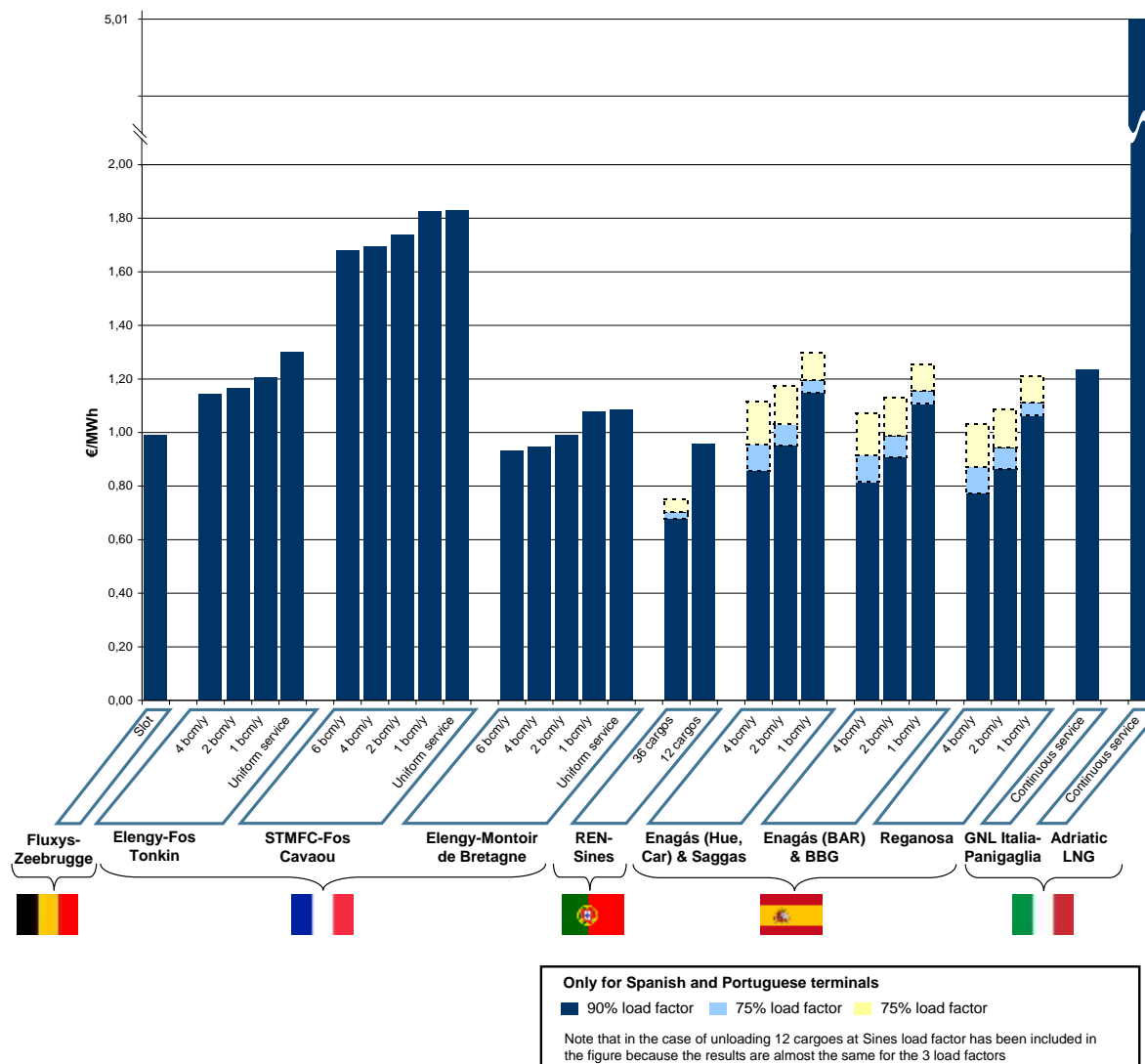
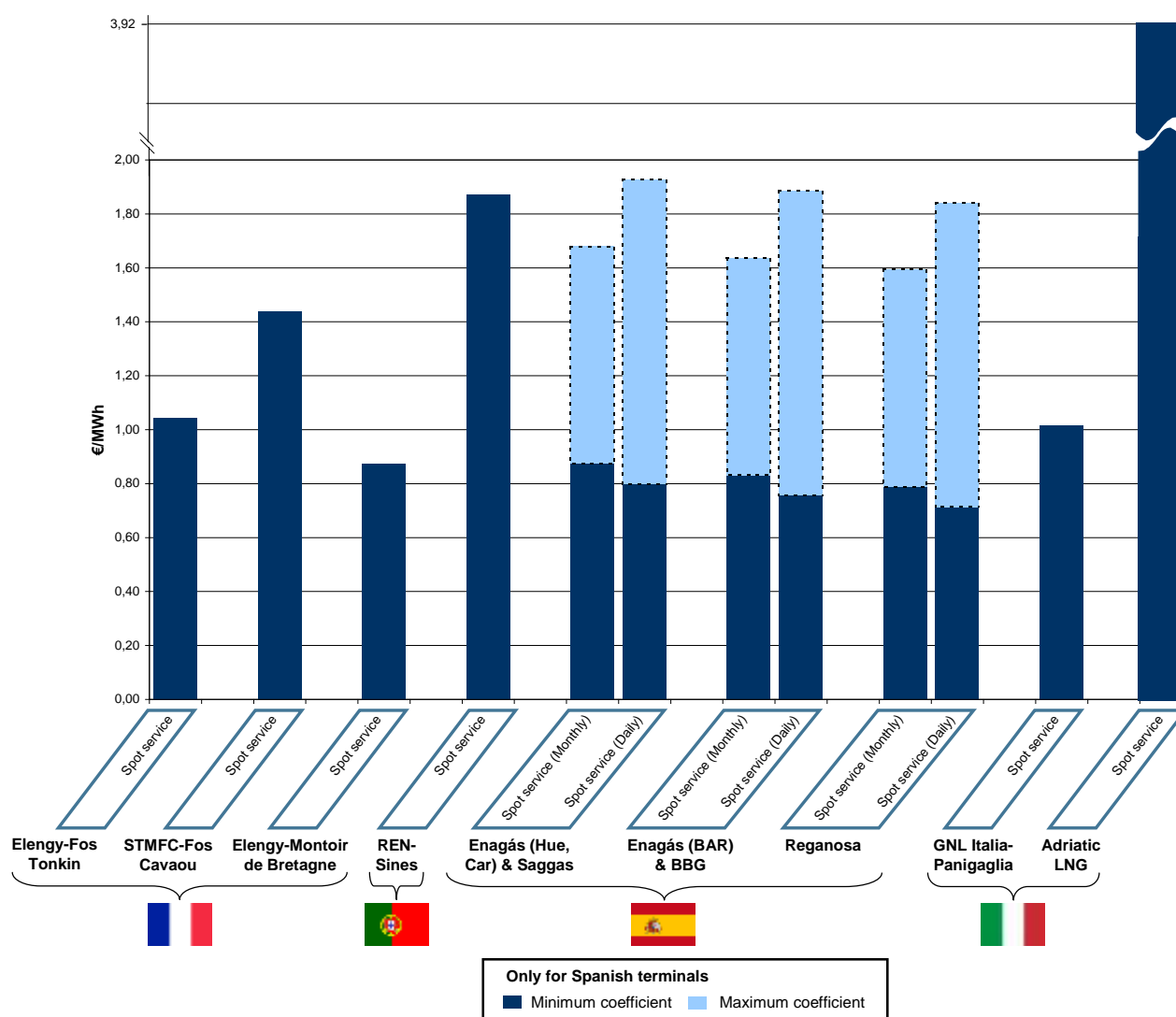




Figure 49: Tariff comparison results (Short-term / Spot).





## 4 Regulatory overview of LNG terminals in North America.

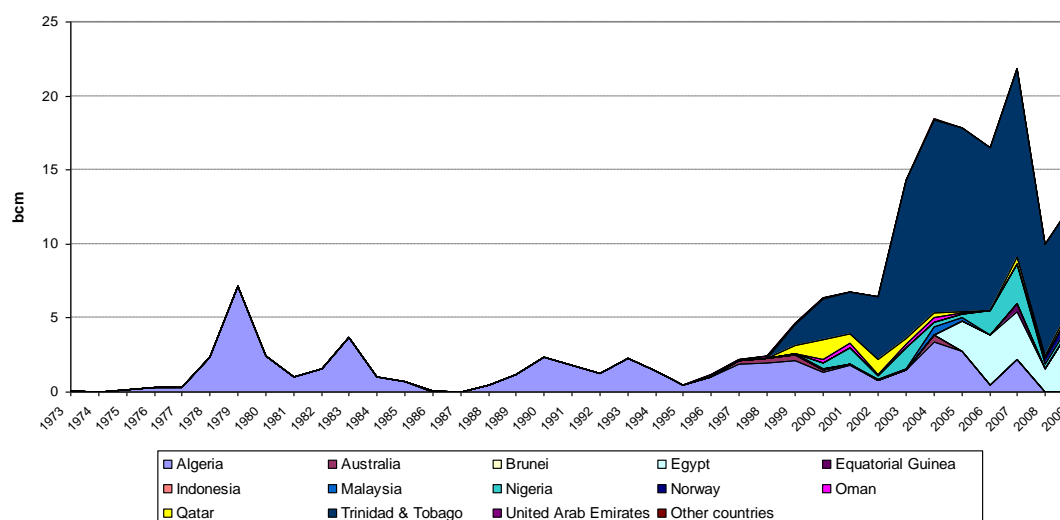
### 4.1 USA.

#### 4.1.1 LNG in the USA.

The LNG industry in the United States has experienced periods of prolonged downturns, in part owing to price competition from domestic sources of natural gas. As explained below, most of import terminals commissioned in the 70s were shut down for more than 20 years since LNG was not competitive with domestic supplies of natural gas and pipeline imports from Canada.

The LNG has become during the last decade an increasingly important part of the US energy market, although it has again experienced ups and downs. After substantial increases early this decade (including more than doubling between 2002 and 2003), the volume of LNG imports decreased dramatically in 2008.

**Figure 50: USA's LNG imports.**



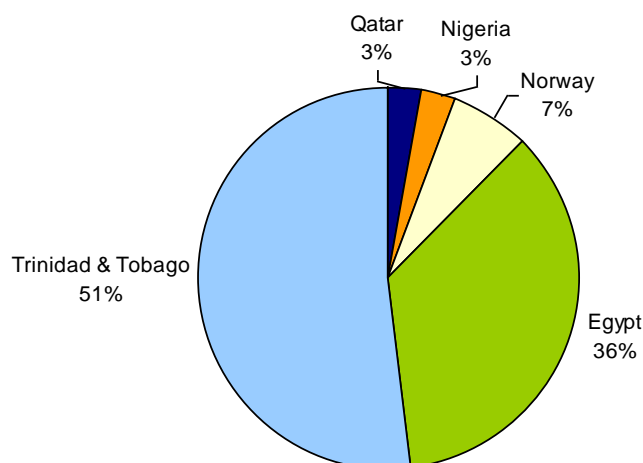
**Source:** U.S. Energy Information Administration [website](http://www.eia.doe.gov).

Algeria served as virtually the sole LNG supplier to the US until the late 90s, when shipments from other countries became more prevalent. With the opening of the Atlantic LNG facility in Trinidad and Tobago in May 1999, and its subsequent expansions, the mix of supplies shifted greatly. Deliveries of LNG from Trinidad and Tobago have accounted in the last few years for the majority of LNG imports to the United States.





**Figure 51: USA's LNG imports by country of origin in 2009.**



**Source:** GIIGNL, "The LNG Industry 2009".

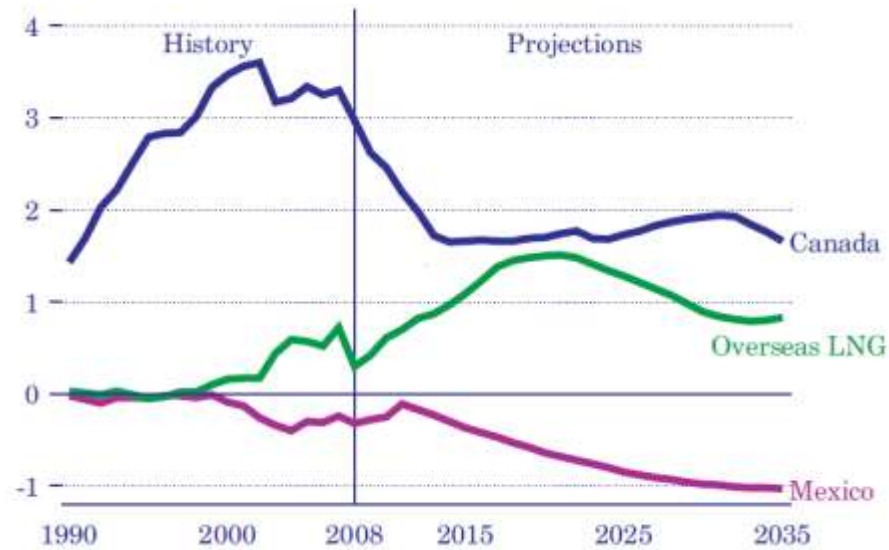
According to the FERC, with projected decreases in conventional onshore and offshore natural gas production and the projected decline in natural gas imports from Canada through to 2025, growth in US natural gas supplies will depend on non-conventional domestic production, natural gas from Alaska, and imports of LNG. In order for the US to meet its increasing demand for natural gas, the LNG was expected to become an increasingly important part of the US energy mix.

The National Petroleum Council's September 2003 report estimated that LNG could increase from less than 2 percent now to as much as 12 percent of the US gas supply by 2025. Some estimates in later years were even higher.

However, the "unconventional gas revolution" has changed the picture dramatically at least in the short and medium term. EIA has repeatedly lowered in its Annual Energy Outlook 2010 (AEO2010) its reference case for U.S. net imports of natural gas from 13 percent of total supply in 2008 to 6 percent in 2035, implying a sharp decrease in LNG imports in the future. The reduction, argued the report, was a result primarily of lower imports from Canada and higher exports to Mexico because of growing demand for natural gas in each of those countries. In addition, with relatively high prices and advances in technology, the potential for U.S. domestic natural gas production (particularly from unconventional sources) increased, providing a competitive alternative to imports of LNG.



**Figure 52: Net U.S. imports of natural gas by source, 1990-2035 (tcf), according to AEO 2010.**



**Source:** U.S. Energy Information Administration, Annual Energy Outlook 2010.

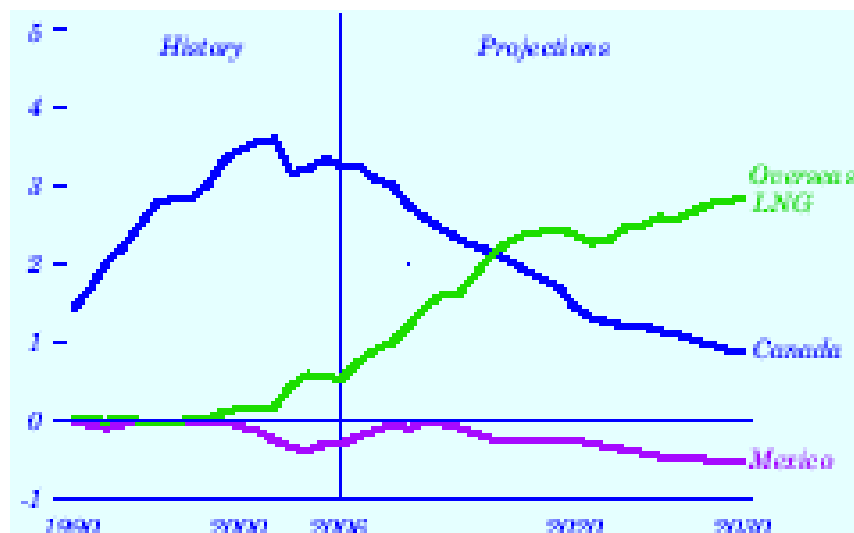
**Figure 53: Net U.S. imports of natural gas by source, 1990-2030 (tcf), according to AEO 2009.**



**Source:** U.S. Energy Information Administration, Annual Energy Outlook 2009.



**Figure 54: Net U.S. imports of natural gas by source, 1990-2030 (tcf), according to AEO 2008.**



**Source:** U.S. Energy Information Administration, Annual Energy Outlook 2008.

According to the AEO2010, LNG imports will peak at 1.5 trillion cubic feet in 2021 before declining as new liquefaction capacity is built in exporting countries, then decline as demand from other importing countries grows to absorb more of the output from the new capacity. Domestic production keeps U.S. natural gas prices low relative to world LNG prices, which remain tied to oil prices in many foreign markets. U.S. imports of LNG depend on world liquefaction capacity, world demand for LNG, and U.S. natural gas prices. When there is excess natural gas supply in world markets, more LNG becomes available for U.S. imports.

#### LNG terminals

The Everett terminal was the first LNG receiving terminal in the USA in 1971. Other three terminals which entered in operation from 1978 to 1981 (Cove Point, Elba Island and Lake Charles).

LNG regained interest in the United States in the late 90s. Through the 1980s and 1990s, LNG in imports to the USA had not been competitive with domestic supplies of natural gas and pipeline imports from Canada, resulting in low levels of these imports during these decades. However, higher natural gas prices in the USA started to make LNG imports competitive with natural gas. The terminals which had been shut down in the early 80s were reopened, being all of them operational by 2003 for the first time since 1981, and new terminals were planned.

Eight LNG import terminals currently operate in the United States, including one in Puerto Rico. Moreover, an export terminal in Kenai, Alaska, was authorised in 1967 and is in operation since 1969. Another two off-shore facilities based on Excelsior Energy's Energy Bridge technology are also in operation in the USA.

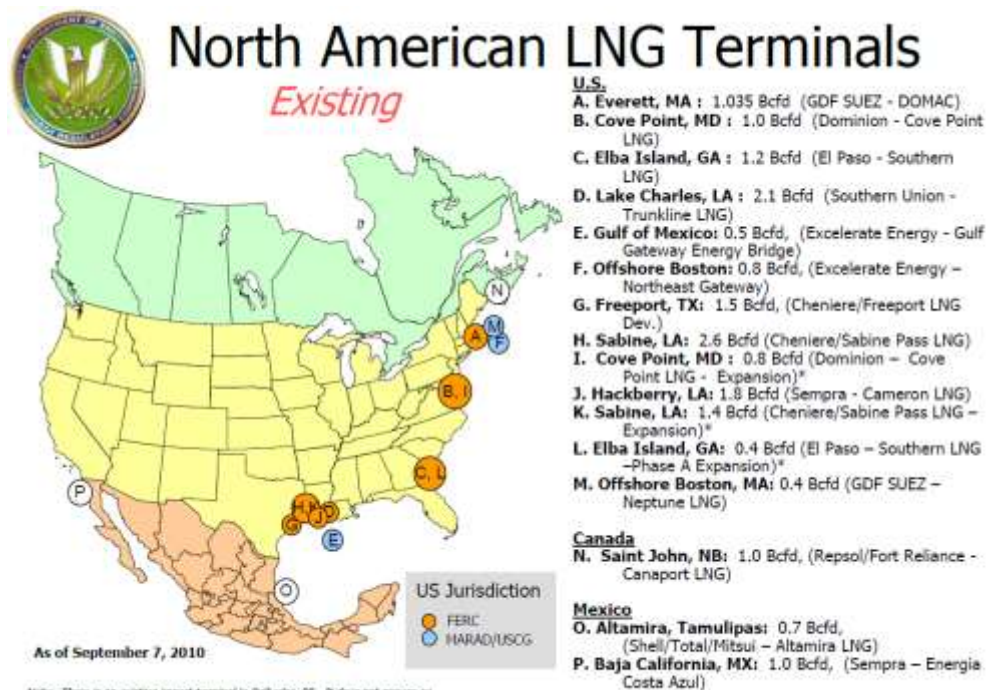


**Map 8: Location of existing LNG terminals under the FERC jurisdiction in the USA and Puerto Rico.**



Source: FERC website.

**Map 9: Location of existing LNG import terminals in North America with capacity to serve the 48 Lower States.**



Office of Energy Projects

Source: FERC website.



**Table 83: Description of existing LNG terminals in the USA and Puerto Rico.**

Terminal	Operator	Description
<b>Cove Point</b>	Dominion CP LNG	<p>Cove Point is an existing LNG import terminal located in Calvert County, Maryland, which was constructed in the mid 1970s. Deliveries were suspended in 1980 due to the high price of LNG imports. Dominion acquired Cove Point from Williams for \$217 million on Sept. 5, 2002. The Commission approved the resumption of LNG imports in October 2001, and Cove Point received its first commercial delivery in 23 years in August 2003.</p> <p>On April 29, 2005, the Commission issued a notice of application for authorization to expand the existing Cove Point LNG terminal by: (1) adding two new storage tanks to increase send-out capability and storage; and (2) constructing five new pipelines totalling about 161 miles in length, to be located in Calvert, Prince Georges, and Charles Counties, Maryland, and Juniata, Mifflin, Huntingdon, Centre, Clinton, Green and Potter Counties, Pennsylvania, to deliver additional capacity to pipeline connections in Virginia and Pennsylvania. In 2009, Dominion finished an expansion project that increased Cove Point's storage and production capacity by nearly 80 percent. Dominion Cove Point has seven tanks, which a storage capacity of 700,000 m3 and a send-out capacity of 18.74 bcm per year.</p> <p>Dominion Cove Point has a storage capacity of 14.6 billion cubic feet (BCF) and a daily send-out capacity of 1.8 BCF.</p>



Terminal	Operator	Description
<b>Elba Island</b>	El Paso Energy	<p>Elba Island is an existing LNG import terminal located on Elba Island, in Chatham County, Georgia, five miles downstream from Savannah, Georgia. The initial authorization for the Elba Island facility was issued in 1972. LNG shipments ceased during the first half of 1980. On March 16, 2000, the project received Commission authorization to re-commission and renovate the LNG facilities.</p> <p>On April 10, 2003, the Commission issued an order authorizing the expansion of the facility, which included adding a second and third docking berth, a cryogenic storage tank, and associated facilities.</p> <p>El Paso announced the start-up of the expanded facility, called Elba II, on February 1, 2006. The expansion cost approximately \$157 million and adds 3.3 Bcf equivalent of storage capacity and 540 MMcf/d of peak send-out capacity to over 1.2 Bcf/d. El Paso also applied for an additional expansion, on February 1, 2006, called Elba III, to increase capacity by 2010. On September 20, 2007 FERC approved El Paso's expansion for Elba III. The terminal now has a send-out capacity of 1.75 Bcf/d, thanks to three new vaporizer units which started up on March 2010.</p>
<b>Everett</b>	Distrigas of Massachusetts LLC <sup>172</sup>	<p>Everett is an existing LNG import terminal located in Everett, Massachusetts. The terminal received its first shipment of LNG in November 1971. The 35-acre site includes a marine terminal for cargo unloading, two double-walled above-ground LNG storage tanks, and associated equipment. On January 10, 2001, the Commission issued a certificate authorizing the construction of four new submerged vaporization units to increase the capacity of the vaporization equipment.</p> <p>The Everett Marine Terminal has two LNG storage tanks with a combined capacity of 3.4 billion cubic feet. The Terminal's installed vaporization capacity (nameplate) is approximately 1 bcf per day, with a sustainable daily throughput capacity of approximately 715 million cubic feet per day. The terminal delivers vaporized LNG via the interconnecting facilities of two interstate natural gas pipelines, Algonquin Gas Transmission, LLC and Tennessee Gas Pipeline Company, and also via the local gas distribution system of Boston Gas Company d/b/a KeySpan Energy Delivery New England. It also supplies LNG in liquid form through four truck-loading bays to customers with their own LNG storage capability. The terminal's truck-loading bays have a maximum liquid send-out capacity of more than 100 million cubic feet daily.</p>
<b>Lake Charles</b>	Trunkline LNG Company, LLC <sup>173</sup>	<p>Lake Charles is an existing LNG terminal located in Lake Charles, Calcasieu Parrish, Louisiana. The LNG facilities were originally authorized in 1977 and were completed in July 1981. Deliveries began in 1982, but were suspended in 1983 due to the high cost of LNG. Deliveries were resumed in 1989 and have increased in recent years.</p> <p>On December 18, 2002, the Commission authorized expansion facilities that included a fourth storage tank, additional pumps and vaporizers to increase send-out capacity, a second marine unloading dock, and various supporting facilities. On September 17, 2004, the Commission authorized additional unloading facilities, vaporizers, and pumps to provide additional firm vaporization service and increase send-out capacity.</p> <p>The Lake Charles terminal has a peak send-out capability of up to 2.1 bcf per day and firm sustained send-out capability of 1.8 bcf per day. The terminal has storage facilities that can store the equivalent of 9.0 Bcf of natural gas or 425,000 m<sup>3</sup> LNG.</p>

<sup>172</sup> Owned by GDF SUEZ.

<sup>173</sup> Owned by Panhandle Energy.




Terminal	Operator	Description
Peñuelas	EcoElectrica, L.P. <sup>174</sup>	<p>Peñuelas is an existing LNG import facility located at Guayanilla Bay, Peñuelas, about nine miles west of Ponce, Puerto Rico. The gas is used to power a 461 megawatt cogeneration plant which sells electricity to the Puerto Rico Electric Power Authority and uses steam to power a desalination facility on the site.</p> <p>The order granting authority to construct and operate the LNG facility was issued on May 15, 1996. Approval to begin importing LNG was issued on June 20, 2000. The LNG facilities consist of: (1) a marine terminal with an 1800-foot pier for unloading LNG tankers; (2) one 160,000 cubic meters LNG storage tank; (3) a vaporization system; (4) various control systems; and (5) piping and other ancillary equipment.</p>

<sup>174</sup> EcoElectrica's is owned by Spain's Gas Natural, with a 50% share, and a joint venture made up of International Power and Mitsui that together hold the remaining 50% share.






Terminal	Operator	Description																								
Sabine Pass LNG	Cheniere Sabine Pass Pipeline Company <sup>175</sup>	<p>Sabine Pass is an existing LNG import terminal located in Cameron Parish, Louisiana. Phase 1 of Sabine Pass LNG commenced service in April 2008 and by mid-2009 the first stage of the Phase 2 expansion was completed. With a total send-out capacity of 4.0 Bcf/d and 16.8 Bcf of storage capacity the Sabine Pass terminal is the largest receiving terminal, by regasification capacity, in the world. In the future stages of Phase 2, a sixth storage tank will be added and also the related facilities to bring the total LNG storage volume to 20.2 Bcf.</p> <p>The terminal is capable of receiving and unloading approximately 400 LNG vessels each year and can simultaneously unload LNG vessels from each berth in order to maximize the number of LNG vessels that can be received at the terminal each year. .</p> <div><table><tr><td colspan="2">Sabine Pass LNG Terminal</td></tr><tr><td>Site:</td><td>853 acres</td></tr><tr><td>Accessibility:</td><td>40' channel</td></tr><tr><td>Proximity:</td><td>3.7 nautical miles from coast</td></tr><tr><td>Berths:</td><td>2 docks</td></tr><tr><td>Storage:</td><td>3 tanks (10.1 Bcf)</td></tr><tr><td>Vaporization:</td><td>2.6 Bcf/d sendout</td></tr><tr><td>In Service:</td><td>2008</td></tr><tr><td colspan="2">Expansion</td></tr><tr><td>Storage:</td><td>3 tanks (10.1 Bcf)</td></tr><tr><td>Vaporization:</td><td>1.4 Bcf/d sendout</td></tr><tr><td>In Service:</td><td>2009 (2 tanks only)</td></tr></table></div> <p>Sabine Pass has designed a liquefaction project that would permit permit for up to four modular LNG trains, each with a peak processing capacity of up to approximately 0.7 Bcf/d of natural gas and an average liquefaction capacity of approximately 3.5 mtpa. The initial project phase is anticipated to include two modular trains and the capacity to process on average approximately 1.2 Bcf/d of pipeline quality natural gas.</p> <p>Sabine Pass announced in November 2010 that it had signed MoUs for LNG Processing at the Sabine Pass LNG Terminal with Morgan Stanley Capital Group Inc,<sup>176</sup> ENN Energy Trading,<sup>177</sup> and Gas Natural Fenosa.<sup>178</sup></p> <p>Sabine Pass intends to enter into contracts for at least 0.5 Bcf/d of natural gas liquefaction capacity per train in support of reaching a final investment decision regarding the development of the project. The company believes that the time and cost required to develop its proposed liquefaction project would be materially lessened by Sabine Pass LNG's existing large acreage and infrastructure (docks, LNG storage tanks, power generation assets and pipeline connections). Development costs incurred during the assessment of this project will be funded by us using the company's existing funds. Sabine PAss will contemplate making a final investment decision to commence construction of the liquefaction facilities upon, among other things, achieving regulatory approval and entering into acceptable commercial and financing arrangements. The terminal anticipates LNG export could commence as early as 2015.</p>	Sabine Pass LNG Terminal		Site:	853 acres	Accessibility:	40' channel	Proximity:	3.7 nautical miles from coast	Berths:	2 docks	Storage:	3 tanks (10.1 Bcf)	Vaporization:	2.6 Bcf/d sendout	In Service:	2008	Expansion		Storage:	3 tanks (10.1 Bcf)	Vaporization:	1.4 Bcf/d sendout	In Service:	2009 (2 tanks only)
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<sup>175</sup> Cheniere owns 91% of the company.

