CHAPTER 3: REGULATION

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Regulation, deregulation, competition and various combinations of them are not good or bad in the abstract…to make the right choice requires that we carefully balance the advantages and disadvantages of different institutional arrangements in light of the characteristics of the products and firms to which these institutions will apply.

Paul Joskow, professor of economics, MIT

1 Regulatory evolution and trends.

Regulation of the natural gas sector dates back to the early days of the industry, much before the LNG industry was established. The current situation for LNG in the UNECE region is the result of a long evolution, which has at different points of time resulted in more or less reliance on competitive market forces or on regulation.

This chapter includes a description of the general regulation and regulatory debate on access to LNG terminal in the European Union, in the United States, and in Japan, three areas where different regulatory models are in force nowadays. Given the relevance of these regulations in the EU, a detailed description of access rules in European countries is also provided. The chapter also includes an overview of representative authorization procedures in the US and the EU.

The main question on the regulation of access conditions to LNG regasification terminals is whether these infrastructures are part of the downstream, and then more likely to be essential infrastructures which must be regulated just like the transmission business, or of the upstream, and therefore a light-handed approach to regulation would be more appropriate.

This question has found different answers not only in different areas, but also over time:

> In Europe, LNG terminals were under the 1st Gas Directive in 1998 subject to regulated third party access (rTPA) or negotiated third party access (nTPA): it was up to each Member State to opt for one regime or another.
>
> Under the 2nd Gas Directive, in 2003, rTPA became the default regime, and nTPA was not anymore allowed, but at the same time exemptions to rTPA, assessed on a case-by-case basis in the light of five pre-established criteria, were allowed. This regime has remained fundamentally unchanged after the approval of the 3rd Gas Directive in 2009.
>
> In Europe nowadays both regimes (exemptions and rTPA) coexist, sometimes in the same country or market area, and in some cases even applied to the same physical terminal.
>
> In the US, LNG regasification terminals had traditionally been subject to open access obligations in the last century. However, in 2002 the Hackberry decision changed the regulatory landscape, and this decision was later codified in the Energy Policy Act in 2005. All terminals built in the first decade of the 21st century are, thus, exempted from open access obligation. However, three historical terminals remain subject to open access obligations, though their capacity is fully booked.
>
> Last, nowhere in Asia open access has been imposed on terminals. In Japan, which is the most relevant LNG market in the world, regulators, after an interesting debate a few years ago, have only established that that it is desirable that LNG terminal disclose certain information on their terminals and publish the basic rules of applying for a terminal access from the perspective of fair trade.

The debate will for sure remain open in Europe and the USA; in the former, exemptions are granted

for a given period (typically around 20 or 25 years), are adopted on a case-by-case basis, and the coexistence of both regimes is posing some challenges and raising some questions; in the latter, the current regime was only approved until 2015 and a decision on whether terminal authosised after that year will or not be subject to to open access requirement has to be made.

1.1 Europe

1.1.1 Overview.

LNG regulation in the European Union has significantly evolved in the last 15 years. Before the 1st Gas Directive was enacted in 1998, the LNG market was characterized by a lack of access regulations at a European level, and LNG terminals were typically owned by vertically integrated companies with exclusive rights over them.

The 1st Gas Directive allowed Member Sates to opt fot regulated or negotiated access. In the end-90s, LNG was present in very few countries. Spain, which was the State where LNG had the greatest weight in Europe, opted for regulated access and this, alongside a number of additional measures, facilitated the development of competition. The countries which opted for negotiated access had poor results in terms of third party-access to its terminals.

In light of these results, the 2nd Gas Directive in 2003 went further by imposing regulated access to all terminals. Nevertheless, a third-party access exemption regime was introduced, applicable to new terminals, and to expansions of existing terminals, as long as they met five criteria. In practice, this allowed to develop several terminals in Europe which would not had been built of not for this pragmatic approach; nevertheless, a significant share of new capacity has also been developed under the regulated regime. At the same time, moving to rTPA in all existing terminals, more pressure was put on operators of existing terminals to allow for effective open access.

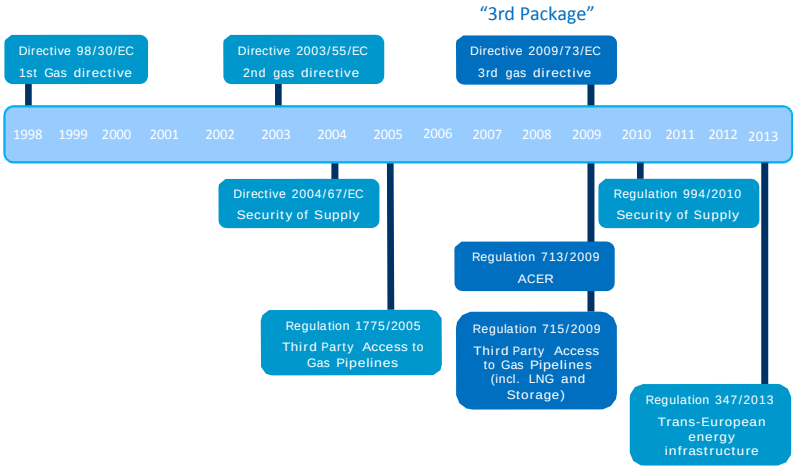
The same approach was maintained by the 3rd Gas Directive in 2009, introducing, however, further requirements on Capacity Allocation Mechanisms (CAM) and Congestion Management Procedures (CMP). Regulation 715/2009 was extended to define certain aspects related to how LNG terminal operators should offer third party access services.

Nowadays, a fair degree of competition has been achieved in the main Member States, third party access to LNG terminals is less of an issue, and many operators have been unbundled from vertically integrated companies. The latter has not been imposed by any European regulation, but the result of the unbundling of transmission companies which operate LNG terminals.

Regulation on exemptions has resulted on the coexistence of two regimes, rTPA and exemptions to it, sometimes in the same market or country, and in the case of Italy even applied to the same physical terminal.

The regulatory activity since the Third Package was passed has been focused on its implementation, and the monitoring activities led by CEER.

Figure 1: Main regulatory developments in the EU affecting LNG.



Source: *Self-made.*

1.1.2 Third Energy Package.

The main pieces of regulation as regards LNG in the European Union are Directive 2009/73/EC and Regulation 715/2009. These are integral part of the so-called "Third Energy Package", which was approved by the European Parliament and by the Council on 13 July 2009.

While the Third Energy Package is focused on the implementation of measures to ensure the independence of, and attribution of all relevant competencies to, National Regulatory Authorities (NRAs), and the effective unbundling of Transmission System Operators (TSOs) through either structural (mainly ownership unbundling) or behavioural measures, it also contains relevant measures regarding LNG operators.

As regards the natural gas sector, the Third Energy Package contains the following legal documents:

- the Gas Directive (Directive 2009/73/EC concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC)[1]
- 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)[2] and

- the Agency Regulation (Regulation 713/2009 establishing an Agency for the Cooperation of Energy Regulators)[3].

The relevance of these documents on LNG regulation in the European Union is analysed below.

1.1.2.1 Directive 2009/73/EC

According to Directive 2009/73/EC Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with the Directive by 3 March 2011.[4]

As regards specific provisions on LNG, the Third Gas Directive is in line with the Second Directive. Most of new provisions related to LNG in the Third Package have been introduced in Regulation 715/2009, since the previous regulation did not cover LNG operations at all. The Third Directive, however, strengths the role and independence of NRAs, which may have an impact on who is responsible for developing regulations concerning LNG in each Member State.

Table 1: Main articles afecting LNG operators in Directive 2009/73/EC

Article No	Title
Article 8	Technical rules
Article 12	Designation of storage and LNG system operators
Article 13	Tasks of transmission, storage and/or LNG system operators
Article 29	Combined operator
Article 31	Unbundling of accounts
Article 32	Third-party access
Article 36	New infrastructure

Article 8, "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.

It also recognizes the potential role of regulatory authorities where Member States have so provided, and the role of the Agency (ACER) on making appropriate recommendations towards achieving compatibility of technical rules, where appropriate.

Article 12, "Designation of storage and LNG system operators", establishes 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.

This article 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,

> "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*
>
> d) *provide system users with the information they need for efficient access to the system."*

with an addition referred to service obligations at the end of the first requirement:

> "e) *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, "Combined operator", maintains the clarification formerly contained in Article 15 of Directive 2003/55/EC, which states that unbundling provisions on distribution system operators (Article26(1)) *"shall not prevent the operation of a combined transmission, LNG, storage and distribution system operator"*, under certain independency requirements.

Operators. combining two or more of the activities referred in article 29 are indeed quite common in the EU, e.g., being Enagás in Spain, Gasunie in The Netherlands, Fluxys in Belgium, National Grid in Great Britain, and REN in Portugal, the only combined operators subject at the same time to ownership unbundling provisions.

Table 2: Combined operators in the EU[5]

Company	Activities			
	Transmission	**LNG**	**Storage**	**Distribution**
DESFA	✓	✓	✗	✗
Enagás	✓	✓	✓	✗
Energinet.dk	✓	✗	✓	✗
Fluxys	✓	✓	✓	✗
Gasunie	✓	✓	✗	✗
National Grid	✓	✓	✓	✓
REN	✓	✓	✓	✗
Snam	✓	✓	✓	✓
TIGF	✓	✗	✓	✗

Source: *Self-made.*

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

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 the Second Directive, the former 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. 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 Interpretative Note on Directive 2009/72/EC and on Directive 2009/73/EC, regarding "the regulatory authorities":[6]

> *"a single national regulatoryauthority at national level must be entrusted with all the regulatory duties provided for in the Electricity and Gas Directives. This means that the core duties of the NRA can no longer besplit between the NRA and the Ministry."*
>
> *"the NRA can no longer be part of a Ministry. The Commission's services are of the opinion that e.g. sharing personnel and sharing offices between the NRA and any other (public or private) body is, in principle, not in line with Article 35(4)(a) of the Electricity Directive and Article 39(4)(a) of the Gas Directive"*

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;*
>
> *(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.

> *"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."

Although exemptions are granted by NRAs 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.[1] 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, 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 was allowed if an exemption was not granted.

A new element of the procedure is the emphasis made on Capacity Allocation Mechanisms (CAM) and Congestion Management Procedures (CMP). 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.*

[1] The two month period may be extended by one additional month where additional information is sought by the Commission.

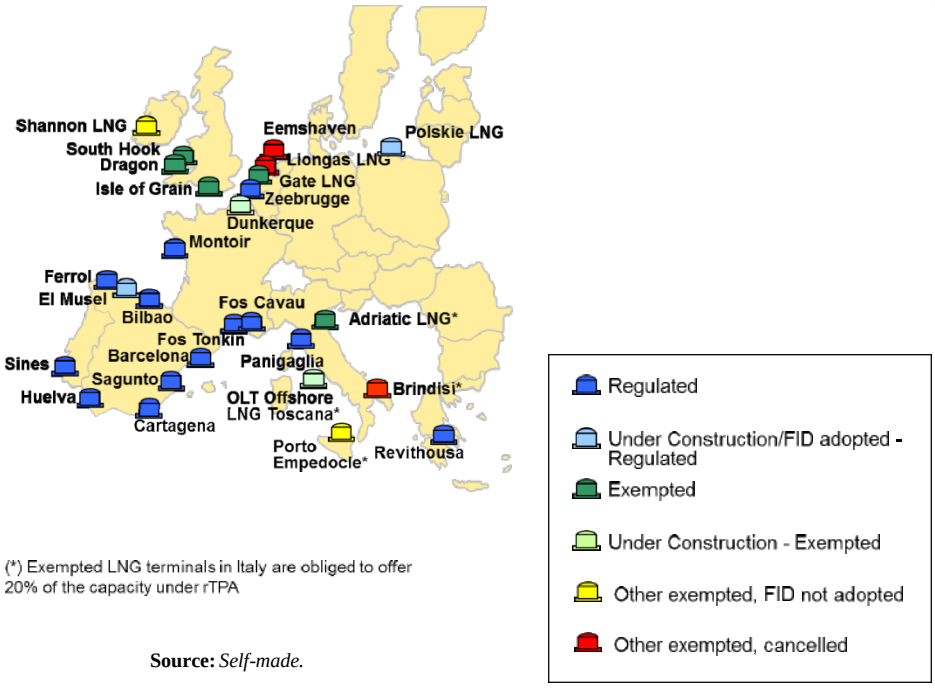
This is in line with the Commission's and ERGEG and CEER's efforts to monitor and, to certain extent, harmonise, aspects of CAM and CMP at least for regulated LNG terminals.

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 provisions 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.

Regulation on exemptions introduced by the Second Gas Directive has resulted on the coexistence of two regimes, rTPA and exemptions to it, sometimes in the same market or country, and in the case of Italy even applied to the same physical terminal. This is shown in the figure below:

Figure 2: Regulated vs. Exempted LNG terminals in the European Union.



Source: *Self-made.*

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

Table 3: 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 *Only 20% of capacity subject to rTPA*	Italy	In operation (since 2009)
Fos Cavaou LNG Terminal	France	In operation (since 2010)
El Musel LNG Terminal	Spain	Under construction (est. 2014)
Polskie LNG	Poland	Under construction (est. 2014)
Arinaga LNG Terminal	Spain	Planned (est. 2018)
Arico-Granadilla LNG Terminal	Spain	Planned (est. 2017)

Source: *GLE's LNG map, May 2013* [7] *and self-made.*

Table 4: Exemptions granted to LNG terminals in the EU under Article 22 of Directive 2003/55/CE.

LNG Terminal	Country	Notification[2]	Decision date	Status
Grain LNG Terminal (expansion – phase 4)	UK	3 April 2013	4 June 2013	Planned (expansion est. winter 2016/2017)
Porto Empedocle	Italy	28 November 2011	7 May 2012	Planned (est. 2018)
Shannon LNG	Ireland	27 April 2010	26 July 2010	Planned (est. 2017)
Dunkerque LNG	France	22 October 2009	20 January 2010	Under construction (est. 2015)
Livorno LNG Terminal	Italy	11 September 2009	11 December 2009	Under construction (est. 2013)
Eemshaven LNG Terminal	Netherlands	23 July 2007 & 19 February 2009	15 May 2009	Cancelled[8]
Liongas Rotterdam	Netherlands	18 July 2007	18 October 2007	Cancelled[9]
Grain LNG Terminal (expansion – phase 3)	UK	4 May 2007	Not reported by the EC	In operation (expansion 2010)
Gate Terminal Rotterdam	Netherlands	23 November 2006	26 March 2007	In operation (since 2011)
Brindisi LNG Terminal	Italy	18 April 2005	13 September 2005	Cancelled
Dragon LNG Terminal	UK	3 February 2005	29 March 2005	In operation (since 2009)
North Adriatic LNG Terminal	Italy	3 December 2004	10 February 2005	In operation (since 2009)

[2] Notification of the exemption decision to the European Comission by the National Regulatory Authority.

8*0% of capacity exempted*				
South Hook LNG Terminal	UK	1 December 2004	10 February 2005	In operation (since 2009)
Grain LNG Terminal	UK	1 December 2004	10 February 2005	In operation (2005)

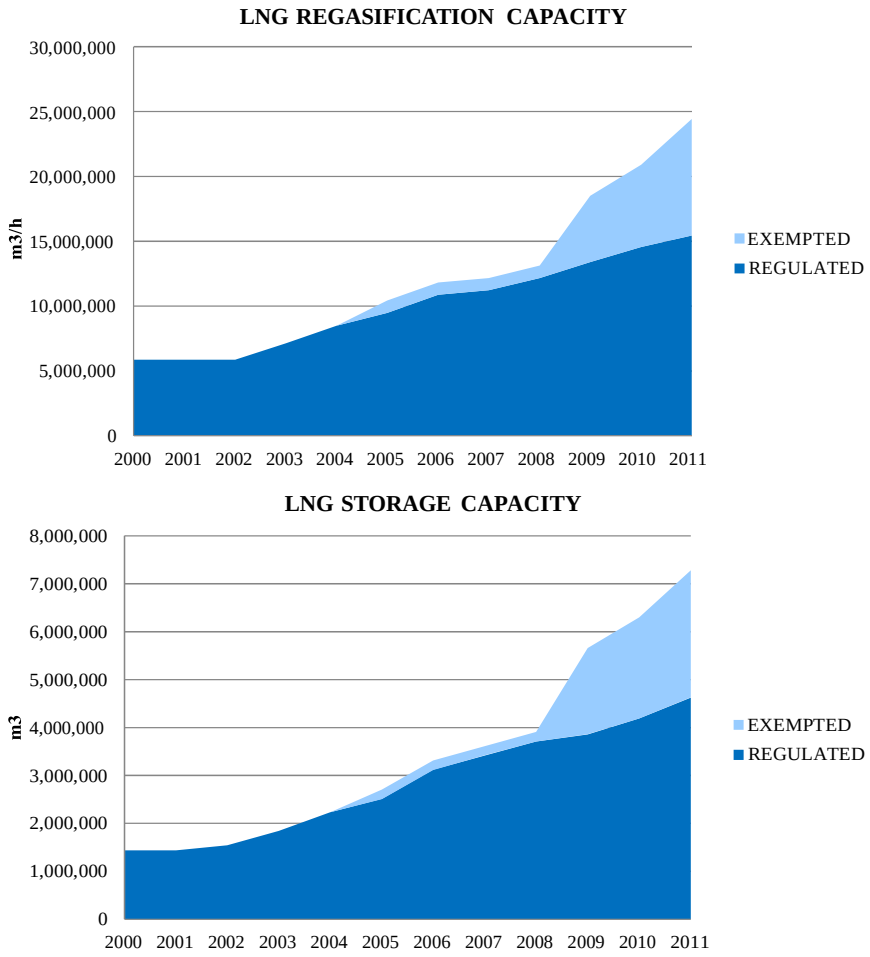
Source: *European Commission[10] and GLE's LNG map, May 2013*

Since the introduction of exemptions in Europe, most of new LNG terminals have applied for them successfully. However, contrary to the general perception:

a relevant portion of new capacity added after the Second Directive has been developed under rTPA, not only including all expansions of already existing LNG terminals, but also some new terminals.

around two thirds of the total LNG capacity is still offered under regulated conditions.

Figure 3: Regasification and LNG capacity added in the European Union since 2003 and 2005: Regulated vs. Exempted.