<sup>176</sup> "Cheniere Signs Memorandum of Understanding With Morgan Stanley Capital Group Inc. for LNG Processing at the Sabine Pass LNG Terminal", 8<sup>th</sup> November 2010. Available at:





Terminal	Operator	Description
<b>Freeport LNG</b>	Freeport LNG Development, LP <sup>179</sup>	<p>Freeport is an existing LNG import terminal located in Quintana Island, Texas, which received its first commercial delivery in April 2008.</p>  <p><b>Freeport LNG Terminal</b></p> <ul style="list-style-type: none"> <li>Site: 233 acres</li> <li>Accessibility: 45' channel</li> <li>Proximity: 1.0 nautical miles from coast</li> <li>Berths: 1 docks</li> <li>Storage: 2 tanks (6.7 Bcfe)</li> <li>Vaporization: 1.5 Bcf/d sendout</li> <li>In Service: 2008</li> </ul>
<b>Cameron LNG</b> <sup>180</sup>	Cameron LNG, LLC <sup>181</sup>	<p>Cameron LNG issued a letter to go Commence Service on July 29, 2009.</p> <p>It has a 1.5 bcf/day of initial send-out capacity, with room for expansion, three full-containment storage tanks (3 x 160,000 cubic meters) and two ship berths. On Aug. 1, 2005, Semptra LNG signed a 20-year Capacity Agreement with ENI S.p.A. for a TSA for 40% of the capacity of the Cameron LNG receipt terminal (approximately 600 MMcfd).</p> <p>Cameron LNG submitted an application with FERC in December 2005, to expand its fully permitted Cameron LNG. FERC approval was granted January 2007. The proposed expansion would add another 1.15 billion cubic feet (Bcf) per day of natural gas capacity, increasing Cameron LNG's total processing capacity to 2.65 Bcf per day.</p>

<http://phx.corporate-ir.net/phoenix.zhtml?c=101667&p=irol-newsArticle&ID=1493230&highlight=>

<sup>177</sup> "Cheniere Signs MOU With ENN Energy Trading for Bi-Directional Processing Capacity at the Sabine Pass LNG Terminal", 11<sup>th</sup> November 2010. Available at: <http://phx.corporate-ir.net/phoenix.zhtml?c=101667&p=irol-newsArticle&ID=1495218&highlight=>

<sup>178</sup> "Cheniere Signs MOU with Gas Natural SDG (Gas Natural Fenosa) for Bi-Directional Processing Capacity at the Sabine Pass LNG Terminal", 29<sup>th</sup> November 2010. Available at: <http://phx.corporate-ir.net/phoenix.zhtml?c=101667&p=irol-newsArticle&ID=1500623&highlight=>

<sup>179</sup> Cheniere developed this project and then sold a 60% interest to the Smith Entities, which subsequently sold a 15% limited partner interest to The Dow Chemical Company, or Dow Chemical. Cheniere also sold a 10% limited partner interest to Contango Oil & Gas Company, which it sold to Osaka Gas in early 2008. Cheniere continues to own a 30% non-operating limited partner interest in Freeport LNG Development, L.P.

<sup>180</sup> Formerly known as Hackberry LNG.

<sup>181</sup> Owned by Semptra Energy.



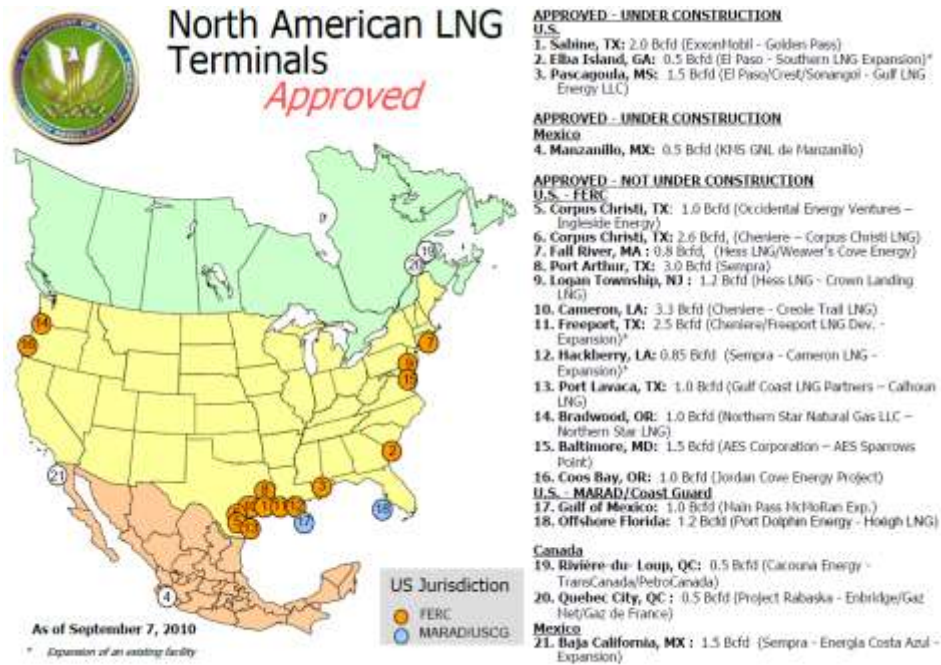
Terminal	Operator	Description
<b>Gulf Gateway</b>	Excelerate Energy	<p>Gulf Gateway Deepwater Port was brought into service in March 2005 off the coast of Louisiana in the U.S. Gulf of Mexico, and was the world's first offshore LNG receiving facility. Located 116 miles offshore, Gulf Gateway consists of a Submerged Turret Loading buoy (STL Buoy) provided by Advanced Production and Loading, and a metering platform that allows connection to multiple downstream pipelines.</p> <p>Excelerate Energy's Energy Bridge vessels vaporize LNG on board and deliver natural gas through the STL Buoy to a subsea pipeline and into the natural gas grid, providing access to the Henry Hub market. Given its access to downstream gas processing plants, Gulf Gateway can accommodate virtually any LNG composition up to 1,200 btu/scf gross heating value.</p> <p>Gulf Gateway is capable of delivering natural gas at a baseload rate of 500 mmcf/d with peak rates of up to 690 mmcf/d, and has the ability to increase throughput as future generations of Energy Bridge vessels increase in regasification capacity.</p>
<b>Northeast Gateway</b>	Excelerate Energy	<p>Northeast Gateway Deepwater Port was Excelerate Energy's second buoy-based offshore receiving facility, and is located in Massachusetts Bay offshore Boston. Located approximately 13 miles from shore, Northeast Gateway provides access to the Northeastern U.S. markets. Construction was completed in December 2007, with final operating approvals received in February 2008.</p> <p>The physical infrastructure of Northeast Gateway consists of a dual submerged turret loading buoy (STL Buoy) system and an approximately 16 mile pipeline connecting into the existing HubLine pipeline operated by Algonquin Gas Transmission. This infrastructure can accommodate up to 800 mmcf/d for future growth, but with Excelerate Energy's current Energy Bridge vessel design a baseload rate of 500 mmcf/d is projected, with peak capabilities to 600 mmcf/d.</p> <p>Northeast Gateway can accept any specification of LNG not exceeding a gross heating value (GHV) of 1,110 btu/scf or a Wobbe Index of 1400.</p>
<b>Kenai LNG (export terminal)</b>	Phillips Alaska Natural Gas Corp./Marathon Oil Co.	<p>Kenai is an existing LNG export terminal that was constructed in the Cook Inlet Basin area, Alaska, for the liquefaction and storage of LNG and the loading of such onto ships for export and delivery to Japan. The order authorizing exportation of LNG was issued on April 19, 1967. The original export authorization has been amended and extended numerous times by the Department of Energy. The current amendment continues through March 31, 2011.</p>
<b>Neptune LNG</b>	GDF Suez	<p>The Neptune Deepwater Port will be the second operational New England LNG gas port. The GDF Suez \$1 billion Neptune LNG offshore regas facility, located off the coast of Massachusetts, will receive its first LNG cargo in August 2010. Suez LNG started construction of the terminal in 2008. The facility will have an average capacity of 1.1 Bcf/d. Neptune will provide an average of 400 MMcf/d of gas which could supply 1.5 million New England homes and has the potential to increase its delivery rate to 750 MMcf/d during peak periods.</p>

**Source:** FERC website and company's websites.

Apart from existing terminals, there are a large number of approved, proposed and potential projects in the USA and North America. The effective development of these projects is uncertain and will ultimately depend on market conditions. According to the FERC, there are about 40 LNG terminals that are either before FERC or being discussed by the LNG industry for North America, and many industry analysts predict that only 12 of the 40 LNG terminals being considered will ever be built.



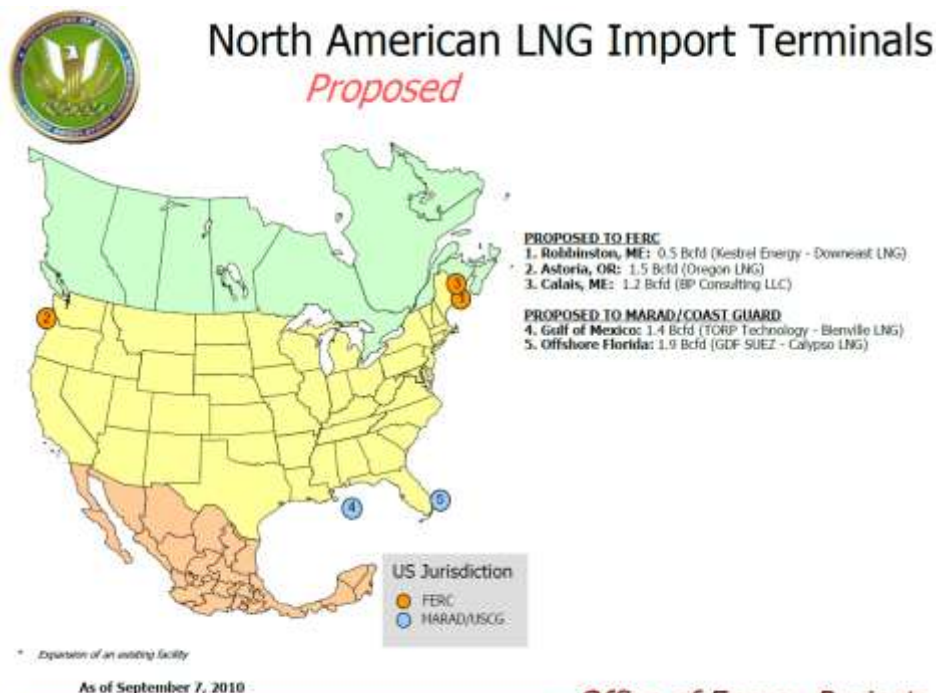
Map 10: Location of approved LNG import terminals in North America.



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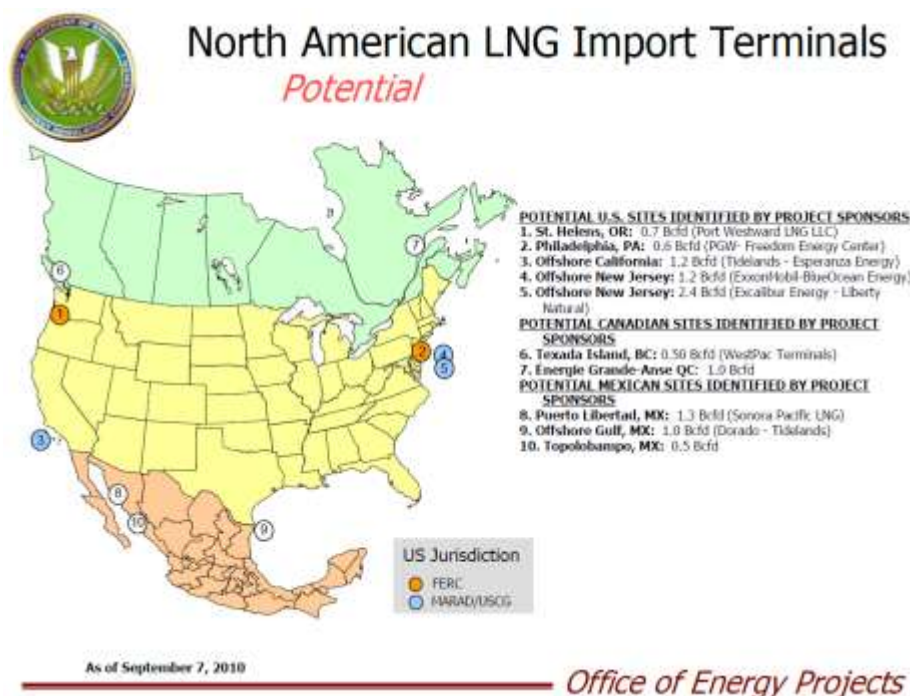
Source: FERC website.

Map 11: Location of proposed LNG import terminals in North America.



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Source: FERC website.

**Map 12: Location of potential LNG import terminals in North America.**

Source: FERC website.

#### 4.1.2 Regulation.

LNG terminals in the United States were for many years considered to be part of the transportation chain, and thus subject to open access service under Section 7c of the Natural Gas act.

The three terminals which entered in operation from 1978 to 1981 (Cove Point, Elba Island and Lake Charles) are subject to open access regulation, while the Everett terminal (1971) was exempt from that regulation and has always operated as a dedicated terminal. This exception was allowed because when its owner Distrigas filed its application to build the terminal, it took the position that the terminal would not be engaged in interstate commerce but in foreign commerce.<sup>182</sup>

A significant policy shift took place in 2002 with the “Hackberry decision”, which was later (partially) codified in the Energy Policy act 2005.

##### 4.1.2.1 The Hackberry decision (December 2002).

On December 18, 2002, the Federal Energy Regulatory Commission (FERC) voted to remove regulatory barriers to the construction of new LNG import regasification terminals.<sup>183</sup> In the new policy, FERC terminated open access requirements (i.e., tariff requirements and non-discriminatory rates) for LNG import terminals in an attempt to encourage more LNG site development. The policy

<sup>182</sup> IEA/OECD (2004): Security of Gas Supply in Open Markets. LNG and Power at a Turning Point. Available at <http://www.iea.org/textbase/nppdf/free/2004/security.pdf>

<sup>183</sup> [http://www.eia.doe.gov/oiaf/archive/aeo04/leg\\_reg7.html](http://www.eia.doe.gov/oiaf/archive/aeo04/leg_reg7.html)  
[http://www.eia.doe.gov/oil\\_gas/natural\\_gas/analysis\\_publications/ngmajorleg/ferc.html](http://www.eia.doe.gov/oil_gas/natural_gas/analysis_publications/ngmajorleg/ferc.html)





was announced in FERC's decision to approve an application by Dynegy to build an LNG terminal in Hackberry, Louisiana.<sup>184</sup> In its ruling, FERC granted preliminary approval (the first such approval for an import terminal in the continental United States in over 20 years) for the construction of Hackberry LNG, clarifying that Dynegy could provide services to its affiliates under rates and terms mutually agreed upon (i.e., market-based), rather than under regulated cost-of-service rates, and exempted the company from having to provide open access service. In essence, from a regulatory perspective, LNG import facilities would be treated as supply sources rather than as part of the transportation chain. Sales of natural gas from the LNG plant were considered competitive with other sales of natural gas in the Gulf Coast region in a deregulated competitive commodity market, relieving the need for regulatory scrutiny.

FERC's new policy was highly influenced by the strong lobbying for a relaxation of regulatory requirements. Some LNG industry representatives at a public conference hosted by the FERC in October 2002 on issues facing the natural gas industry argued that open access requirements deterred investment in new LNG facilities. In particular, they claimed that investors in LNG projects need to be assured access to import terminal capacity in order to advance capital-intensive liquefaction projects in other countries. Because FERC's open access requirements for LNG terminals had formerly mandated public, non-discriminatory auctions for capacity, LNG industry representatives considered that regulations were hindering this investment and that many foreign governments would not approve liquefaction projects in their countries without regasification terminal access.

The Hackberry decision marked a significant departure from previous FERC practice. FERC specifically stated that it hoped the new policy would encourage the construction of new LNG facilities by removing some of the economic and regulatory barriers to investment. The Hackberry decision also made onshore terminal proposals competitive with proposed offshore LNG facilities, which under amendments to the 1974 Deepwater Port Act<sup>185</sup> did not have to operate on a common carrier basis or provide access to third parties. While FERC's decision marked a lighter-handed regulatory regime for marketing operations at onshore LNG terminals, other regulations, such as those involving siting, were unchanged by this new policy.

#### **4.1.2.2 Offshore terminals - 2002 Amendments to Deepwater Port Act of 1974.**

The Deepwater Ports Act (DWPA) of 1974, which applied to the siting and operation of deepwater oil ports, was amended by the Marine Transportation Security Act of 2002 to include deepwater LNG ports. Under this act, a developer of an offshore LNG terminal in federal waters is not subject to the "open access" requirements or regulation of rates and terms as the FERC was then requiring for onshore facilities.

The DWPA authorizes the Secretary of Transportation to issue a license to own, construct, and operate a deepwater port. This can be either a floating or manmade structure, other than a vessel, located beyond state seaward boundaries. The original legislation (1974) applied only to facilities storing, transporting, or handling oil, and was enacted to allow deep-draft oil tankers to unload offshore because many U.S. ports were too shallow to receive such large ships. In 2002, however, Section 106 of the Maritime Transportation Security Act amended the DWPA to include the storage, transportation, and handling of natural gas. This amendment has provided the natural gas industry the means to pursue the construction of offshore terminals for receiving LNG.

<sup>184</sup> Hackberry decision: <http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=9608751>

<sup>185</sup> [http://www.eia.doe.gov/oil\\_gas/natural\\_gas/analysis\\_publications/ngmajorleg/amendments.html](http://www.eia.doe.gov/oil_gas/natural_gas/analysis_publications/ngmajorleg/amendments.html)



The amendment provisions also transferred the regulatory oversight of offshore natural gas terminals from the Federal Energy Regulatory Commission (FERC) to the Maritime Administration (MARAD) within the Department of Transportation (DOT) and the U.S. Coast Guard, which moved from DOT to the Department of Homeland Security in 2003. In addition, licensing procedures were streamlined, and licensees can have exclusive rights to the terminal's capacity rather than being subject to open access requirements.

In June 2003, the Secretary of Transportation delegated the authority to license deepwater ports to the MARAD Administrator. The license application process is administered jointly between MARAD and the Coast Guard, with MARAD primarily responsible for project financial reviews and the Coast Guard primarily responsible for project engineering, operations, safety, and environmental reviews, which include compliance with the National Environmental Policy Act (NEPA). The license review process, including a decision on the license application, must be completed within 356 days of the filing of an application.

In order for MARAD to approve a deepwater port license application, approval must be obtained from the governor of each adjacent coastal state. The governor can veto the project, however if the governor does not respond within 45 days after the final public hearing on the license application, approval is deemed given under the DWPA.

Deepwater ports for natural gas are not subject to “open access” provisions. Owners can utilize the entire capacity of the port and storage facilities or can make unused capacity available to others.

After the passage of the 2002 Amendments to the DWPA, there have been a number of license applications for new offshore facilities. As of August 2009, eighteen Deepwater Port License Applications have been filed for approval. Sixteen applications were filed for licenses to import LNG and two applications were filed for licenses to import oil. Seven applications have been approved (including the two LNG facilities already in operation, Gulf Gateway and Northeast Gateway); of the seven applications that have been approved, six licenses have been issued to import both LNG and oil; currently one license is pending for an approved application for an LNG port proposed for construction and operation in the Gulf of Mexico. Additionally, one application has been denied; six applications have been withdrawn or are inactive; and four applications are currently under review.<sup>186</sup>

The inconsistency between the DWPA, as amended in 2002, and the previous FERC regulations on onshore facilities, was a relevant driver for the position adopted by the FERC on Hackberry LNG.

#### **4.1.2.3 Energy Policy Act of 2005 – codification of the “Hackberry policy”.**

The Energy Policy Act of 2005 (EPAct 2005), passed on August 8, 2005, was the first major energy law enacted in more than a decade, and made the most significant changes in FERC authority since the New Deal’s Federal Power Act of 1935 and the Natural Gas Act of 1938. Title II of the Act addressed oil and gas issues and contained significant provisions related to the importation of LNG. Some of these provisions were to be incorporated into the Natural Gas Act (NGA), while others were stand-alone provisions.

From the point of view of LNG policy, the primary element of the Act was the codification of the “Hackberry policy” adopted by the FERC in the December 2002 Hackberry LNG decision. Under the amended NGA, the FERC is prohibited before January 1, 2015 from:

<sup>186</sup> Details on approved projects are available at:  
[http://www.marad.dot.gov/ports\\_landing\\_page/deepwater\\_port\\_licensing/dwp\\_current\\_ports/dwp\\_current\\_ports.htm](http://www.marad.dot.gov/ports_landing_page/deepwater_port_licensing/dwp_current_ports/dwp_current_ports.htm)



- denying an application solely on the basis that the applicant proposes to use the LNG terminal exclusively or partially for gas that the applicant or an affiliate of the applicant will supply to the facility; or
- conditioning an order on approving a terminal:
  - (I) a requirement that the LNG terminal offer service to customers other than the applicant, or any affiliate of the applicant, securing the order;
  - (II) any regulation of the rates, charges, terms, or conditions of service of the LNG terminal; or
  - (III) a requirement to file with the Commission schedules or contracts related to the rates, charges, terms, or conditions of service of the LNG terminal.

However, these statutory provisions are applicable only to Commission decisions made before January 1, 2015, and the provisions will cease to have effect on January 1, 2030. The Act also provided protection from degradation of service and undue discrimination to existing shippers at a terminal already providing open access service in the event the terminal sought FERC approval to expand.

Apart from the codification of the Hackberry decision, the EAct 2005 amended the NGA to clarify the role of the FERC as the final decisionmaking body to approve the siting, construction, expansion or operation of a terminal importing, exporting or processing LNG located onshore or in State waters.<sup>187</sup> Moreover, it established that the FERC may approve application “with such modifications and upon such terms and conditions as the Commission finds necessary or appropriate”.

However, authorisations are conditioned on the applicant’s satisfaction of other statutory requirements for various aspects of the projects. States have the ability to effectively “veto” an LNG facility by denying permits associated with the Clean Water Act, the Coastal Zone Management Act, and the Clean Air Act, since nothing in the EAct 2005 changed the states’ authorities in this regard.<sup>188</sup>

Pursuant to EAct, the Commission adopted a rule requiring potential developers to initiate pre-filing procedures at least six months prior to filing a formal application with the Commission, decreasing the time needed for creating a complete application for new LNG terminals. It also proposed in 2006 rules to implement provisions that granted authority to coordinate the processing of federal and state authorisations required under federal law for natural gas projects, as well as maintain a consolidated record of decisions for judicial review.

#### **4.1.3 Rationale for LNG access regulation in the USA.**

The Hackberry decision was primarily intended to foster investment in new LNG facilities, in a context of uncertain future natural gas production in North America, which could make necessary to find new import sources of natural gas.

<sup>187</sup> On March 24, 2004, the FERC had already asserted exclusive jurisdiction for LNG facilities. The Commission clarified its authority in an order responding to the California Public Utilities Commission’s (CPUC) claim that California had jurisdiction over LNG facilities within its borders.

<sup>188</sup> <http://www.ferc.gov/industries/lng/gen-info/laws-regs/state-rights.asp>



In order to understand the rationale of LNG access regulation in the USA, particularly if conclusions are to be drawn for other markets, it is important to carefully analyse the context in which the Hackberry decision was adopted.

1. Domestic gas production is difficult to predict in the US, with regional independent producers directly competing with gas majors and large reserves of unconventional gas. US producers delivered more gas in 2007 than in any year since 2001 and the second-highest volume since 1989.<sup>189</sup> Production in 2008 was again higher than in 2007, and in 2009 marketed production of natural gas averaged almost 60 Bcf per day in 2009, the highest level since 1973. Natural gas rotary rig counts averaged 801 in 2009, which was substantially lower than their record-setting average of 1,491 in 2008. Despite the reduction in rig counts and prices, production remained strong throughout the year, primarily as a result of increasing shale production and recent past investments.<sup>190</sup>

There are also uncertainties on the level of natural gas production in Canada, which is by far the largest exporter to the US (around 90% of total imports to the US), and whose production includes conventional production in the Western Canadian Sedimentary Basin (WCSB), coalbed methane and shale gas.

The Hackberry decision was adopted in a moment when forecasts indicated a probable decrease of natural gas production in North America, and the later “shale gas revolution” was not expected.

2. At the time of adopting the decision, the FERC emphasized that it intended to put onshore receiving terminals on an equal footing with offshore facilities. A regulatory problem, had previously emerged in the US: the Deepwater Ports Act of 1974, which previously applied to the siting and operation of deepwater oil ports, was amended by the Marine Transportation Security Act of 2002 to include deepwater LNG ports. Under this act, a developer of an offshore LNG terminal in federal waters would not be subject to the “open access” requirements or regulation of rates and terms as the FERC was then requiring for onshore facilities. Through FERC’s order in December 2002, the same requirements were eliminated for onshore facilities. The latter policy was partially codified in the Energy Policy Act of 2005 (see above), and a current LNG developer need only obtain siting, environmental and operational approvals in order to construct and operate a new LNG terminal.
3. The Hackberry decision also suggested that the FERC would continue to regulate LNG import facilities on a case-by-case basis. The FERC could have opted to announce the change in a Notice of Proposed Rulemaking but officials said that this kind of generic approach was more applicable to natural gas pipelines than it is to LNG import capacity. In announcing its new policy, the FERC warned that it could revisit its decision in the event that complaints of discrimination or anticompetitive behaviour were received. However, the policy was codified through the EPACT 2005 three years after. Nevertheless, it was made clear that the statutory provisions were applicable only to Commission decisions made before January 1, 2015, and the provisions will cease to have effect on January 1, 2030.
4. The decision was a departure of the FERC from the previous doctrine, under which it generally treated LNG facilities the same as interstate natural gas pipelines. It is widely

<sup>189</sup> WORLD GAS INTELLIGENCE: “HORIZON: Unconventional US Gas Offsets Lower Canadian, LNG Imports”, Wednesday, April 9, 2008.

<sup>190</sup> [http://www.eia.gov/pub/oil\\_gas/natural\\_gas/feature\\_articles/2010/ngyir2009/ngyir2009.html](http://www.eia.gov/pub/oil_gas/natural_gas/feature_articles/2010/ngyir2009/ngyir2009.html)





recognised that “the interstate pipelines are formally subject to cost-of-service regulation by FERC, whereas in practice most of the contracts are negotiated in a fairly competitive environment”.<sup>191</sup>

The Hackberry decision was very much supported by the idea that investors in LNG projects need to be assured access to import terminal capacity in order to advance capital-intensive liquefaction projects in other countries.

Finally, it is worth mentioning that in the US, in spite of the new framework provided by the Hackberry decision, private “merchant” entrants (and not only players vertically integrated along the LNG value chain) have remained in the sector. The most prominent example is Cheniere Energy, which decided to develop four natural gas importing “tolling” facilities.<sup>192</sup> Therefore, it was asserted by some authors that “the re-emergence of such quasi-open access regimes at several terminals suggests that exclusive rights for the upstream business of the investing party are not necessarily a condition for investment.”<sup>193</sup> In this context, the author of the previous sentence also asserts that “nor is it evident that waiving open access was really necessary to induce investment, or clear whether or not this investment would have taken place in any event.” However, the later experience with the development of shale gas has proved that FERC’s new policy was beneficial to end-users which, if access had been regulated and allowed revenues for operators guaranteed, would be facing the cost of stranded assets.

#### **4.1.4 Terminals subject to open access regulation**

As noted above, there are three terminals subject to open access regulation: Cove Point, Elba Island and Lake Charles.

##### **4.1.4.1 General Overview**

See [Table 83: Description of existing LNG terminals in the USA and Puerto Rico](#).

##### **4.1.4.2 Unbundling requirements**

These LNG operators are subject to FERC Order 636. Order 636 required interstate pipeline companies to unbundle, or separate, their sales and transportation services. The purpose of the unbundling provision was to ensure that the gas of other suppliers could receive the same quality of transportation services previously enjoyed by a pipeline company's own gas sales.

##### **4.1.4.3 Access rules**

Access must be granted to any party that requests the services on a non-discriminatory basis, according to FERC Order 636.

<sup>191</sup> HIRSCHHAUSEN, Christian von (2006): “Infrastructure Investments and Resource Adequacy in the Restructured US Natural Gas Market – Is Supply Security at Risk?”, Center for Energy and Environmental Policy Research, December 2006.

The author is Chair of Energy Economics and Public Sector Management at Dresden University of Technology, and also Faculty Associate at MIT-CEEPR, and Research Professor at DIW Berlin (German Institute for Economic Research).

<sup>192</sup> Freeport LNG (in operation since 2008), Sabine Pass LNG (Phase 1 in operation in 2009), Corpus Christi LNG (in operation in 2010) and Creole Trail LNG (in operation in 2011). More information available at [www.cheniere.com](http://www.cheniere.com).

<sup>193</sup> HIRSCHHAUSEN, Christian von, *Op Cit*.



The main access rules to the LNG terminals can be found at FERC's website:

FERC Gas Tariff of Cove Point LNG<sup>194</sup>

FERC Gas Tariff of Trunkline LNG<sup>195</sup>

FERC Gas Tariff of Southern LNG<sup>196</sup>

#### 4.1.4.4 Services Offered

##### Cove Point

The terminal allows:

- Reception of Natural Gas or LNG
- Liquefy Natural Gas
- Storage in tanks
- LNG regasification
- Send-out Natural Gas to the transmission network

The types of basis services are:

- *Firm LNG Tanker Discharging Service*

This service is available to any User for the purchase from Operator of firm LNG tanker discharging service, including unloading, storage, vaporization and delivery of Regasified LNG at Operator's Cove Point LNG terminal, provided that:

Operator has sufficient facilities and capacity available to receive LNG from or on behalf of User without diminishing the level of existing service to other Users under Firm Rate Schedules offered by Operator,

For initial service, User has submitted a valid request for service, Operator has accepted User's request for service, and User has executed a precedent agreement; or

For service after the initiation, User has submitted a valid request, Operator has accepted User's request for service, and Operator has awarded capacity to User;

User and Operator have executed a Service Agreement for firm LNG tanker discharging service.

<sup>194</sup> [http://www.ferc.gov/industries/gas/gen-info/fastr/htmlall/004425\\_000100/004425\\_000100\\_\\_contents.pdf](http://www.ferc.gov/industries/gas/gen-info/fastr/htmlall/004425_000100/004425_000100__contents.pdf)

<sup>195</sup> [http://www.ferc.gov/industries/gas/gen-info/fastr/htmlall/019241\\_000100/019241\\_000100\\_\\_contents.pdf](http://www.ferc.gov/industries/gas/gen-info/fastr/htmlall/019241_000100/019241_000100__contents.pdf)

<sup>196</sup> [http://www.ferc.gov/industries/gas/gen-info/fastr/htmlall/027371\\_000100/027371\\_000100\\_\\_contents.pdf](http://www.ferc.gov/industries/gas/gen-info/fastr/htmlall/027371_000100/027371_000100__contents.pdf)



*- Interruptible LNG Tanker Discharging Service*

This service is available to any User for the purchase from Operator of interruptible LNG tanker discharging service, including unloading, storage, vaporization and delivery, at Operator's Cove Point LNG terminal, provided that:

Each User of this Service has received written notice of such proposed interruptible LNG tanker discharge service at least thirty days prior to the date such service is proposed to be provided, such notice to include the date such service is to be provided, the expected size of the cargo to be received, and the expected quality and heat content of the LNG to be received;

Operator has awarded capacity to User;

User and Operator have executed a Service Agreement for interruptible LNG tanker discharging service under this Rate Schedule.

*- Firm Peaking Service 10-Day, 5-Day, 3-Day*

This service is available to any User for the purchase from the Operator of a firm peaking service consisting of the receipt and liquefaction of natural gas, the receipt and storage of LNG, and the regasification of such LNG and delivery of natural gas, provided that the facilities required to render service have been constructed or reactivated and made available for service and, provided further that:

Operator has sufficient facilities and storage capacity available to receive Natural Gas or LNG from or on behalf of User without diminishing the level of existing service to other Users under other firm services offered by Operator;

User has submitted a valid request for service, and Operator has accepted User's request for service and awarded capacity to User under the provisions;

User and Operator have executed the Service Agreement for firm peaking service.

*- Firm Transportation Service*

This service is available to any User for the purchase from Dominion the Operator of firm transportation service consisting of the receipt and delivery of natural gas on the Cove Point Pipeline, provided that:

Operator has sufficient facilities and transportation capacity available to receive natural gas from or on behalf of User and deliver natural gas to or for User without diminishing the level of existing service to other users under firm services offered by Operator;

User has submitted a valid request for service, and Operator has accepted User's request for service, and awarded capacity to User or has executed a precedent agreement for service.

*- Peak-off Firm Transportation Service*



This service is available to any User for the purchase from the Operator of off-peak firm transportation service consisting of the receipt and delivery of natural gas on the Cove Point Pipeline, provided that:

Operator has sufficient facilities and transportation capacity available to receive natural gas from or on behalf of User and to deliver natural gas to or for User, without diminishing the level of existing service to other Users under firm services offered by Operator.

User has submitted a valid request and Operator has reviewed and accepted that request, and User has been awarded capacity or executed a precedent agreement for service.

Operator is not required to provide any requested transportation service for which capacity is not available or that would require the construction or acquisition of any new facilities.

*- Title Transfer Tracking*

This service is available to any User for the purchase of Title Transfer Tracking Service from Operator.

TTT Service will be made available pursuant to the scheduling provisions, to any User that is willing and able to pay either the maximum rates hereunder or another rate to which Operator and User mutually agree. Operator is not required to provide any requested TTT Service under this Rate Schedule for which Operator determines that administrative capability is not available, or that would interfere with Operator's performance of its firm service obligations.

*- Additional storage*

As capacity becomes available on Operator's system for firm services, such capacity shall be posted by Operator on its Electronic Bulletin Board for a period of thirty days.

**Elba Island**

Southern LNG makes service for the receipt, storage, vaporization of LNG and delivery of vaporized available to any party who requests firm service under the following conditions:

Southern LNG has sufficient capacity and is able to provide the services;

User has complied with the requirements included in the document FERC Gas Tariff Original Volume No. 1 of Southern LNG Inc.; and

User and Southern LNG have executed a service agreement for Terminal Service under Firm Terminal Service.

Southern LNG shall not be obligated to construct, modify, expand or acquire facilities to perform Terminal Service under Firm Terminal Service, except to the extent required pursuant to certification by the Commission. Southern LNG shall obtain abandonment authority for capacity under firm contract that is no longer available for service.

Southern LNG offers firm and interruptible services.

**Lake Charles**



The terminal allows:

- Reception of natural gas or LNG
- Liquefy natural gas
- Storage in tanks
- LNG regasification
- Send-out natural gas to the transmission network

The types of basis services are:

*- Firm Terminal Service (FTS) and Interruptible Terminal Service (ITS)*

The service consists of the receipt of LNG from user's vessels for storage utilising operator's facilities and the storage of such LNG, and the subsequent delivery, either as LNG to user's vessels or as regasified LNG at the point of delivery.

User shall arrange separately with others as necessary for any transportation.

*- LNG Lending Service (LLS)*

The service consists of the loan of LNG to user at the lending point for a minimum period of one day and a maximum period of thirty-one days and Trunkline LNG's receipt of quantities of LNG as repayment of the loaned quantity, all on an interruptible basis. The maximum period of the loan may be extended by Trunkline LNG as permitted by system operating conditions.

*- Firm Alternate Vaporization (FAV)*

This service consists of the receipt of LNG, regasification of such LNG by process of ambient air vaporization and the subsequent delivery of regasified LNG, all on a firm basis. Regasified LNG may be delivered at any time in accordance with the service agreement subject to available stored volume under user's firm terminal service agreements.

*- Interruptible Alternate Vaporization*

This service consists of the receipt of LNG, regasification of such LNG by process of ambient air vaporization and the subsequent delivery of regasified LNG, all on an interruptible basis. Regasified LNG may be delivered at any time in accordance with the service

*- Additional storage:*

The operator will offer its unsubscribed firm capacity by providing notice on Messenger or by using any other marketing services at its disposal.

#### **4.1.4.5 Capacity Allocation Procedures**

##### **Cove Point**

Data is valid through to 31 December 2010.



Potential Users may submit one bid for all or any portion of the capacity or term of service made available by Operator. A Bidder shall submit its bid electronically through Operator's Electronic Bulletin Board, specifying the monthly reservation charge it is bidding for the service.

Operator shall evaluate bids based upon their net present value (NPV), taking into account the price and primary term offered. The NPV shall include only revenues generated by the reservation charge, or other form of revenue guarantee.

If two or more bidders, including the current holder of the capacity subject to bid, submit acceptable highest value bids of equal value, Operator shall award the capacity first to the current holder of the capacity. If the current holder of the capacity is not among the bidders submitting equivalent highest value bids, does not require all of the capacity subject to bid; or fails to execute a Service Agreement after being awarded the capacity, any available capacity shall be awarded on a pro rata basis to all bidders that submitted equivalent highest value bids.

### **Elba Island**

Firm capacity that is or becomes available from Southern LNG from time to time shall be allocated pursuant to the following procedures:

Subject to all requirements for submitting a valid request for firm service herein, firm capacity will be allocated to the requests that on an aggregate basis generate the highest net present value to Southern LNG. Requests for service shall be considered together under the same criteria.

If Southern LNG receives two or more requests for service that produce comparable net present values, whether during an open season or otherwise, then available capacity will be allocated to the completed request submitted first in time. If capacity remains available, then Southern LNG will offer the remaining capacity to the requester next in time.

If capacity is not available to satisfy a request, then the request for service will be maintained for future allocations. If capacity subsequently becomes available, then it will be allocated to pending requests based on the highest net present value of the pending requests as provided above, unless Southern LNG elects to conduct an open season. If an open season is conducted, Users with pending requests shall be individually notified and given an opportunity to participate in such open season.

Southern LNG may hold open seasons from time to time for potential expansion projects or for capacity that has become available. During any such open season, Southern LNG will allocate capacity subject to the open season on the basis of the highest net present value to Southern LNG. To the extent Southern LNG has available unsubscribed capacity. Operator shall have the right, but not the obligation, to reserve that capacity for any open seasons that are to be held within the next twelve months.

### **Lake Charles**

The operator will post on the website (<http://www.panhandleenergy.com>) available terminal capacity and alternate vaporization capacity. A requestor that submits a valid request may submit in writing a bid for the available capacity at any time. In the event of multiple bids, the operator will evaluate the bids and determine it having the greatest economic value.

The criteria for determining this value shall be the NET present value of the reservation charge that requestor would pay at the rates requestor has bid, which shall not be less than the minimum rate



nor greater than the maximum rate, as stated on the currently effective tariff sheet governing such service, over the term of service specified in the request, utilizing a ten per cent annual discount factor.

#### **4.1.4.6 Long term/short term capacity offering requirements**

No capacity ratio must be reserved for long term or for short term capacity contracts.

#### **4.1.4.7 Contract duration**

##### **Cove Point**

There are two types of contracts in terms of duration:

Short Term: access contract with a term less than 12 months.

Long Term: access contract with a term of one year or longer. However, the period of time covered shall be determined by agreement between the parties, but shall not exceed a primary term of 20 years and extensions from year to year thereafter unless cancelled by either party by providing 6 months prior notice to the other party.

##### **Elba Island**

There are two types of contracts in terms of duration:

Short Term: access contract with a term of one year or less.

Long Term: access contract with a term more than one year.

##### **Lake Charles**

No duration has been specified.

#### **4.1.4.8 Programming / Nomination procedures**

##### **Cove Point**

###### *- Annual Nominations*

User shall submit to Operator, no later than three months prior to each Scheduling Year. User may otherwise provide to Operator pertaining to the coordination and planning of the discharging of LNG tankers at the Cove Point terminal during the upcoming Scheduling Year. Operator will provide a preliminary, non-binding confirmation of the Preliminary Annual Discharge Schedule as soon as possible, but in no event later than ten business days after receiving such Preliminary Annual Discharge Schedules.

###### *- Monthly Nominations*

User shall, no later than seven business days prior to each Month, submit to Operator a schedule detailing the information required of the LNG to be discharged by User at the Cove Point terminal



during the succeeding month together with a preliminary schedule for the two months succeeding that month. Operator will provide confirmation of the Monthly Discharge Schedule and a preliminary, non-binding confirmation of the Forward Schedule as soon as possible, but in no event later than the earlier of two business days after receiving proposed Monthly Discharge Schedules, or five business days prior to each Month.

*- Contents of Nominations:*

Any nomination submitted by User to Operator for the receipt, storage and vaporization of LNG shall consist of the information specified below. By submitting such nomination, User warrants that it has obtained all necessary regulatory approvals to discharge LNG at the Cove Point terminal.

Name of LNG tankers scheduled;

Name of loading ports and departure dates of LNG tankers;

Arrival dates of LNG tankers at Cove Point;

Quantity of LNG to be discharged;

Molecular composition and Heating Value of LNG;

Estimated saturated pressure and temperature of LNG to be discharged; and

Estimated schedule of the disposition of Buyer's discharged LNG, including Boil-Off, less Operator's Retainage quantities, specifying quantities, dates and delivery points.

*- LNG unloading programming*

User shall send or cause to be sent to Operator the following written notices containing an estimated date and hour of arrival of an LNG tanker at the Cove Point terminal and, if necessary, further notification to Operator any time an estimated time of arrival changes by more than twelve hours:

First, upon departure from the port of loading, such notice to include an estimate of the quantity of LNG to be discharged;

Second, 72 hours prior to arrival;

Third, 48 hours prior to arrival;

Fourth, 24 hours prior to arrival; and

Final notice, 5 hours prior to the estimated time of arrival at the Cove Point terminal.

**Elba Island**

User shall nominate gas for all volumes for deliveries under any Service Agreement by notifying Southern LNG pursuant of the daily quantity of gas, expressed in Dth, that it has available for delivery. User shall also specify the first and the last date that the nominations are to be effective.





Users may nominate for several days, months, or years. All nominations, excluding intraday nominations, shall have roll-over options. Unless user wishes to change its nomination, user shall not be required to resubmit its nomination during the begin and end dates.

By submitting a nomination, user warrants that it has obtained all necessary regulatory approvals to deliver LNG to Southern LNG.

Southern LNG shall not be obligated to deliver quantities in excess of user's maximum daily vaporization quantity.

With respect to the various deadlines, the party receiving the information has the right to waive the deadline at its option.

There will be four nomination cycles: timely, evening, first intraday and second intraday. For the timely nomination cycle, scheduled quantities shall be effective at 9:00 a.m. the next gas day. For the evening nomination cycle, scheduled quantities shall be effective at 9:00 a.m. the next gas day.

Timely	Evening	
11:30 a.m.	6:00 p.m.	Nominations must leave users control
11:45 a.m.	6:15 p.m.	Nominations must be received by COMPANY
12:00 p.m.	6:30 p.m.	Southern LNG must issue quick response
3:30 p.m.	9:00 p.m.	Receipt of all completed confirmations by transporters
4:30 p.m.	10:00 p.m.	Receipt of scheduled quantities by user and point operators

With the exception of the above referenced nomination deadlines, for any nomination document received from a party requesting service by the conclusion of a given quarter hour period, defined to begin on the hour and at 15, 30 and 45 minutes past the hour, Southern LNG will send a quick response to the Service Requester's designated site by the conclusion of the subsequent quarter hour period. A given quarter hour will contain all transactions which receipt time is less than the beginning of the subsequent quarter hour.

In addition, Southern LNG will support two intraday nomination cycles. In the first cycle, the intraday nomination shall leave the control of the nominating party by 10:00 a.m., and Southern LNG must receive such nomination no later than 10:15 a.m. CCT. The second intraday nomination cycle shall leave the control of the nominating party by 5:00 p.m. and must be received by Southern LNG by 5:15 p.m. Southern LNG will have until 5:30 p.m. to send a quick response, until 8:00 p.m. to complete confirmations and until 9:00 p.m. to provide scheduled quantities to affected users and point operators.

*- LNG unloading programming*

User shall give to Southern LNG notice by electronic mail prior to each receipt by vessel. The notice shall identify users' vessel, the date and hour of arrival at the terminal and the quantity of LNG to be received by Operator. User shall send notice as follows:

first notice 48 hours before User's vessel departs the port of origin.



second notice shall be given upon departure of User's Vessel from the port of origin.

third notice shall be given so as to arrive 96 hours prior to the estimated time of arrival;

forth notice shall be given so as to arrive 72 hours prior to the estimated time of arrival;

fifth notice shall be given so as to arrive 48 hours prior to the estimated time of arrival;

sixth notice shall be given so as to arrive 24 hours prior to the estimated time of arrival; and

final notice when user's vessels enters the channel of the Savannah River.

### **Lake Charles**

Each nomination for terminal service shall show the user's contract number and the information required below concerning the quantities of LNG to be received and stored and the LNG or regasified to be delivered.

#### *- Information required for all nominations:*

The day the LNG is to be received;

The quantities of LNG to be received;

The estimated composition and heat content of the LNG;

The source of the LNG;

The estimated saturated pressure and temperature of the LNG on arrival at the terminal;

A delivery schedule, including quantities and dates of delivery, which shall comply with the service agreement and the cycling requirement;

The disposition of boil-off, including the point of delivery;

Boil-off imbalance make-up, if any; and

Means of receipt and delivery.

#### *- Monthly Nomination*

Projected nominations for Terminal Service to be provided during the Month shall be submitted by the first Day of the preceding Month. If User fails to provide a projected nomination, the Operator may deem User's nomination to be zero unless User has previously provided Trunkline LNG with a default nomination for such Month.

#### *- Daily Nomination*



User shall have the right to submit in writing a new nomination for any Gas Day by submitting notice by 11:30 a.m. Central Time the preceding Gas Day or such later time acceptable to the Operator. Overrun Quantities shall be requested in a separate nomination.

The nomination timeline in Central Time on the Day prior to Gas flow shall be the following:

In addition, at the end of each Gas Day, Trunkline LNG shall make available to each User information containing scheduled Quantities, including scheduled intra-day nominations and any other scheduling changes.

*- Intra-Day Nomination*

Any nomination submitted after the deadline shall be an intra-day nomination.

An intra-day nomination shall be effective for one Gas Day only and shall specify an effective date, time and Quantity. The interconnected parties shall agree on the hourly flows for such Gas Day.

Scheduled Quantities resulting from an Evening Nomination that does not cause another User to receive notice that it is being bumped should be effective at 9:00 a.m. on Gas Day; and when an Evening Nomination causes another User to receive notice that it is being bumped, the scheduled Quantities should be effective at 9:00 a.m. on Gas Day. Bumped parties shall be notified of such bump through Messenger and the Web Site and by telephone and facsimile transmission.

The Operator shall have the right to refuse to receive or deliver any LNG, Boil-Off, or Regasified LNG not timely or properly nominated.

*- LNG unloading programming*

Users shall give written notice to the Operator of the date and hour of arrival at the Terminal as well as the estimated quantity of LNG which is to be loaded or unloaded. Users shall send or cause to be sent to Operator the following written designation notices:

- a) a first designation notice shall be given upon departure of User's Vessel from the port of origin and shall contain an estimated time of arrival;
- b) a second designation notice shall be given so as to arrive 96 hours prior to the estimated time of arrival;
- c) a third designation notice shall be given so as to arrive 72 hours prior to the estimated time of arrival;
- d) a fourth designation notice shall be given so as to arrive 48 hours prior to the estimated time of arrival;
- e) a fifth designation notice shall be given so as to arrive 24 hours prior to the estimated time of arrival; and
- f) a final designation notice shall be given so as to arrive 5 hours prior to the estimated time of arrival at the Terminal.



As soon as the User's Vessel is berthed alongside the pier and prepared to unload or load its cargo, the Captain shall give written notice to the Operator or its representative that the User's Vessel is ready to unload or load LNG.

#### **4.1.4.9 Congestion management procedures**

##### **Cove Point**

Operator allows capacity transfers between the Users of the Terminal using the secondary market, in order to avoid congestion situations.

If Dominion determines that has insufficient delivery capacity, then operator will specify priorities.

##### **Elba Island**

If Southern LNG determines that has insufficient delivery capacity to serve all users' firm and interruptible services, then Southern LNG shall first allocate all of its available vaporization capacity to firm services.

Southern LNG shall allocate all of its reduced capacity to the firm services based on the ratio of each user's total maximum daily vaporization quantity to the total of all firm users submitting nominations. Each firm user shall be allocated its proportionate share of the available capacity based on its percentage share calculated from this ratio.

If Southern LNG does not have to limit its firm delivery services on a day, Southern LNG shall allocate the remaining capacity on its system to interruptible services. If the remaining capacity is insufficient to satisfy all of the nominations for interruptible services, then the interruptible users shall be served on the basis of the rate paid for service, higher rate first, and pro rata among users paying the same rate. If an interruptible user receiving a discount or negotiated rate less than the maximum rate elects to pay the maximum rate applicable to its service on any day that its capacity would be allocated otherwise, user's service will be queued up with other maximum-rate interruptible users. User must elect by the nomination deadline for the day capacity is to be allocated.

##### **Lake Charles**

In order to avoid congestion situations at the terminal, the Operator allows capacity transfers between the Users of the Terminal using the secondary market.

#### **4.1.4.10 UIOLI**

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#### **4.1.4.11 Method for calculating usable, available and unused capacities**

The quantity of Dt's loaded or unloaded from the user's vessel shall be calculated on the basis of the following formula for the three terminals:

$$Q = \frac{V * M * P_c}{252}$$



In which:

$Q$  = the number of Dt's unloaded

$V$  = the volume of LNG loaded or unloaded, in  $m^3$ .

$M$  = the density calculated in  $kg/m^3$

$P_c$  = the GHV of LNG per unit of mass, in thermies/kg

The Quantity of LNG unloaded from the vessel for User's account shall not include the amount of boil-off returning to User's vessel during unloading of LNG.

In Southern LNG, if a constraint in receipt, delivery, or working storage capacity occurs, then the available capacity shall be allocated to each firm user in a proportional share based on the ratio of each user's maximum storage quantity to the total quantity contracted for by all users. Then, if any capacity remains available, to interruptible users based on the rate paid for service, higher rate first, and then pro rata among users paying the same rate. An interruptible user paying a discount or negotiated rate less than the maximum rate may elect to pay the maximum rate applicable to its service on any day that its capacity would be allocated otherwise to allow for the user's interruptible service to be queued up with other maximum-rate interruptible services.

User must make such election to pay the maximum rate by the nomination deadline for the day capacity is to be allocated. For negotiated rate transactions for interruptible service in which user is paying a rate exceeding the maximum rate.

#### **4.1.4.12 Send-out requirements**

##### **Cove Point**

Operator shall deliver to or for User during a day the quantity of regasified LNG so nominated not to exceed 115% of User's Maximum Daily Peaking Quantity (MDPQ) or its remaining Liquefied Gas Balance. Operator shall be obligated to deliver at the daily rate specified by User up to, but not more than 115% of User's MDPQ during any day. Operator shall not be obligated to deliver to any user at an hourly rate in excess of 120% of 1/24th of User's MDPQ.

##### **Elba Island**

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##### **Lake Charles**

Within 120 days after a quantity of LNG is received at the terminal, user shall cause such quantity to be withdrawn from the Terminal, unless the Operator agrees otherwise. If user fails to so withdraw such LNG, then the Operator may, at its option, take title to such LNG free and clear of any adverse claims, in which case User shall indemnify the Operator and hold it harmless from all costs, damages, and liabilities arising out of the failure of User to remove such LNG and the disposal of such LNG by the Operator, including storage charges under the applicable rate schedule.

The Operator shall not be required to deliver Regasified LNG at a rate in excess of the rate of 1/10th of User's Maximum Contract Storage Capacity per Day.



The Operator shall not be obligated to deliver Regasified LNG if the total Quantities nominated for the Day are less than 72,000 Dt per Day.

#### **4.1.4.13 Gas Quality requirements**

##### **Cove Point**

Natural Gas received by Operator and delivered to User hereunder shall at all times conform to the quality provisions show bellow:

- a) shall be commercially free from particulates or other solid or liquid matter which might interfere with its merchantability or cause injury to or interfere with proper operation of the lines, regulators, meters and other equipment of Operator;
- b) shall not contain more than twenty-five hundredths grains of hydrogen sulfide per one hundred cubic feet;
- c) shall not contain more than twenty grains of total sulfur per one hundred cubic feet;
- d) shall not contain more than 4.0% N<sub>2</sub> and 1.0% CO<sub>2</sub>;
- e) shall not contain in excess of seven pounds of water vapor per million cubic feet.
- f) shall not contain O<sub>2</sub> in excess of two-tenths of one percent by volume; and
- g) shall not contain any other harmful contaminants, including Hg, which might interfere with the proper operation of or cause damage to Operator's facilities.

Operator and User may agree, or governmental authorities may require, that the Natural Gas be odorized to indicate by a distinctive odour the presence of Natural Gas. User and Operator, shall be for the purpose of detection of the Natural Gas only during the time it is in possession of the Operator, prior to delivery to User.

The LNG to be received hereunder for LNG Tanker Discharging Service shall be merchantable and shall have in its gaseous state:

- a) A Gross Heating Value of not less than nine hundred sixty-seven Btu and, not more than one thousand one hundred thirty-eight Btu per standard cubic foot.
- b) A hydrogen sulphide content not to exceed twenty-five hundredths grains of hydrogen sulphide per one-hundred cubic feet;
- c) A total sulphur content of not more than twenty grains per one-hundred cubic feet;
- d) No water or mercury;
- e) No active bacteria or bacterial agent, including but limited to, sulphate reducing bacteria or acid producing bacterial; and
- f) No hazardous or toxic substances.



### **Elba Island**

In order to permit delivery into downstream facilities, the LNG received shall be merchantable and shall have in its gaseous state a gross heating value of not less than 1,000 Btu and not more than 1,075 Btu; and constituent elements conforming to the following:

- free of objectionable liquids and solids;
- not contain more than 200 grains of total sulphur or 10 grains of hydrogen sulphide, or 0.30 gallons of isopentane and heavier hydrocarbons, per Mcf;
- not contain more than 3% by volume of carbon dioxide or nitrogen or 1% of oxygen;
- not contain any water; and
- free of liquids at 800 psig and 50° F.

### **Lake Charles**

The LNG received by Operator and delivered to User hereunder shall at all times conform to the quality provisions show bellow:

- a) a Gross Heating Value of not less than 950 Btu and not more than 1,200 Btu per standard cubic feet;
- b) shall not contain more than twenty-five hundredths grains of hydrogen sulphide per one hundred cubic feet;
- c) shall not contain more than 30 mg/Nm<sup>3</sup> of total sulphur;
- d) shall not contain more than 2.30 mg/Nm<sup>3</sup> of mercaptan sulphur;
- e) shall not contain in excess of seven pounds of water vapor per million cubic feet.
- f) shall not contain O<sub>2</sub> in excess of two-tenths of one percent by volume; and
- g) shall not contain any other harmful contaminants, including Hg, which might interfere with the proper operation of or cause damage to Operator's facilities.
- h) shall not contain water, carbon dioxide or mercury;
- i) shall not contain active bacteria or bacterial agent, including but not limited to, sulphate reducing bacteria or acid producing bacteria.

#### **4.1.4.14 Balancing regime/Management of LNG stock levels**

User shall have the responsibility to balance the actual quantities of LNG received, adjusted for appropriate boil-off and transfers of storage inventory, and the actual quantities of LNG and regasified LNG delivered under each service agreement. It is recognized that User's nominations of boil-off will be based on estimates and that User's share of the terminal's actual boil-off may vary



from the estimates. User shall eliminate any variance as promptly as is reasonable, consistent with operating conditions.