Source: GLE *Investment Database (various versions) and self made.*

Whether the balance will shift towards exempted terminals in the next few years is not clear. The additions of Gate LNG in 2011, the Livorno LNG terminal in Toscana, and later on Dunkerque LNG in France and Shannon LNG in Ireland, will notably increase the weight of exempted terminals. Regulated El Musel in Spain and Polskie LNG in Poland, already under construction, will also be connected, and other regulated terminals are either under expansion, or considering it.

In any case, substancial amounts of both regulated and exempted regasification and LNG storage capacities will coexist in the European Union for many years, since under provisions in the Second and Third Directive it is not possible to exempt already regulated capacities, and exemptions have been generally granted for 20 or 25 years.. Lessons learned from this coexistence of both regimes will surely influence the regulatory debate in Europe.

1.1.2.2 Regulation (EC) No 715/2009

Regulation (EC) No 1775/2005 did only cover natural gas transmission. However, Regulation (EC) No 715/2009 widened its scope to include LNG (and storage) facilities. The Regulation, as in the case of the Third Gas Directive, shall apply from 3 March 2011.

The European Commission, in the explanatory memorandum[11] of Regulation (EC) No 715/2009, highlighted the relevance of LNG to the EU, and the areas that would be regulated under the new Regulation (bold added):

> "*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.*
>
> *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, the Commission was concerned about the effectiveness of the regulatory dispositions on TPA:

> "*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 constrains 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)** is also applicable to LNG terminals exempted under Article 36 of Directive 2009/73/EC (Article 22 of Directive 2003/55/EC), consistently with the assertion by the EC that rules in the regulation *shall also serve to ensure consistency with the proposed minimum requirements on exempted infrastructure*.

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 andprocedures 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) were established for the cooperation of the independent energy regulators of Europe. Both organisations pursued 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 shared similar objectives and the work and achievements of the CEER and ERGEG were intrinsically linked until 3rd March 2011 when ERGEG disappered and its duties where transferred to the new created ACER (Agency for Cooperation of Energy Regulator).

ERGEG was set up by the European Commission (Decision of November 11, 2003 2003/796/EC)[12] 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 was 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.

Cooperation in the framework of the CEER is based on a voluntary agreement among the regulators themselves.

ACER was created by Regulation 713/2009 of the European Parliament and of the Council of 13 July 2009, established ACER[13]. The purpose of ACER is to assist the regulatory authorities at Community level, the regulatory tasks performed in the Member States and, where necessary, to coordinate their action.

1.1.3.2 GGPLNG.

In the context of the former 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[14]. Previously, a consultation process among stakeholders took place between 2007 and 2008 in order to develop the guidelines.[15]

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 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 the GGPLNG 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.

In the following sections, the requirements contained in the GGPLNG are briefly reviewed.

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 CEER.

CEER has adopted an active role in monitoring the implementation and compliance with the requirements for LNG terminals established in the GGPLNG in 2008, and has extended this monitoring and compliance analysis of LNG regulations to the Third Package.[16]

So far, ERGEG/CEER have produced three relevant regulatory documents related to these monitoring activities:

- A monitoring report of the the implementation of ERGEG's GGPLNG, in June 2009, and
- Two related studies on congestion management procedures & antihoarding mechanisms in the European LNG terminals in November 2010 and April 2011.

At the XV Madrid Forum[17], in November 2008, the European Commission approached ERGEG with a request to monitor the degree of implementation and compliance with the GGPLNG. ERGEG carried out in 2009 a monitoring exercise of the GGPLNG.[18] 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.

The overall result of the monitoring was satisfying, in particular when compared with previous GGP monitoring exercises for underground storages, although ERGEG showed some concerns on the representativity of the results for certain areas due to the low number of responses. The main outcome of the GGPLNG monitoring was presented at the XVI Madrid Forum on 28th May 2009[19], 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

As a result of the previous report, and after a workshop organised by GLE in April 2009, and a meeting with the Commission, GLE, EFET and Eurogas in July 2009, ERGEG committed to do a specific study on CMP and anti-hoarding.

In the 17th Madrid Forum, in January 2010, ERGEG presented the preliminary results of the study on CMP and anti-hoarding.[20] ERGEG already announced 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;[21] however, recommendations were not drafted until 2011. As regards the way forward the 2010 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 would 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.

The final study was released in April 2011,[22] included conclusions from the study and public consultation on CAM, CMP transparency, secondary capacity markets and access to short-term capacity for spot cargos

The analysis led to conclusions that there are several areas where regulations and procedures can be improved, or further harmonised. According to ERGEG, efforts should notably aim at eliminating barriers to the creation of secondary markets, improving transparency, introducing products that take into account the needs and constraints of small players and/or establishing notice periods

allowing for the development of spot markets. The intention of ERGEG is to build on these considerations and introduce pragmatic actions to be taken by ERGEG/CEER in 2011 and 2012; they aim to obtain suitable and concrete progress which will pave the way for further harmonisation. CEER announced in the study that:

- The work will focused on the implementation of the 3rd package transparency requirements applying to LSOs.
- CEER will make available a common template that each LSO can fill in with the existing requirements and publish this on its website in order to help the potential users identify the type of license needed, the nature of the arrangements to be signed with the LSO, the main regulatory and technical provisions applying to the terminal etc.
- A case by case study would be needed to assess the existence of capacity hoarding and to state whether the current CMPs and anti-hoarding mechanisms provide effective use of available capacity (it made clear, however, that there is no evidence that the underutilisation of capacity observed in some of the European terminals results from a deliberate intention of the primary capacity holders to block entrance to the terminal). The results from these case by case assessments could be collected and analysed by the CEER LNG TF in order to raise conclusions at the European level and eventually propose measures to tackle the potential problems and inconsistencies.
- The fact that LNG will account for an important part of the European supplies in the future should be taken into account in the discussion of the target model; LNG has benefits in terms of security of supply, market arbitrage and competition but it can also have side effects with an impact on the internal market.

Building on the findings of the Monitoring of GGPLNGs, and the conclusions of the April 2011 paper, ERGEG/CEER announced that its future work could be focused on demonstrating whether regulated or exempt LNG access regimes could be improved, mainly through the development of effective, simple and consistent CMPs. Also, according to ERGEG/CEER, analysis is needed on how more transparency regarding this issue and a progressive European harmonisation of these principles will fortify the common market.

In September 2011 CEER organized a workshop in Madrid[23] presenting the results of the study and announcing the agreement with GLE to work on a transparency template in line with the legally binding obligations of the 3rd Package. The aim is to have a harmonised tool used by all EU terminals to publish the information on their website. This must ensure that potential users can easily gather the information necessary for accessing the EU LNG terminals.

1.2 USA

1.2.1 Regulatory overview.

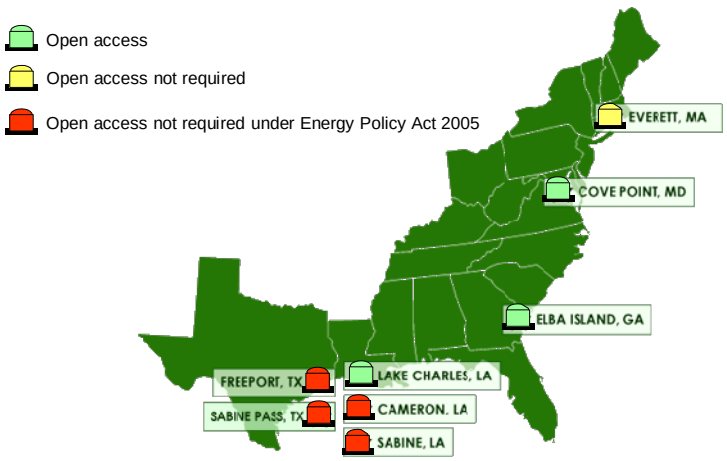
LNG terminals in the United States were for many years considered to be part of the transportation chain, and thus subject to open access service under Section 7c of the Natural Gas ct.

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.[24]

A significant policy shift took place in 2002 with the "Hackberry decision", which was later (partially) codified in the Energy Policy act 2005. This decision was consistent with the amendment of the 1974 Deepwater Ports Act made through the Marine Transportation Security Act of 2002 to include deepwater LNG ports, which clarified that a developer of an offshore LNG terminal in federal waters was not subject to the "open access" requirements or regulation of rates and terms.

All terminals approved since 2002 in the US have therefore been exempted from open access regulation.

Figure 4: LNG Terminal locations in the US (lower 48).



Source: *FERC and self-made*

1.2.1.1 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.[25] 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 was announced in FERC's decision to approve an application by Dynegy to build an LNG terminal in Hackberry, Louisiana.[26] 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 said 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[27] 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.

1.2.1.2 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.

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.[28]

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.

1.2.1.3 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:

- 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 EPAct 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.[29] 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 EPAct 2005 changed the states' authorities in this regard.[30]

Pursuant to EPAct, 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.

1.2.2 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.

The Hackberry policy has had impact not only in the US, but has fostered a lively debate in Europe and other parts of the world on the type of regulation that should be applied to foster investment in LNG import terminals. In particular, it is frequently cited by the advocates of exemptions to the regulated TPA regime in Europe as the proof that the LNG context has evolved and that LNG regasification terminals must be treated as part of the upstream.

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. The US oil and gas E&P industry consisted (and still consists) of about 5,000 companies in direct competition. LNG terminals could hardly be regarded as essential infrastructures for suppliers to compete in the market, but more likely as one more source of gas in competition with the others.

2. Domestic gas production was difficult to predict in the US, with regional independent producers directly competing with gas majors and large reserves of unconventional gas.

   There were also uncertainties on the level of natural gas production in Canada, which was 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.

3. 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.

4. 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, not present in Europe, 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

From the regulatory point of view, some interesting observations can be made:

- The Hackberry decision 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. Moreover, in the codification of the policy through the EPACT 2005, 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.

- 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. However, there are remarkable differences between the treatment of interstate pipelines in the US and the treatment of transmission systems in Europe. It is widely 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".[31]

  In the US the large-scale gas transportation industry has been from the start founded on the use of "contract carriage", while European models have traditionally been closer to the "common carriage".[32] It should be borne in mind that exemptions from rTPA in Europe under art. 22 of Directive 2003/55/EC are, in fact, a departure from the "common carriage" concept that has been traditionally applied in European countries, and still is for national pipelines, as opposed to the "contract carriage" principle applied in the USA. Through the granting of exemptions, a problem of inconsistency between the regulation of LNG terminals and gas networks might appear in Europe, but not necessarily in the US.

- As regards the fact that in the US investors in LNG projects need to be assured access to import terminal capacity, some cases in other areas suggest that in order to advance capital-intensive liquefaction projects in other countries, rTPA can also be an effective way to assure access to import terminal capacity.. In Spain national power companies of small size when compared to oil and gas majors, limited international experience at the time, and with no previous experience in LNG or natural gas, have been able to secure large amounts of LNG supplies from new liquefaction terminals or from expansions of the existing ones, without the need of exemptions for newly-built regasification terminals.[33]

- 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) remained in the sector. The most prominent example

is Cheniere Energy, which decided to develop four natural gas importing "tolling" facilities.[3] Therefore, it is 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."[34] 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."

Nevertheless, given the evolution of the market, waiving access was not only an adequate decidion in the US given the information available at the time, but has avoided placing on consumers the burden of sunk costs in LNG incurred due to the shale gas revolution.

1.2.3 The new rush for LNG export applications.

As explained in Chapter 1, the North American shale gas development has dramatically changed the LNG market and many existing and projected LNG terminals are applying for export permits for both free-trade and non-free trade export licences (for a detailed review of the status of these applications, see Chapter 1).

These applications have not triggered any further regulatory debate, but several opponents of export applications have appeared and now include several lawmakers, the American Public Gas Association (APGA) on the utility side, and, among manufacturers, the Industrial Energy Consumers of America, petrochemical producers and aluminium companies. In response, according to press reports,[35] the US Department of Energy (DOE) appears to be delaying authorizations pending a study on the price impact of outbound shipments, but it remains to be seen whether this will lead to the rejection of any application.

The DOE has in fact two studies commissioned to study the impact of LNG exports, one by an independent firm and the other form the US Energy Information Administration (EIA). The latter was released on19th January,[36] and will then be used by the private firm to conduct a wider assessment before DOE decides on the applications

1.3 Japan

1.3.1 Regulatory overview.

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[38] is regulated by other relevant laws such as the Electricity Utilities Industry Law and the Gas Safety Law. The

[3] Freeport LNG, in operation since 2008 (developed by Cheniere which then sold 70%, but maintains a 30% non-operating limited partner interest) Sabine Pass LNG, with Phase 1 in operation in 2009 (88,8%), Corpus Christi LNG (previously permitted for a regasification terminal, now reconverted to a liquefaction project) and Creole Trail LNG More information available at www.cheniere.com.

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):

1. Partial liberalization of the retail market: customers with consumption of 2 million m^3 per year or more were freed up to contract for gas from somewhere other than general gas utilities;

2. Price adjustment based on the fuel cost was introduced.

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^3 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^3 per year became eligible for preferred rates as "large-volume" customers; in 2007, those with consumption over 100,000 m^3 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^3 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.

1.3.2 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:

1. "an easiness for a third party to build a terminal", and
2. "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:

1. 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.

2. 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.

As of March 2007, since 12th 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.

2 Strategic issues affecting regulation in importing countries.

LNG can bring benefits frequently regarded as strategic by authorities and regulators, such as security of supply, flexibility and increased competition between suppliers.[39] LNG may also have some drawbacks or disadvantages, in particular when compared to piped gas, that cannot be ignored.

In this section examples are shown on the benefits and drawbacks that are frequently addressed when designing regulations. Some recent examples of policies based on these strategic considerations that may affect, positively or negatively, the development of LNG facilities, are described.

2.1 Security of Supply / Diversification of Supply.

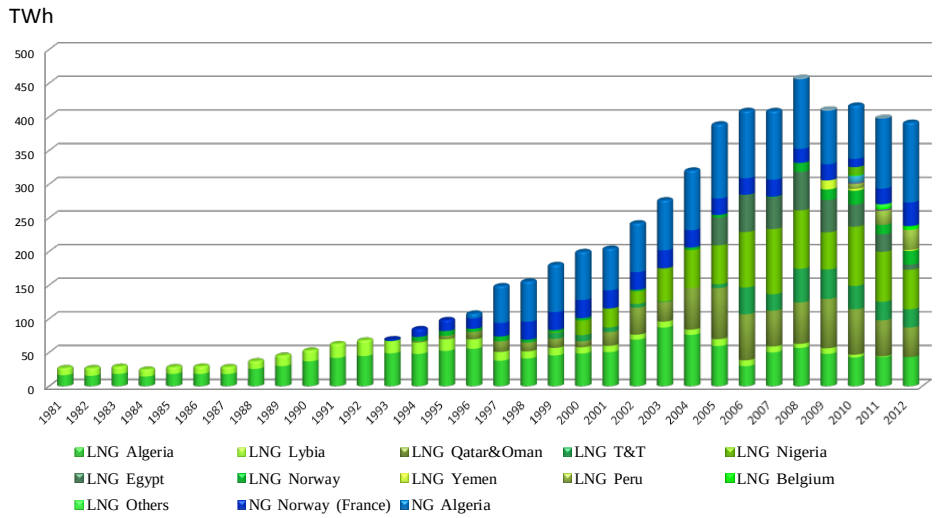
LNG generally contributes to diversification of supply more than piped gas. Diversification of supply is one of the main characteristics of security of supply. LNG terminals receive cargos from different producing countries (i.e. Trinidad & Tobago, Qatar, Nigeria, Algeria, Norway, Egypt, Indonesia, Australia, etc) and from many diverse supplying companies; this fact clearly allows importing countries to improve its supply portfolio and reduce the risk of supply disruption or supply crisis.

Investments in LNG terminals are prone to allow consuming countries to receive natural gas from more countries than investment in international pipelines. International pipeline allows delivering natural gas from just one producing country, whereas the unique nature of LNG terminals permit accepting natural gas from a great number of exporting countries.

Besides, LNG that can be transported by ship to regions where a pipeline connection is neither feasible nor economical. As mentioned in previous chapters, transmission by pipeline is cheaper for small distances. From 1,200 kilometers is more economical shipping if the pipeline is offshore and about 4,000 if the pipeline is on-shore.

An example of a market in Europe that benefited from this diversification is Spain, where LNG supplies have traditionally been the main source of natural gas. The country initially opted for LNG due to the difficulties to import pipeline gas economically. With the second expansion of LNG in the 1990s, facilitated by cost reductions in liquefaction and shipping, around a dozen of LNG sources became available (i.e. they could be reached economically).

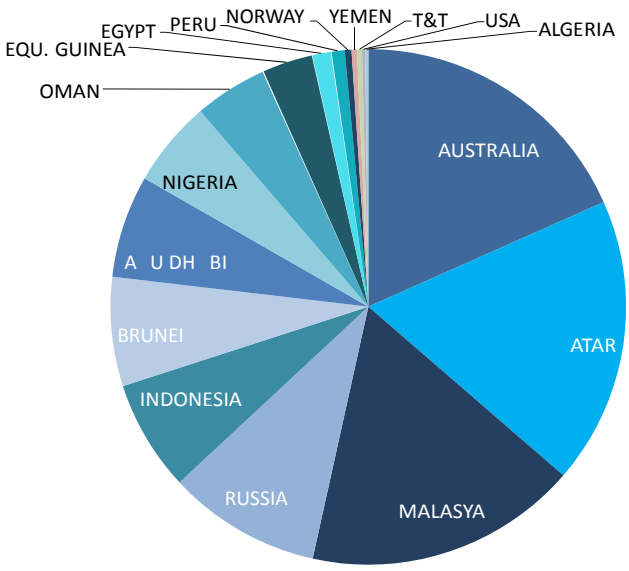
Figure 5: LNG and pipeline gas imports to Spain by source.



Source: *Enagás*

The Japanese market is also an example of an isolated market which enjoys a fair degree of diversification thanks to LNG.After the March 2011 disaster, since most of its LNG infrastructure was not damaged, Japan was able to replace the lost nuclear capacity with LNG, relying on short-term and spot cargoes. In 2012, despite the large increments of imports from Qatar, no supplier had a market share greater than 20% (Qatar, Australia and Malaysia together accounted for around 50%).

Figure 6: LNG imports to Japan by source, 2012.



Source: *GIIGNL[40] and self-made*

2.1.1 EU Regulation on Secutiry of Supply.

An example of a relatively recent regulation that might impact on the development of LNG regasification teminals is Regulation (EU) No 994/2010 concerning measures to safeguard security of gas supply and repealing Council Directive 2004/67/EC, entered into force on 2 December 2010.[41] Based on the lessons drawn from the Russian-Ukrainian gas crisis of January 2009 the legislation strengthens the prevention and crisis response mechanisms.