#### **4.1.4.15 Own consumption record and gas in kind**

##### **Cove Point**

The User shall provide to the Operator a quantity of Natural Gas in concept of gas used in plant operations or lost or unaccounted quantities.

$$\text{Retainage quantity} = \text{Delivery quantity} \times \left( \frac{1}{\frac{1 - (\% \text{ retainage})}{100}} - 1 \right)$$

The retainage collected during each contract year under shall not exceed 20.5% of User's deliveries during the contract year and 20.5% of User's liquefied gas balance on April 16.

##### **Elba Island**

Southern LNG shall retain from quantities delivered to or for account of user a pro-rata share of gas as compensation for fuel and gas otherwise used or lost and unaccounted for in Southern LNG's operations. Southern LNG shall adjust user's LNG balance accordingly.

##### **Lake Charles**

Trunkline LNG shall flow through fuel use and lost or unaccounted for gas to users on a monthly basis. Operator shall retain a pro-rata share of regasified LNG delivered for the account of User as reimbursement for fuel usage and gas otherwise used or lost and unaccounted for in Trunkline LNG's operations, excluding fuel used for processing. Pro rata share shall mean the ratio of the quantity of regasified LNG delivered by Trunkline LNG for User during the applicable month to the total quantity of regasified LNG delivered for all Users during the applicable month.

#### **4.1.4.16 Charges and penalties for imbalance, cancellation and other, including Ship-or-Pay and minimum payment obligations**

##### **Cove Point**

- *Unloading of a LNG carrier:*

For the period during which the LNG tanker remains at berth in excess of its Berth Time, the User shall pay Operator a wharf-age fee of \$50,000 per day, prorated hourly; wharfage fees collected from a User will be credited to Rate Schedule LTD-1.

- *Takes in Excess of Scheduled Daily Quantity:*

If User takes on any day exceed the hourly scheduled quantity during any hour by at least 20,000 Dth and/or exceed the scheduled daily delivery quantity by at least 20,000 Dth, Operator shall assess a penalty of \$5.00 per Dth on all quantities in excess.





*- Failure to Interrupt Service:*

If User fails to interrupt service and thereby delivers gas to or takes gas from Operator in excess of 103% of the sum of the lowered scheduled daily receipt quantity or lowered scheduled daily delivery quantity, User shall be assessed and pay penalties of \$5.00 per Dth on all quantities taken or delivered in excess of 103% of its reduced scheduled daily receipt quantity or reduced scheduled daily delivery quantity.

*- Failure to Comply with Operational Flow Orders.*

If User fails to comply with an operational flow order issued by Operator, a penalty of \$5.00 per Dth per day shall be assessed on all quantities taken or delivered in violation of that operational flow order.

**Elba Island**

*- Unloading of a LNG carrier:*

If User's vessel does not arrive as scheduled, then Southern LNG shall receive the LNG from the unscheduled vessel at the first time available without causing detriment to any scheduled firm service. User agrees to reimburse Southern LNG for all costs incurred as a result of the vessel's failure to arrive as scheduled.

**Lake Charles**

*- Unloading of a LNG carrier:*

If User's vessel does not arrive at the terminal as scheduled, the operator shall unload, as the case may be, User's vessel at the first available time when such unloading can be accomplished without detriment to any other scheduled service.

User shall pay all costs incurred by the Operator as a result of the failure to arrive at the terminal as scheduled. In addition, unless User provides the Operator written notice of the vessel's delay at least 36 hours before the User's vessel's scheduled arrival, User shall pay the Operator \$10,000 per occurrence.

*- Imbalance:*

If a variance between User's nominations of boil-off and User's share of the terminal's actual recovered boil-off exists for the month, Trunkline LNG shall notify User of such variance with the invoice for the month. Trunkline LNG shall net the boil-off variance on User's terminal service agreements. After netting, User shall reduce the remaining variance to zero through nominations or boil-off imbalance trading by the end of the month in which User is notified of the existence of the variance. If the variance is not reduced to zero, an imbalance penalty of \$10 per MMBtu per month shall be applied to the remaining variance, beginning with the invoice for the month in which the User was notified of the existence of a variance and for each month thereafter until the variance is reduced to zero. Any nomination to make-up a boil-off Imbalance shall be used to reduce the shipper's oldest remaining variance.



#### **4.1.4.17 Financial Guarantees**

##### **Cove Point**

In the event Operator must construct or re-commission facilities to render service to a User pursuant to the Tariff. Operator shall accept as assurance of payment any of the following:

- a) advance payment covering the reservation and estimated commodity charges for a period of time as agreed to by Operator and User;
- b) an irrevocable letter of credit from a creditworthy financial institution in an amount agreed to by User and Operator;
- c) a guarantee from a creditworthy institution;
- d) a surety bond from an acceptable, creditworthy insurance company in an amount agreed to by User and Operator.

Operator may require assurance of payment for any service by an insolvent or un-creditworthy User. Such a User may receive or continue to receive service if it provides adequate assurance of payment for service within fifteen days after the date of written demand by Operator. Adequate assurance of payment may include:

- a) a deposit with Operator of an amount equal to two months of reservation and estimated commodity charges for the service, provided that such deposit may be applied by Operator to satisfy a delinquent account;
- b) advance payment for service at the time service is scheduled;
- c) an irrevocable letter of credit from a creditworthy financial institution;
- d) a guarantee from a creditworthy entity; or
- e) a surety bond from an acceptable, creditworthy insurance company.

If requestor fails to tender such assurance of payment within ten days, or such longer time period reasonably established by Operator, Operator may deny user's request for service.

Nothing explain here shall obligate Operator to construct facilities in order to render service.

##### **Elba Island**

User represents and warrants that it will pay and satisfy, or make provision for the payment and satisfaction of, any and all claims of every nature to the title to all gas received by Southern LNG. User agrees to defend at its cost, and when notified by Southern LNG to indemnify Southern LNG against, all suits, judgments, claims, demands, causes of action, costs, losses, and expenses arising out of or in any way connected with any claims to the title to all gas received by Southern LNG.



Southern LNG assumes no obligation whatever to any royalty owner or to the owner of any other interest of any kind in any gas received by Southern LNG for the account of User, and User or its seller shall pay all such royalties or other interests upon or in respect to such gas.

User warrants permission and any requisite licensing or certification from government agencies having jurisdiction for the receipt by Southern LNG of gas for User's account. User agrees to defend at its cost, and when notified by Southern LNG to indemnify Southern LNG against, all enforcement actions, penalties, and sanctions arising out of or in any way connected with any failure to obtain that permission, license, or certificate.

### **Lake Charles**

Acceptance of a request for service, whether by using unsubscribed capacity, or interruptible capacity, and the continuation of such service is contingent upon User satisfying, on an ongoing basis, a credit appraisal by Trunkline LNG.

Trunkline LNG shall apply consistent evaluation practices to determine the acceptability of User's overall financial condition. Such credit appraisal shall be based upon the following information and criteria:

Current financial statements, annual reports, or other filings with regulatory agencies which discuss User's financial status, a list of all corporate affiliates, parent companies and subsidiaries, and any reports from credit reporting and bond rating agencies which are available.

A bank reference and at least two trade references.

Confirmation in writing that User is not operating under any chapter of the bankruptcy laws and is not subject to litigation or debt reduction procedures under state laws, such as an assignment for the benefit of creditors, or any informal creditors' committee agreement.

Confirmation in writing that it is not subject to any uncertainty or any change in business conditions resulting from: pending litigation in State or Federal courts; regulatory proceedings; or otherwise, which could cause a substantial deterioration in its financial condition, a condition of insolvency of, or the inability to exist as an on-going business entity.

Confirmation in writing that no significant collection lawsuits or judgments are outstanding which could adversely affect the User's ability to remain solvent.

Confirmation that User's on-going business relationship with Trunkline LNG, reflects no delinquent balances outstanding for services provided previously by Trunkline LNG. User must have paid its account balances according to the established terms and not made deductions or withheld payment for claims not authorized by contract.

Upon notification by Trunkline LNG that User has failed to satisfy the credit criteria, or subsequently during the term of the service agreement that User no longer satisfies the credit criteria, User may still obtain credit approval from Trunkline LNG if it elects to provide one of the following:

an advance deposit;



a Standby Irrevocable Letter of Credit;

security interest in collateral found to be satisfactory to Trunkline LNG; or

a guaranty, acceptable to Trunkline LNG, by another person or entity which satisfies the credit appraisal. An advance deposit, standby irrevocable letter of credit, or security interest should at all times equal the three highest months of estimated usage during the term of the service agreement.

If User's credit standing ceases to meet Trunkline LNG's credit requirements during the period of service, then Trunkline LNG has the right to require security or prepayments as specified above. If satisfactory security or prepayment is not tendered in a time period as reasonably determined by Trunkline LNG, then Trunkline LNG is not required to continue service.

#### **4.1.4.18 Secondary Market**

##### **Cove Point**

The Operator allows capacity transfers between the Users of the Terminal using the secondary market.

##### **Elba Island**

A firm User may release its capacity rights under a Service Agreement with Southern LNG to a third party.

There are two types of releases: permanent release and temporary release.

##### **Lake Charles**

Users shall be permitted to release their capacity on a temporary or permanent basis. Capacity which may be assigned to the replacement User hereunder shall be limited to the firm capacity reserved by the releasing User. Releases may be made on an interruptible or firm basis and may be billed by the Operator based on usage. The user must notify the operator electronically on Messenger or through electronic data interchange of its intent to release capacity and the terms of the release.

#### **4.1.4.19 Limitation in vessel size**

##### **Cove Point**

The information about the limitation in vessel size can be found at FERC Gas Tariff of Cove Point LNG.

User's Vessels shall not exceed the following minimum and maximum dimensions:

**Table 84: Limitation in vessel size at Cove Point**

		Minimum	Maximum
Data is valid through to 31 December 2010.			



Overall Length	180.0 meters	300.00 meters
Width	24.00 meters	49.00 meters
Draft at full capacity	-	11.30 meters
Capacity	70,000 m <sup>3</sup> LNG	148,000 m <sup>3</sup> LNG

The facilities of the terminal permit the unloading of LNG at the average rate of 10,200 m<sup>3</sup>/h, and a maximum rate of 12,000 m<sup>3</sup>/h (at a discharge pressure of 6 bar).

#### **Elba Island**

The limitation in vessel size is not included at FERC Gas Tariff of Elba Island LNG.

#### **Lake Charles**

The information about the limitation in vessel size can be found at FERC Gas Tariff of Trunkline LNG Company.

User's vessels shall not exceed the following minimum and maximum dimensions:

**Table 85: Limitation in vessel size at Lake Charles**

	Minimum	Maximum
Overall Length	180.0 meters	300.00 meters
Width	24.00 meters	50.00 meters
Draft at full capacity	-	11.50 meters

The facilities of the terminal permit the unloading of LNG at the average rate of 10,000 m<sup>3</sup>/h, and loading of LNG at the average rate of 5,000 m<sup>3</sup>/h.

#### **4.1.4.20 Force Majeure**

##### **Cove Point**

Force majeure means any event or condition or combination of them which prevents, hinders, or delays the performance of any obligation, in whole or in part, under the applicable Service Agreement, which is not within the reasonable control of the party claiming suspension by reason of force majeure and which the party claiming suspension is unable to prevent or overcome by the exercise of due diligence.

If either party to the applicable service agreement is rendered unable, wholly or in part, by force majeure to carry out its obligations under the applicable service agreement, then such party shall give notice and reasonably full particulars of such force majeure in writing or by facsimile or telephone to the other party within a reasonable time after it becomes aware of the occurrence of the force majeure, and the obligations of such party, insofar as they are affected by such force majeure, shall be suspended from the commencement of such force majeure through the



continuance of any inability so caused, but for no longer period, and such force majeure shall so far as possible be remedied with all reasonable dispatch.

#### **Elba Island**

The term "force majeure" means, with respect to either Southern LNG or user, any event or circumstance beyond the reasonable control of a party while acting and having acted as a reasonable and prudent operator and that results in or causes the failure by the party affected to perform any one or more of its obligations under the Service Agreement and applicable Rate Schedule and GT&C. Events or circumstances of force majeure include acts of government agents, hurricanes, storms, fires, explosions, and unplanned outages and repairs to Southern LNG's facilities. Southern LNG shall also be excused for failure to carry out its obligations under this Tariff to the extent that the event of force majeure relates to the downstream facilities or equipment of Southern Natural Gas Company that enable gas delivered by Southern LNG to enter the mainline facilities of Southern Natural or other downstream pipeline.

#### **Lake Charles**

In the event, to the extent, and for so long as either Trunkline LNG or User is unable, by reason of force majeure, to carry out its obligations hereunder, in whole or in part, the obligations of either of Trunkline LNG or User, other than to make payments, shall be suspended, in whole or in part.

Either Trunkline LNG or User claiming force majeure shall give to the other notice and full particulars of such force majeure by telephone as soon as reasonably possible after the occurrence of the case relied on, and shall remedy such inability to perform with all reasonable dispatch; provided, however, that such requirement or remedy shall not require the settlement of strikes or lockouts by accession to the demands of those opposing either of Trunkline LNG or User when such course is inadvisable in the discretion of either of Trunkline LNG or User.

#### **4.1.4.21 Ship Approval Procedure at LNG Terminal**

##### **Cove Point**

Unloading LNG at the Cove Point terminal shall be carried out in strict conformity with all operating and safety rules and procedures of Operator, as may be amended from time to time, and with all federal, State and local laws, rules and regulations pertaining, but not limited to operational, environmental, health and safety. Cove Point shall have no obligation to carry out receipts not in complete compliance with these.

##### **Elba Island**

The Receipt Point for all LNG unloaded from user's vessel shall be at the point, whether one or more, at which the flange at the outlet of the unloading piping of user's vessel joins the flange at the entry of the receiving LNG pipeline at Southern LNG's marine terminal. Southern LNG receives natural gas only in a liquefied state.

The receipt of LNG from user's vessel shall be carried out by use of pumps and other equipment on user's vessel at an hourly rate of approximately one-twelfth of the maximum cargo capacity of user's vessel and at an average pressure of forty psig at the receipt point; provided, however, that the hourly rate shall not exceed an hourly rate of one-tenth of the cargo capacity of user's vessel. Southern LNG shall not be obligated to receive LNG at a rate or pressure that exceeds prudent operating conditions under conditions at that time.



Southern LNG shall have no obligation to carry out receipts not in complete compliance with applicable safety regulations.

#### **Lake Charles**

Loading and unloading of LNG shall be carried out in accordance with applicable safety and other regulations.

Trunkline LNG shall not be obligated to receive LNG at a flow-rate or saturation pressure that exceeds prudent conditions or that may interfere with the normal operations of the Terminal.

#### **4.1.4.22 Standard Contracts**

##### **Cove Point**

The service agreements forms are available at FERC website (Dominion Cove Point LNG's FERC Gas Tariff).

##### **Elba Island**

The service agreements forms are available at FERC website (FERC Gas Tariff Original Volume No. 1 of Southern LNG Inc.).

##### **Lake Charles**

The service agreements forms are available at Trunkline LNG and FERC websites (Trunkline LNG's FERC Gas Tariff, Second Revised Volume No. 1-A).

#### **4.1.4.23 TPA Tariffs**

##### **Cove Point**

*- Firm LNG Tanker Discharging Service – Rate Schedule LTD*

This Rate Schedule is available to any User for the purchase from Operator of firm LNG tanker discharging service, including unloading, storage, vaporization and delivery of Regasified LNG at Operator's Cove Point LNG terminal.

**Table 86: Rate Schedule Firm LNG Tanker Discharging Service at Cove Point**

		Base Rate Per Dt	ASU Surcharge Rate Per Dt	Annual Charge Adjustment Per Dt
Reservation	Maximum	\$ 6.7589	\$ 1.3990	-
	Minimum	\$ 0.0000	\$ 0.0000	-
Commodity	Maximum	\$ 0.0027	-	\$ 0.0019
	Minimum	\$ 0.0000	-	\$ 0.0019
Overrun		\$ 0.2249	\$ 0.0460	\$ 0.0019



Incremental Send-out Quantity - Reservation	\$ 1.8850	-	-
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*- Interruptible LNG Tanker Discharging Service – Rate Schedule LTD-2*

This Rate Schedule LTD-2 is available to any User for the purchase from Operator of interruptible LNG tanker discharging service, including unloading, storage, vaporization and delivery, at Operator's Cove Point LNG terminal.

**Table 87: Rate Schedule Interruptible LNG Tanker Discharging Service at Cove Point**

		Base Rate Per Dt	ASU Surcharge Rate Per Dt	Annual Charge Adjustment Per Dt
Commodity	Maximum	\$ 0.2249	\$ 0.0460	\$ 0.0019
	Minimum	\$ 0.0000	\$ 0.0000	\$ 0.0019

*- Firm Peaking Service 10-Day, 5-Day, 3-Day – Rate Schedule FPS-1, FPS-2, FPS-3*

This rate schedule is available to any User for the purchase from Dominion Cove Point LNG, of a firm peaking service consisting of the receipt and liquefaction of Natural Gas, the receipt and storage of LNG, and the regasification of such LNG and delivery of Natural Gas, provided that the facilities required to render service have been constructed or reactivated and made available for service.

**Table 88: Rate Schedule Firm Peaking Service 10-Day at Cove Point**

FPS-1		Base Rate Per Dt	Annual Charge Adjustment Per Dt
Reservation	Maximum	\$ 3.5557	-
	Minimum	\$ 0.0000	-
Commodity	Maximum	\$ 0.0421	\$ 0.0019
	Minimum	\$ 0.0000	\$ 0.0019
Overrun		\$ 0.1590	\$ 0.0019

**Table 89: Rate Schedule Firm Peaking Service 5-Day at Cove Point**

FPS-2		Base Rate Per Dt	Annual Charge Adjustment Per Dt
Reservation	Maximum	\$ 2.5135	-
	Minimum	\$ 0.0000	-
Commodity	Maximum	\$ 0.0421	\$ 0.0019
	Minimum	\$ 0.0000	\$ 0.0019
Overrun		\$ 0.1247	\$ 0.0019



**Table 90: Rate Schedule Firm Peaking Service 3-Day at Cove Point**

FPS-3		Base Rate Per Dt	Annual Charge Adjustment Per Dt
Reservation	Maximum	\$ 2.0966	-
	Minimum	\$ 0.0000	-
Commodity	Maximum	\$ 0.0421	\$ 0.0019
	Minimum	\$ 0.0000	\$ 0.0019
Overrun		\$ 0.1110	\$ 0.0019

*- Firm Transportation Service – Rate Schedule FTS*

This Rate Schedule is available to any User for the purchase from Dominion Cove Point LNG, of firm transportation service consisting of the receipt and delivery of Natural Gas on the Cove Point Pipeline.

**Table 91: Rate Schedule Firm Transportation Service at Cove Point**

		Base Rate Per Dt	Annual Charge Adjustment Per Dt
Reservation	Maximum	\$ 0.5662	-
	Minimum	\$ 0.0000	-
Commodity	Maximum	\$ 0.0421	\$ 0.0019
	Minimum	\$ 0.0000	\$ 0.0019
Overrun		\$ 0.0186	\$ 0.0019

*- Peak-off Firm Transportation Service – Rate Schedule OTS*

This Rate Schedule is available to any User for the purchase from Dominion Cove Point LNG, of off-peak firm transportation service consisting of the receipt and delivery of Natural Gas on the Cove Point Pipeline.

Operator is not required to provide any requested transportation service under the terms of this Rate Schedule for which capacity is not available or that would require the construction or acquisition of any new facilities.

**Table 92: Rate Schedule Peak-off Firm Transportation Service at Cove Point**

		Base Rate Per Dt	Annual Charge Adjustment Per Dt
Reservation	Maximum	\$ 0.1416	-
	Minimum	\$ 0.0000	-



Commodity	Maximum	\$ 0.0140	\$ 0.0019
	Minimum	\$ 0.0000	\$ 0.0019

- Peak-off Interruptible Transportation Service – Rate Schedule ITS

**Table 93: Rate Schedule Peak-off Interruptible Transportation Service at Cove Point**

		Base Rate Per Dt	Annual Charge Adjustment Per Dt	Total Rate Per Dt
Commodity	Maximum	\$ 0.0186	\$ 0.0019	\$ 0.0205
	Minimum	\$ 0.0000	\$ 0.0019	\$ 0.0019

- Title Transfer Tracking – Rate Schedule TTT

This Rate Schedule is available to any User for the purchase of Title Transfer Tracking Service from Operator, where Operator and User have entered into a TTT Service Agreement that conforms to the form of Service Agreement contained in this Tariff.

### **Elba Island**

- Firm Terminal Service (Statement of LNG-1 Firm Rates) and Statement of interruptible rates (LNG-2):

**Table 94: Rate Schedule Firm Terminal Service LNG-1 and Interruptible LNG-2 at Elba Island**

	Monthly Reservation Charge per Dth of MSQ	Dredging Surcharge per Dth of MSQ	Commodity Rate	Fuel Share	Electric Power Cost Adjustment	ACA Surcharge
Maximum Rate	\$0.6712	\$0.0557	\$0.0114/Dth	Pro Rata	\$0.0306/Dth	\$0.0019/Dth
Minimum Rate	\$0.00	\$0.00				

MSQ (Maximum Storage Quantity) shall be the maximum quantity of LNG that the terminal is obligated to store for user's account at any time.

MDVQ (Maximum Daily Vaporization Quantity) shall be the maximum quantity of vaporized LNG for any day that Elba Island LNG shall be obligated to deliver for User or User's account.

User's MSQ and MDVQ shall be specified in the Service Agreement between User and Elba Island LNG.

- Statement of Firm LNG-3

**Table 95: Rate Schedule Firm Terminal Service LNG- 3 at Elba Island**



	Monthly Reservation Charge per Dth of MSQ	Monthly Reservation Charge per Dth of MDVQ	Dredging Surcharge per Dth of MSQ	Commodity Rate	Fuel Share	Electric Power Cost Adjustment	ACA Surcharge
Maximum Rate	\$0.7532	\$2.4920	\$0.00557	\$0.0114/Dth	Pro Rata	\$0.0306/Dth	\$0.00/Dth
Minimum Rate	\$0.00	\$0.00	\$0.00				

### Lake Charles

#### *- Firm Terminal Service – Rate Schedule FTS*

This rate Schedule is available to any party that has requested Firm Terminal Service at Trunkline LNG and shall apply to LNG made available by User to Trunkline LNG from the base facilities of the terminal and nominated for storage under this rate schedule up to the maximum contract storage capacity and to the subsequent delivery by Operator of stored LNG to User in either liquid or gaseous state, subject to the availability of capacity.

**Table 96: Rate Schedule Firm Terminal Service at Lake Charles**

	Base Rate Per Dt	Annual Charge Adjustment Provision	Maximum Rate Per Dt	Minimum Rate Per Dt
Reservation	\$ 0.2734	-	\$ 0.2734	-
Usage Share	-	\$ 0.0019	\$ 0.0019	\$ 0.0019
Overrun	\$ 0.2734	-	\$ 0.2734	-

In the case of expansion facilities of the Terminal the rates are:

**Table 97: Rate Schedule Firm Terminal Service (expansions) at Lake Charles**

	Base Rate Per Dt	Annual Charge Adjustment Provision	Maximum Rate Per Dt	Minimum Rate Per Dt
Reservation	\$ 0.6847	-	\$ 0.6847	-
Usage Share	-	\$ 0.0019	\$ 0.0019	\$ 0.0019
Overrun	\$ 0.0685	-	\$ 0.0685	-

The monthly Reservation Charge shall be the product of one-tenth (1/10th) of User's maximum contract storage capacity, the greater of the days during the month in which terminal service is reserved or utilized, and the reservation rate per Dt for service.

The monthly usage charge shall be the product of the actual quantity of LNG received during the month and the usage rate per Dt for service.

The monthly overrun charge shall be the product of the actual quantity of LNG received in excess of User's maximum contract storage capacity for each Day, during the month in which terminal service is utilized and the overrun rate per Dt for service.

In the case of the negotiated rate, User and Trunkline LNG may agree, on a prospective basis, with respect to the reservation or usage charges. The maximum rate shall be available to any User that does not choose a negotiated rate.



*- Interruptible Terminal Service – Rate Schedule ITS*

This rate schedule is available to any party that has requested Interruptible Terminal Service at Trunkline LNG.

**Table 98: Rate Schedule Interruptible Terminal Service at Lake Charles**

	Base Rate Per Dt	Annual Charge Adjustment Provision	Maximum Rate Per Dt	Minimum Rate Per Dt
Monthly Inventory	\$ 1.6633	-	\$ 1.6633	-
Usage Share	-	\$ 0.0019	\$ 0.0019	\$ 0.0019

In the case of expansion facilities of the terminal the rates are:

**Table 99: Rate Schedule Interruptible Terminal Service (expansions) at Lake Charles**

	Base Rate Per Dt	Annual Charge Adjustment Provision	Maximum Rate Per Dt	Minimum Rate Per Dt
Monthly Inventory	\$ 4.1652	-	\$ 4.1652	-
Usage Share	-	\$ 0.0019	\$ 0.0019	\$ 0.0019

The monthly inventory charge shall be the product of the inventory charge per Dt and the average daily stored volume for the month.

The monthly usage charge shall be the product of the actual quantity of LNG received during the month and the usage rate per Dt for service.

*- LNG Lending Service – Rate Schedule LLS*

This rate schedule is available to any party that has requested LNG Lending Service at Trunkline LNG.

**Table 100: Rate Schedule LNG Lending Service at Lake Charles**

	Base Rate Per Dt	Annual Charge Adjustment Provision	Maximum Rate Per Dt	Minimum Rate Per Dt
Daily Lending Rate	\$ 0.1998	-	\$ 0.1998	-

The daily lending charge shall be the product of the loaned quantity for each day of the month and the daily lending rate per Dt.

*- Firm Alternative Vaporization – Rate Schedule FAV*

This rate schedule is available to any party that has terminal service under rate schedule FTS, that has requested Firm Alternate Vaporization Service at Trunkline LNG's Terminal.

**Table 101: Rate Schedule Firm Alternative Vaporization at Lake Charles**



	Base Rate Per Dt	Annual Charge Adjustment Provision	Maximum Rate Per Dt	Minimum Rate Per Dt
Reservation	\$ 1.1378	-	\$ 1.1378	-
Usage Share	-	-	-	-
Overrun	\$ 0.0948	-	\$ 0.0948	-

In the case of the negotiated rate, User and Trunkline LNG may agree, on a prospective basis, with respect to the reservation or usage charges. The maximum rate shall be available to any User that does not choose a negotiated rate.

*- Interruptible Alternative Vaporization – Rate Schedule IAV*

This Rate Schedule IAV is available to any party that has terminal service under rate schedule ITS, that has requested Interruptible Alternate Vaporization Service at Trunkline LNG's Terminal.

**Table 102: Rate Schedule Interruptible Alternative Vaporization at Lake Charles**

	Base Rate Per Dt	Annual Charge Adjustment Provision	Maximum Rate Per Dt	Minimum Rate Per Dt
Usage	\$ 0.0948	-	\$ 0.0948	-

*- Negotiated Rates*

These negotiated rate agreements do not deviate in any material respect from the form of service agreement in the tariff.

a) Monthly Payment = Capacity Charge + Additional Capacity Charge.

Capacity Charge = 570,000 Dt/day x \$0.2176/Dt x number of days in the month.

The monthly payment shall also include fuel reimbursement and electric power costs.

Additional capacity charge of \$60,000 per day from the modified expansion in-service date to the later of the first anniversary of the modified expansion in-service date or December 31, 2008 and, thereafter, \$75,000 per day from the later of the first anniversary of the modified expansion in-service date or January 1, 2009. The monthly payment shall continue until December 31, 2015.

b) The negotiated rate, which shall be inclusive of all reservation fees, usage fees and, fuel retention but exclusive of surcharges for electric power costs, shall be \$6,503,110.30 per month. The rate for overrun service hereunder shall be \$0.00 per Dth. No fuel retention shall apply to service hereunder. The negotiated rate provided shall be transferable in the event of capacity release. All revenues received by Trunkline LNG from a replacement User shall be credited to User's obligations.

#### **4.1.4.24 Capacity Booking Procedures**

##### **Cove Point**



All access requests made to a terminal may be submitted to Operator via e-mail, Operator's electronic bulletin board ("EBB"), facsimile transmission or any other method of communication, as mutually agreed between User and Operator, to the person designated to receive such correspondence.

### **Elba Island**

Southern LNG has a computer system, called SoNet Premier, to communicate with users. All access requests may be submitted via this system.

### **Lake Charles**

A User that desires to request access to the terminal must notify Trunkline LNG electronically on Messenger® or through electronic data interchange of its intent to release capacity and the terms of the release Trunkline LNG has established an electronic communication system, the Messenger® system, for use by any party, including Users and potential Users. The Messenger® system is available on a non-discriminatory basis to any party that has compatible equipment for electronic transmission of data.

Through the Messenger® system the User may obtain:

Information concerning the availability of capacity for firm Terminal Service and firm Alternate Vaporization Service, and whether the capacity is available from Trunkline LNG directly, through exercise of User's right of first refusal, or through capacity release,

Trunkline LNG's currently effective FERC Gas Tariff,

An Index of Firm Users,

Trunkline LNG's Terminal Service log

Standards of Conduct information

Affiliate information

Nominations can also be submitted in writing.

### **4.1.5 Effective access to terminals in the USA**

The US Department of Energy provides, through annual, quarter and monthly reports, extensive data on natural gas imports by terminals in the US.<sup>197</sup> The information, which differentiates between short-term and long-term contracts, includes:

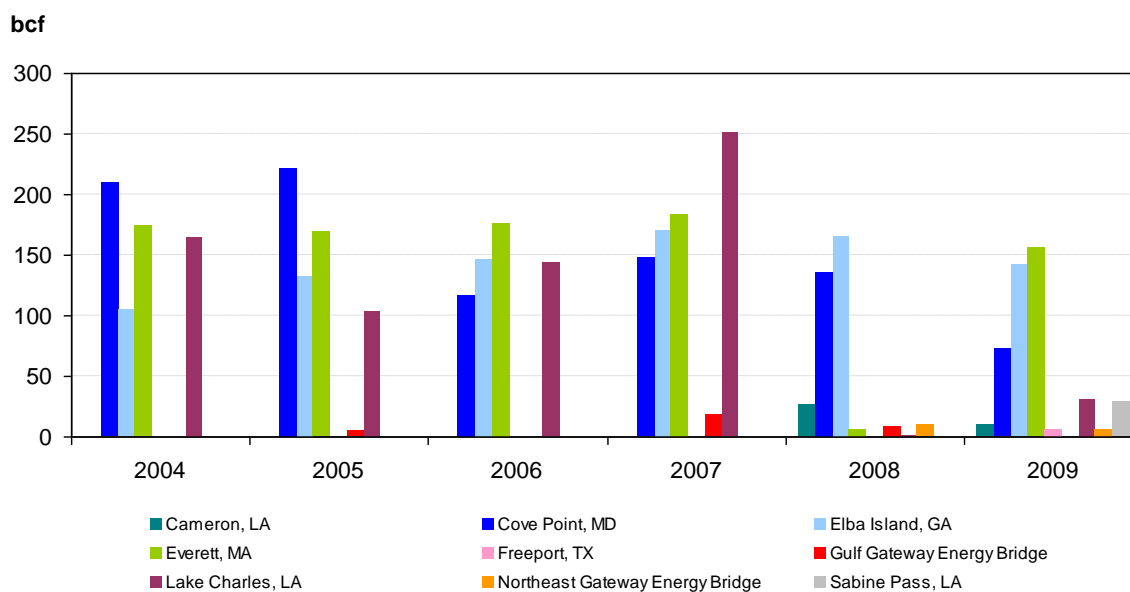
- the receiving terminal
- the volume of gas landed (Mcf) at each terminal by each LNG tanker,

<sup>197</sup> <http://www.fe.doe.gov/programs/gasregulation/publications/>



- the date
- the name of the tanker
- the landed price (\$/MMBtu),
- the name of the exporter
- the name of the importer
- the country of origin

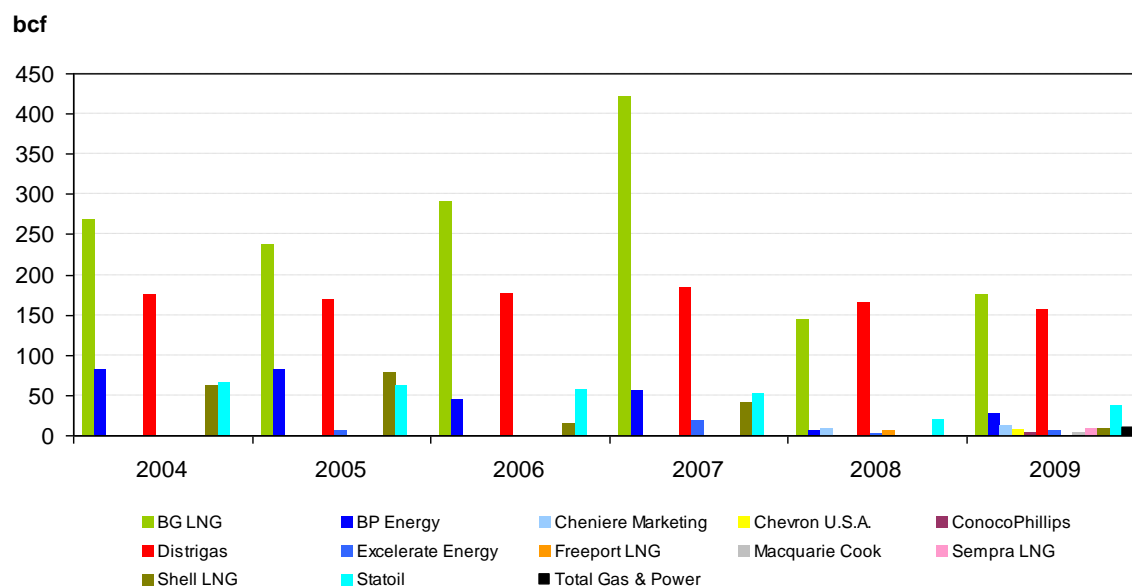
**Figure 55: U.S. LNG imports by Terminal.**



**Source:** *US Department of Energy.*

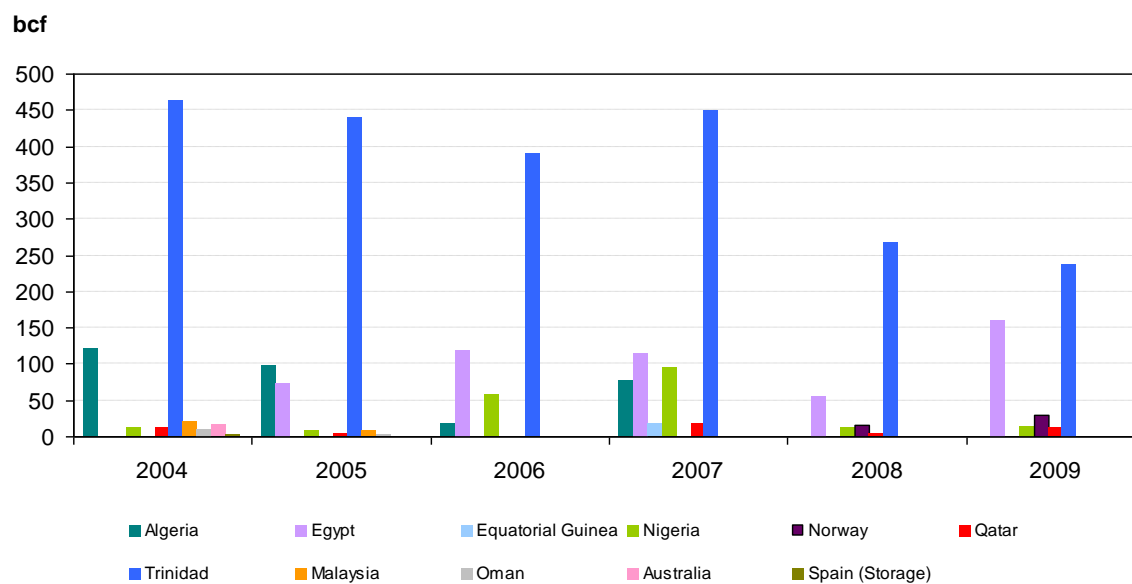


Figure 56: U.S. LNG imports by Company.



Source: US Department of Energy.

Figure 57: U.S. LNG imports by Country of Origin.



Source: US Department of Energy.

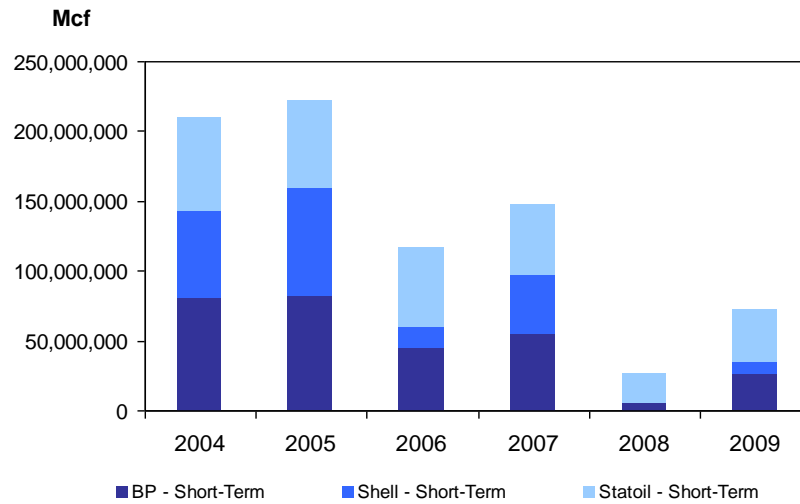
This information allows to track the effective usage of terminals and to understand the dynamics of LNG in North America.

Data is valid through to 31 December 2010.



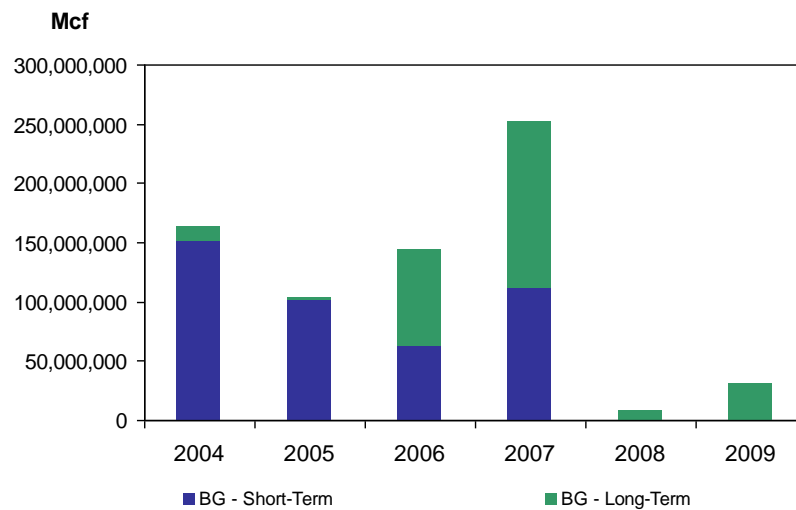


**Figure 58: Cove Point MD LNG imports under short-term and long-term contracts.**



*Source: US Department of Energy.*

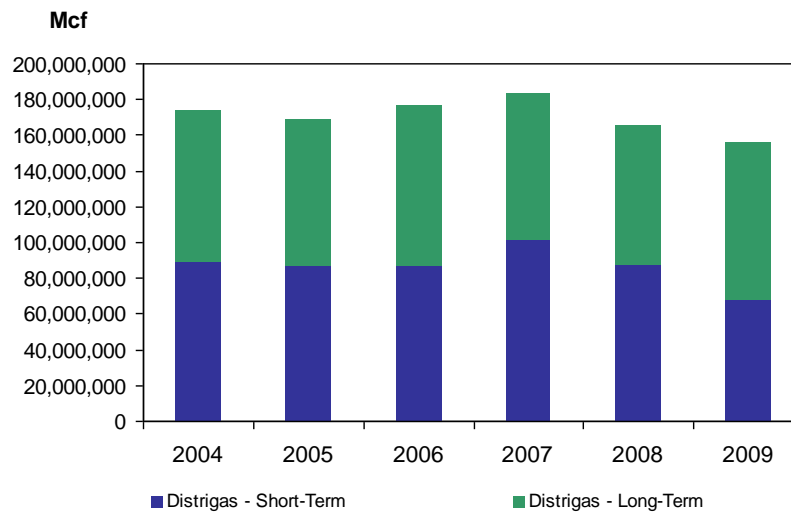
**Figure 59: Lake Charles LA LNG imports under short-term and long-term contracts.**



*Source: US Department of Energy.*

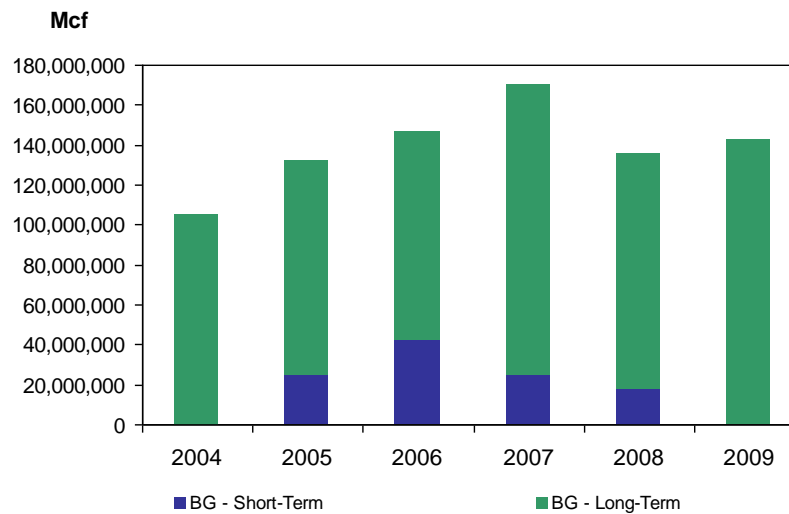


**Figure 60: Everett MA LNG imports under short-term and long-term contracts.**



*Source: US Department of Energy.*

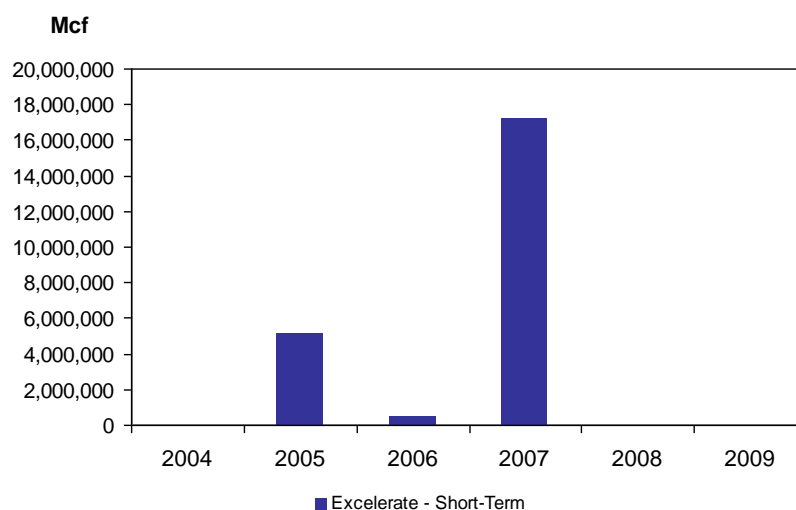
**Figure 61: Elba Island GA LNG imports under short-term and long-term contracts.**



*Source: US Department of Energy.*

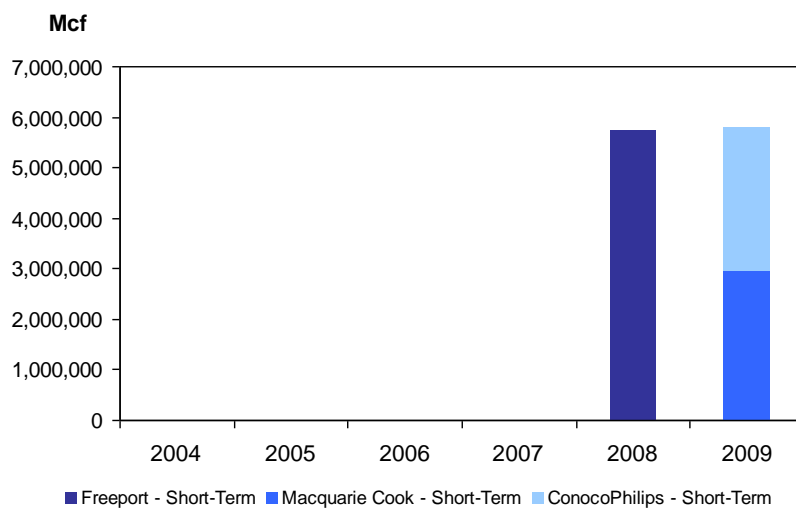


**Figure 62: Gulf Gateway Energy LNG imports under short-term and long-term contracts.**



Source: US Department of Energy.

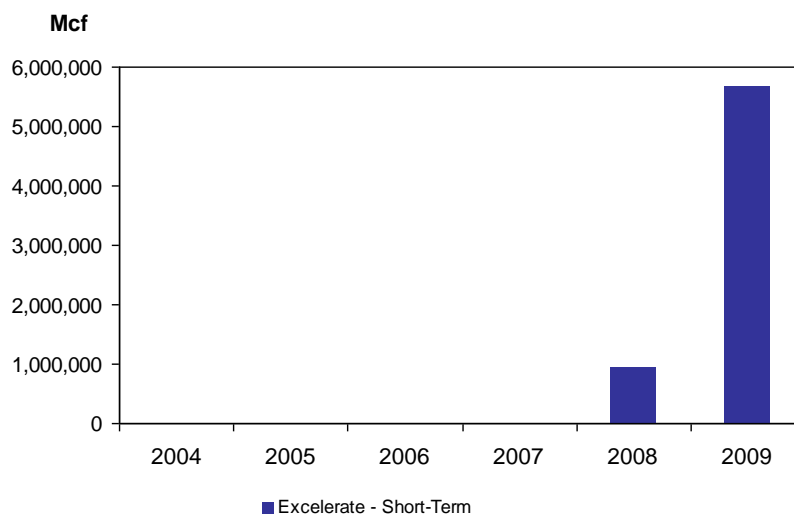
**Figure 63: Freeport TX LNG imports under short-term and long-term contracts.**



Source: US Department of Energy.

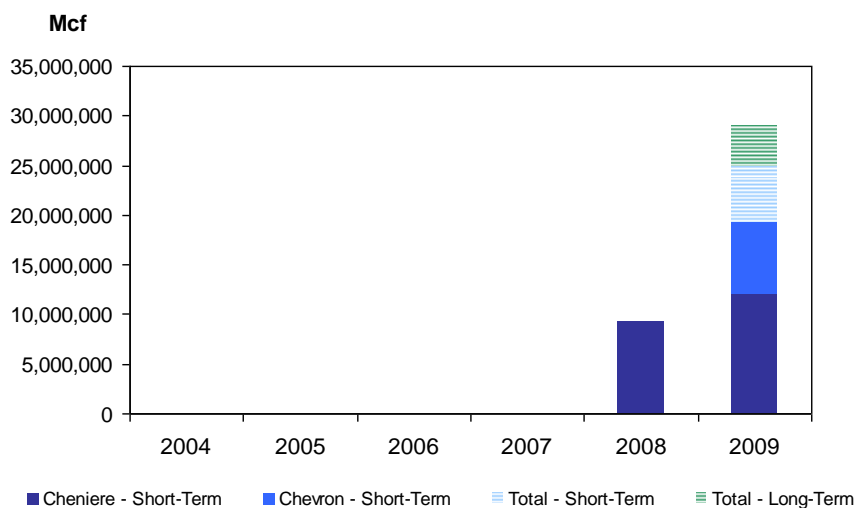


**Figure 64: Northeast Gateway Energy Bridge LNG imports under short-term and long-term contracts.**



Source: US Department of Energy.

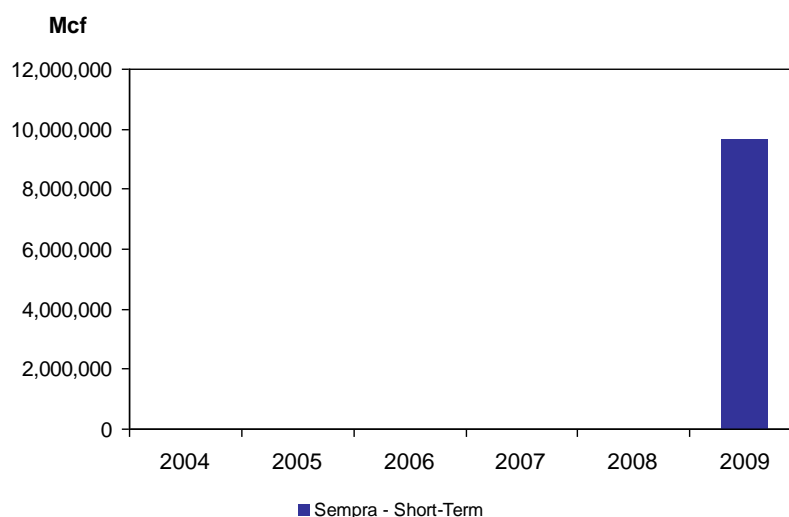
**Figure 65: Sabine Pass LA LNG imports under short-term and long-term contracts.**



Source: US Department of Energy.



**Figure 66: Cameron LA LNG imports under short-term and long-term contracts.**



**Source:** *US Department of Energy.*

In 2009, Distrigas Corporation was the sole importer of LNG through the Everett terminal under long-term and short-term contracts, while BG LNG Services was the sole importer of LNG through the Elba Island terminal and through the Lake Charles terminal under long-term contracts. Through the Sabine Pass terminal, Total imported LNG under long-term and short-term contracts, while Cheniere and Chevron imported LNG only under short-term contracts.

**Table 103: US LNG imports under long-term contracts, 2009.**

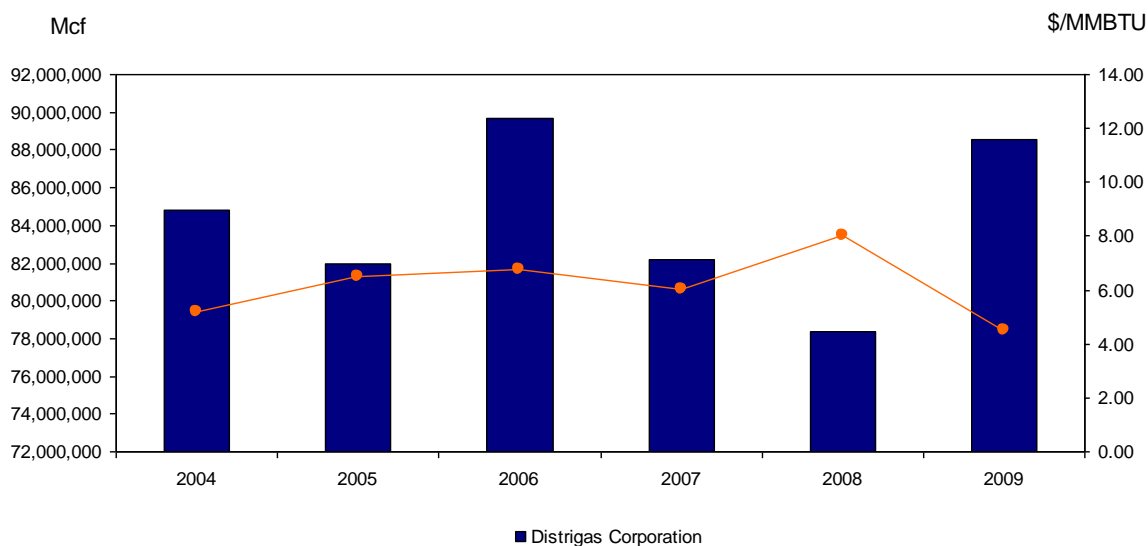
Receiving Terminal	Total Volume	Landed Price
Lake Charles, LA	31,348,222	3.14
Everett, MA	88,552,992	4.49
Elba Island, GA	142,243,933	3.58
Sabine Pass, LA	4,192,441	4.13

Volumes in Mcf. Prices in \$/MMBtu.

**Source:** *US Department of Energy.*

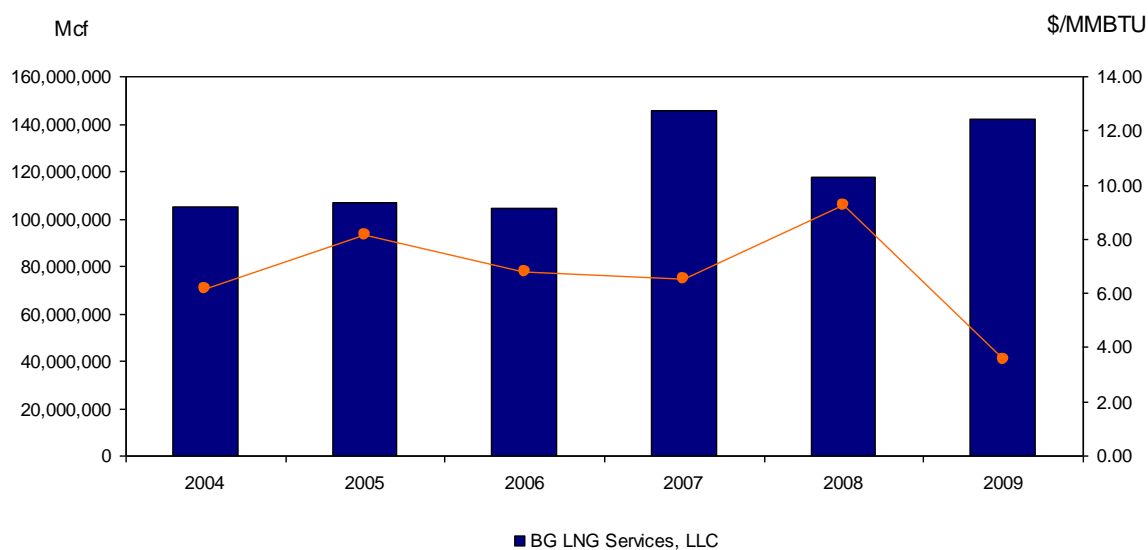


**Figure 67: Everett LNG imports and landed prices under long-term contracts.**



Source: US Department of Energy.

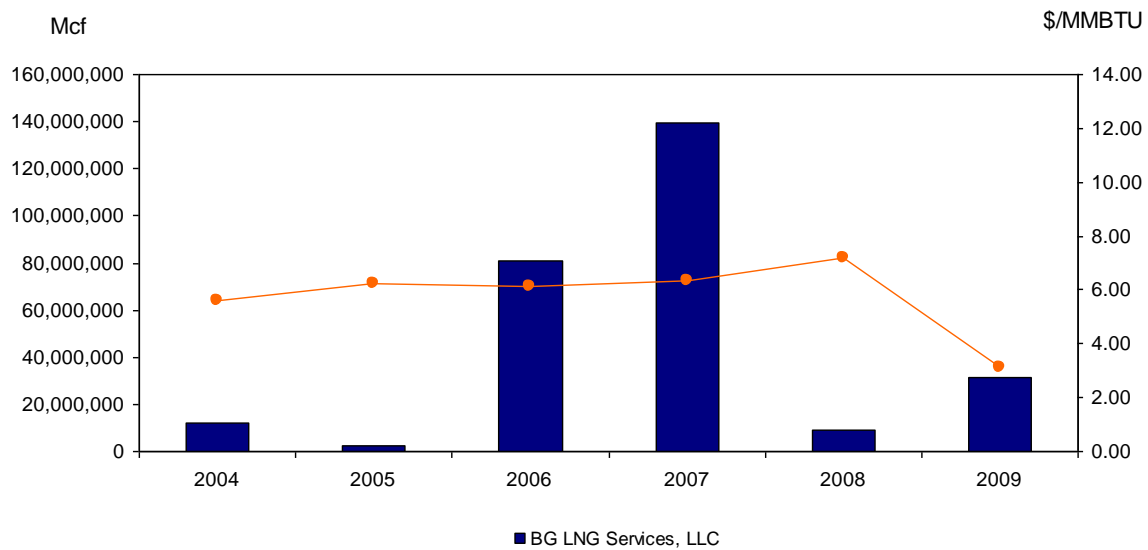
**Figure 68: Elba Island LNG imports and landed prices under long-term contracts.**



Source: US Department of Energy.