In the framework of the internal energy market, the Regulation ensure that Member States and gas market participants take well in advance effective action to prevent and mitigate the potential disruptions to gas supplies through new rules which include, among many other, the identification of risks to security of gas supply through the establishment of a risk assessment, and the establishment of preventive action plans and emergency plans to address the risks identified.

Member States, together with gas companies, are encouraged to coordinate their preventive actions and emergency plans at regional and European levels. Companies have to invest in the necessary infrastructure and ensure bidirectional flows where needed to secure supplies to all customers and in any case to private households in case of disruption, they have to be able to deliver gas for at least 30 days of average demand as well as in the case of an infrastructure disruption under normal winter conditions.

In particular, Member States must enhance flexibility of the gas infrastructure to cope with the

disruption of the single largest gas infrastructure (N-1), including enabling bi-directional physical capacity on cross-border interconnections where this enhances security of gas supply

The N-1 infrastructure standard, alongside the enabling of bi-directional physical flows at Interconnection Points (IPs), are the provisions that could have the greatest impact on LNG developments. While the former would generally facilitate the development of new terminals or extra capacity in existing or planned terminals, the effect of the latter is more difficult to predict and could even prevent the development of new terminals when these do not contribute to market integration but compete with interconnection projects.

2.2 Flexibility of Supply.

One of the main advantages of LNG compared with piped gas is flexibility, in the sense that LNG can be shipped there where is needed, since it is not bound to any particular route. In a way, LNG enjoys a flexibility that piped gas can only dream about.

LNG can be an excellent alternative to face short-term peaks of demand, or even seasonal needs in areas with limited possibilities to develop relevant underground storage capacity. A very cold winter or a very hot summer may lead to increased gas demand and LNG offers the flexibility to divert more gas there where it is most interesting.

However, LNG might be inflexible when it is seen as an alternative to interconnections between countries aiming at further interconnection of their markets (see *2.5 Competition and market integration.*).

Flexibility might be a double-edged sword for regulators in a globalized LNG market. For example, European terminals are since 2011 struggling to attract cargoes for their markets in a context of depressed demand in their markets and high prices in Asia and Latin America. Suppliers are maximizing their deliveries in the form of natural gas via pipeline in order to divert as many cargoes as possible to these premium markets- which includes loading cargoes in European terminals for re-export, frequently in order to avoid destination or profit-sharing clauses in long-term supply contracts. For example, diversification of supply in Spain has decreased in 2012 and is expected to decrease again in 2013 due to current market context.

2.3 Liquidity.

It has been argued by Hafner, Moraleda and Vermeire that,[42] *if liquidity is understood as the ability of a market to sustain significant buy and sell transactions without significantly altering the prices, the small number of LNG players in Europe, and also the limited volumes of non committed LNG have not provided enough liquidity so far to the gas market. In situations of supply scarcity prices have reached record peak and high volatility on both shores of the Atlantic Basin*.

Although it has been a very exceptional event, after Fukushima, it has been proved again that in these kind of situations, prices can reach record peaks due to an exceptional increase in demand in a single country.

As argued by the same authors, *nevertheless the potential contribution of LNG to market liquidity should be taken into account once more LNG projects will become operational and new players, might enter into the market. More LNG sources, several suppliers and ample LNG shipping and receiving capacity will certainly contribute to liquidity in the gas market, liquidity that will be appropriate to balance supply and demand when the latter becomes more and more variable. Not the least, to satisfy the needs of power generators who have fluctuating consumption patterns and represent a substantial and increasing share of total gas demand.*

In that sense, the unconventional gas revolution in the US has changed the landscape in the last years, increasing liquidity in the Atlantic basin. With the new export capacities that will be developed in the US, together with the planned developments that could turn Australia into the number one LNG exporter in the world by 2020, and the parallel development of the LNG carrier fleet,[4] the prospect is that by the end of this decade the LNG market will enjoy a fair degree of liquidity.

2.4 Prices.

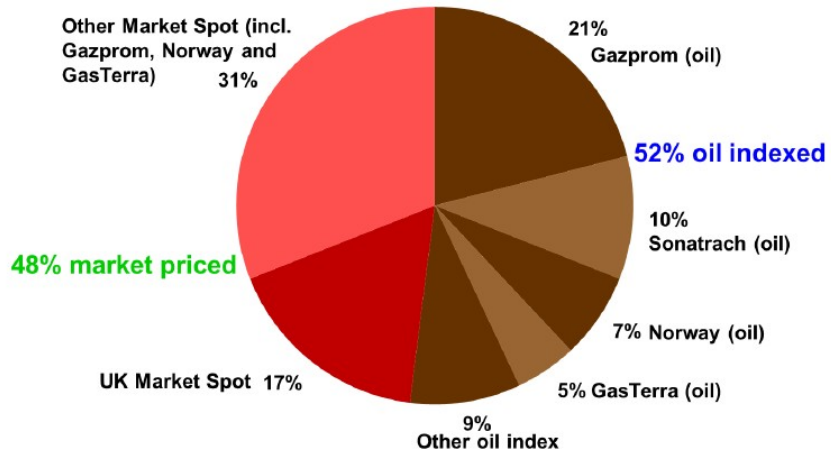
LNG has traditionally been priced as natural gas via pipeline, linked to oil prices under long-term contracts (in practice, contracts are often pegged to oil-based fuels such as gasoil or fuel oil prices with a three-to-six month time lag).

Contractual practices in the natural gas market in Europe have been evolving for more than a decade. With the development of increasingly liquid hubs (NBP, TTF, and other), and a surplus of pipeline gas in Europe, new import contracts have been (at least partially) been indexed to spot prices in these hubs, and many existing contracts have been (or are being) renegotiated. The transition to hub pricing has probably been faster than expected.

[4] More than 60 new LNG carriers in 2013 and 2014will bolster the existing fleet of around 360 ships, ans increase of about 17%. As of early 2013, there wereorders for 94 LNG carriers with delivery dates up to 2017.

See BRS (2013): "2013 annual review. Shipping and Shipbuilding markets", available at: www.brs-paris.com/annual/annual-2013/pdf/annual_review_2013-a.pdf

Figure 7: Estimated split of European gas supply, Q1-2013 .



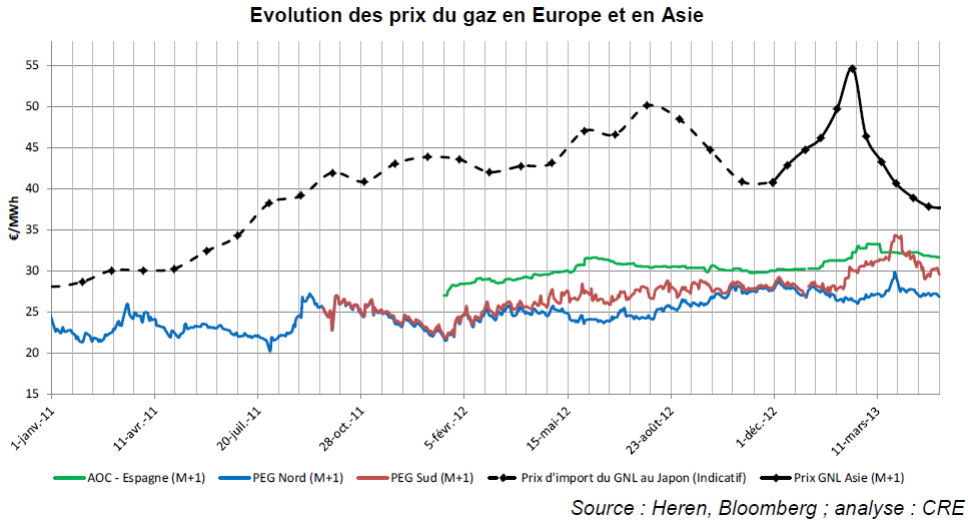
Source: SG Cross Asset Research, in Patrick Heather[43]

With spot prices falling sharply in Europe from their 2008 peak as industrial demand collapsed during the global financial crisis, this trend has affected natural gas via pipeline to a larger extent than LNG, which has benefited from the possibility of being deviated to premium markets (Asia and Latin America) rather than renegotiated.

Unlike in the US, a dual pricing mechanism is still in place in Europe: oil indexation and hub pricing. It remains a question whether these regimes will be able to coexist for long. Yet, the capacity to import LNG will remain crucial to ensure access to natural gas at the prevailing LNG spot price in the future world market.

Currenlty, prevailing spot prices at European hubs and in the LNG Atlatic Basin (being the latter influenced by the Pacific Basin) show great differentials, which explains that few LNG is arriving to Europe. Those countries which have developed redundant LNG and pipeline (interconnection) capacities can benefit from the market where the price is lower. For example, Great Britain enjoys a combined 39 bcm/year interconnection capacity with the Continent (from the Continent to Great Britain) through the Interconnector UK and BBL pipelines, and at the same time a combined *** bcm/year import capacity through Grain LNG, South Hook LNG and Dragon LNG. (which in 2012 and 2013 is hardly being used). The NBP is essentially coupled with other European hubs, notably TTF, but also Zeebrugge, PEG Nord, and those in Germany. Spain, which has a combined LNG import capacity of *** bcm/year, has an import capacity from France of only 5.5 bcm/year, and is suffering from higher prices, as shown below.

Figure 8: Price evolution in Northern France (PEG Nord), Southern France (PEG Sud), Spain (AOC) and LNG in Asia (€(MWh) .



Source: *CRE*[44]

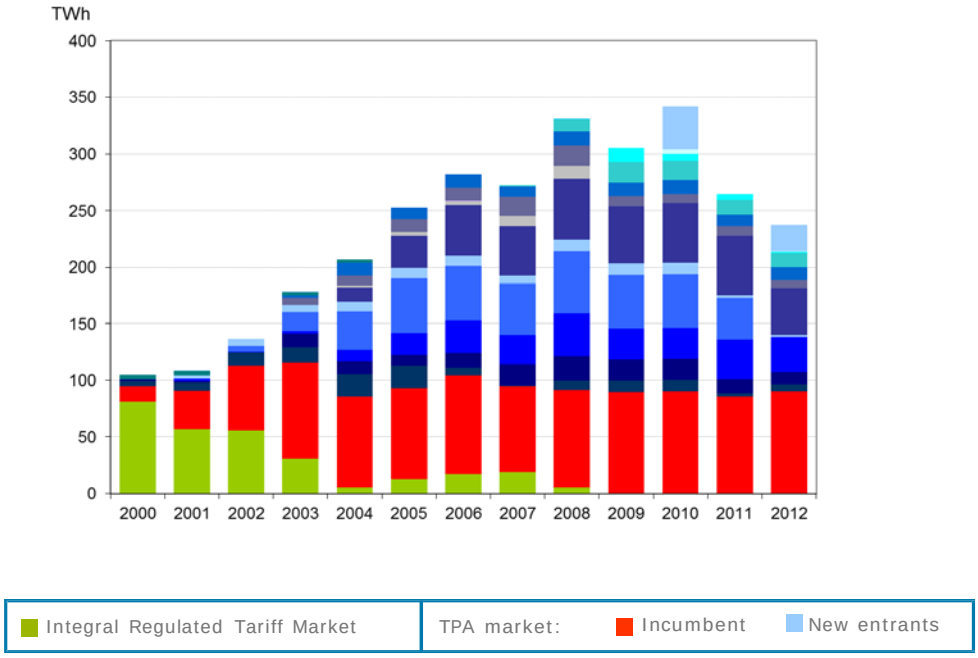
An interesting debate has also been triggered in the US on the effect of increased natural gas exports on domestic energy markets, which, in this case, could be detrimental for the development of LNG liquefaction facilities (see *1.2.3 The new rush for LNG export applications.*)

2.5 Competition and market integration.

Although due to current market circumstances, as explained in the previous section, LNG is not for the time being competitive in Europe, in normal circumstances, where TPA is in place, and there is sufficient capacity, LNG regasification terminals allow new suppliers to gain access to the market, since pipelines are often congested either physically or contractually, and their development is commercially complex and slow.

Spain is the most prominent example of how LNG facilitated market competition in a market where it was not possible for new entrants to get acces to pipeline gas.

Figure 9: LNG supplies to Spain by shipper, 200-2012 (TWh) .



Source: *Enagás*

In the Spanish case, the possibility brought by LNG of contracting spot and short-term cargoes was also critical for new entrants.

Though LNG facilities may foster competition, at a European level, in cases where they compete with intra-European interconnections, they might be in disadvantage vs. pipelines in terms of contribution to EU integration. It goes without saying that for the full integration of markets a fair pipeline interconnection capacity must be developed. While LNG facilities might facilitate price convergence between systems through the deviation of cargoes from one market to another, they do not contribute to short-term (=daily, or weekly) price convergence between adyacent markets. For example, they do not allow for the application of market coupling mechanisms under test in Europe, aimed at ensuring that gas flows physically, during the day, from the cheapest market to the most expensive one. Nevertheless, a case-by-case analysis would be required and it would not be appropriate to draw any conclusion in advance for particular projects.

2.5.1 EU Conecting Europe Facility.

The European Commission announced on 17th November 2011 its energy infrastructure priorities

for the next two decades,[45] aimed at making networks fit for the 21st century. In the Communication, the Commission defines EU priority corridors for the transport of electricity, gas and oil.

According to the communication by the EC,

> "the energy sector can look forward to €9.1 billionbeing invested in trans-European infrastructure, helping to meet the EU 2020 energy and climate objectives. The Connecting Europe Facility package will also help to remove financial gaps and network bottlenecks. The internal market for energy will be further developed through better interconnections, leading to security of supply and the possibility to transport renewable energy in a cost effective manner across the EU. Both citizens and companies need to be able to rely on energy being available at all times and at an affordable price. The money from Connecting Europe will act as a leverage for more funding from other private and public investors."

The communication defines a limited number of EU priority corridors for which urgent development is needed to deliver on European Union policy goals of competitiveness, sustainability and security of supply by connecting those member states which are almost isolated from other European energy markets, by massively strengthening existing cross-border interconnections and by integrating renewable energy into the network.

Based on these pre-defined corridors, concrete projects of "European interest" (labeled as Projects of Common Interest, or PCIs) will be identified in 2012, which should benefit from EU financing and building permits, including a time limit for final decision while ensuring full respect of EU law, in particular environmental legislation and public participation. In planning and implementing these projects, the Commission favours regional cooperation between countries.

The definition of this PCIs will obviously have an impact on the development of LNG regasification capacity in Europe, to the extent that this initiative favours, or facilitates the development, of some infrastructures vs. others.

[Include the limitations of LNG vs interconnectors to ensure market coupling, and how this may be a disadvantage for the development of LNG terminals that compete with interconnectors]

3 Authorisations & licences.

Regulation not only regards aspects like access to infrastructures, the approval of investments, or the determination of allowed revenues, but also the conditions to build them. Authorisations, licences and other related permits for energy infrastructures, in an increasingly environmental-sensitive world, implies time-consuming procedures and negotiation in order to obtain the necessary authorizations with different government levels and agencies. A wrongly-designed regulation on authorisations may neutralice the positive effects of a good regulation in other areas.

This section provides a snapshot of authorisations and licence requisites in different regions, in particular in two countries, USA and Spain, where LNG terminals are based on fundamentally different regulatory models, but regulation in authorisation and licences has not been an obstacle for the successful development of several projects.

The section shows that processes are frequently complex and time consuming, which might involve significant costs. However, these processes have not deterred LNG investments in most countries.

This is particularly true for onshore terminals in the US, where around 2000 the perception was that it would be difficult to build new LNG regasification terminals,[46] with the exception of the expansion of existing terminals. However, the Hackberry decision and later codification in the EPA of 2005, raising promises of adequate returns, resulted in many developers asking for and being granted construction permits. In summary, although it had significant room for improvement, the permitting regime was robust enough to meet projected market needs.

While the NIMBY (*Not In My Back Yard*) effect[5] has played a role in many countries, Italy is probably the country where this affect has been more obvious. According to an study on the influence of regulation on LNG terminals development in Italy,[47]a bad, complicated and blur, ex-ante regulation has neutralised the positive effects of an incentive ex-post (economic) regulation. Problems with ex-ante regulation in Italy arose with the reform, in 2001, of art. 117 of the Constitution, which gave parallel competences to the regions and the Central State in matter of energy and environment policies. Because of this reform, all the government bodies, at all levels (including municipalities) are involved in the authorisation process and can stop it in a way or another. In addition, Regions have a veto power.

Spain is probably the most successful case, in spite of its de-centrilised regional model. In Spain the widespread perception that economic benefits from LNG terminals largely outweight their costs resulted on a curious effect that could be described as PIMBY (*Please In My Back Yard*), with different regions competing to attract new terminals (and sometimes different provinces within the same region). Thus, once the seventh terminal is in operation by late 2012, seven of the eight Spanish coastal regions in the Iberian Paninsula will have a LNG terminal.

5 The acronyms BANANA (Build Absolutely Nothing Anywhere Near Anything) and NOPE (Nothing On Planet Earth) are also frequently used to refer to this phaenomenon.

3.1 Europe: the case of Spain

Spain is the has for many years been the largest LNG importer in Europe (although in 2011 lost this position to the UK), and with six, remains the country with more LNG terminals, being the seventh one under construction. Four of this terminals have been built during the last decade, while the already existing three have been expanded.

In Spain, Royal Decree 1434/2002, Title IV regulates the proceedings for the authorisation of natural gas facilities.

The authorisation of LNG terminals connected to the high pressure grid is endorsed to the Ministry of Industry, Energy and Tourism (MINETUR) and specifically to the General Directorate for Energy Policy and Mines (DGPEM) who is responsible for the processing of the license requests.

Construction, expansion, operation, disposal and closure of regasification facilities require prior the following authorisations:

- **Administrative authorisation**, related to the technical and economic installation project; it will be jointly processed with the **environmental impact assessment**, and it will grant the authorised company the right to carry out with the facility under certain conditions.
- **Approval of the project detail of the facilities or their execution**, related to the project itself; it allows the holder of the facility to perform its construction or establishment.
- **Operating permit**, which allows, once the project has been carried out, to put gas into the facility and its commercial exploitation, and it will be implemented by the commissioning certificate of the facility.

The last two certificates will be produced by the Government representative in the region where the LNG terminal will be located; this office is responsible for the approval of the compulsory land purchase procedures where the facility will be erected, in the event of being necessary. This delegate is also responsible for granting authorizations for the development of any kind of works or any other impact carried out by a third party in the area of influence of the facility, once it is built.

Royal Decree 1434/2002 provides that investments involving regasification facilities are authorised by the MINETUR. The investment can be authorised either through a public tender or, following a prior request, the construction and operation of a new regasification facility may be directly authorised. In these cases, the MINETUR will require the Gas System Technical Manager (GTS, *Gestor Técnico del Sistema*) to assess about the need of the facility and an evaluation from the National Energy Commission (CNE) will be mandatory.

In case a company requested for a license without a previous public tender procedure, the solicitor will have a six month term to present a valid license application, and in case of not producing it, the DGPEM is authorized to ask for tenders or to hand the accomplishment of the project and the subsequent construction of the facility to the GTS. In case of an expansion of an existing facility, the owner will be appointed to expand it.

3.1.1.1 Administrative authorisations.

The administrative authorisation request will be accompanied by the documentation that proves the legal, technical and economic capacity of the solicitor to develop the LNG regasification facility. Furthermore, the installation project will also be enclosed, and will contain, at least, the following specifications:

- a memorandum detailing the location, purposes and main characteristics of the facility,
- a sketch on a minimum scale of 1:50.000,
- the estimated budget,
- information about possible interference on other facilities owned by public Administrations or companies in charge of public interest services, and
- other data that the Administration might consider relevant.

LNG regasification projects are subject to an environmental impact assessment and will be carried out in the administrative authorisation phase.

Public consultation process.

Requests to build an LNG regasification terminal shall be subject to a process of public consultation during a period of 20 days. The announcement will be included in the Official Gazette of the region or regions where the facility is to be built, the National Official Gazette (*Boletín Oficial del Estado*), and in the two mayor newspapers of the region.

Interested stakeholders will be able to submit their statements within the mentioned 20 days.

Statements received consequence of the public consultation will be submitted to the solicitor, who will then forward them to the Government delegation in the region in charge of the process in a period no longer than 15 days. The Government delegation in the region will resubmit the statements to the DGPEM.

Information to other Public Administrations.

The competent Administration of the authorisation process shall submit to other Administrations and public interest companies the relevant documentation that might affect their properties or rights. Within a period of 20 days they shall give its approval or rejection to the requested authorisation.

For the above purposes, a memorandum of the project containing the general characteristics, the mapping, and, where appropriate, a summary of the environmental impact assessment shall be forward.

Once the specified period has elapsed without any answer from the interested parties mentioned

above, the Administration in charge of the process will extend the approval or rejection period 10 days more. If after this period no response has been received, it will be understood those Administrations or public interest companies have granted an authorisation for the project.

The competent Administration in charge of the process will submit the solicitor the approval or rejection of the project, as provided above, so that within 15 days the solicitor will express its opinion.

In case of disagreement, the solicitor's judgment will be submitted to the Administration or public interest companies that rejected the project so that within 15 days the Administration or public interest company will express its opinion again. Once the specified period has elapsed without any answer from the interested parties mentioned above, it will be assume that authorisation has been granted to the project.

Once the formalities of the public consultation have been concluded, the Government delegation in the region will forward to the DGPEM the administrative authorisations of the LNG facility, as well as the corresponding project.

Then, the DGPEM will submit the resolution proposal to the CNE, who is in charge of issuing a mandatory report.

Once all the above information has been received, the DGPEM shall decide on approval of the requested facility and notify the resolution within 6 months from the filling of the application for authorisation.

The lack of effective resolution of the requests for authorisation shall imply the rejection of the authorisation, in accordance with Hydrocarbons Law 34/1998, amended by Law 12/2007, Article 67.3, an administrative appeal can be given.

The resolution shall be published in the National Official Gazette and in the Official Gazette of the regions where the LNG regasification terminal is to be built. Besides, the resolution shall be notified to the applicant.

The authorisation will detail the deadline within the approval of the project must be demanded, Besides, it shall indicate what will happened once the period has expired without the having requested the approval of the project. The solicitor might ask an extension of the deadline.

Once the administrative authorisation for a new LNG regasification terminal has been granted, the holder shall constitute a guarantee amounting the 2% of the budget of the facility concerned to the DGPEM. Such guarantee shall be returned to the holder of the facility once the operating permit has been formalised.

3.1.1.2 Approval of the project.

The applications for approval of the LNG terminal projects shall be submitted to the DGPEM by the holder of the administrative authorisations.

The competent authorities for the approval process will be the Government delegation in the region or regions where the LNG terminal is to be built.

The competent Administration will forward the project details to the relevant administrations or public service companies that have not granted yet its authorisation or which authorisation is conditioned to the previous administrative authorisation phase. These administrations or public services companies shall grant the authorisation within 15 days.

Then, the solicitor will have 15 days to express its agreement or disagreement to the answer provided by these administrations or public services companies.

Once the above procedures have been completed, the Government delegation in the area will reconnoitre the land and will gather the technical information. Then, this information will be submitted to the DGPEM.

The DGPEM is allowed to decide on the approval of the project or submit the resolution for approval to the Ministers Council.

The final resolution shall be informed to the solicitor. If the project is approved, the solicitor is allowed to built the LNG terminal. Besides, the resolution should detail the maximum execution period within the LNG terminal must be built.

3.1.1.3 Operating permit.

Once the LNG terminal has been built, the corresponding request for the operating permit will be presented to the Governmental delegation in the region where the authorisations have been processed.

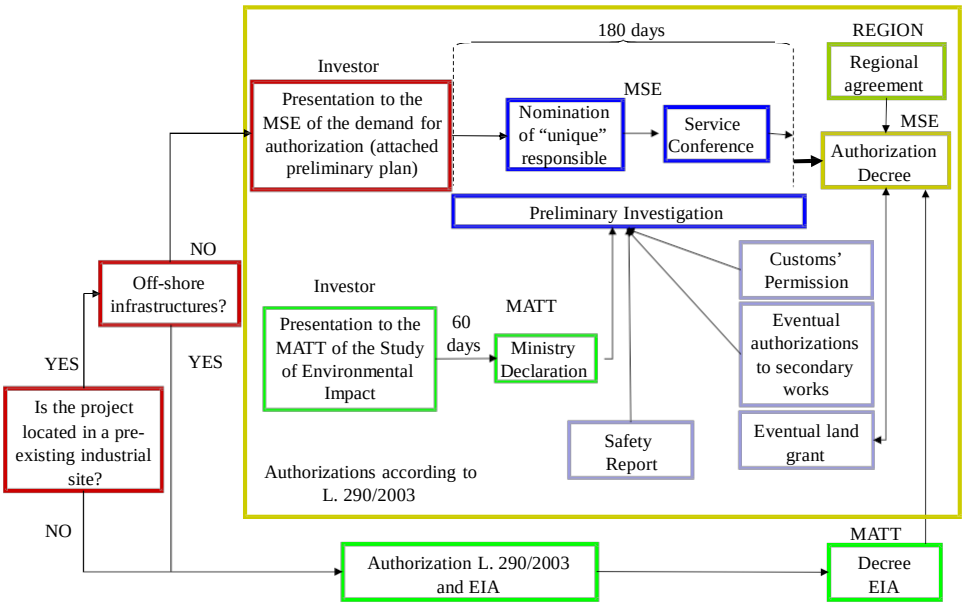
The request will be accompanied by a certificate of finalisation of works signed by the competent authority. The certificate shall state that the facility has been conducted according to the rules detailed in the approved project. Besides, the security and safety rules for the LNG regasification terminal should also be attached.

The operating permit will be submitted to the DGPEM and the holder of the facility.

3.2 Europe: obstacles to the development of LNG terminasl in Italy

INSERT SECTION ALREADY DEVELOPED FOR PREVIOUS VERSIONS

Figure 10: LNG terminals authorisation flowchart (Italy)



Source: ********.

3.3 America: authorization processes in the US

To construct an LNG facility, import or export authorisation from the Department of Energy's Assistant Secretary of Fossil Energy must be obtained. The process in both cases is similar.

As a practical matter, the need for DOE to make a public interest judgment applies only to trade involving countries that have not entered into a free trade agreement (FTA) with the United States requiring the national treatment for trade in natural gas and LNG. The NGA provides that applications involving imports from or exports to an FTA country are deemed to be in the public interest and shall be granted without modification or delay. Key countries with FTAs include Canada and Mexico, which engage in significant natural gas trade with the United States via pipeline. A FTA with South Korea, currently the world's second largest importer of LNG, which does not currently receive domestically produced natural gas from the United States, has been ratified by both the U.S. and South Korean legislatures, but had not yet entered into force as of early 2012

After the import/export authorisation is obtained, the FERC must review the application pursuant to its exclusive jurisdiction under Section 3 of the NGA.

The Energy Policy Act of 2005 in Section 311 confirms that FERC has exclusive authority to approve or deny an application for the siting, construction, expansion, or operation of an LNG terminal onshore and in state waters. 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".

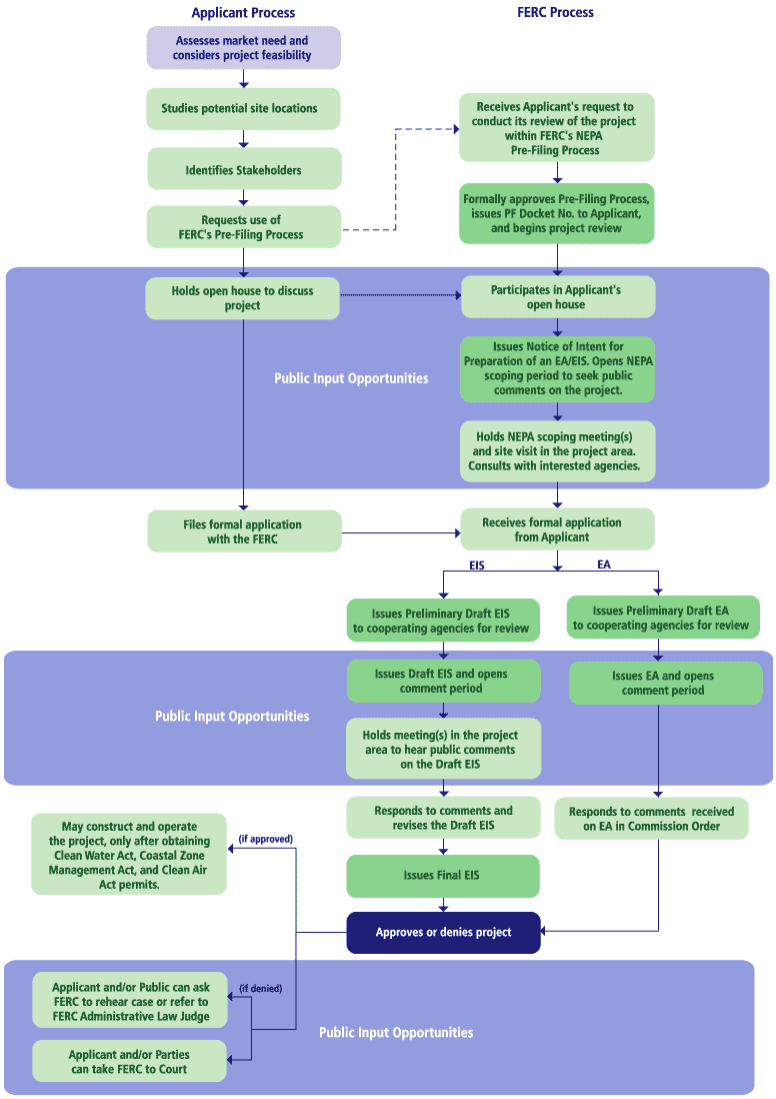
This siting authority is exercised, however, in concert with a number of other federal authorities such as the Coast Guard, the U.S. Army Corps of Engineers (COE), and state approvals under the Coastal Zone Management Act, Clean Air Act and Clean Water Act (Federal Water Pollution Control Act). It must be highlighted that States have the ability to effectively "veto" an LNG facility by denying the cited permits.

Depending on the location of the proposed project, the U.S. Coast Guard and Maritime Administration ("MARAD") may have jurisdiction instead of the FERC. The U.S. Coast Guard and MARAD has jurisdiction for siting and operation of all LNG import terminals in federal waters pursuant to the Deepwater Ports Act.

3.3.1.1 Review (Environmental and Safety Assessment).

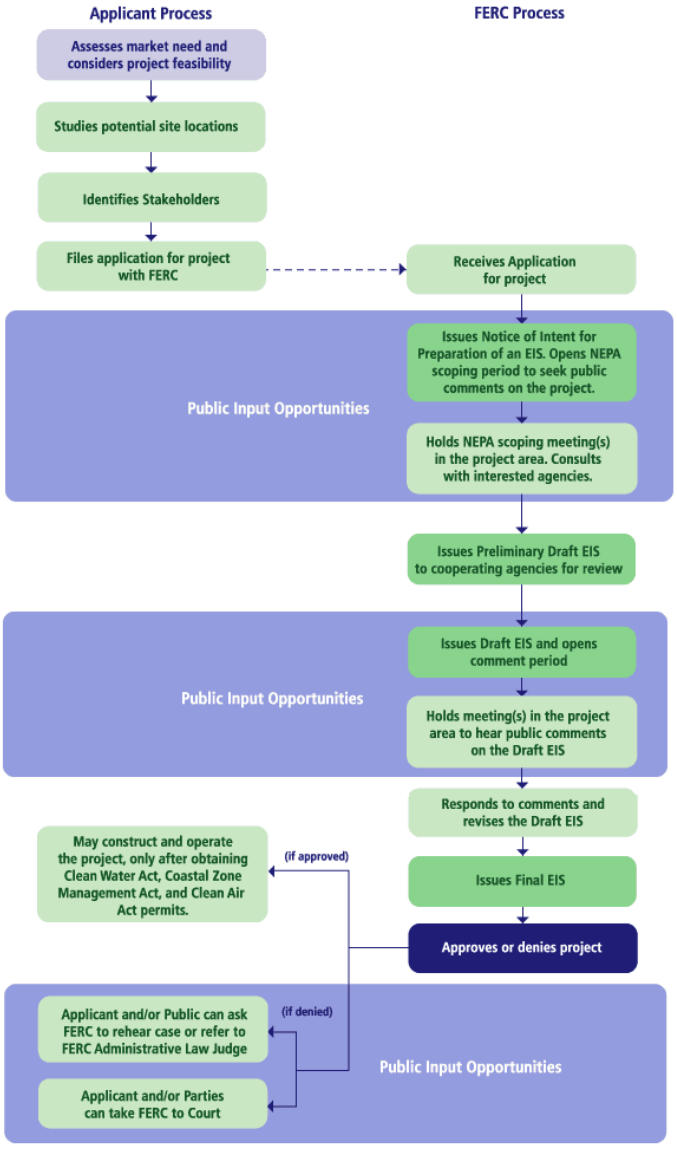
Projects in Review can go through two processes: the Pre-Filing process or the Traditional process. About 80% of currently proposed LNG projects go through pre-filing while 20% go through traditional. The end result of the Review process is an Environmental Impact Statement (EIS) that addresses both environmental and safety concerns.

Figure 11: Pre-filing environmental review process.



Source: FERC website.

Figure 12: Traditional environmental review process.



Source: FERC website.

What follows is a description of the Pre-Filing process, which is the process followed by most of the projects nowadays.

Prior to any Commission decision regarding an LNG application, Office of Energy Projects (OEP) staff prepares an Environmental Assessment (EA) or an Environmental Impact Statement (EIS) to fulfill the requirements of the National Environmental Policy Act (NEPA). The purpose of the document is to inform the public and the permitting agencies about the potential adverse and/or beneficial environmental and safety impacts of proposed projects and their alternatives. At this stage, the OEP will:

- Review conceptual designs of planned LNG facilities;
- Provide guidance on resolving potential environmental, safety, and design issues; and
- Explain the level of design detail and safety analysis required for a complete application.

In this manner, OEP learns about future projects which may be filed at the Commission and help direct companies in their application preparation. This assistance is provided either informally or as part of the formal NEPA Pre-Filing Process, which is designed to reduce the amount of time required to issue an environmental impact statement once an application is made.

In addition, FERC must comply with certain statutory requirements. These include section 307 of the Coastal Zone Management Act, section 7 of the Endangered Species Act, section 106 of the National Historic Preservation Act, and the Magnuson-Stevens Fishery Conservation and Management Act.

As the lead federal agency, FERC staff also coordinates closely with the U.S. Army Corps of Engineers, the U.S. EPA, and the States in fulfilling the requirements of the Clean Water Act, the Rivers and Harbors Act, the Clean Air Act, and the Coastal Zone Management Act. FERC coordinates with the Coast Guard to ensure the waterways management/navigation safety issues under the Ports and Waterways Safety Act and the maritime security issues under the Maritime Transportation Security Act are addressed.

The NEPA documents for new LNG facilities (and major expansions of existing sites) include a thorough study of potential impacts to public safety. To protect the public from potential incidents at an LNG facility, FERC staff determines if the proposal meets the siting requirements of the Department of Transportation's regulations in 49 CFR 193 and National Fire Protection Association Standard (NFPA) 59A. The siting analysis includes:

- verification of LNG dike and impoundment volumes,
- equipment spacing,
- design spills, and
- exclusion zone calculations.

Thermal radiation and flammable vapour exclusion zones are required within the facility site or on adjacent property controlled by the operator.

3.3.1.2 Decision (Approval).

If FERC determines that the proposed LNG project is in the public interest, it will be approved. The orders approving all projects contain conditions to protect the environment and ensure the safety and security of the project. There are still several steps that need to be taken by the developer prior to construction.

Upon Commission approval, the developer will receive:

1. A Commission Order stating its decision on whether to approve construction and operation of the LNG terminal;

2. Market rate authority; and

3. Conditions that must be met prior to construction, usually originating from the Cryogenic Design and Inspection Manual.

The developer must also secure the following prior to construction from the state in which construction will occur:

- Clean Air Act:, Section 502 - A permit is required for any person to operate a source of air pollution, as detailed in the Act. If the responsible state agency does not issue the permit, the project cannot go forward.

- Coastal Zone Management clearance.

  Coastal Zone Management Act, Section 307(c) - An LNG project proponent must certify that the proposed activity in a designated coastal zone complies with the enforceable policies of the affected state's coastal zone management program. If the state does not concur with the certification, no FERC approval to construct may be granted. This applies to all Federal permits and authorizations, including FERC and the U.S. Army Corps of Engineers. A finding of inconsistency can be appealed to the Secretary of Commerce.