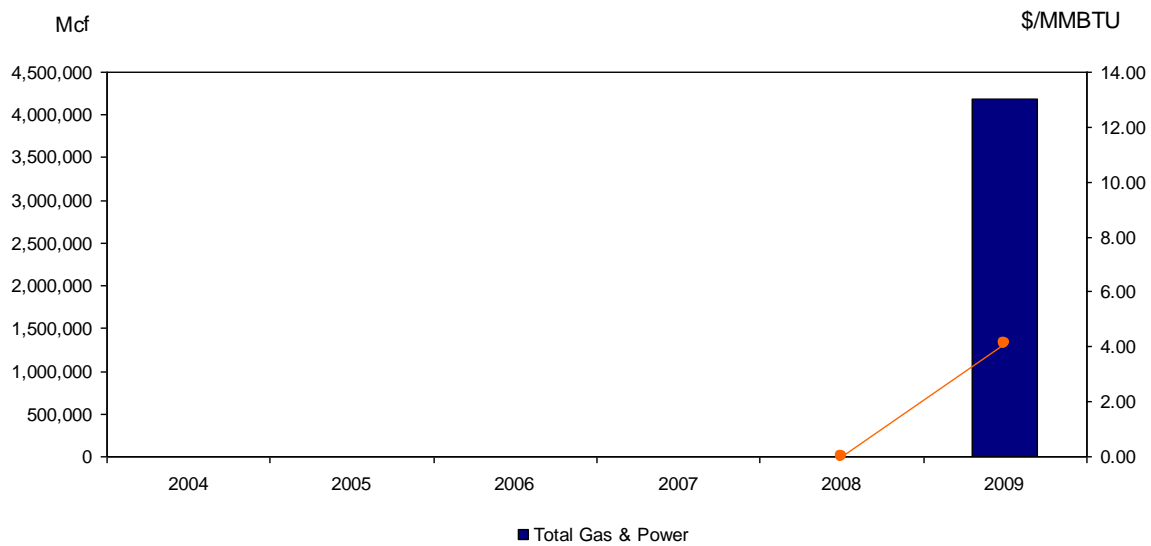


**Figure 69: Lake Charles LNG imports and landed prices under long-term contracts.**



Source: US Department of Energy.

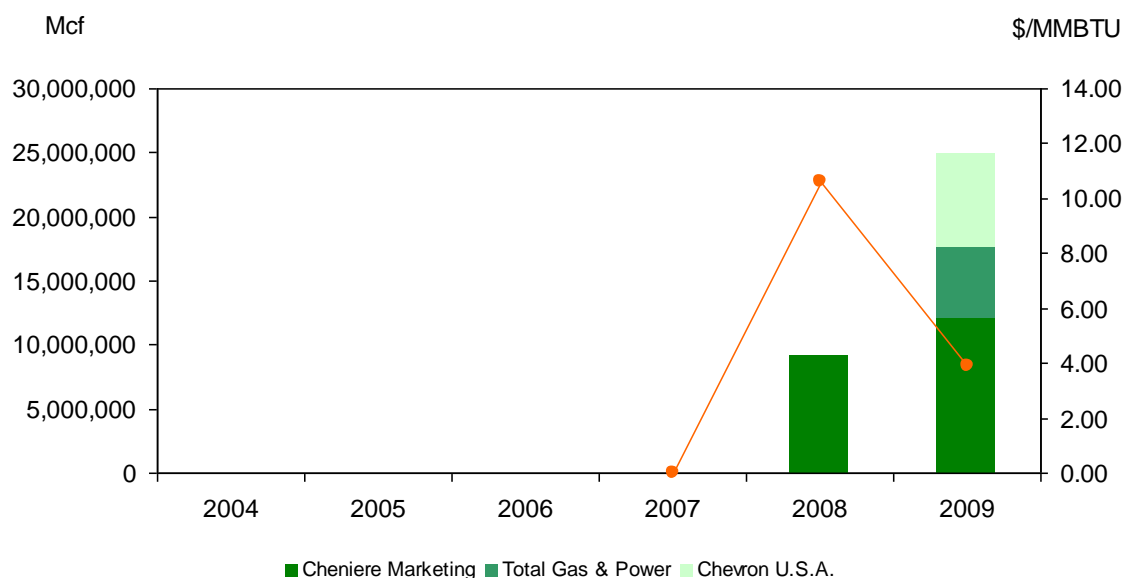
**Figure 70: Sabine Pass LNG imports and landed prices under long-term contracts.**



Source: US Department of Energy.



**Figure 71: Sabine Pass LNG imports and landed prices under short-term contracts.**



**Source:** *US Department of Energy.*

Apart from Everett and Sabine Pass, LNG under short-term contracts was unloaded during 2009 at Cove Point (Statoil, Shell and BP Energy Company), Freeport (Freeport LNG, Macquarie Cook and ConocoPhillips), Cameron (Sempra) and Northeast Gateway Energy Bridge (Excelerate).

**Table 104: US LNG imports under short-term contracts, 2009.**

Receiving Terminal	Total Volume	Landed Price
Cove Point, MD	72,339,114	3.81
Everett, MA	67,263,818	7.03
Freeport, TX	5,789,009	4.31
Northeast Gateway Energy Bridge	5,669,042	6.45
Sabine Pass, LA	24,904,504	3.87
Cameron, LA	9,654,006	4.43

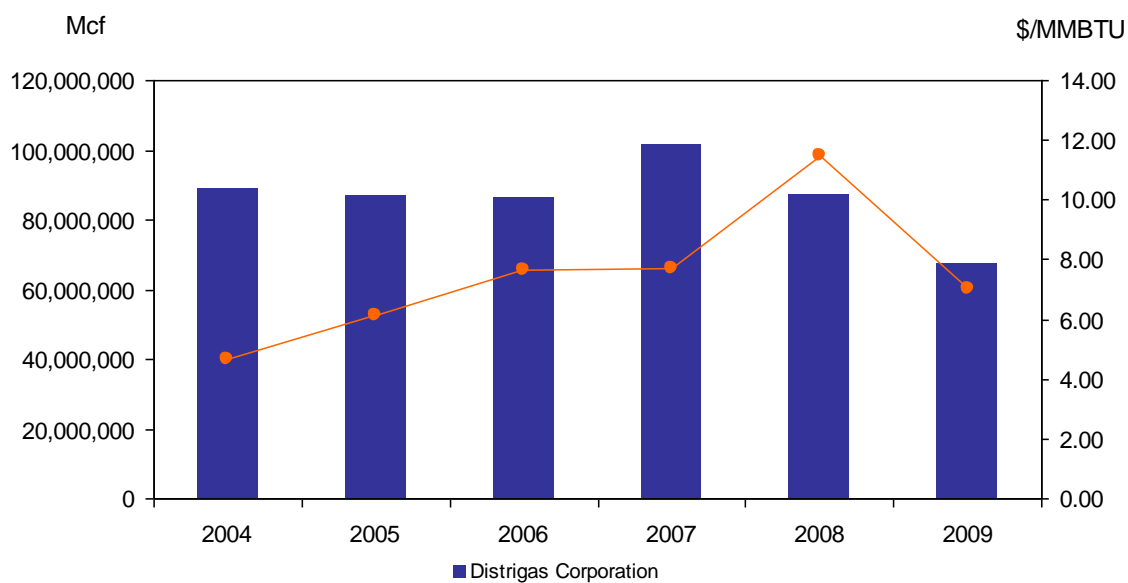
Volumes in Mcf. Prices in \$/MMBtu.

**Source:** *US Department of Energy.*



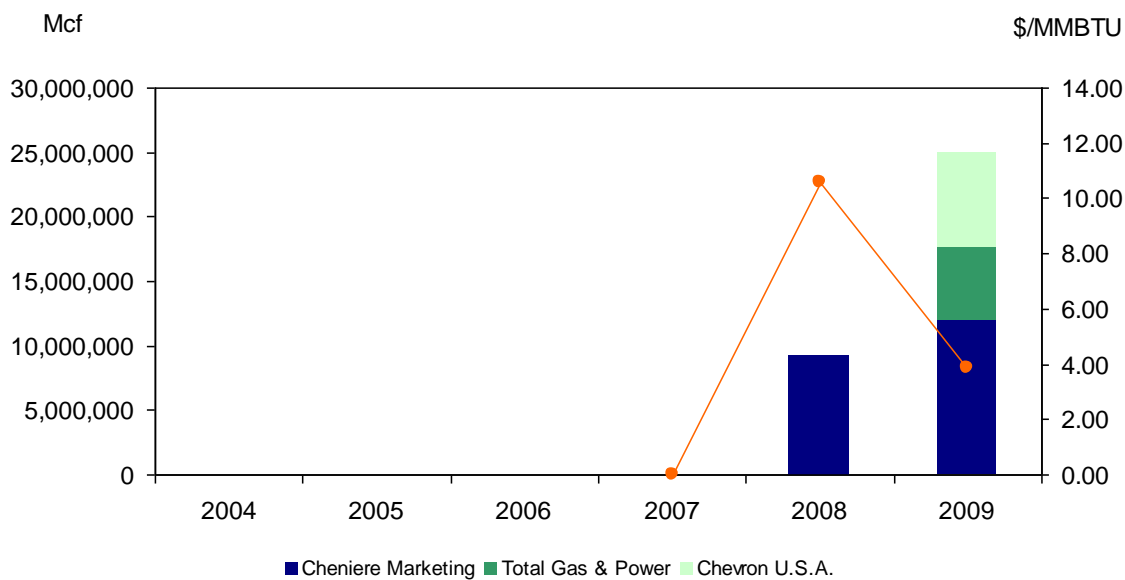


**Figure 72: Everett LNG imports and landed prices under short-term contracts.**



Source: US Department of Energy.

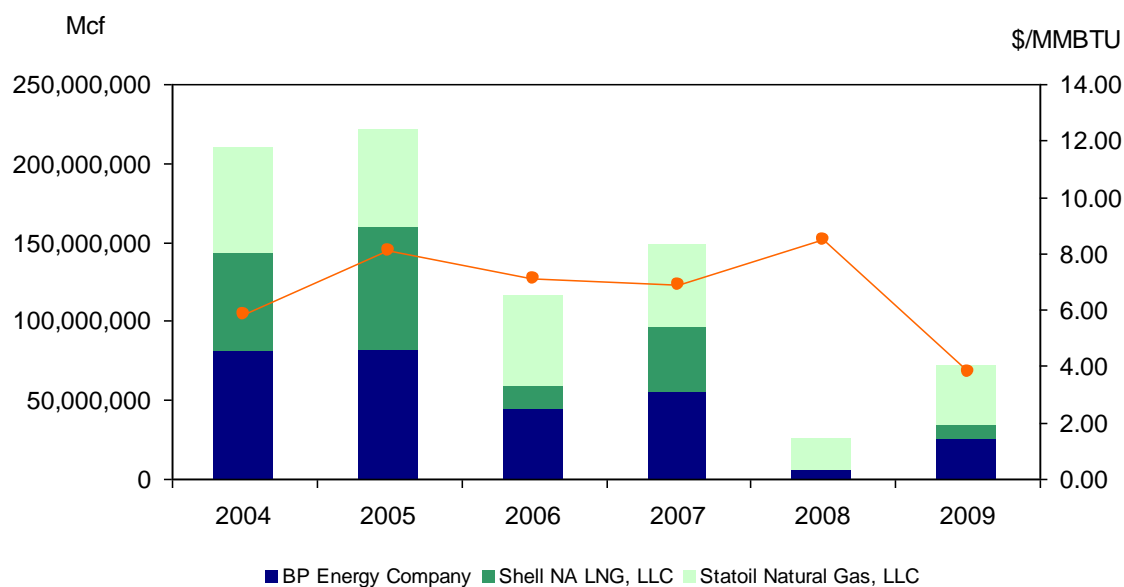
**Figure 73: Sabine Pass LNG imports and landed prices under short-term contracts.**



Source: US Department of Energy.

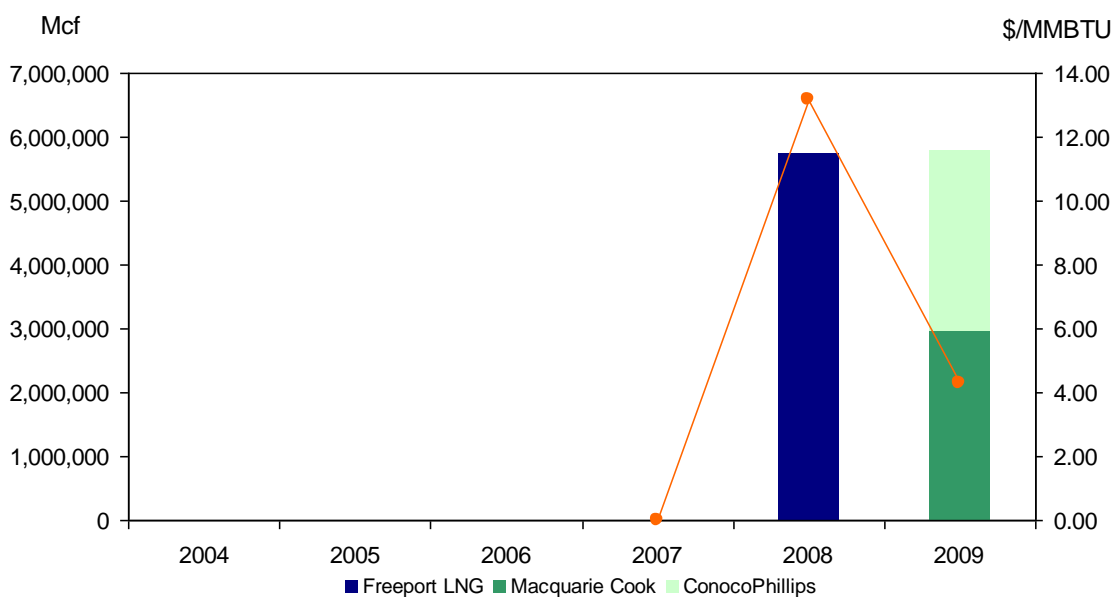


**Figure 74: Cove Point LNG imports and landed prices under short-term contracts.**



Source: US Department of Energy.

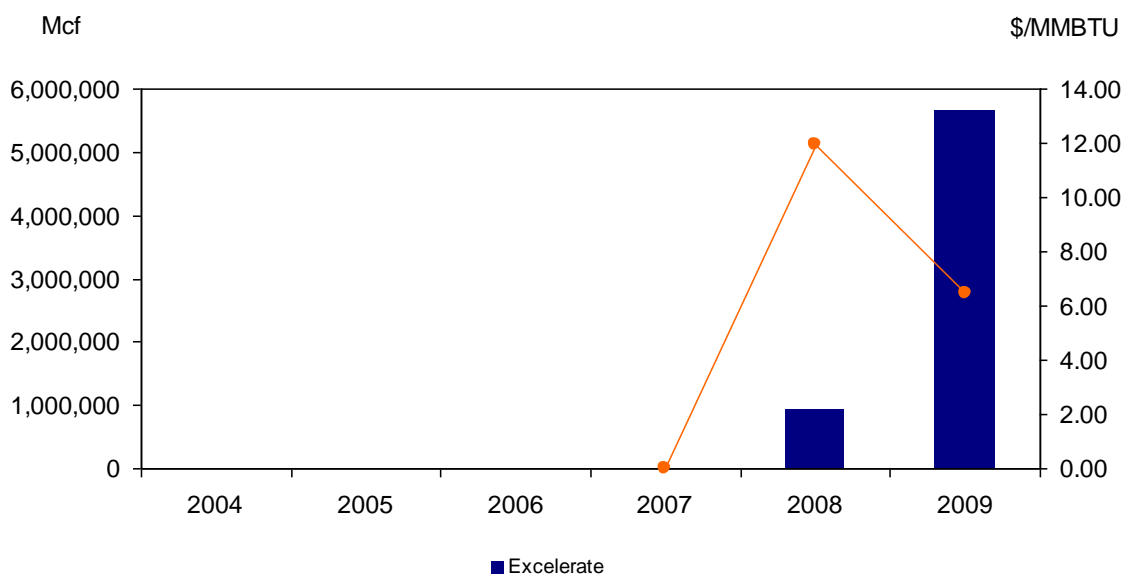
**Figure 75: Freeport LNG imports and landed prices under short-term contracts.**



Source: US Department of Energy.

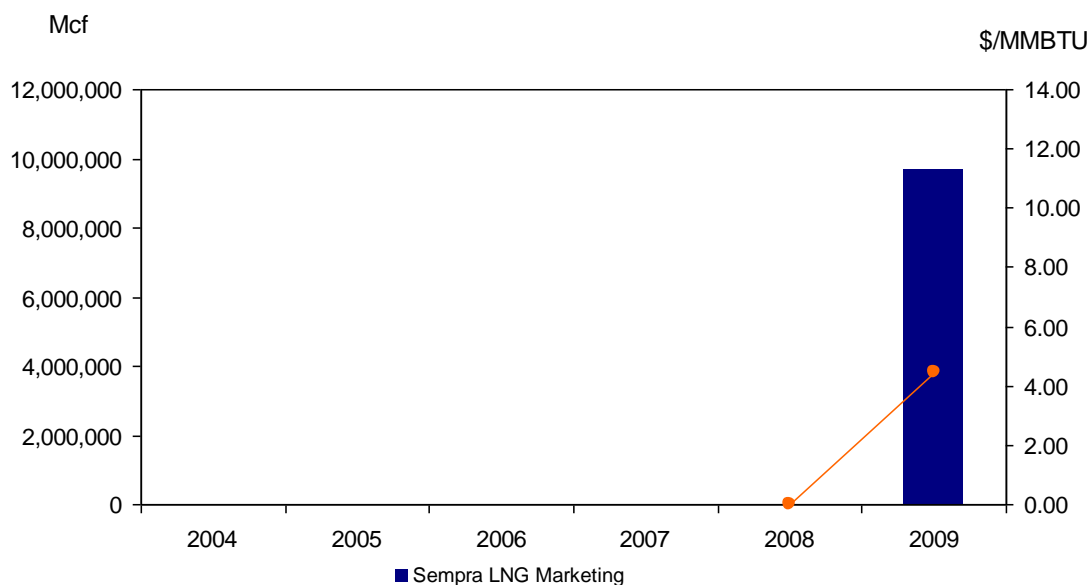


**Figure 76: Northeast Gateway Energy Bridge LNG imports and landed prices under short-term contracts.**



Source: US Department of Energy.

**Figure 77: Cameron LNG imports and landed prices under short-term contracts.**

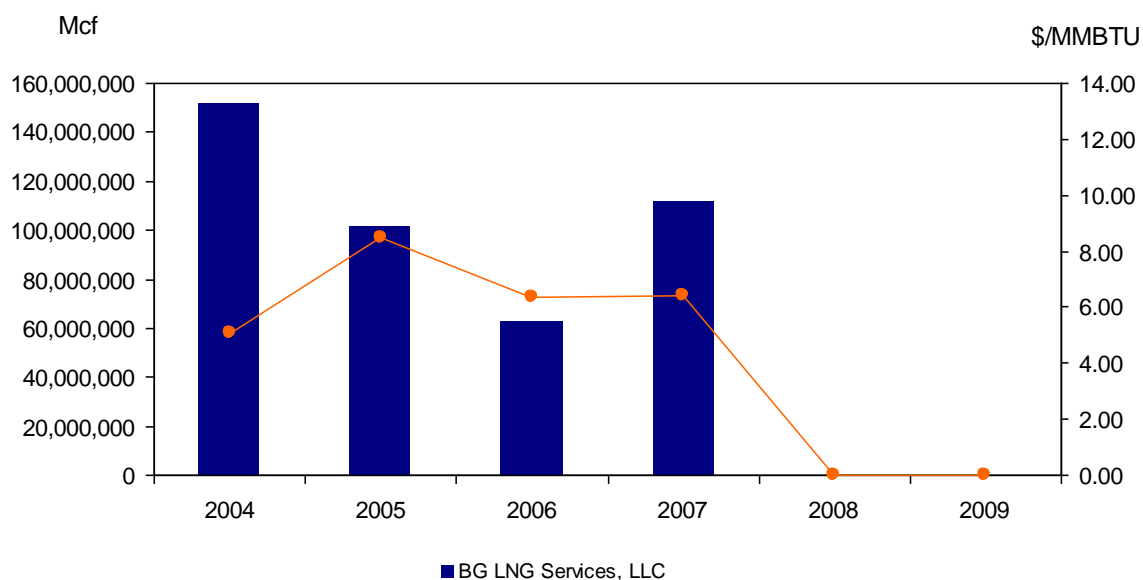


Source: US Department of Energy.

Whereas during 2009, there were not LNG unloadings under short-term contracts at Lake Charles, Elba Island and Gulf Gateway Energy, next figures show that LNG imports under short-term contracts exited previously.

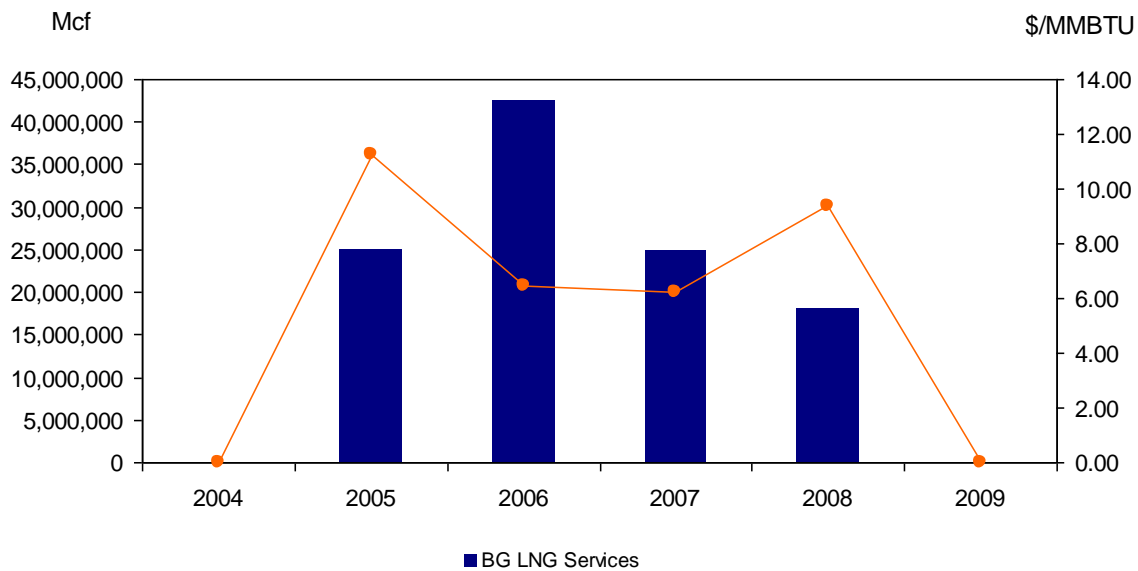


**Figure 78: Lake Charles LNG imports and landed prices under short-term contracts.**

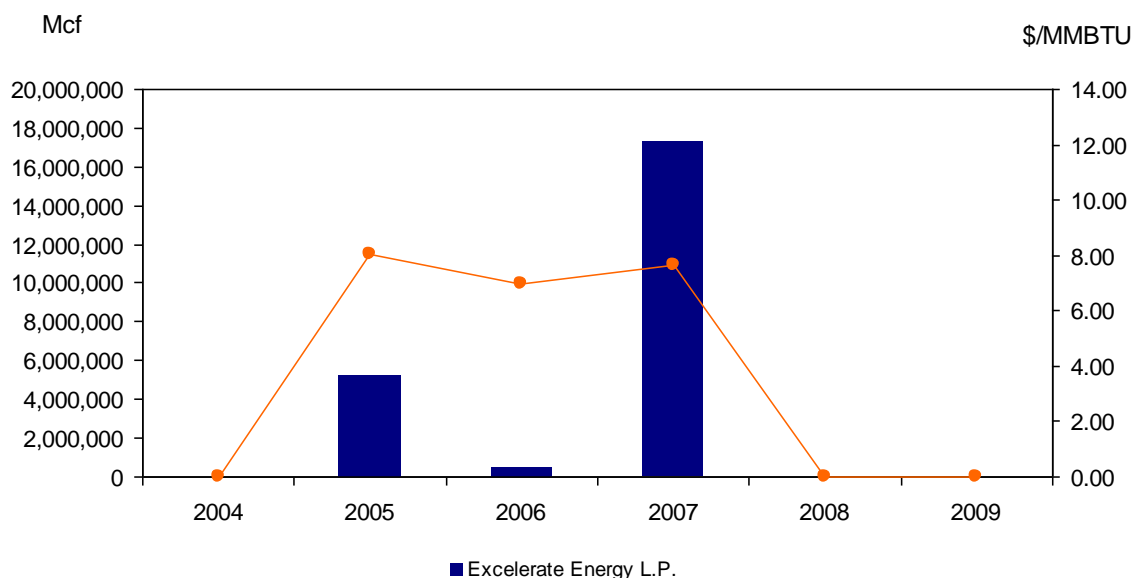


Source: US Department of Energy.

**Figure 79: Elba Island LNG imports and landed prices under short-term contracts.**



Source: US Department of Energy.

**Figure 80: Gulf Gateway Energy LNG imports and landed prices under short-term contracts.**

Source: US Department of Energy.

## 4.2 CANADA

### 4.2.1 LNG in Canada

Canaport is the first LNG regasification terminal, which is located on Canada's east coast.

There are six proposals to construct LNG import facilities in Atlantic Canada (two projects), Québec (three projects), and British Columbia (one project), many of which are approved or are currently in the environmental assessment (EA) or regulatory review process. The proposed import facilities, from west to east, are:

- Texada Island (Texada Island, British Columbia);
- Rabaska LNG (Beaumont, Québec – Rabaska project);
- Énergie Grande-Anse (Saguenay, Québec – Projet Grande-Anse);
- Maple LNG (Goldboro, Nova Scotia); the Canadian subsidiary of Netherlands-based 4Gas BV has decided not to proceed with its proposed Maple LNG import terminal plans, due to a lack of Canadian LNG demand and the decrease in North American gas prices since 2008<sup>198</sup>.
- Grassy Point LNG (Grassy Point, Newfoundland & Labrador);
- Cacouna<sup>199</sup> LNG terminal (Gros Cacouna, Québec – Cacouna Energy project); finally the proponents, TransCanada and Suncor Energy (successor to Petro-Canada), have decided

<sup>198</sup> According to Gas Matters Today, August 25, 2010.

<sup>199</sup> [http://cacouna.net/projetmethanier\\_e.htm](http://cacouna.net/projetmethanier_e.htm)



not to extend the option to lease the Cacouna Project site. Cacouna remains an option for a future LNG terminal, but current market conditions do not support any current activity.

In addition, there are two LNG exports terminals proposed for Kitimat, British Columbia (BC):

- Kitimat terminal;
- Teekay Corporation and Merrill Lynch Commodities Inc.

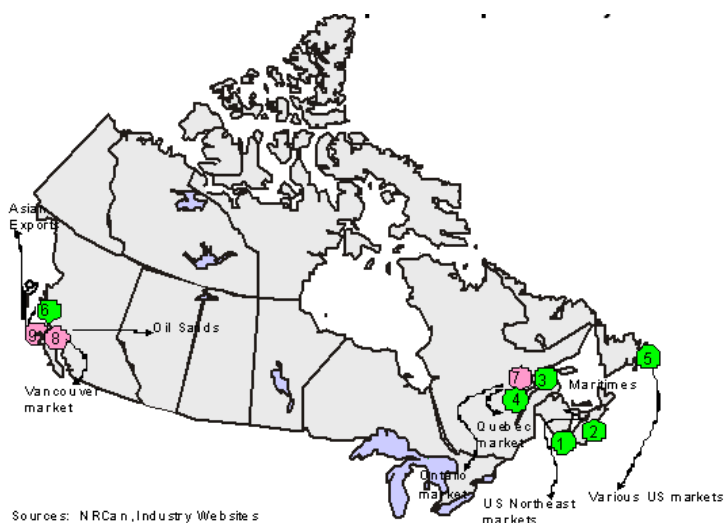
The four LNG projects in Atlantic Canada are mainly intended to supply the northeast market in the US, as demand for natural gas in Atlantic Canada is met by natural gas production from offshore Nova Scotia. The three Québec LNG projects would provide an alternative source of natural gas supply to markets in eastern Canada, as Québec is almost entirely dependent on natural gas supply from western Canada.

The combined send-out capacity of all proposed Canadian LNG import projects is 5.5 bcf/d (6,490,135 m<sup>3</sup>/h). Before 2015, it appears likely that the North American natural gas supply picture will include at least one, perhaps two Canadian LNG import facilities. Ultimately, market forces will determine how many facilities will be required and built in Canada.

**Map 13: Location of existing, approved and announced LNG terminals in Canada.**



Source: The California Energy Commission.

**Map 14: Detailed location of approved and announced LNG terminals in Canada.**

Approved	Location
1. Canaport LNG	New Brunswick
2. KeltioMaple LNG	Nova Scotia
3. Rabaska LNG	Quebec
4. Cacauna LNG	Quebec
5. Grassy Point	Newfoundland
6. Kitimat LNG Export	British Columbia
Announced	
7. Énergie Grand-Anse	Quebec
8. Westpac LNG	British Columbia
9. Teekay/Merrill Lynch Export	British Columbia

Source: National Energy Board.

**Table 105: LNG terminals in Canada.**

Terminal	Operator	Description
<b>Canaport</b>	Canaport LNG	<p>Canaport LNG is a LNG receiving and regasification terminal in St John, New Brunswick and is the first LNG terminal in Canada, sending out natural gas to both Canadian and US markets. The Canaport LNG project<sup>200</sup> requires an investment of C\$756m. The terminal became operational in 2009.</p> <p>Canaport LNG<sup>201</sup> is a Canadian-based joint energy project owned by Repsol YPF (75%) and Fort Reliance (25%) with Canaport LNG as the developer, owner and operator of the terminal.</p> <p>The terminal has three LNG storage tanks of 160,000 m<sup>3</sup>. The plant is able to supply 20% of the natural gas needs of the northeast US as well as Canadian needs. The terminal has a send-out capacity of 1.2 bcf of natural gas per day and could be expandable to 2 bcf/d when the market would be ready for additional natural gas supplies.</p> <p>Repsol Energy Canada Ltd. has contracted for 100% of the terminal's capacity under a tolling services agreement with Canaport LNG.</p> <p>The terminal has received LNG from Trinidad and Tobago, Egypt and now Qatar. Repsol and its subsidiaries are responsible for supplying the LNG to Canaport LNG, which it intends to do from its portfolio of LNG supplies. Today it is involved in an LNG project in Algeria. Canaport received its first shipment of LNG<sup>202</sup> on June 30, 2009 from Trinidad/Tobago. On</p>

<sup>200</sup> <http://www.hydrocarbons-technology.com/projects/canaport-lng/>

<sup>201</sup> <http://www.canaportlng.com/>

<sup>202</sup> [http://www.canaportlng.com/pdfs/canaportconnections/CanaportConnections\\_v8.pdf](http://www.canaportlng.com/pdfs/canaportconnections/CanaportConnections_v8.pdf)



		December 1, 2009, the Q-Flex MV Mesaimmer arrived <sup>203</sup> at the port of Saint John to deliver the equivalent of 4.6 bcf of LNG to the Canaport LNG facility. This was the first Q-Flex to arrive on North America's East Coast.
<b>Rabaska LNG</b>	Rabaska	<p>The Rabaska LNG terminal<sup>204</sup> will be located along the St. Lawrence River in Levis, Quebec, Canada. The goal of the Rabaska LNG terminal project is to give Quebec and Eastern Ontario an alternative gas supply source. The estimated investment is \$840 million. The project promoter is Rabaska, a limited partnership made up of Gaz Métro, Enbridge, and GDF SUEZ (formerly Gaz de France). These firms have pooled their resources and experience to build and operate the LNG terminal. Construction would be timed to meet the anticipated first LNG deliveries in 2014.</p> <p>The Rabaska terminal is designed to be capable of receiving, storing and regasifying imported LNG with a nominal natural gas send-out capacity of 500 million cubic feet per day. The two tanks can each hold 160,000 m<sup>3</sup>.</p> <p>In May 2008, Rabaska announced that Gazprom Marketing &amp; Trading USA has agreed to become an equity partner in the facility by the end of the year. In addition, Gazprom intends to contract for 100% of the import terminal's capacity. Gazprom will import Russian LNG supplied from the Shtokman liquefaction project currently under development in the Barents Sea northeast of Murmansk, Russia.</p>
<b>Texada Island LNG</b>	WestPac LNG Corporation	<p>WestPac LNG Corporation<sup>205</sup> plans to build and operate a terminal and natural gas-fired power generation facility at the north end of Texada Island. Texada Island terminal will be positioned to receive LNG from Southeast Asia, the Pacific Rim and the Middle East. The terminal is planned to be operational in 2014.</p> <p>The terminal will consist of two LNG storage tanks of 160,000 m<sup>3</sup>. The regasification capacity will be 500 million cubic feet per day. WestPac expects up to about 36 LNG carriers a year to arrive at its facility, or one every ten days or so, an increase of less than one percent above existing vessel traffic.</p>
<b>Grassy Point LNG</b>	Newfoundland LNG	<p>Newfoundland LNG Ltd., jointly owned by North Atlantic Pipeline Partners, Limited Partnership (LP) (50%) and LNG Partners, Limited Liability Corporation (LLC) (50%) is proposing the development of a terminal for Grassy Point<sup>206</sup>, Placentia Bay on the southeast coast of Newfoundland.</p> <p>This LNG project, unlike the other proposals in Canada, is not an LNG import terminal and will not involve regasification of LNG. Rather, this facility will operate as a component of the LNG delivery chain, providing transshipment and storage services. The project will be developed over three phases and will involve the construction and operation of three jetties with berthing capability for LNG tankers up to 265,000 m<sup>3</sup> and eight</p>

<sup>203</sup> [http://www.canaportlng.com/latestnews/dec\\_1\\_2009.php](http://www.canaportlng.com/latestnews/dec_1_2009.php)

<sup>204</sup> <http://www.rabaska.net/project>

<sup>205</sup> <http://www.westpaclng.com/>

<sup>206</sup> <http://www.newfoundlandlng.com/>





		<p>LNG Tanks.</p> <p>All customers<sup>207</sup> using the facility will be responsible for obtaining their own LNG supply. It is expected that all clients either have equity gas or have long-term supply arrangements with third-party producers. Construction will start immediately on receipt of all regulatory approvals.</p>
<b>Énergie Grande-Anse</b>	Énergie Grande-Anse	<p>Québec-based Énergie Grande-Anse<sup>208</sup> proposes to develop and build an LNG import terminal in the Port of Grande-Anse, along the Saguenay River in Québec. The project will be carried out in collaboration with the Saguenay Port Authority (SPA), owner of the land where the terminal will be constructed.</p> <p>The facility is expected to have an initial send-out capacity of about 1bcf/d. Énergie Grande-Anse is expected to begin in mid-2012.</p> <p>The terminal will consist of three LNG storage tanks of 160,000 m<sup>3</sup>.</p>
<b>Kitimat LNG</b>		<p>Kitimat LNG<sup>209</sup> Inc. is proposing to construct and operate a liquefied natural gas export, liquefaction and LNG send-out terminal at Bish Cove near the Port of Kitimat, BC, Canada. Kitimat LNG Terminal will include marine on-loading, LNG storage, natural gas delivery, liquefaction and LNG send-out facilities.</p> <p>On January 13, 2010, Apache Corporation announced that its Apache Canada Ltd. subsidiary has agreed to acquire 51 percent of Kitimat LNG Inc.'s planned liquefied natural gas export terminal in British Columbia. Apache also reserved 51 percent of capacity in the terminal.</p> <p>Kitimat LNG Terminal offers excellent access to the dynamic LNG markets in Asia including Japan, the largest importer of LNG in the world. Kitimat LNG Inc. expects to begin construction on Kitimat LNG Terminal in 2010, with commercial operation beginning at the end of 2014.</p> <p>In 2006, Kitimat LNG Terminal received its environmental assessment certificate from the BC Environmental Assessment Agency and was granted federal environmental approval for a regasification terminal. The Kitimat export terminal continues to offer a safe and environmentally neutral project.</p> <p>Kitimat LNG received its Provincial Environmental Certificate for the liquefaction terminal in December 2008 and the Federal Environmental Certificate in January 2009.</p> <p>The terminal will consist of two LNG storage tanks of 210,000 m<sup>3</sup>, with the possibility of a future expansion to three tanks. The regasification capacity will be 1.25 billion cubic feet per day.</p>
<b>Teekay LNG</b>		<p>Teekay Corporation<sup>210</sup> announced an agreement with Merrill Lynch Commodities, on March 12, 2009, to jointly develop a project to convert the S/S Arctic Spirit vessel into a floating LNG plant to be moored alongside a pier near Kitimat, B.C. Teekay LNG Partners L.P. will have an</p>

<sup>207</sup> <http://www.nrcan.gc.ca/eneene/sources/natnat/placentia-eng.php>

<sup>208</sup> <http://www.energiegrandeanse.com/projets.php>

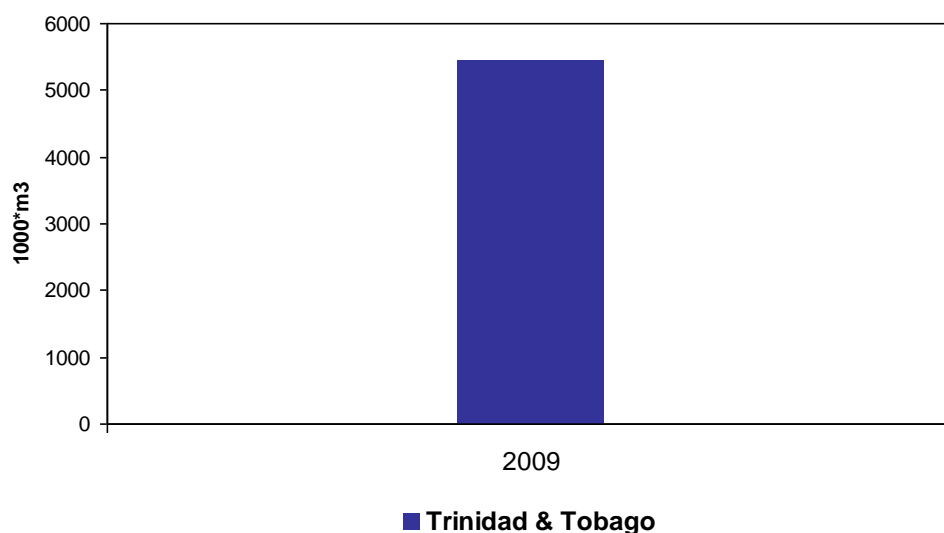
<sup>209</sup> <http://www.kitimatlng.com/>

<sup>210</sup> <http://www.teekay.com/index.aspx?page=home>



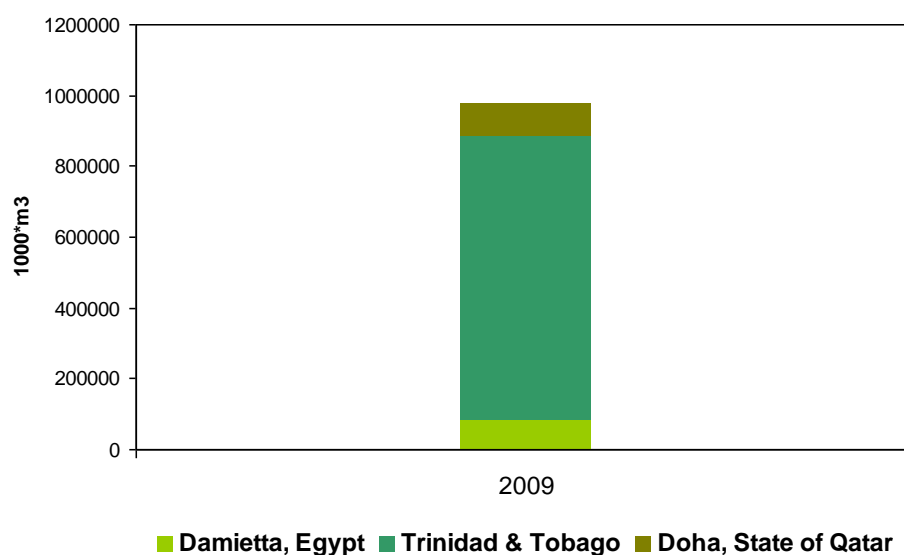
		<p>option to participate in the project as well. The project is expected to begin LNG operations in 2012, subject to obtaining the necessary federal and provincial regulatory and local approvals.</p> <p>The converted vessel would have the production capacity to liquefy about 75-100 million cubic feet (MMcf) per day of pipeline quality natural gas, or, approximately 0.5 million tonnes per annum of LNG.</p>
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**Figure 81: Canaport LNG imports under long-term contracts.**



Source: National Energy Board.

**Figure 82: Canaport LNG imports under short-term contracts.**





Source: *National Energy Board.*

### 4.2.2 Regulation

The NEB is an independent federal agency that regulates aspects of the energy industry under its jurisdiction. NEB regulates the import and export of natural gas into and out of Canada. This includes the importation of LNG, subsequent export of any regasified LNG, and the potential export of LNG.

In addition, related specifically to the Canaport LNG facility, the NEB regulates the Brunswick Pipeline which delivers the output from the Canaport facility to potential markets via the Maritimes & Northeast Pipeline.

However, there are no specific regulations governing prices and terms of service in the LNG sector.

## 4.3 MEXICO

### 4.3.1 LNG in Mexico

Currently, there are two LNG regasification terminals in operation in Mexico, Altamira and Energia Costa Azul<sup>211</sup>. Furthermore, the LNG terminal in Manzanillo is expected to begin operations in 2011. Additional LNG regasification terminal projects that are either under construction or are proposed:

- Lázaro Cárdenas LNG terminal
- Sonora LNG terminal

<sup>211</sup> <http://www.cre.mx/documento/648.pdf>





Terminal	Operator	Description
<b>Altamira LNG</b>	Gas Litoral	<p>In August 2006, the Altamira LNG terminal in Mexico received its first cargo of LNG. The terminal is a joint venture of Royal Dutch Shell (50%), Total (25%) and Mitsui &amp; Co (25%)<sup>212</sup>. The terminal consists of two LNG storage tanks of 150,000 m<sup>3</sup> and can accommodate ships of up to 200,000 m<sup>3</sup> in size.</p> <p>LNG cargos are delivered by Gas Litoral, which is a subsidiary of Shell (75%) and Total (25%), and holds a 15-year contract to supply.</p> <p>More information is detailed below.</p>
<b>Energia Costa Azul LNG</b>	Sempra Energy	<p>Energia Costa Azul<sup>213</sup> is a LNG terminal owned by Sempra Energy, which is located at 15 miles north of Ensenada. The construction began in the first quarter of 2005 and the commercial operations in May 2008. The plant represents an investment of \$975 million dollars and has the capacity of processing 1 bcf/d of natural gas. The gas processed by this terminal is used by power generating plants and diverse industries in the region via a 45-mile gas pipeline. The terminal consists of two LNG storage tanks of 160,000 m<sup>3</sup>.</p> <p>More information is detailed below.</p>
<b>Manzanillo LNG</b>		<p>The Manzanillo<sup>214</sup> LNG Terminal is being built by Mitsui &amp; Co., Samsung Heavy Industries Co. and Korea Gas Corp. It is located in the Port of Manzanillo (in the Pacific coast of Mexico). The terminal will consist of two LNG tanks. The project requires an investment of \$350m and is expected to begin operations in 2011. Repsol YPF has signed a 15-year deal to supply the terminal.</p>
<b>Lázaro Cárdenas LNG</b>		<p>In 2004, Spanish major Repsol YPF filed an application to build a small LNG regasification plant but abandoned the project in 2007.</p> <p>The Mexican Pacific coast has gained this project after local infrastructure firm Indi Group and South Korean conglomerate STX resurrected plans for a regasification terminal at the port of Lázaro Cárdenas<sup>215</sup>. The terminal will have a capacity of 3.8mn tonnes a year. The partners plan to invest US\$700mn in the project. STX intends to construct two 200,000 m<sup>3</sup> LNG vessels to be used for the project.</p> <p>Imported gas is to be sold to state energy company Petróleos Mexicanos (Pemex), which will resell it to utilities in central Mexico.</p> <p>STX is hoping to begin a feasibility study for the Lázaro Cárdenas LNG plant by mid-2010.</p>

<sup>212</sup> <http://www.hydrocarbons-technology.com/projects/altamiralngmexico/>

<http://www.altamiralng.com.mx/>

<sup>213</sup> <http://www.energiacostaazul.com.mx/>

<sup>214</sup> <http://www.egcfe.ewg.apec.org/publications/proceedings/EGCFE/>

<sup>215</sup> <http://store.businessmonitor.com/article/327827/>

<http://www.allbusiness.com/energy-utilities/oil-gas-industry-oil-processing-products/14031664-1.html>



		The Lázaro Cárdenas terminal is expected to become operational in 2015.
<b>Sonora LNG</b>		<p>The Sonora<sup>216</sup> Terminal is located in Puerto Libertad (Sonora) and is a joint venture of El Paso and DKRW Energy. This project will provide unique access to the emerging Southwest US and Northwest Mexico natural gas markets. The terminal will consist of three LNG storage tanks of 180,000 m<sup>3</sup>. The regasification capacity will be 1.25 bcf/d. Natural gas will be shipped from sources yet to be determined.</p> <p>The Sonora state government fully supports the project and acknowledges that developing a competitive source of natural gas as well as new LNG-driven natural gas infrastructure is essential to accomplish the industrial growth, economic and environmental goals of the region. With the approval of three key environmental permits, strong state and municipal governmental support, and proven technology the Sonora Terminal is positioned to rapidly reach financial close.</p>

#### 4.3.2 General Overview

Mexico is one of the few countries that has liberalised its natural gas midstream and downstream industry without liberalising and allowing competition in the production.

In 1995, Congress allowed private participation (national and foreign) in the transportation, storage (including LNG liquefaction and or regasification terminals), distribution and marketing of natural gas in Mexico. Originally, such activities were exclusively reserved to Pemex-Gas y Petroquímica Básica (PGPB), one of the four operating subsidiaries of Pemex. In that same year, the Natural Gas Regulations were published by the government, implementing the liberalisation. In 1998 new environmental norms calling became effective, making natural gas the best choice for end-users, particularly for industrial customers. A new federal agency was created in order to enforce the natural gas and electricity laws and regulations: the Energy Regulatory Commission (CRE).

In 2008, Congress passed a series of amendments intended to modernise the Mexican oil and gas industry, including the creation of a federal agency, the National Hydrocarbons Commission (CNH), in charge of regulating and supervising the upstream sector, for the first time in Mexican history. Likewise, this series of amendments and new statutes included a number changes to the organisation of Pemex and the legal framework that regulates it, in an effort to improve its corporate governance rules and practices and provide it with further budgetary, organisational and operating autonomy and flexibility.

The import of natural gas is not a regulated activity; any person may import gas into Mexico. The largest importer-shipper of natural gas in Mexico is Pemex and just recently, CFE (Comisión Federal de Electricidad). No import duties are payable for the importation of natural gas into Mexico.

In order to operate a natural gas storage facility, different types of governmental permits and authorisations are required from federal and local authorities, the most important being the permit granted by the CRE.

<sup>216</sup> <http://www.dkrwaf.com/fw/main/Overview-45.html>  
<http://www.gnlsonora.com/>



There are two types of LNG storage permits: open-access and self-use. All companies are obligated to provide open-access to their systems on a non-discriminatory basis to any person that requests their services, as required under the relevant GTS (General Terms of Service approved by the CRE). Open-access permit holders are heavily regulated and supervised by the CRE.

The GTS is normally an all-encompassing document which includes the type of services offered by the storage company, the terms and conditions regarding the provision of such services and the rates approved by the CRE. Each GTS is available at the CRE, and can only be amended upon the prior approval of the CRE. Issues omitted or not adequately covered under the relevant GTS may be addressed in the gas storage-regasification agreement to be signed by the permittee and the users. A template of such agreements is attached to the relevant GTS, which agreement incorporates by reference the provisions stipulated under the GTS.

#### Altamira LNG Terminal

This terminal is located near Tampico on the east coast of Mexico. In August 2006, the terminal received its first cargo of LNG.

The terminal consists of two LNG storage tanks of 150,000 m<sup>3</sup>, open rack vaporisers and pipelines. Besides, the terminal can accommodate ships of up to 200,000 m<sup>3</sup> in size.

The Altamira LNG terminal has been constructed (construction began in 2003) because of fast growing natural gas demand in north-eastern Mexico.

LNG cargos are delivered by Gas Litoral, which is a subsidiary of Shell (75%) and Total (25%) and holds a 15-year contract to supply.

Comisión Federal de Electricidad (CFE), a company created and owned by the Mexican government, has contracted to purchase 5.2 bcm of regasified LNG per year from Altamira (equivalent to 3.9 million tonnes of LNG per year) for 15 years, which is being used for power generation to support existing and future industry in the region.

#### Energía Costa Azul LNG Terminal

Energía Costa Azul is a LNG terminal owned by Sempra Energy and located 15 miles north of Ensenada. The terminal represents an investment of \$975 million dollars and has the capacity of processing 1 bcf/d of natural gas, with room for expansion. The construction began in the first quarter of 2005. Energía Costa Azul is the first LNG receipt terminal on North America's west coast. Commercial operations began in May 2008. The gas processed is being used by power generating plants and diverse industries in the region via a 45-mile gas pipeline.

The terminal consists of two LNG storage tanks of 160,000 m<sup>3</sup>.

On October 12, 2004, Sempra LNG<sup>217</sup> announced the signing of a 20-year sales-and-purchase agreement with BP and its Tangguh LNG partners for 500 million cubic feet of natural gas a day. This agreement covers half of the total capacity of the terminal. A few days later, Sempra LNG announced the signing of another 20-year agreement that provides Shell with the remaining half of the terminal's initial capacity.

<sup>217</sup> <http://www.sempralng.com/Pages/Terminals/Energia/default.htm>





On January 11, 2005, Sempra LNG was awarded a 15-year natural gas supply contract by Mexico's state-owned electrical utility, Comisión Federal de Electricidad (CFE). The contract is estimated at \$1.4 billion over its life and supports the CFE's future energy requirements in northern Baja California, including the Presidente Juárez power plant in Rosarito. Starting in 2008 and running through 2022, the agreement provides CFE with an average of about 130 million cubic feet per day (MMcf/d) of natural gas. The long-term CFE sales contract will consume more than one quarter of the 500 MMcf/d Sempra LNG is procuring from Indonesia.

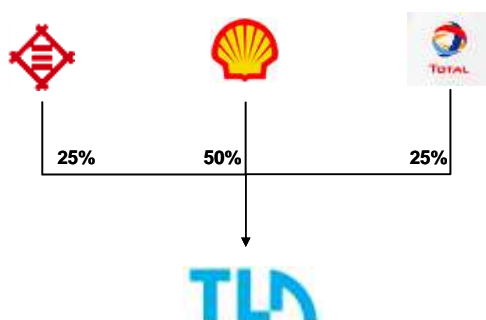
On April 18, 2008, the Al Safliya, a 210,000 cubic meter ship, brought the first LNG cargo from Qatar used to successfully cool down the terminal. The second ship, the Bluesky, arrived three weeks later with LNG from Trinidad. The performance tests were successfully completed and earned us approval from the CRE to begin commercial operations on May 14, 2008.

### 4.3.3 Ownership structure and unbundling requirements

#### Altamira LNG Terminal

The terminal is a joint venture of Royal Dutch Shell (50%), Total (25%) and Mitsui & Co (25%)<sup>218</sup>. Commercial operation had commenced on September 30, 2006.

**Figure 83: Altamira LNG Terminal shareholder structure.**



#### Energía Costa Azul LNG Terminal

Energía Costa Azul LNG is owned 100% by Sempra LNG.

<sup>218</sup> <http://www.hydrocarbons-technology.com/projects/altamiralngmexico/>  
<http://www.altamiralng.com.mx/>





**Figure 84: Energía Costa Azul LNG Terminal shareholder structure.**



No ownership unbundling requirements for LNG operators are in place in Mexico.

#### **4.3.4 Access Rules**

There are two types of natural gas storage permits: open-access and self-use. All companies are obligated to provide open-access to their systems on a non-discriminatory basis to any person that requests their services.

The capacity will be available each time that:

- The user signs a contract with the operator. In the case of a Storage Service in Firm Base, the contract will be, at least, for a period of 5 years.
- In the case of a Storage Service in Interruptible Base, the users have to demonstrate that they have the capacity rights in the downstream network.
- The user has to provide the Financial Guarantees to the Operator. This Financial Guarantees are shown below.

#### **4.3.5 Services Offered**

The LNG terminal allows:

Reception of LNG carriers

Unloading their cargo

Storage in tanks

LNG regasification and send-out of regasified LNG to the transmission network

Other types of services can be contracted:

Storage Service in Firm Base (SABF): The Operator can carry out an open-season process, in order to get new applications for the available capacity.

Storage Service in Interruptible Base (SABI)

Additional storage: These services are allocated during an open-season process.



#### **4.3.6 Capacity allocation procedures**

The Operator will allocate capacity based on the maximum quantity requested.

When two or more applicants request the same capacity, the allocation procedures are based on the *First Come/First Served* principle.

#### **4.3.7 Long term/ short term capacity offering requirements**

No capacity ratio must be reserved for long term or short term capacity contracts.

#### **4.3.8 Contracts duration**

##### Altamira LNG Terminal

As stated above, in the case of a Storage Service in Firm Base, the contract will be at least for a period of 5 years. Whereas, in the case of a Storage Service in Interruptible Base, the contract will be at least for one month.

##### Energia Costa Azul LNG Terminal

For Storage Service in Firm or Interruptible Base will be at least for a period of 7 years. In the case of renovation of the contract, the minimum period will be 5 years.

#### **4.3.9 Programming / Nomination procedures**

##### Altamira LNG Terminal

- *Nominations relating to unloading operations:*

The User will provide the Operator with the following information about the ship arrival:

The Day the LNG is to be received,

the Quantities of LNG to be received,

the molecular composition and Heating Value of LNG,

the source of the LNG,

and, the estimated saturated pressure and temperature of the LNG on arrival at the Terminal.

User shall send a Fax to Operator, in order to inform about the date and hour of arrival at the Terminal as well as the estimated quantity of LNG which is to be unloaded. User shall send or cause to be sent to Operator the following written designation notices:



A first designation notice shall be given 48 hours before the departure of User's Vessel from the port of origin. At this moment, the Operator will indicate to the User if the unloading could be to the date and hour of arrival scheduled;

a second designation notice shall be given upon departure of User's Vessel from the port of origin;

a third designation notice shall be given so as to arrive 96 hours prior to the estimated time of arrival;

a fourth designation notice shall be given so as to arrive 72 hours prior to the estimated time of arrival;

a fifth designation notice shall be given so as to arrive 48 hours prior to the estimated time of arrival;

a sixth designation notice shall be given so as to arrive 24 hours prior to the estimated time of arrival;

a seventh designation notice shall be given so as to arrive 12 hours prior to the estimated time of arrival; and

a final designation notice shall be given when the User's Vessel is located 15 miles from the Terminal.

#### - Monthly nominations at the LNG Terminal

Five days before the month M-1 ends, the User of the LNG terminal shall send the month schedule regarding the amount of LNG that they estimate to consume. The amounts nominated cannot exceed the minimum of these two criteria:

The Maximum Daily Quantity specified in the contract multiplied by the number of days that the service is request, or

the User's available storage volume in the first day of the service month. Nevertheless, when the volume is not enough, the Operator could accept the nomination if the User have scheduled LNG unloads during the month.

These nominations can be modified under User request.

#### - Daily nominations at the LNG Terminal

Each day D, the User can nominate the daily quantity to be send-out on day D+1.

The daily nominations cannot exceed to the Maximum Daily Quantity of each User.

#### Energia Costa Azul LNG Terminal

#### - Nominations relating to unloading operations:



The User will provide the Operator with the following information about the ship arrival:

The Day the LNG is to be received,

the Quantities of LNG to be received,

the molecular composition and Heating Value of LNG,

the source of the LNG,

and, the estimated saturated pressure and temperature of the LNG on arrival at the Terminal.

Users shall give written notice to Operator of the date and hour of arrival at the Terminal as well as the estimated quantity of LNG which is to be unloaded. User shall send or cause to be sent to Operator the following written designation notices:

A first designation notice shall be given upon departure of User's Vessel from the port of origin and shall contain an estimated time of arrival;

a second designation notice shall be given so as to arrive 96 hours prior to the estimated time of arrival;

a third designation notice shall be given so as to arrive 72 hours prior to the estimated time of arrival;

a fourth designation notice shall be given so as to arrive 48 hours prior to the estimated time of arrival;

a fifth designation notice shall be given so as to arrive 24 hours prior to the estimated time of arrival;

a final designation notice shall be given so as to arrive 5 hours prior to the estimated time of arrival at the Terminal.