- Water quality certificate and dredge and fill permit,

  - Clean Water Act, Section 401 - A certification of compliance with the state's water quality standards is required from the responsible state agency for any activity (including construction and operation of LNG import facilities) that may result in a discharge into navigable waters. If the 401 certification is denied, the LNG facility cannot be constructed.

  - Clean Water Act, Section 404 - A permit is required from the U.S. Army Corps of Engineers for discharge of dredged and fill material. The Corps permit requires

applicants to obtain a section 401 certification, which can be blocked as stated above.

3.3.1.3 Post-decision (Monitoring).

After a project is approved, FERC monitors both the design construction and the commercial operation of all LNG terminals. Interveners may petition FERC to rehear the case and may also challenge the decision in Federal Court. If a project is denied, the developer may petition FERC to rehear the case and may also challenge the decision in Federal Court.

FERC monitors both the design and construction of the approved LNG project and its commercial operation after commencement of service.

Design and Construction Monitoring.

After a company receives Commission approval for a project and has met all pre-construction conditions required by a Commission Order, the Director of FERC's Office of Energy Projects (OEP) will authorize the commencement of construction. Then the company is required to file monthly reports detailing the following:

1. Summarizing construction activity;
2. The status of any outstanding project permits;
3. An updated project schedule; and
4. Details of compliance with environmental conditions.

Depending on the phase of construction, staff visits the project site as frequently as needed throughout the entire construction process. These inspections allow staff to identify any deviations from the approved facility.

Prior to commencement of service from the LNG facility, the company must receive written approval from the Director of OEP. Only after complying with all pre-operation conditions listed in the Commission Order would a company receive authorization to begin operation.

Commencement of Service.

Each LNG facility under FERC jurisdiction is required to file semi-annual reports to summarize plant operations, maintenance activity; and abnormal events for the previous six months.

In addition, staff periodically conduct inspections (focusing on equipment, operation, and safety) of each facility throughout its operational life.

During the first inspection following commencement of operation, the *Cryogenic Design and Inspection Manual* is updated to incorporate any design changes or facility modifications since the pre-certificate manual was prepared. This allows for an “as-built” manual to use for future

inspections.

About half of the total LNG facilities are inspected every year, using a two-year cycle for all peak shaving facilities and a one-year cycle for import terminals.

The *Cryogenic Design and Inspection Manual* is a permanent record documenting the operating history of the facility. The *Cryogenic Design and Inspection Manual* is continually revised to reflect any facility changes and operating problems throughout its operating lifetime as long as the facility remains under Commission jurisdiction. The revised document includes OEP staff's conclusions and recommendations from the current inspection and discusses specific operating problems and facility modifications over the previous one- or two-year period. A letter is sent to the corporate headquarters with a deadline to address the recommendations, and to update the status of all outstanding issues in the next semi-annual report to the Commission.

3.3.1.4 Deep Water Port license.

As mentioned before, the U.S. Coast Guard and MARAD have jurisdiction for siting and operation of all LNG import terminals in federal waters pursuant to the Deepwater Ports Act (for more information see section "Trends in Regulation - Offshore terminals - 2002 Amendments to Deepwater Port Act of 1974").

Hereafter the main licensing process and requirements of the Deep Water Port license are summarised.

The Pre-Application Process.

Due to the timeline rigidity established in the Deepwater Port Act, significant pre-application development is required. In particular, applicants should pay attention on the part of meeting license requirements and avoiding a suspended review that can significantly delay processing activities. The MARAD and U.S. Coast Guard work with applicants to meet rigorous review requirements and the expectations of state regulators and the general public in the licensing process.

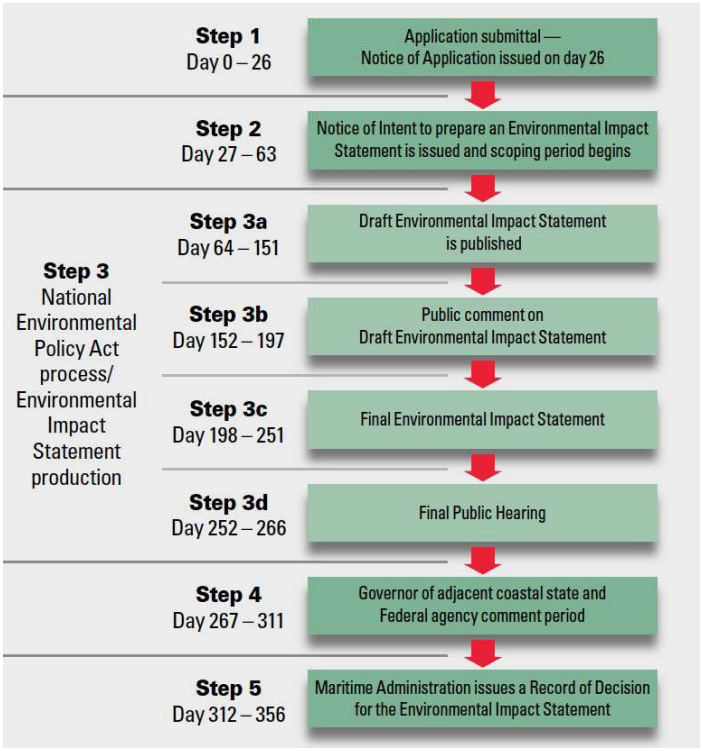
The pre-application stage gives potential applicants the opportunity to confer with the MARAD and the U.S. Coast Guard to provide an overview of their proposed project, discuss the intricate details of the federal and state application and licensing process, introduce key personnel, and discuss specific financial requirements mandated by the Deepwater Port Act. Applicants are encouraged to conduct similar meetings with state and local agencies to review and discuss state requirements and interests.

Processing Timeline.

The project milestones of the application process have mandatory deadlines and operate on a 356-day 'clock' that begins when the applicant submits an application, and ends when the MARAD issues a Record of Decision. The MARAD, the Coast Guard, and other federal and state agencies evaluate a newly submitted application for completeness. This process takes 26 days, and results in either a Notice of Application or a formal rejection by the Maritime Administrator. The table below

represents a typical timeline, assuming there will be no clock stoppage to get additional information.

Figure 13: Deepwaater Port Application Process Milestones.



Source: MARAD website.

The National Environmental Policy Act process takes up approximately two-thirds (240 days) of the application review timeline, beginning when the Notice of Application is issued. During this time, the MARAD and the U.S. Coast Guard, in collaboration with other agencies, ensure that a thorough Environmental Impact Statement is developed. Without complete information, meeting this onerous timeline is impossible. Any gaps in information may require a suspension of the timeline. The MARAD and the Coast Guard will suspend an application review because of a lack of adequate information necessary to the licensing process. Issues that have triggered "stop clocks," or suspended reviews, include:

- Inadequate information regarding project financing;

- Re-gasification technologies;
- Fisheries analysis;
- Air quality review;
- Endangered species; and
- Marine habitats.

Along with the National Environmental Policy Act review process, the MARAD has its own approval criteria that must be met before a license may be issued. Once the application has made it through the federal and state review process and has reached the Record of Decision stage, the Maritime Administrator considers nine criteria, which are detailed below.

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 Deepwater Ports Act.

Further, the Record of Decision describes the MARAD's decision to grant, grant with conditions, or deny the application. For example, if a license is revoked or terminated, all components of the deepwater port must be removed. Licensees must guarantee, through a license condition, that the facility will be decommissioned at the end of the facility's life cycle or upon revocation or termination of the license and/or facility.

License Requirements/Criteria.

In order to obtain the Water Port license the following license requirements shall be met:

- Financial Responsibility: Applicants must be financially able to construct, own, and operate the deepwater port, and must provide a financial guarantee or bond sufficient to meet all costs for complete removal of all components of the deepwater port upon revocation or termination of the license and/or facility. Further, applicants must be able to meet the requirements of the Oil Pollution Act of 1990 (33 U.S.C. §§2701 et seq.; 104 Stat 484) as they relate to the Deepwater Port Act.
- Compliance with Relevant Laws, Regulations, and License Conditions: Applicants must comply with relevant laws, regulations, and license conditions, and must state their intention to do so in writing.
- National Interest: The construction and operation of the deepwater port must be in the national interest and consistent with national security, energy sufficiency, environmental quality, and other national policy goals and objectives.
- International Navigation: The deepwater port should not interfere with international navigation or other reasonable uses of the high seas, as defined by treaty, convention, or

customary international law.

- Impact on the Marine Environment: The deepwater port will be constructed and operated using the best available technology to prevent or minimize adverse environmental impact, in accordance with environmental review criteria.

- National Environmental Laws: The deepwater port will comply with national environmental laws. The application must properly address all relevant provisions of the Clean Air Act, as amended, the Federal Water Pollution Control Act, and the Marine Protection, Research and Sanctuaries Act as well as other applicable Federal and state environmental laws.

- Consultation with the Secretaries of the Army, State, and Defense: The Secretary of the Army, the Secretary of State, and the Secretary of Defense must be consulted and must express their views on the adequacy of the application and its effect on programs within their respective jurisdictions.

- Approval of the Governor of the Adjacent Coastal State: Pursuant to 33 U.S.C. § 1508 of the Deepwater Port Act, the governor of the adjacent coastal state(s) must approve the issuance of a deepwater port license. Silence on this issue denotes approval.

- Consistency with Coastal Zone Management Program: An applicant for a deepwater port license must demonstrate consistency with the Coastal Zone Management Plan of the adjacent Coastal States (per the Coastal Zone Management Act of 1972).

Section 1505 of the Deepwater Port Act establishes review criteria for applicants. The Secretary of Transportation must develop specific criteria that are consistent with the National Environmental Policy Act, and which apply to all aspects and phases of the project, including its cumulative effects. This are shown in the table below:

Figure 14: National Environmental Policy Act (NEPA) Review Criteria

NEPA Review	Consideration
Marine Environment	Impacts on the marine environment, including endangered species; Essential Fish Habitats; marine sanctuaries; archaeological, cultural and historic sites; water and air; coastal zone management; coastal barrier resources; and wetlands and flood plains.
Oceanographic Current and Wave Patterns	Oceanographic conditions in the area of the proposed port.
Competing Ocean Uses	Other interests, including maritime trade, navigation, public and private transportation, commercial fishing operations, and recreational use.
Risk, Safety, and Security	Potential risks to a deepwater port from waves, winds, weather, geological conditions, shipping hazards, and/or acts of terror, and ways to avoid or minimize these dangers.
Land-based Development	Impacts of shore-based projects that are proposed to maintain the port (i.e., the manufacture or transportation of machinery, equipment, or port components), or of those that might develop as a result of the port (i.e.; terrestrial pipelines).
Human Health and Welfare	Potential hazards to human safety and well-being. These may relate to other review criteria, particularly numbers (2), (3), and (4) above.

Source: MARAD website.

Certain states have their own environmental review process. In such cases, the lead state agency has jurisdiction and management control of its state's specific review requirements. The agency responsible for managing the state process cooperates with the Maritime Administration and the Coast Guard to ensure that timelines are synchronized, and that the state develops an adequate Environmental Impact Statement/Environmental Report that conforms to the NEPA review process.

The figure below lists additional administrative requirements for deepwater port applicants, including application and NEPA document distribution, the application fee, and payment of third-party contractors to assist in the NEPA process.

Figure 15: Additional Administrative Requirements

Additional Administrative Requirements	Description
Application Distribution	The Coast Guard and Maritime Administration require applicants to submit hard copies and/or compact disk (CD) copies of all application materials to agencies participating in the review process.
Application Fee	The deepwater port program requires applicants to pay a fee of $350,000. Applicants must present a check in this amount to the Coast Guard, made payable to the US Treasury.
Third-Party Contractors	In developing the Environmental Impact Statement, the Coast Guard contracts with a third party consultant to assist in the environmental process. The applicant will pay all third party contractors.
NEPA Document Distribution	The Coast Guard and Maritime Administration require the environmental contractors to submit all interim and draft environmental documents in hard copy form and on CDs, to both the headquarters and field offices of the lead and cooperating federal and state agencies.
Document Repository	The Coast Guard and Maritime Administration will require prospective applicants to establish and maintain an electronic web-based repository where all filings for authorizations are made available to all participating agencies. This repository should include orders, requests and other pertinent documents.
Fair Market Rental Value	Licensees shall pay the fair market rental value of the U.S. outer continental shelf used for the proposed deepwater port. This amount will be determined by the Secretary of the Interior, and will be paid in advance (33 U.S.C. §1504(h) (3) by the licensee directly to the Maritime Administration.
State Requirements	Some states require separate environmental review, but every effort is made to ensure that the federal/state environmental review is a joint, concurrent process.

Source: MARAD website.

4 Unbundling measures.

In open acess regimes, regulators migh either apply behavioural or structural measures aimed at ensuring effective independence operators.

For example, the Third Package in Europe foresees three different models for transmission system operators (TSOs): Ownership Unbundling (OU), Independent Transmission Operators (ITO) and Independent System Operators (ISO). While establishing an ITO is clearly a behavioural measure, being the TSO subject to more than 30 requirements and a strict monitorisation, OU is a structural measure.

LNG terminals are specific infrastructures whose positioning in the natural gas chain may vary from one country to another. Those regimes based on the belief that LNG terminals are essential infrastructures as part of the downstream gas infrastructures (like gas transmission pipelines), and establish regulated Third Party Access (rTPA), are the ones where unbundling measures are typically present. In those countries where LNG terminals are considered upstream gas production infrastructures (like gas fields), LNG infrastructures are exempt from access regulation, and unbundling requirements are not imposed. Not only hybrid models can also be identified, but terminals coexisting in the same country or area under different regimes, and subject to different unbundling requirements, can be found in both Europe and America.

Nevertheless, it is uncommon to see structural measures such as ownership unbundling applied to these terminals unless they are owned by TSOs to which these requirements have been applied.

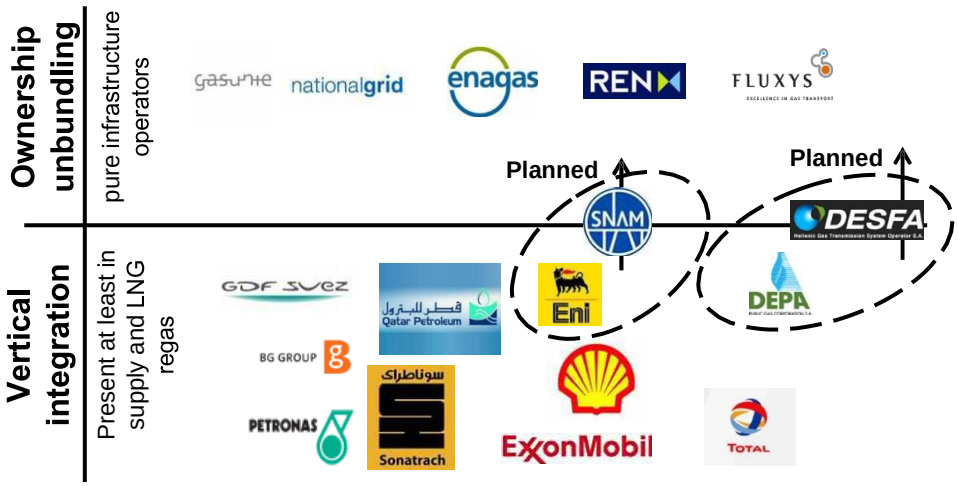
The sections below shown the details in Europe and Norht America, where different measures have been applied.

4.1 Europe.

In Europe, Directive 2009/73/EC[48], in articles 12 and 13 establishes 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. These provisions were already established in articles 7 and 8 of Directive 2003/55/EC.

As already explained in the previous section, LNG system operator are subject to certain obligations. However, a common European structure for unbundling requirements regarding LNG terminals is not in place. The figure and table below show that some LSOs in the EU are already subject to unbundling provisions, while many others are not.

Figure 16: Company profile of players in the EU: vertical integration vs. ownership unbundling.



All LSOs subject to ownership unbundling in the European Union are combined operators also present, at least, in transmission activities.

Table 5: Ownership unbundling from E&P and commercialisation activities.

Country	LNG terminal	Ownership Unbundling
Belgium	Zeebrugge	✓
France	Fosmax LNG	✗
	Fos Tonkin	✗
	Montoir de Bretagne	✗
Greece	Revithoussa[49]	✗
Italy	Adriatic LNG	✗
	Panigaglia	✗
Portugal	Sines	✓
Spain	Barcelona[50]	✓
	Cartagena[50]	✓
	Huelva[50]	✓
	Bilbao	✗
	Mugardos	✗
	Sagunto	✗
The Netherlands	Gate LNG[51]	✓
UK	Dragon LNG	✗
	Grain LNG	✓
	South Hook	✗

Table 6: Shareholder structures of EU regas terminals.

Country	LNG terminal	Owner	Shareholders	Quota	Matrix shareholder
Belgium	Zeebrugge	FLUXYS	FLUXYS	89.97%	Publigas 77.7%, Caisse de dépôts et placement du Québec 20%, Federal Holding and Investment Company 2.1%, Employees and management 0.2%
				1 golden share	
			NYSE Euronext	10.03%	
France	Fosmax LNG	FOSMAX LNG	elengy	69.7%	GDF Suez 100%
			TOTAL	30.3%	
	Fos Tonkin	elengy	GDF SUEZ	100%	Institutional Investors 39.5%, République Française 36.7%, Individual shareholders 10.7%, GBL 5.1%, Employee shareholders 2.3%, Treasury stock 2.3%, CDC Group 1.9%, CNP 1.0%, Sofina 0.5%
	Montoir de Bretagne				
Greece	Revithoussa	DESFA	DEPA	100%	Greek State 65% Hellenic Petroleum 35%
Italy	Adriatic LNG	Adriatic LNG	ExxonMobil	70.7%	

Country	LNG terminal	Owner	Shareholders	Quota	Matrix shareholder
			Qatar Petroleum	22%	
			EDISON	7.3%	EDF group 97,40% Stock market 2,60%
	Panigaglia	GNL ITALIA	SNAM	100%	ENI 50.18%, CDP 30% Retail investors 9.62%, Institutional investors 8,54%, Bank of Italy 1,60% Treasury Stock 0.06%
Portugal	Sines	REN Atlântico	REN	100%	State Grid of Chine 25.0% Free float 16.9% Oman Oil 15.0% Parpública, SGPS, S.A. 9.9% EGF-GCF, S.A. 8.4% Gestmin, SGPS, S.A. 5.9% EDP – Energias de Portugal, S.A. 5.0% Oliren, SGPS, S.A. 5.0% Red Eléctrica Corporación, S.A. 5.0% Columbia Wanger 2.0% Own shares 0.7%
Spain	Barcelona	enagas	Free float	85%	
	Cartagena		SEPI	5%	
	Huelva		kutxabank	5%	
			Oman Oil Holding Spain	5%	

Country	LNG terminal	Owner	Shareholders	Quota	Matrix shareholder
	Bilbao	BBG	enagas	40%	
			RREEF	30%	
			EVE Ente Vasco de la Energía	30%	
	Mugardos	reganosa	GASIFICA	21%	UFG 90% (ENI 50%, gasNatural Fenosa 50%), gasNatural Fenosa 10%
			GADISA	20.28%	
			XUNTA DE GALICIA	17.50%	
			FORESTAL	16.22%	
			Colonial First State Global Asset Management	15%	
				10%	
	Sagunto	sagga	Iniciativas de Gas, S.L.	50%	RREEF 60%, Osaka Gas 40%
			Infraestructuras de Gas, S.A.	50%	UFG 85% (ENI 50%, gasNatural Fenosa 50%), Oman Oil Holding Spain 15%
The Netherlands	Gate LNG	Gate terminal	gasunie	40%	Dutch state 100%

Country	LNG terminal	Owner	Shareholders	Quota	Matrix shareholder
			Vopak	40%	
			DONG energy	5%	Danish state 79.96% SEAS-NVE Holding A/S 10.88% Others 9.16%
			e·on | Ruhrgas	5%	
			essent	5%	RWE 100%
			OMV	5%	ÖIAG (Österr. Industrieholding AG, Austrian state holding company) 31.5% IPIC (International Petroleum Investment Company, Abu Dhabi) 24.9%, Own shares 0.3%, Free float 43.3%
UK	Dragon LNG	DRAGONLNG	BG GROUP	50%	
				50%	
	Grain LNG	nationalgrid	BLACKROCK	5.21%	
			Capital Group Companies	5.04%	
			Crescent Holding GmbH	4.31%	
			Legal & General	3.99%	

Country	LNG terminal	Owner	Shareholders	Quota	Matrix shareholder
			Other	81.46%	
	South Hook			24.15%	
				67.5%	
				8.35%	

4.2 America.

4.2.1 .

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.[52]

These three LNG terminals (Cove Point, Elba Island and Lake Charles) are subject to FERC Order 636. Order 636 required interstate pipeline companies to unbundle, or separate, their sales and transportation services.[6] According to the FERC,[53] 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.

Order 636 is often referred to as the Final Restructuring Rule,[54] as it was seen as the culmination of all of the unbundling and deregulation that had taken place in the previous 20 years. Essentially, this Order meant that pipelines could no longer engage in merchant gas sales, or sell any product as a bundled service. This Order required the restructuring of the interstate pipeline industry; the production and marketing arms of interstate pipeline companies were required to be restructured as arms-length affiliates. These affiliates, under Order 636, could in no way have an advantage (in terms of price, volume, or timing of gas transportation) over any other potential user of the pipeline.

[6] Order 636 also affected LNG and storage operators. In the latter case the FERC argued that "Storage is integral to the efficient and reliable distribution of natural gas, and provides the means to supply consumers' needs at times when their requirements exceed total gas production and mainline transmission capability."

Find below the shareholder structure of the historic LNG terminals subjected to open acces:

Table 7: Shareholder structure of LNG terminals in the US.

LNG terminal	Owner	Shareholders	Quota
Cove Point	Dominion Cove Point LNG, LP	Dominion	100%
Lake Charles	Trunkline LNG	Panhandle Energy	100%
Elba Island	Southern LNG an El Paso company	elpaso	100%
Everett LNG	Distrigas of Massachusetts LLC	GDF SUEZ	100%
Freeport LNG	Freeport LNG	CHENIERE	50%
		Michael Smith	50%
Sabine (LA) LNG	Sabine Pass LNG	CHENIERE	100%
Hackberry LNG	Cameron LNG LLC	Sempra LNG	100%
Sabine Pass (TX) LNG	Golden Pass LNG Terminal	Qatar Petroleum	70%
		ExxonMobil	17.6%
		ConocoPhillips	12.4%

A significant policy shift took place in 2002 with the "Hackberry decision", which was later (partially) codified dfin the Energy Policy act 2005. All terminals built after 2002 (i.e. all terminal built after the four historical ones cited above) are exempt from any unbundling obligation.

4.2.2 Canada.

In Canada there are no specific regulations governing prices and terms of service in the LNG sector. Neither have unbundling requirements been imposed on LNG operators.

Table 8: Shareholder structure of Canadian regas terminals.

LNG terminal	Owner	Shareholders	Quota
Saint John	Canaport LNG. Clean. Safe. Energy.	REPSOL	75%
		IRVING	25%

4.2.3 Mexico.

Although LNG terminals in Mexico are subject to open access regulations, no ownership unbundling requirements for LNG operators are in place in Mexico.

However, Altamira is effectively subject to ownership unbundled since September 2011 since it was acquired by The Netherlands' Vopak and Spain's Enagás, which are infrastructures operators with no involvement in production or commercialisation activities.

Table 9: Shareholder structure of Mexican regas terminals.

LNG terminal	Owner	Shareholders	Quota
Altamira	TLA	enagas	40%
		Vopak	60%
Baja California	Energía Costa Azul	Sempra LNG	100%

5 Access rules

In this section, access rules and conditions established in each country/terminal are reviewed. 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:

- Services offered.
- Capacity allocation mechanisms.
- Long term/short term capacity offering requirements.
- Contracts duration.
- Programming / Nomination procedures.
- Congestion management procedures.
- Method for calculating usable, available and unused capacities.
- Send-out requirements.
- Balancing regime/ Management of LNG stock levels.
- Own consumption record and gas in kind.
- Charges and/or penalties for imbalance, cancellation and other, including minimum payment obligations.
- Financial Guarantees.
- Secondary market.
- Limitation in vessel size.
- Force Majeure.
- Standard contracts.
- TPA tariffs.
- Capacity booking procedures.

The pieces of regulation where access rules to different LNG terminals are contained, as well as the level of detailed, might vary from one country to another. In general, the access rules are contained in what it is called “Code” or “Contract”.

Find hereafter the LNG codes in the EU terminals in operation.

Table 10: LNG codes in LNG terminals in the EU in operation.

Country	LNG terminal	Code
Belgium	Zeebrugge	Network Code for terminalling, lastest version approved on November 2012[55]
France	Fosmax LNG	No access code – access rules published in different documents (Contract), latest version approved on April 2013[56]
	Fos Tonkin	No access code – access rules published in different documents (Contract), latest version approved on April 2013[57]
	Montoir de Bretagne	
Greece	Revithoussa	Network Code approved in April 2010[58]
Italy	Adriatic LNG	Regasification code published in 2011[59]
	Panigaglia	Regasification code GNL Italia[60]
Portugal	Sines	No access code – access rules published in different documents, latest version approved on April 2013[61]
Spain	Barcelona	System Code (NGTS)[62]
	Cartagena	Common access code for LNG, transmission & distribution, and storage infrastructures
	Huelva	
	Bilbao	
	Mugardos	
	Sagunto	
The Netherlands	Gate LNG	No access code
UK	Dragon LNG	No access code - access rules available only once the potential user has sent the payment of the application fee
	Grain LNG	No access code - access rules available only once the potential user has sent the payment of the application fee
	South Hook	No access code - access rules available only once the potential user has sent the payment of the application fee

5.1 Services offered.

In most of European LNG terminals the basic regasification service consist of the following:

- Reception and unloading of LNG cargos,
- Storage of LNG in tanks, and
- Regasification of the LNG.

The way this basic service is offered varies from country to country. Apart from the basic service, a number of ancillary servies (related or not to this basic service) are frequently offered at LNG terminals. These services are frequently unregulated if not essential for access.

In Belgium, the basis service is based upon the "Slot" concept, this implies that the 3 components of the basic service described above are offered in a joint way. On contrary, in Spain, the basic service is based on the booking of regasification capacity, and the other basic services are jointly or separatedly offered on a flexible manner.

Terminals in France offer three type of basic services. The "S-Smart service" is a regasification service for all shippers from the first unloading, as part of this service, the LSO provides a continuous send out which is as regular as possible. Shippers who plan to unload at most one cargo per month for a total quantity limited to 12 TWh per year must contract the "S-30 service". There is also a "spot service" based on vacant slots available in the monthly schedule at the book date. The same happens in Italy, 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, and 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.

It is worth noting that although Sines offers the basic regasification service, it has recently introduced the concept of standart products based on the Network Code on Capacity Allocation Mechanisms, applicable only to European interconnection points, recently approved by comitology and pending of publication.[63]

Regarding the exempted LNG terminals, although offering the same standard service, most of them (i.e Adriatic LNG, South Hook LNG, Dragon LNG) when describing the services offered distinguish between the users who are iniciators or shareholders of the project and those who can contract capacity afterwards.

European LNG terminals also offered further services. The truck loading service is provided at Sines, Zeebrugge and all Spanish LNG terminals, and it will be launched in July 2013 by Montoir. Reganosa, Cartagena, Huelva, Sines and Zeebrugge terminals offer the possibility to load cargoes; besides, since early 2012, Montoir and Fosmax also offer this service. By end of 2012, Grain LNG launched an open season to gauge market appetite for truck loading services, depending on when regulatory and planning approvals are given, services could be up and running late 2014 / early 2015.[64] Besides Grain LNG is also exploring the possibility of offering ship loading services.

Spot services can also be contracted in some EU terminals. However, the way that the spot service is offered also varies from country to country. For example in France and in Italy the spot service is based on vacant slots available in the monthly scheduled at the book date. In Spain and Portugal spot cargos can also be contracted.

Table 11: Services offered at EU terminals.

Unloading																		
Storage																		
Regasification																		
Additional storage																		
Additional regasification																		
Tank to ship loading																		
Tanker cooling down																		
Tanker gassing up																		
Ship to ship loading																		
Truck loading																		
Ship approval																		
Quality adjustments																		
Odorisation																		
Nitrogen servicing																		
capacity trading																		
LNG inventory exchange																		
Storage capacity trading																		
Unloading slot trading																		

Service currently offered
Service to be provided in the short-term and/or announce by the TO

[1] Service planned for the 4th phase expansion project
[2] Planned for 2013
[3] Send-Out Postponement Service and early Send-Out Service: this additional regasification service allows shippers to send-out capacity 2 days in advance or to postpone send-out 2 days
[4] For the continuous service only unloading slots can be transfered. For the uniform service both number of unloadings and contractual quantities can be transfered.
[5] This service is offered in a bundled way with the ancillary services

Source: *Self-made*

5.2 Capacity allocation procedures.

The *First Come/First Served* principle is commonly applied in most of European LNG terminals.

Besides, in order to allocate long term capacity bookings or in the case of new investments in the facilities, open seasons procedures are increasingly used in Europe. In general, the open seasons are carried out as follows:

- An information memorandum is sent to potential players and published in press and on the concerned LNG terminal website.
- The interested parties get involved in the process and sign a confidentiality agreement.
- The parties sign conditional agreements.
- If the demand for capacity is greater than LNG terminals' supply, based on their investment programme, non-discriminatory and transparent priority criteria are used to decide between the applicants. These criteria are approved by the relevant national regulatory authority.
- The parties sign the Terminalling Contract.

In the case of LNG terminals exempted from rTPA according to article 36 of Directive 2009/73/EC, most of them were required to test market demand before the exemption was obtained. Testing market demand is a crucial element to evaluate the riskiness of a project and to assess to what extent the planned project enhances competition and security of supply, main conditions under which the exemption can be granted. In this cases, market demand is also usually tested via open season procedures, but other methods may be acceptable as well. This is the case of Grain LNG, Dragon LNG and Gate LNG.

On the other hand, some exempted LNG terminals, such as South Hook or Adriatic LNG, have allocated the primary capacity directly to the shareholders of the proyect.

The table below summarises the capacity allocation mechanisms applied in European LNG terminals.

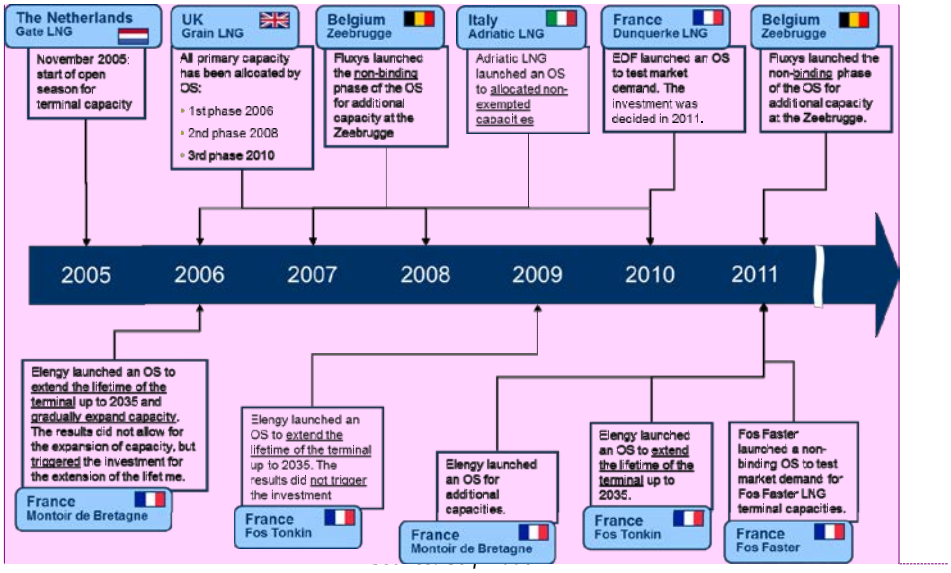
Table 12: CAM in EU LNG terminals.

Country	LNG terminal	Applied CAM
Belgium	Zeebrugge	New long-term capacities: open season Short-term capacities: FCFS
France	Fosmax LNG	FCFS OS for new investments OSPs in 2010 for allocation the capacities released by GDF Suez OSPs for short-term capacities at Fosmax LNG
	Fos Tonkin	
	Montoir de Bretagne	
Greece	Revithoussa	FCFS
Italy	Adriatic LNG	Long-term exempted capacity allocated to shareholders/iniciators of the project. Long-term non-exempted capacity: OS Short-term non exempted capacities are allocated for thermal year or monthly basis to: • parties who import periods between 5-10 years; • parties who import for periods of less than 5 years; When the requests exceed available capacity, pro-rata is applied.
	Panigaglia	Capacities are allocated for thermal year or monthly basis to: • parties with ToP import contracts signed before 10 August 1998; • parties with long-term import contracts; • parties with annual import contracts. When the requests exceed available capacity, pro-rata is applied.
Portugal	Sines	No long-term bookings, annual short-term allocation only
Spain	Barcelona	FCFS
	Cartagena	
	Huelva	
	Bilbao	
	Mugardos	
	Sagunto	
The Netherlands	Gate LNG	OS
UK	Dragon LNG	OS

	Grain LNG	OS
	South Hook	Capacity fully allocated to shareholders of the terminal.

The following sections provide an overview of the main open seasons carried out in Europe during the past years.

Figure 17: Open seasons in the EU.



5.2.1 Open seasons in Belgium.

In 2007 Fluxys launched a non-binding market consultation to gather interest in additional capacity at the Zeebrugge LNG terminal. 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

Besides, four years later, in 2011, based on the previous results of the 2007 OS, Fluxys launched in February 2011 a non-binding phase of its market consultation to assess the level of demand for additional capacity at the Zeebrugge LNG terminal. Against this backdrop, and in accordance with the new Code of Conduct, Fluxys LNG drew up proposals of new regulatory and contractual

documents for LNG terminalling services (Standard Agreement, Service Programme and Access Code). In September 2011, a formal market consultation was held with the various market players. Taking into account the feedback received and the economic investment climate, in 2012 Fluxys drew up the necessary regulatory documents as a basis for launching the binding phase of the market consultation.

5.2.2 Open seasons in France.

As regards France, Open seasons are also widely applied to assess market demand for new investments, either new LNG terminals, expansions of capacity, or extension of the useful life of the terminal.

Montoir de Bretagne

By end of 2006, the former GDF SUEZ Major Infrastructures Division nowadays, Elengy launched an invitation to subscribe for the development of new regasification capacity at Montoir de Bretagne LNG terminal. The intention, if the process was totally successful, was to extend the lifetime of the terminal up to 2035 and gradually add to the the terminal's delivery capacity – which already stood at 10 bcm/year –an additional annual capacity of 6.5 bcm in two phases, 2.5 bcm/year by 2011 and 4 bcm/year by 2014, ultimately taking total capacity to 16.5 bcm by 2014.

Elengy published a note on 29 December 2008 announcing that the process was finished and that the consultation process had allowed to approve the decision to renew the terminal capacities in order to extend the the terminal's lifetime up to 2035. Elengy expressed its willingness to expand the terminal's capacity and announced its intention to launch, under the same transparent and non-discriminatory conditions a new consultation process once the economic context allowed for it.

In May 2010, Elengy organized a wide discussion to collect market players input on market appetite for Montoir development. The Montoir open season has been launched in response to market signals, collected during this process, indicating a need for additional LNG import capacities.

In order to precisely assess the market needs for additional LNG import capacities, Elengy has decided to launch an open season procedure ("Montoir Open Season").

The Montoir open season will consist of the two following phases:

- A non binding phase ("Non Binding Phase"), which is expected to last for 6 months, in order to precisely define the expansion project that best fits the market needs;
- A binding phase following the Non Binding Phase in order to perform a market test based on binding commitments of parties for the selected project.

Fos Tonkin

In 2009 an open season to extend the useful life of Fos Tonkin beyond 2014 was also carried out. The Fos Tonkin open season was closed without allocating any capacity, although 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 to justify the investment required for the continuation project,

In 2011 Elengy has re-launched a consultation to the market on capacity at the Fos Tonkin terminal up to 7 bcm/year over a period of 20 years as of October 2014. The results of this public consultation have not been yet published.

Fos Faster

In 2011 Fos Faster carried out a non-binding Open Season in order to offer shippers the opportunity to subscribe regasification capacity of minimum 2 bcm/year on a long term basis (minimum 10 years) on a "process or pay" basis. Every subscription entitles its owner to the following range of firm rights: a number of unloading slots, LNG storage capacity and send-out capacity.[65]

During 2013 the final investment decision will be taken.