Before the first of January of the year Y-1, the User will send the annual programme to the Operator. The 15<sup>th</sup> of January, the Operator will confirm the User whether the nominations are feasible. The 1<sup>st</sup> of March is the announcement date for the final nominations which from then onwards will be considered as firm.

In the case of the three-monthly nominations, before the 15<sup>th</sup> day of each month, the user shall send the quarterly nomination schedule, which can actualise the annual program.

- Monthly nominations at the LNG Terminal

15 days before the month M-1 ends, the User of the LNG terminal shall send the month schedule regarding the amount of LNG that they estimate to consume.

- Daily nominations at the LNG Terminal



Each day D, the User can nominate the daily quantity to be send-out on day D+1.

- Renominations during the day at the LNG Terminal

The user may adapt its nominations during the Gas day. These nominations are only used in the event of a change made to the initial nomination.

#### **4.3.10 Congestion management procedures (CMPs)**

In order to avoid congestion situations at the Altamira LNG terminal, the Operator allows capacity transfers between the Users of the Terminal using the secondary market (see “Secondary Market”).

No other CMPs are established.

#### **4.3.11 UIOLI**

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#### **4.3.12 Method for calculating usable, available and unused capacities**

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#### **4.3.13 Send-out requirements**

##### Altamira LNG Terminal

The Users have 180 days from the unloaded of the LNG in the terminal, in order to show the Operator the nominations or to start sending-out the Storage Volume. In the case that the user would not do it, the Operator could purchase such LNG.

The Operator is not obligated to send-out Natural Gas to the transmission network if this involves that the volume in the tanks will be lower than the minimum permitted level.

Everyday that the nominated amounts for all the users are lower than 40,000 Gcal: the users will be obligated to receive a Gas quantity equal to the difference between the 40,000 Gcal and the total amount of gas nominated for all the users such day multiplied by the maximum storage quantity of each user divided by the maximum storage quantity of all the users.

##### Energia Costa Azul LNG Terminal

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#### **4.3.14 Gas quality requirements**

The gas quality requirements are available at CRE’s website (“Normal Oficial Mexicana” NOM-001-SECRE-2003, which substitutes to the NOM-001-SECRE-1997).

**Table 107: Gas quality requirements at the Mexican LNG terminals.**

	Unit	Min	Max
O <sub>2</sub>	% Vol.	-	0.2
N <sub>2</sub>	% Vol.	-	5.0
CO <sub>2</sub>	% Vol.	-	3.0
Humidity (H <sub>2</sub> O)	mg/m <sup>3</sup>	-	112
H <sub>2</sub> S	mg/m <sup>3</sup>	-	6.1
S	mg/m <sup>3</sup>	-	150.0
Gross Calorific Value	MJ/m <sup>3</sup>	35.42	41.53
Wobbe Number	MJ/m <sup>3</sup>	45.8	50.6
Hydrocarbon dewpoint temperature (1-8000 kPa)	K (°C)	-	271.15 (-2)

#### **4.3.15 Balancing regime/Management of LNG stock levels**

See “Programming / Nomination procedures” and “Send-out requirements”

#### **4.3.16 Own consumption record and gas in kind**

##### Altamira LNG Terminal

The Operator will retain in concept of gas in kind not more than the 2% of the amount of Gas which is specified in the monthly nomination.

##### Energia Costa Azul LNG Terminal

In concept of gas in kind, the Operator has the right to utilise user's gas without cost. The quantity will be equal to the storage quantity of each user multiplied by the percentage of Gas needed to operate the system (currently is 1.25%). This percentage will be revised each year by Energia Costa Azul and published with the Regulated tariffs.

#### **4.3.17 Charges and penalties for imbalance, cancellation and other, including Ship-or-Pay and minimum payment obligations.**

##### Altamira LNG Terminal

The user will pay 250 Mexican Pesos for each non-authorized Gcal. The user should also pay taxes and related dock tariffs. The contract defines “Non-authorized quantities” as the positive difference between (i) the quantity of gas received by the user any day at the delivery point and (ii) the daily available capacity.

If the unloading has not been completed during the allow time for unloading, the user will pay to the Operator all costs incurred as a result of the failure to arrive at the Terminal as scheduled.



### Energia Costa Azul LNG Terminal

- Unloading of a LNG carrier:

Penalties for delays in the unloading of LNG carriers are described in the General Conditions document. If the unloading has not been completed during the allow time for unloading (except when it is an Operator's fault) the Operator will incur the lower of the following penalties:

- a) 2,700 dollars for each hour of delay, or
- b) all costs incurred by Energia Costa Azul as result of the failure to arrive at the Terminal as scheduled.

- Regasification

If the Operator cancels or interrupts the service, the penalty will be equal to five times the charge of the storage service.

### **4.3.18 Financial guarantees**

Acceptance of a user's service request is contingent to a credit appraisal by Altamira LNG.

The user should get credit appraisal BB+. However, the Operator can determine that the User needs additional Financial Guarantees, in this case an advance deposit or a Standby Irrevocable Letter of Credit can be requested.

Besides, if the user's financial conditions change during the term of the contract, the Operator can require new Financial Guarantees.

### **4.3.19 Secondary Market**

Users may transfer all or part of its rights and obligations to a third party. Each of the parties involved in the exchange need to sign a contract.

The user will provide the Operator with a copy of the contract.

Besides, in the case of Energia Costa Azul, the Operator will establish and keep an electronic system where the users can announce the capacity that they want to transfer.

### **4.3.20 Limitation in vessel size**

The terminals can accommodate ships between:

**Table 108: Limitation in vessel size at Altamira LNG and Energia Costa Azul Terminals**

	Altamira LNG	Energia Costa Azul
Minimum (m <sup>3</sup> )	-	70,000
Maximum (m <sup>3</sup> )	200,000	200,000



#### **4.3.21 Force Majeure**

Force majeure means any event or condition or combination of them which prevents, hinders, or delays the performance of any obligation, in whole or in part, under the applicable Service Agreement, which is not within the reasonable control of the party claiming suspension by reason of force majeure and which the party claiming suspension is unable to prevent or overcome by the exercise of due diligence.

If either party to the applicable service agreement is rendered unable, wholly or in part, by force majeure to carry out its obligations under the applicable service agreement, then such party shall give notice and reasonably full particulars of such force majeure in writing to the other party within a reasonable time after it becomes aware of the occurrence of the force majeure, and the obligations of such party, insofar as they are affected by such force majeure, shall be suspended from the commencement of such force majeure through the continuance of any inability so caused, but for no longer period, and such force majeure shall so far as possible be remedied with all reasonable dispatch.

#### **4.3.22 Ship Approval Procedure at LNG Terminal**

User must guarantee that the Ship fulfills all the Terminal's specifications, which are provided for the Operator in the General Conditions documents. In the case that the user does not provide the security measures, the Operator is not obligated to allow Ship's unloading.

#### **4.3.23 Standard contracts**

##### Altamira LNG Terminal

The service agreements forms are available at Altamira LNG website (the document's name is "Permiso Núm. G/138/ALM/2003").

##### Energía Costa Azul LNG Terminal

The service agreements forms are available at Energía Costa Azul LNG website in the General Conditions document.

#### **4.3.24 TPA Tariffs**

The tariffs shall be non-discriminatory. The Operator will publish the Tariffs, which are approved by the CRE, at least, once a year in the official journals of Mexico and of the State of Tamaulipas (*Diario Oficial de la Federación* and *periódico oficial del Estado de Tamaulipas*). The Operator will not make the tariffs conditional on the additional services.

##### Altamira LNG Terminal

Current tariffs were published in the *Diario Oficial de la Federación* of 4<sup>th</sup> March 2010:

Tariff for Storage Service in Firm Base: \$1.8220 pesos/Gcal/day

##### Energía Costa Azul LNG Terminal





Current tariffs were published in the *Diario Oficial de la Federación* of 4<sup>th</sup> June 2009:

Tariff for Storage Service in Firm Base: 0.3361 \$US/Gcal/day  
Tariff for Storage Service in Interruptible Base: 0.3358 \$US/Gcal/day  
Tariff for additional storage: 0.1512\$US/Gcal  
Tariff for additional send-out: 1.2743\$US/Gcal

The user can pay these tariffs or the conventional tariffs. The conventional tariffs will not be lower than the minimum permitted tariff that is calculated using the variable price.

#### **4.3.25 Capacity booking procedures**

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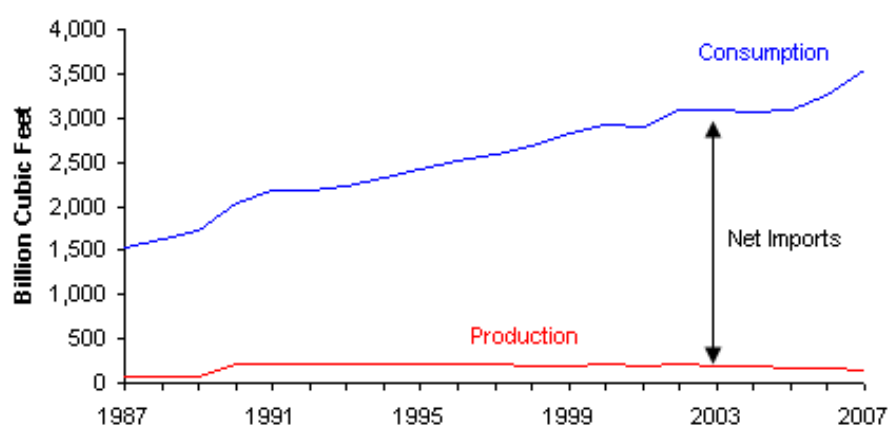
## 5 Regulatory overview of LNG terminals in Asia.

### 5.1 Japan.

#### 5.1.1 LNG in Japan.

Although Japan has very limited domestic natural gas reserves, it is a large natural gas consumer. Being national production around 4% of total consumption Japan must rely on imports for virtually all of its natural gas needs:

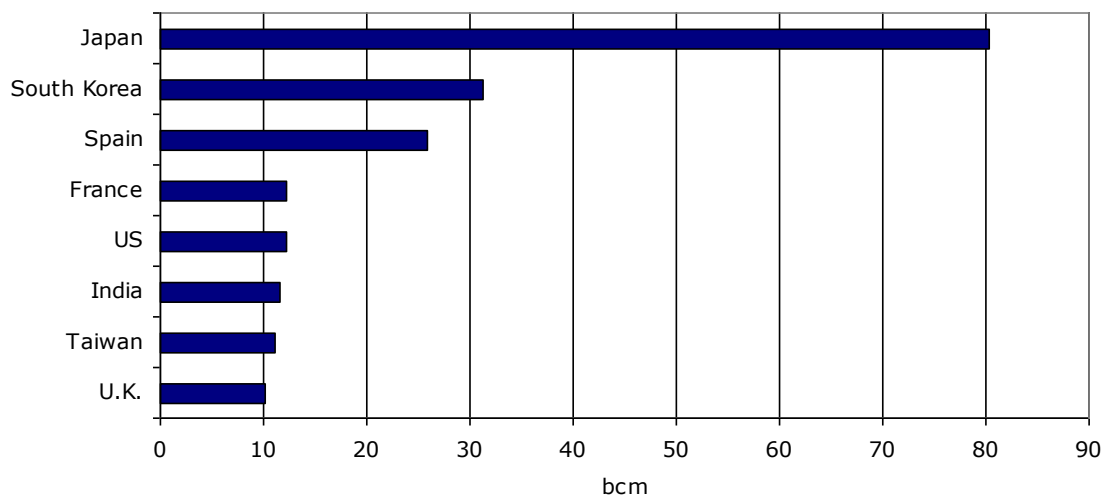
**Figure 85: Japan's Natural Gas Production and Consumption, 1987-2007.**



Source: U.S Energy Information Administration.

Lacking international pipeline connections, Japan is the largest importer of LNG in the world, as shown in the figure below, and accounts for about 40 percent of global LNG imports.

**Figure 86: Top World LNG Importers, 2009.**



Source: GIIGNL, "The LNG Industry 2009".



Although Japan is a large natural gas consumer, it has a limited domestic natural gas pipeline transmission system. The length of the high-pressure network is around 4,500 km, but the trunk line networks have developed separately around particular LNG terminals and are not necessarily connected to each other. This is partly due to geographical constraints posed by the country's mountainous terrain, but it is also the result of previous regulations that limited investment in the sector. Reforms enacted in 1995 and 1999 (see below) have helped open the sector to greater competition, and a number of new private companies have entered the industry since the reforms.

Japan has near 30 operational LNG terminals, with some more planned or proposed to come on line in the future. In total, the country has import capacity of near 250 bcm per year, the largest import capacity in the world. LNG storage capacity is over 15 million cubic meters.

**Map 17: Location of main LNG terminals in Japan.**



**Source:** GIIGNL, *"The LNG Industry 2009"*.

Most LNG terminals are located around the island nation's main population centres of Tokyo, Osaka, and Nagoya. Domestic power companies with natural gas-fired electric capacity own many of Japan's LNG facilities, often in partnership with natural gas distribution companies. These same companies own much of Japan's LNG tanker fleet. Power plants, which account for most of the consumption, are generally very near to the LNG terminals, so LNG is transported to the power plants by very short pipelines from the terminals also owned by the power companies. LNG satellite plants are frequently used to supply customers located far from LNG terminals. LNG trunks, railway containers and domestic ships are used to transport the LNG from the LNG terminals to the LNG satellite plants.

Table 109: LNG terminals in Japan.

Site	Storage		Send out		Owner	Operator	T.P.A.	Source of import	Start-up date
	Number of tanks	Total capacity m <sup>3</sup>	Number of vaporizers (*)	Nominal capacity billion Nm <sup>3</sup> NG/year					
Niigata	8	720 000	14	11.60	Nihonkai LNG	Nihonkai LNG	Yes	Indonesia, Malaysia, Qatar, Australia	1984
Higashi-Ongishima	9	540 000	9	18.00	Tokyo Electric	Tokyo Electric	"	Indonesia, Malaysia, Qatar, Australia, Oman, Abu Dhabi, Brunei, Darwin, Russia	1984
Futtsu	10	1 110 000	13	26.00	"	"	"	Indonesia, Malaysia, Qatar, Australia, Oman, Abu Dhabi, Brunei, Darwin, Russia	1985
Chita Kyodo	4	300 000	14	9.89	Toho Gas Chubu Elec	Toho Gas	"	Indonesia, Malaysia, Australia, Qatar	1978
Chita-Midorihamma Works	2	400 000	7	9.20	Toho Gas	Toho Gas	"	Indonesia, Malaysia, Australia, Qatar	2001
Chita	7	640 000	11	15.70	Chita LNG	Chita LNG	"	Indonesia, Malaysia, Australia, Qatar, Algeria	1983
Himeji	8	740 000	6	6.40	Osaka Gas	Osaka Gas	"	Indonesia, Malaysia, Australia, Qatar, Oman, Brunei	1984
Himeji LNG	7	520 000	8	11.00	Kansai Electric	Kansai Electric	"	Indonesia, Malaysia, Qatar, Australia	1979
Yanai	6	480 000	5	3.10	Chugoku Elec	Chugoku Electric	"	Australia, Qatar, Oman	1990
Mizushima	1	160 000	3	1.30	Mizushima LNG	Mizushima LNG	Yes	Australia, Qatar, Oman	2006
Oita	5	460 000	6	6.27	Oita LNG	Oita LNG	"	Indonesia, Australia, Russia, Algeria	1990
Sakai	3	420 000	6	8.70	Kansai Electric	Kansai Electric	Yes	Indonesia, Malaysia, Australia, Qatar	2006
Semboku I	4	180 000	5	2.94	Osaka Gas	Osaka Gas	Yes	Brunei	1972
Semboku II	18	1 585 000	15	15.70	"	"	"	Indonesia, Malaysia, Australia, Qatar, Oman, Brunei, Russia	1977
Tobata	8	480 000	9	10.28	Kita Kyushu	Kita Kyushu LNG	No	Indonesia, Australia, Sakhalin, Equatorial Guinea, Qatar	1977
Yokkaichi LNG Centre	4	320 000	8	9.20	Chubu Electric	Chubu Electric	Yes	Indonesia, Qatar, Australia	1988
Yokkaichi Works	2	160 000	3	0.88	Toho Gas	Toho Gas	"	Indonesia	1991
Negishi	14	1 180 000	16	15.40	Tokyo Gas, Tokyo Electric	Tokyo Gas, Tokyo Electric	Negotiated TPA	Indonesia, Malaysia, Australia, Qatar, USA, Brunei, Russia	1969
Sodegaura	35	2 660 000	36	41.60	"	"	Negotiated TPA	Indonesia, Malaysia, Australia, Qatar, USA, Brunei, Russia	1973
Ongishima	3	600 000	10	12.40	Tokyo Gas	Tokyo Gas	Negotiated TPA	Indonesia, Malaysia, Australia, Qatar	1998
Fukuoka	2	70 000	7	1.10	Saibu Gas	Saibu Gas	"	Malaysia	1993
Sodeshi	3	337 200	8	3.90	Shimizu LNG	Shimizu LNG	No	Malaysia, Australia, Qatar, Nigeria, Indonesia	1996
Hatsukaichi	2	170 000	4	1.15	Hiroshima Gas	Hiroshima Gas	"	Indonesia, Malaysia, Russia	1996
Kagoshima	2	86 000	3	0.30	Nippon Gas	Nippon Gas	"	Indonesia, Australia	1996
Kawagoe	4	480 000	4	7.10	Chubu Electric	Chubu Electric	Yes	Indonesia, Australia, Qatar	1997
Shin-Minato	1	80 000	3	0.38	Gas Bureau	Gas Bureau, City of Sendai	No	Malaysia	1997
Nagasaki	1	35 000	3	0.20	Saibu Gas	Saibu Gas	Yes	"	2003

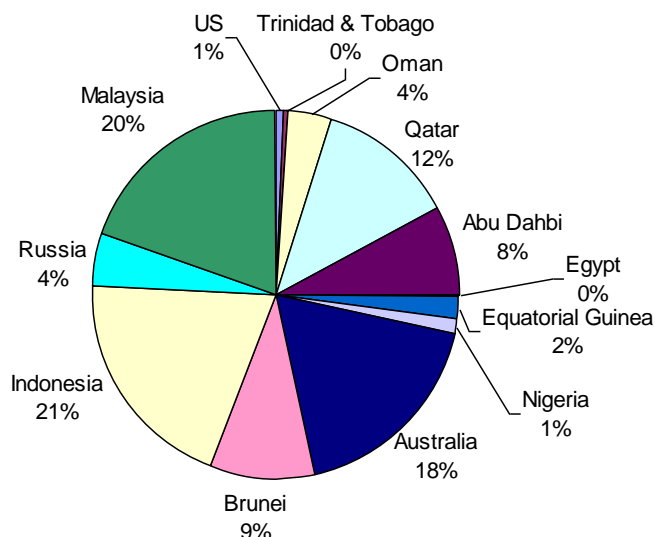
Source: GIIGNL, "The LNG Industry 2009".

Japanese regulations permit individual utilities and natural gas distribution companies to sign LNG supply contracts with foreign sources, in addition to directly importing spot cargoes. The largest LNG supply agreements are held by Tokyo Gas, Osaka Gas, Toho Gas, Chubu Electric and TEPCO, primarily with countries in Southeast Asia and the Middle East. More than 90% LNG is imported under long-term contracts. Spot contracts cover gas needs in the event of a sudden demand expansion due to factors such as severe winter weather, or unexpected power outages in other sectors.



Japan imported LNG from 13 countries in 2009, with the largest imports coming from Indonesia, Malaysia and Australia. Other countries from which Japan imports LNG include Qatar, Brunei, United Arab Emirates, Oman, the United States, Trinidad and Tobago, Egypt, Equatorial Guinea, Russia and Nigeria. In addition to long-term contracts, Japan receives a significant number of spot cargoes.

**Figure 87: LNG imports to Japan by source, 2009.**



Source: GIIGNL, "The LNG Industry 2009".

### 5.1.2 Regulation.

In Japan gas production facilities and equipment, as well as gas businesses are regulated by the Gas Utilities Industry Law, and the use of LNG outside the scope of the gas business<sup>219</sup> is regulated by other relevant laws such as the Electricity Utilities Industry Law and the Gas Safety Law. The regulations are enforced by the Ministry of Economy, Trade and Industry (METI).

Until the mid 90s, general gas utilities in Japan were allowed to supply gas exclusively in their own franchised service area. The initial measures to introduce competition in the Japanese gas market were adopted in the 1995 (and enforced in 1996):

- Partial liberalization of the retail market: customers with consumption of 2 million m<sup>3</sup> per year or more were freed up to contract for gas from somewhere other than general gas utilities;
- Price adjustment based on the fuel cost was introduced.

<sup>219</sup> The Gas Utilities Industry Law establishes four classes of "gas businesses": general gas utility businesses, community gas utility businesses, gas pipeline service businesses and large-volume gas businesses.



In 1999 (enforced in 2000) the scope of the gas retail liberalization was expanded and mandatory TPA regulation was introduced to the pipelines owned by the four major gas utilities:

- Expanded liberalization of the retail market (customers with consumption over 1 million m<sup>3</sup> per year or more);
- Regulated TPA to pipelines: the four largest gas companies (Tokyo Gas, Osaka Gas, Toho Gas and Saibu Gas) were mandated to publish TPA conditions;
- The process of gas price reduction to the regulated market changed from approval basis to notification basis (in the case of reductions or other revisions of rates that are not detrimental to user's interest).

To advance in the regulatory reform of the gas industry, the Gas Utilities Industry Law was amended in June 2003 and promulgated in April 2004. The main measures of the amended Law were:

- Expansion of TPA arrangements

In order to promote fair competition in the gas market, all businesses owning or operating gas supply pipelines were required to provide TPA and draw up and publish TPA agreements. This was intended to allow access to transportation and distribution pipelines owned by businesses not previously subject to regulation under the Gas Utility Industry Law, such as suppliers of domestically produced natural gas and electric power companies. TPA was until then only possible for retailing, but this amendment made possible TPA in the wholesale sector as well.

In order to increase the transparency of revenues and expenditures in areas involving the use of pipelines and the fairness of TPA charges, accounting procedures covering operations relating to TPA were introduced, and general gas utilities and gas pipeline operators were required to follow these procedures and disclose separate accounting data.

Incentives for the construction of new infrastructure were also included, such as exemption from the obligation to draft, file and disclose standard terms, conditions and rates for TPA to pipelines, as well as allowing higher rates of return in setting rates for TPA to pipelines.

The Law did not introduce regulated TPA to LNG terminals; instead, it was decided that TPA would be subject to negotiation between the parties concerned. Administrative authorities draw up guidelines to ensure the fairness of transactions. The latter guidelines were jointly published by the METI and the Japan Fair Trade Commission (JFTC) in August 2004. These guidelines state that it is desirable that business operators that own or manage LNG terminals create manuals for negotiations about the use of LNG terminals by third-party companies so as to clarify the preconditions and rules for such negotiations from the viewpoint of ensuring fair and effective competition. The guidelines also stipulate that, from the same viewpoint it is desirable that such business operator make sufficient information disclosure with regard to the capacity of LNG terminals, the current status of capacity utilisation and plans for future utilisation so as to enable an estimate of spare capacity.

- Expansion of scope of retail liberalization

Liberalisation of the retail market continued to expand under the Gas Utility Industry Law. In 2004, customers with consumption over 500,000 m<sup>3</sup> per year became eligible for preferred





rates as "large-volume" customers; in 2007, those with consumption over 100,000 m<sup>3</sup> per year qualified as large-volume customers.

It was announced that the expansion of liberalization to include residential customers and small-scale commercial and industrial customers using less than 100,000m<sup>3</sup> could be considered in the future, based on an assessment and examination of the above progressive expansion of liberalization, and paying attention to the liberalization situation overseas and the state of progress of liberalization in other energy fields.

An evaluation and verification of the liberalisation process began in October 2007 with the aim of reaching a timely conclusion on the issue of how to achieve complete deregulation.

### **5.1.3 Rationale for LNG access regulation in Japan.**

Before the Gas Utilities Industry Law was amended in 2003, a study group was formed under the METI to discuss basic design of the gas market reform. The group was consisted of government representatives, scholars, consumers' representatives and industry experts.

While recognizing the benefits of promoting TPA, the study group concluded in its report, published in April 2002, that LNG terminal access should be negotiated bilaterally on the commercial basis between the LNG terminal owner and the applicant on two grounds:

- "an easiness for a third party to build a terminal", and
- "difficulty for existing terminals in disclosing spare capacity".

This meant that for a foreseeable future TPA to LNG terminals was not going to be mandated by Law, and a uniform regime across all Japanese LNG terminals was not to be established.

METI and the Fair Trade Commission took this idea forward and published in a guideline in August 2004 that it is desirable that the LNG terminal owners disclose certain information on their terminals and publish the basic rules of applying for a terminal access from the perspective of fair trade.

In order to decide on the regulations on TPA to gas infrastructures in Japan, it was considered that:

- The construction of a new pipeline by a third party in Japan is extremely difficult and even not desirable due to overlapping investments; existing gas pipelines were viewed as essential facilities. As a consequence, TPA was introduced for gas pipelines.
- The construction of an LNG terminal by a third party is viewed as possible and therefore existing LNG terminals are not categorised as essential facilities. As a consequence, access conditions to LNG terminals are not under the regulatory scope of the Gas Industry Law.

There are no business restrictions on the construction of new LNG terminals in Japan, though it is necessary to meet the safety provisions of the laws relevant to LNG terminals, such as the Gas Utilities Industry Law and the Electricity Utilities Industry Law.

### **5.1.4 Effective access to Japanese terminals**

As of March 2007, since 12<sup>th</sup> August 2004, 14 companies had already published basic information and guidelines for a total of 23 terminals (out of 27 LNG terminals in Japan in 2007).



It is understood that no third party access had been granted to any company to a Japanese LNG terminal.





## 6 List of acronyms.

ACER (European Union)	- Agency for the Cooperation of Energy Regulators
AEEG (Italy)	- Autorità per l'Energia Elettrica e il Gas.
AMS (Belgium)	- Available Monthly Slots.
ARS (Belgium)	- Automatic Reservation System.
CAM	- Capacity Allocation Mechanism.
CEER (European Union)	- Council of European Energy Regulators.
CMP	- Congestion Management Procedure.
CNE (Spain)	- Comisión Nacional de Energía.
CRE (France)	- Commission de Régulation de l'Énergie.
CREG (Belgium)	- Commission de Régulation de l'Electricité et du Gaz.
CSG (GIIGNL)	- Commercial Study Group.
DOT (USA)	- Department of Transportation
DWPA (USA)	- Deepwater Ports Act.
EASEE-gas	- European Association for the Streamlining of Energy Exchange
ERGEG (European Union)	- European Regulators' Group for Electricity and Gas.
ERSE (Portugal)	- Entidade Reguladora dos Serviços Energéticos.
GDF	- Gaz de France.
GDF SUEZ	- Company formed by the merger of Gaz de France and Suez on 22 July 2008.
GIIGNL	- Groupe International des Importateurs de Gaz Naturel Liquéfié.
GGPLNG	- Guidelines for Good Third Party Access Practice for LNG System Operators, issued by ERGEG.
GLE	- Gas LNG Europe.
GTS (Spain)	- Gestor Técnico del Sistema (System Technical Manager).
JFTC (Japan)	- Japan Fair Trade Commission.
LNG	- Liquefied Natural Gas.
LSO	- LNG System Operator (used by ERGEG in the context of the GGPLNG).
MAP (Italy)	- Ministero delle Attività Produttive.



MARAD (USA)	– Maritime Administration.
METI (Japan)	– Ministry of Economy, Trade and Industry.
MSE (Italy)	– Ministero dello Sviluppo Economico (former MAP).
NEPA (USA)	– National Environmental Policy Act
NGTS (Greece)	– Natural Gas Transmission System.
NGTS (Spain)	– Normas de Gestión Técnica del Sistema (System Code).
OFGEM (Great Britain)	– Office of Gas & Electricity Markets.
RAE (Greece)	– Regulatory Authority for Energy.
RBS (Belgium)	– Rolling Berthing Schedule.
TO	– Terminal Operator.
TPA	– Third Party Access.
TSO	– Transmission System Operator.
TU	– Terminal User.
UIOLI	– Use-it-or-Lose-It.



**End of report**