5.2.3 Open seasons in Italy.

Adriatic LNG

On November 19, 2007 Adriatic LNG announced an open season to solicit subscriptions by interested parties for non-exempted capacity, (i.e 20% of the total capacity)

Not the whole 20% of the capacity reserved for rTPA was allocated in the OS.[66] BP was awarded 1 bcm/yr of capacity at the Adriatic LNG terminal. At least 10 other companies participated in the bid, but Italian regulators haven't disclosed their identity. The rest of the capacity 0.6 bcm/year will be allocated on yearly basis.[67]

5.2.4 Open seasons in UK.

Grain LNG

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 December 2008.
- 5 Mtpa of expansion capacity has been contracted to Centrica, E.ON and Iberdrola, again on a long term basis from December 2010.

By end of 2012, Grain LNG launched an open season to gauge market appetite for truck loading services, depending on when regulatory and planning approvals are given, services could be up and running late 2014 / early 2015.[64]

5.3 Capacity booking procedures.

Capacities booking practices for primary capacies varies from one country to another. It mainly depends on the way capacity is allocated (i.e ad hoc OS, OSPs, *First Come First Served*, etc.)

LNG terminals that allocate primary capacity through Open Seasons do not have harmoniced capacity booking procedures. When an Open Season is to be launched ad hoc deadlines and content requests are established. This is the case of Zeebrugge LNG terminal or exempted terminals such as Grain LNG, Dragon or Gate.

Some LNG terminals have specific windows to book each type of primary capacity. In this cases, harmonise capacity booking procedures and clear the deadlines are established. This is the case of Fosmax and Italian terminals.

In order to book available and non-exempted capacity at Adriatic LNG, different windows are available:

- Annual Subscription Process. This process takes place during July each year and entitles terminal users to book annual capacity for the following thermal year.
- Monthly Subscription Process. This process takes place during the first ten days of the month (M-1) prior to the month (M) where the terminal user requests capacity for.
- Subscription of Spot Capacity. The LSO publishes specific deadlines for each spot capacity at the website.

Similar windows are in place at Panigaglia LNG terminal:

- Regasification capacity booking procedure at the start of the thermal year. This process takes place each year during July and allows terminal users to book multi-annual (5 years) or annual capacity for the next thermal year.
- Regasification capacity booking procedure during thermal year. This process takes place during the first ten days of the month (M-1) prior to the month (M) and allows terminal users to requests capacity for the remaining months of the thermal year.

Other LNG terminals, mainly those which allocate primary capacity under FCFS basis, do not have specific windows to book capacity, terminal users can request capacity whenever they want, is a continuous proccess. This is the case of Fos Tonkin, Montoir and Spainish LNG terminals. Although in the case in Fos Tonkin and Montoir, OSs were carried out for expansion projects.

Under the following table three different topics are analysed: the content of the request, the main deadlines and the different ways users can submit their requests to the LSO.

Table 13: Capacity booking procedures in EU LNG terminals.

Country	LNG terminal	Content of the access request	Deadlines	Booking tools
Belgium	Zeebrugge[68]	• Product requested (number of slots, additional capacity, additional storage) • Period (starting and ending date) • User information (name and contact details)	OS: Ad hoc deadline, from 3 February 2011 to 11 March 2011	Post
France	Fosmax LNG[69]	• User information (name and contact details • Capacity requested (number of contractual unloadings and contractual unloaded quantity	Befor 15 October 2012. If access request is sent after this deadline a feasibility study shall be necessary to verify the compliance of the request with the existing programs.	Email or fax
	Fos Tonkin	• LNG terminal name • User information (name and contact details) • Request type (feasibility or reservation) • Start and end dates • Quantities to be unloaded • Type of service	LSO will give an answer atmost 7 days since the reception of the request For the months of January and February of the year "n+1": unloading date requests received before 20th October of the year "n" are handled by no later than 1st November of the year "n". For the months of March to December of the year "n+1": unloading date requests received before 15 November of the year "n" are handled by no later than 15 December of the year "n". Capacity requests received beyond the deadlines cannot be	Email, post or fax

Country	LNG terminal	Content of the access request	Deadlines	Booking tools
	Montoir		accepted if they change the unloading and send-out programs of other shippers. For the month "m+1" of the year "n": unloading date requests regarding the month "m+1" and received after the 20th of the month "m" cannot be accepted if they change the unloading and send-out programs of other shippers.	
Greece	Revithoussa	• Quantities to be regas • Unloading plan for each month during which the contract will be in effect.	Users shall submit requests to the LSO at the latest 45 days before the beginning of the month in which there is programming of the first LNG load discharge for the applicant	No info available
Italy	Adriatic LNG	• User information (name and contact details) • Number of slots • Timing • Energy	Annual subscription process takes places during July Monthly subscription process takes place during the first 10 days of month M-1 Detail deadlines are published for spot capacity	Electronic Communitacion System

Country	LNG terminal	Content of the access request	Deadlines	Booking tools
	Panigaglia		The regasification capacity booking procedure at the start of the thermal year takes place in July each year The regasification capacity booking procedure during thermal year takes place during the first ten days of the month (M-1). Detail deadlines are published for spot capacity.	Fax
Portugal	Sines	No contracts are in place, capacity is not contracted but nominated		
Spain	Barcelona Cartagena Huelva Bilbao Mugardos Sagunto	• User identity • Type of user • LNG terminal name • Service requested (regasification or truck loading) • Quantity requested and usaged foreseen • Start date and duration of the service • Type of ships and unloading frecuency, regasification and/or truck loading profile	LSOs will submit to Enagás the access request atmost 6 days since the reception of the request After 12 days Enagás will send a viability report After 24 days the LSO shall send the potential user a response accepting or rejecting the request 24 working days after the acceptance of the request the contract must be signed	Email, post or fax
The Netherlands	Gate LNG	N/A		
UK	Dragon LNG	N/A		
	Grain LNG	N/A		
	South Hook	N/A		

5.4 Long term/short term capacity offering requirements.

Some EU LNG terminals reserve a proportion of the capacity to be offered in under short-term contracts.

Regarding French LNG terminals, no capacity ratio must be reserved for long term or for short term capacity contracts for Fos Tonkin and Montoir de Bretagne. On contrary, according to CRE's deliberation of December 15, 2003, 10% of Fosmax LNG terminal capacity is reserved for short term contracts.

In Spain, each TSO shall 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, up to 75% of each TSO total capacity will be dedicated to long term contracts, with duration above 2 years.

As previously mendioned, 20% of Adriatic LNG terminal capacity is subjected to rTPA, out of which 12.5% has already been allocated under long term contracts according to the procedures defined by the Italian Ministry of Economic Development and the Regulatory Authority for Electricity and Gas.

Table 14: Long-term / short term capacity requirements.

Country	LNG terminal	LT / ST ratio
Belgium	Zeebrugge	N/A
France	Fosmax LNG	10% of the capacity is reserved for short term contracts.
	Fos Tonkin	N/A
	Montoir de Bretagne	
Greece	Revithoussa	N/A
Italy	Adriatic LNG	7.5% of the capacity is reserved for short term rTPA contracts.
	Panigaglia	N/A
Portugal	Sines	N/A
Spain	Barcelona	25% of the sum of the total entry capacities are reserved for short term contracts, with duration under 2 years.
	Cartagena	
	Huelva	
	Bilbao	
	Mugardos	
	Sagunto	

The Netherlands	Gate LNG	N/A
UK	Dragon LNG	N/A
	Grain LNG	
	South Hook	

5.5 Contracts duration.

While most of the primary capacities at European LNG terminals remain booked under long-term contracts, many European terminals offer nowadays a combination of long-term and short-term products. The situation varies from country to country.

As regards Zeebrugge LNG terminal in Belgium, both long-term and short-term contracts are possible. Meaning long-term the contract covering capacities and services allocated after an open season, and short-term, for example, the service of one slot or ship loading. However, capacities at Zeebrugge are fully subscribed 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.

In France the contracts duration varies from one terminal to another. In the case of Fos Tonkin and Montoir de Bretagne, the following types of contracts in terms of duration are available:

1. Infra-annual (or short term contract): access contract with a term strictly less than 12 months.

2. 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.

However, at Fosmax LNG LNG terminal long-term contracts conclude for a term in excess 36 months, whereas short-term contracts are signed for a single cargo ("spot" contract) or concluded for a term equal to or less than 36 months.

In Greece the minimum duration of contracts is one month or for integer multiplers thereof, no maximum duration is especified.

At regulated capacities in Italy (i.e Panigaglia and 20% of Adriatic), regasification shall be contracted at the beginng of the thermal year for periods equal to one year (annual booking) or more than one thermal year (pluriannual booking), up to a maximum of 5 years.

In Portugal contracts have a maximum duration of one year being automatically renewed for similar periods, unless otherwise stated by the counterparty.

On contrary, in some LNG terminals, such as the Spanish ones, there are no specified duration, all types of contract durations are accepted. There are no limits on long-term contracts and short-term contracts can be signed for periods as short as 1 day.

Looking at exempted LNG terminals, all primary capacity all primary capacity has been allocated to long-term contracts with a duration of 20 years. The contract duration coincides with the exemption duration granted by the European Commission.

The table below summarises de contract duration in each LNG terminal as well as the main counterparties that have booked primary capacity at the terminal, the latter information is provided based on public available information.

Table 15: Contracts duration in EU LNG terminals.

Country	LNG terminal	Contracts duration	Users
Belgium	Zeebrugge	Long-term contract: referred to the contract covering capacities and services allocated after an open season. Spot contract: referred to the booking of capacities and contracts under short term basis (for example: the service of one slot or ship loading).	Primary capacity fully booked for 20 years (2007-2027) by: Qatar Terminal Limited, Distrigas and Suez LNG trading
France	Fosmax LNG	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.	90% of the capacity at Fosmax LNG was previously allocated to the sponsors of the project and owners of the terminal: GDF SUEZ and Total 10% of the capacity allocated to EDF, appointed as beneficiary as agreed by Essent Energy Trading, Distrigaz, ENI and EDF
	Fos Tonkin	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	Several users
	Montoir de Bretagne		
Greece	Revithoussa	The minimum duration of LNG Agreements shall be one month or for integer multiples thereof.	

Country	LNG terminal	Contracts duration	Users
Italy	Adriatic LNG	80% of the terminal capacity (exempted capacity) is under a 25 year sales and purchase agreement.	80% of the terminal capacity (exempted capacity) is reserved for LNG supply from RasGas to Edison. 12.5% of the terminal capacity (non-exempted capacity) has been contracted by BP.
	Panigaglia	Regasification capacity 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 years.	Several users, capacity mainly booked by Eni and Enel
Portugal	Sines	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	
Spain	Barcelona	No specified duration, all types of contract durations are accepted. Short-term contracts can be signed for periods as short as 1 day. No limits on long-term contracts	Several users in each terminal.
	Cartagena		
	Huelva		
	Bilbao		
	Mugardos		
	Sagunto		
The Netherlands	Gate LNG	Long-term contracts	Dong Energy, EconGas OMV International, RWE Supply & Trading, Eneco and E.ON Ruhrgas.
UK	Dragon LNG	All the primary capacity has been contracted on long-term basis (20 years)	BG Group and Petronas Energy Trading Limited.
	Grain LNG	All the primary capacity has been contracted on long-term basis (20 years)	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.

Country	LNG terminal	Contracts duration	Users
	South Hook	All capacity rights have been sold for a period of 25 years.	South Hook LNG entered into a capacity agreement with South Hook Gas Company, who has contracted the full capacity of each phase by the shareholders of the LNG terminal. South Hook Gas has signed agreements for access to spare LNG import capacity with Total Gas & Power, ConocoPhillips, EGL, Trafigura and Chevron.

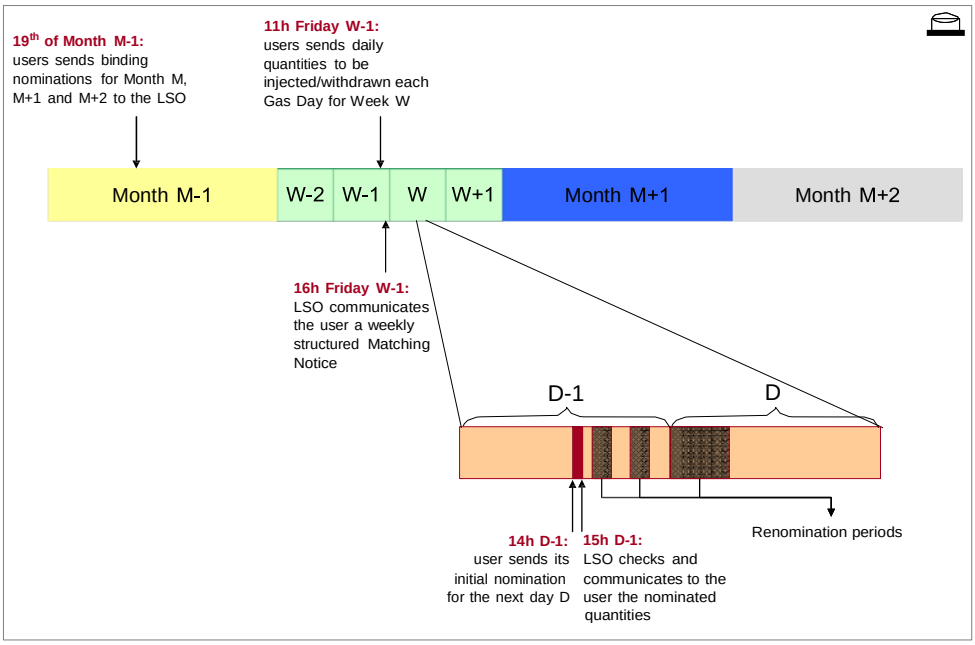
5.6 Programming / Nomination procedures.

The procedures for organizing the nomination procedures can be either determined by the NRAs or by LSOs.

The time schedules used for requesting users to nominate the yearly, monthly and daily utilization of the terminals are rather similar, and are closely linked to the nomination requirements in downstream networks. The flexibility for shippers to modify their nominations depends on the business model of the terminal, ultimately determined by the role fulfilled by the terminal in the system to which it is connected. The most extended procedures impose binding monthly programs on users, so the LSO can arrage the unloading of cargos.

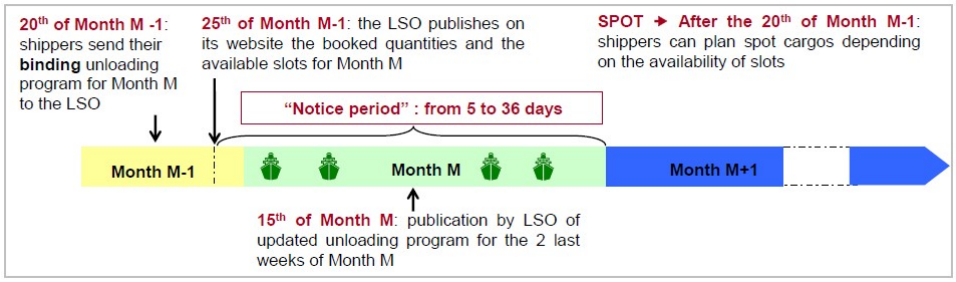
The following figures below show the nomination procedures for each EU LNG terminal.

Figure 18: Nomination procedures for send-out capacity at Zeebrugge LNG terminal.



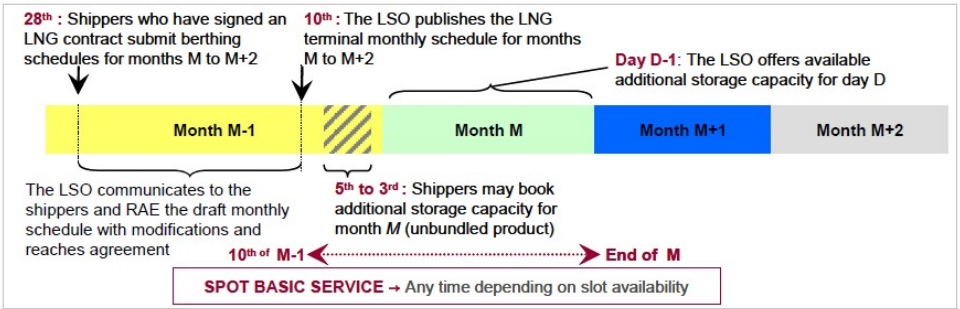
Source: *Terminalling Code – Fluxys LNG and self made.*

Figure 19: Nomination procedures at French LNG terminals.



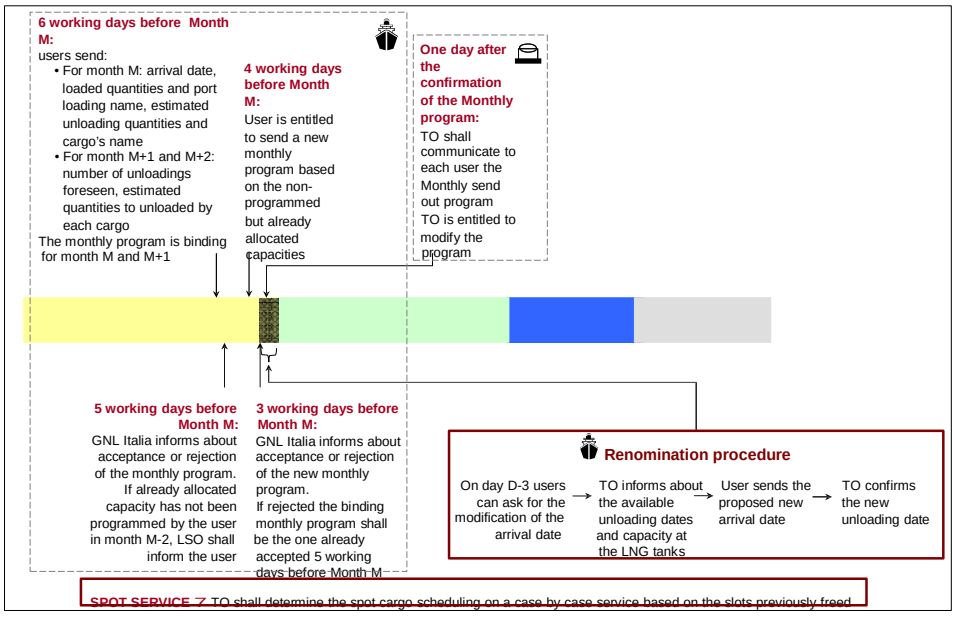
Source: *"Final ERGEG study on congestion management procedures & anti-hoarding mechanisms in the European LNG terminals" by CEER and CRE.*

Figure 20: Berthing nomination procedures at Revithoussa LNG terminal.



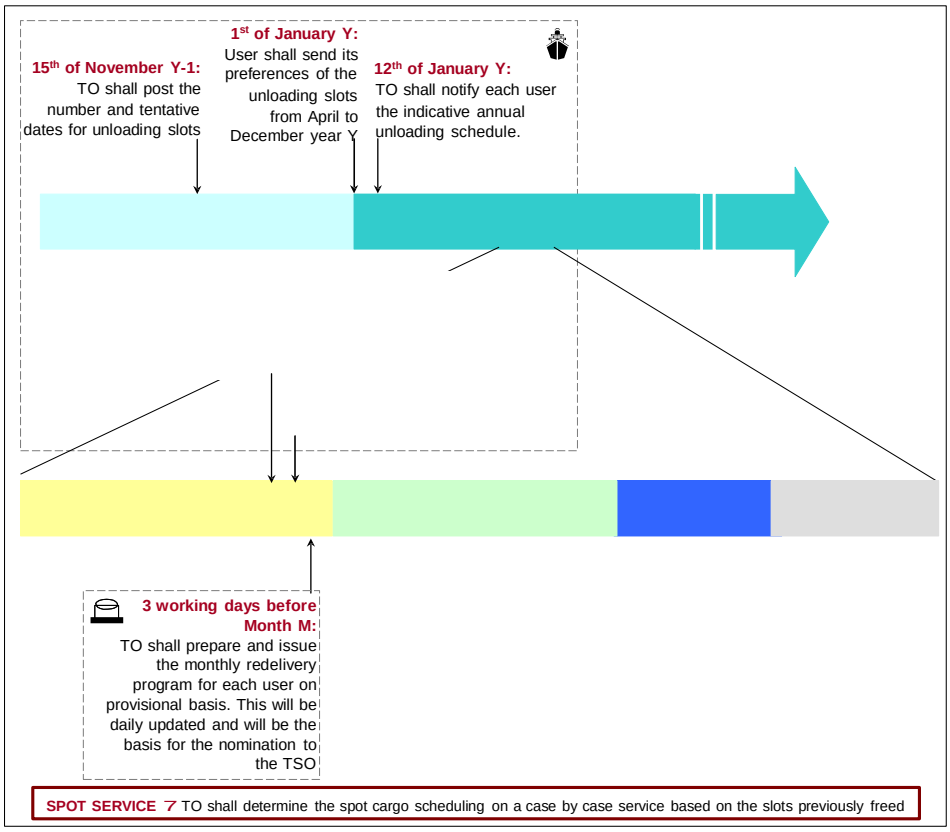
Source: *"Final ERGEG study on congestion management procedures & anti-hoarding mechanisms in the European LNG terminals" by CEER and RAE.*

Figure 21: Nomination procedures at Panigaglia LNG terminal.



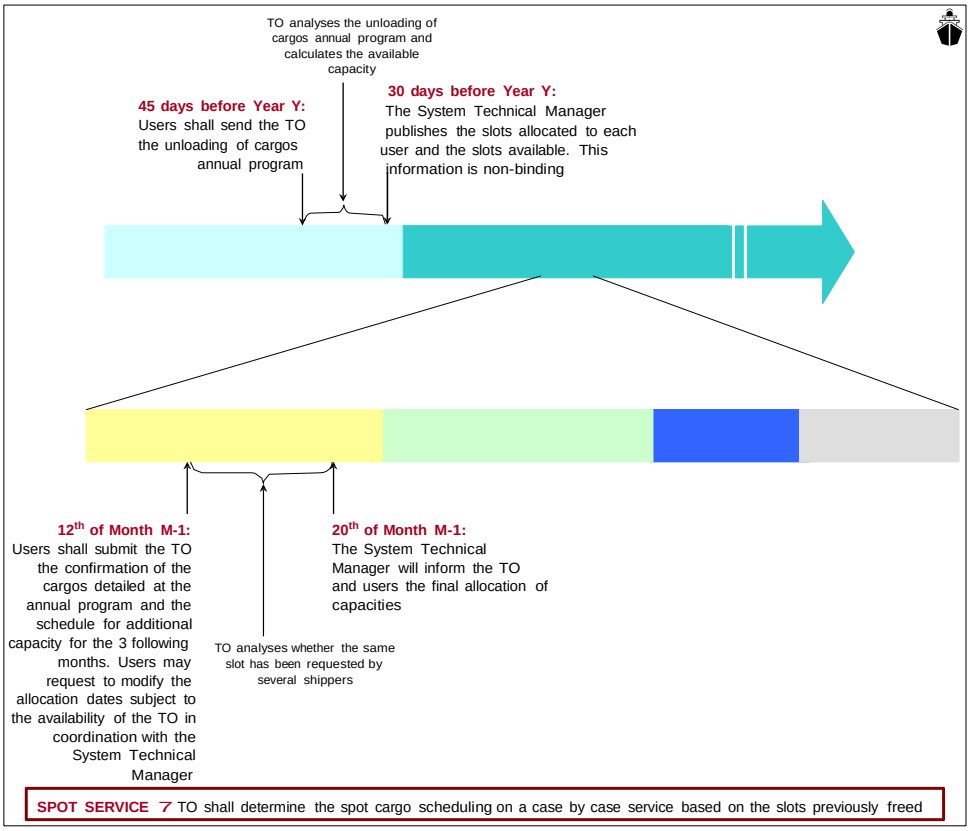
Source: *Codice di Regassificazione chapter 9 and self made.*

Figure 22: Nomination procedures at Adriatic LNG terminal.



Source: *Adriatic LNG Access Code Chapter II – Section 3 and self made.*

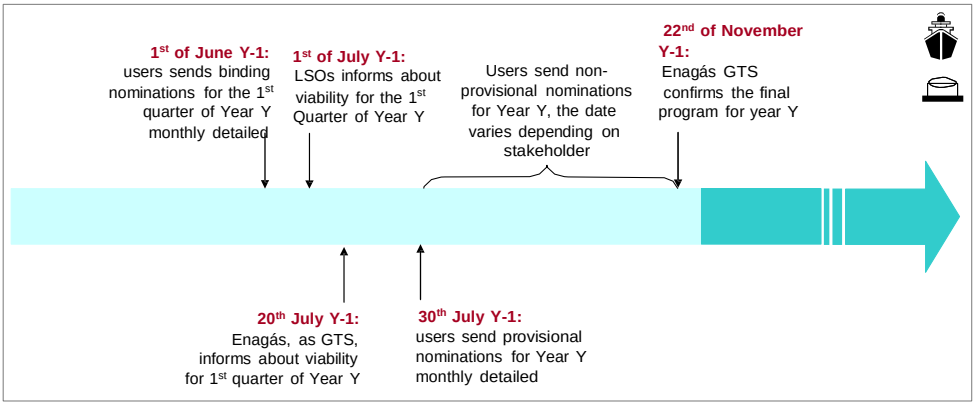
Figure 23: Annual and Monthly Programming Procedure.



Source: *"Mecanismo de atribuiçãda capacidade no terminal de GNL", ERSE*

The following figures summarise the programming / nomination procedures at all Spanish LNG terminals.

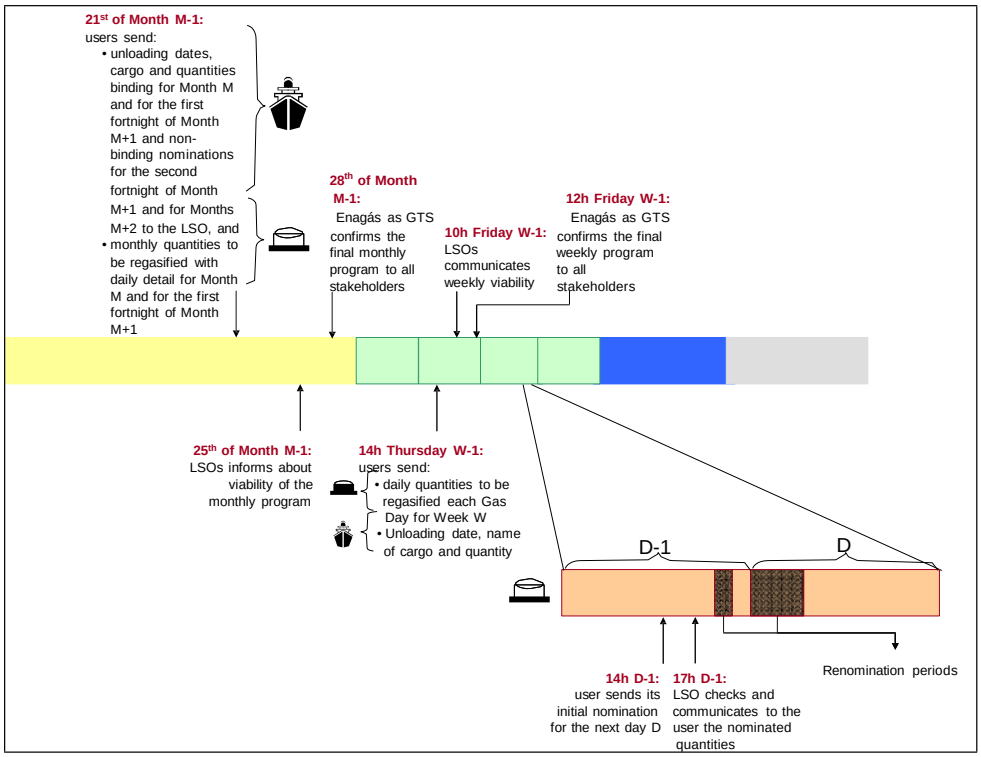
Figure 24: Annual nomination procedures[7] at Spanish LNG terminals.



Source: *PD-07 Enagás and self made.*

[7] The annual nomination procedure is applicable to the unloading of cargos, the regasification capacity, truck loading and exchanges at LNG tanks.

Figure 25: Monthly, weekly and daily nomination procedures at Spanish LNG terminals.



Source: *PD-07 Enagás and self made.*

The following table summarizes the programming and nomination procedures in place in each EU terminal.

Table 16: Programming / nomination procedures in EU LNG terminals.

Country	LNG terminal	Annual	Quarterly	Monthly	Weekly	Daily
Belgium	Zeebrugge		✓		✓	✓
France	Fosmax LNG	✓	✓	✓	✓	✓
	Fos Tonkin					
	Montoir de Bretagne					
Greece	Revithoussa	✓		✓		
Italy	Adriatic LNG	✓		✓		✓
	Panigaglia			✓		✓
Portugal	Sines	✓		✓		
Spain	Barcelona					
	Cartagena					
	Huelva	✓	✓		✓	✓
	Bilbao					
	Mugardos					
	Sagunto					
The Netherlands	Gate LNG	No info available				
UK	Dragon LNG	No info available				
	Grain LNG	No info available				
	South Hook	No info available				

5.7 Congestion management procedures.

Congestion Management Procedures (CMP) are applied at LNG terminals to promote the effective use of the capacities and to avoid capacity hoarding.

There are different CMPs applied in each LNG terminals, ex-post or ex-ante UIOLI are currently the most common CMP applied in European LNG terminals.

An ex-ante mechanism implies that each reserved capacity service that is not going to be used by the capacity holder must be offered to the market. In an ex-ante system, transparency and updating of information are fundamental. On contrary, in an ex-post system, the rate of utilisation of the capacity is supervised afterwards. Should the terminal user that has reserved capacity on the terminal not use a certain amount of it, for a certain period of time, the contracted future capacity rights, or part of them, will be lost.

Secondary markets and firm UIOLI are currently the most common CMPs applied in the European LNG terminals.

Find below a table summarising the CMPs applied at each LNG terminal.

Table 17: CMP in EU LNG terminals.

Country	LNG terminal	CMP applied
Belgium	Zeebrugge	Secondary market
France	Fosmax LNG	Secondary market Penalty for late cancellation of a scheduled unloading operation Ex-post UIOLI
	Fos Tonkin	
	Montoir de Bretagne	
Greece	Revithoussa	UIOLI
Italy	Adriatic LNG	Ex-post UIOLI and ex-ante UIOLI
	Panigaglia	
Portugal	Sines	Capacity is allocated through auctions in case of congestion
Spain	Barcelona	UIOLI
	Cartagena	
	Huelva	
	Bilbao	
	Mugardos	
	Sagunto	
The Netherlands	Gate LNG	UIOLI Secondary market
UK	Dragon LNG	Secondary market

	Grain LNG	UIOLI: Auctions held by primary holders
	South Hook	

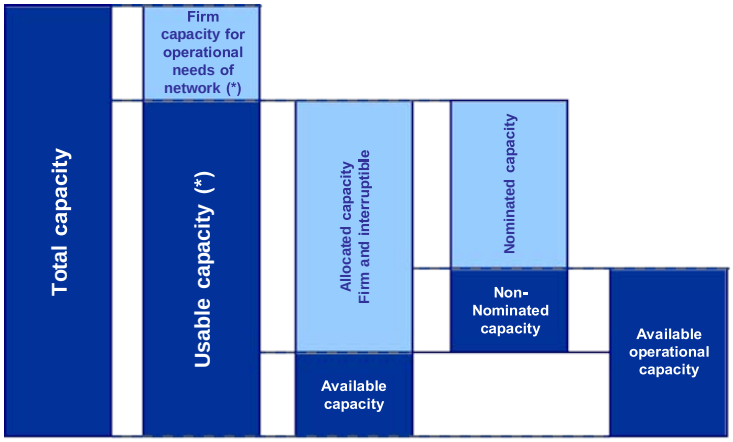
5.8 Method for calculating usable, available and unused capacities.

Information about usable, available and unused capacity at LNG terminals is an important indicator for market participants as it determines the possibility to access market regions in Europe.

Although the majority of the LSOs publish the methodology for calculating capacities at the LNG terminal, this is not an obligation included in EU Regulation. However, according to article 19 of Regulation 715/2009 LNG system operators shall make public the amount of gas in each LNG facility, inflows and outflows, and the available 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.

Find below the capacity calculation for the terminals where this information is available.

Figure 26: Capacity calculation at the Zeebrugge LNG terminal.



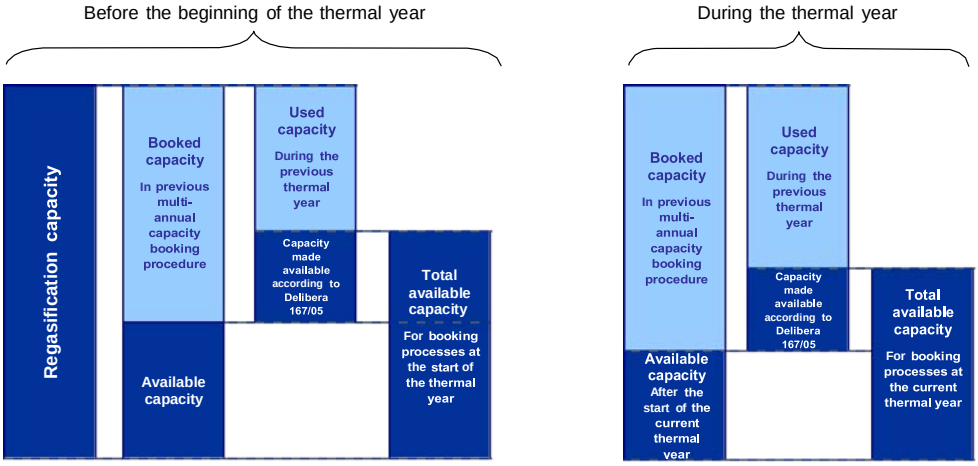
(*) including, if the case arises, capacities made interruptible for operational needs of the transport network

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

Due to the special technical characteristic of Adriatic LNG terminal and the variables that can be ascertained only during the start up period, the TO will determine and publish the terminal capacity for the first thermal year and for the immediately subsequent thermal year as soon as it is reasonably able to do so.

As regards, Panigaglia LNG terminal, the calculation of the available capacity is summarises in the following figure.

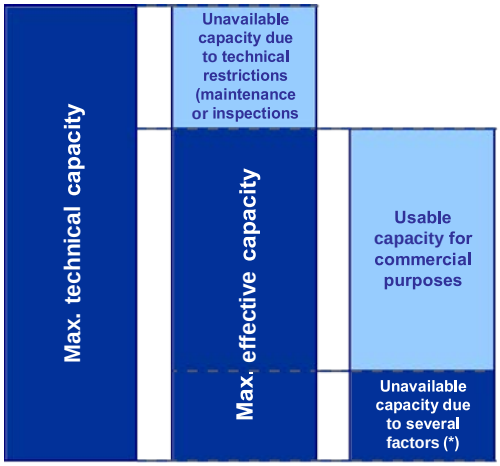
Figure 27: Capacity calculation at Panigaglia LNG terminal.



Source: *GNL Italia.*

Sines is the terminal in which more detailed calculation procedures are available.

Figure 28: Capacity calculation at Sines LNG terminal.

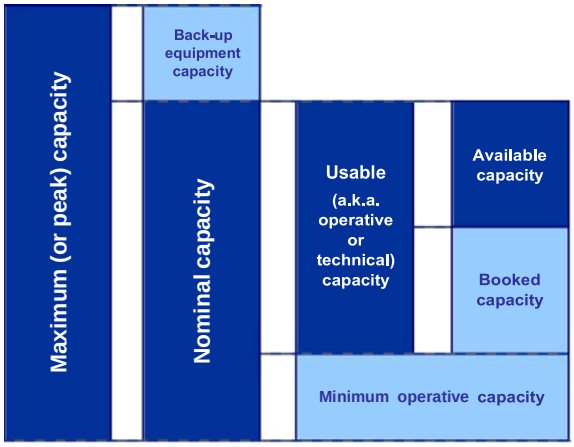


(*) When calculating the usable capacity for commercial purposes several correction factors are applied: deviation between the average expected LNG carrier and the standard as basis for calculation (125,000m3), LNG terminal load factor and restrictions in the downstream network

Source: *REN website and self-made.*

All Spanish LNG terminals follow the same procedure for the calculation capacities is reviewed in the next figure.

Figure 29: Capacity calculation at the Spanish LNG terminals.



Source: *NGTS-02.*

5.9 Send-out requirements.

Taking into account that each LNG terminal has each own characteristics, the maximum or minimum send-out rate widely varies from one terminal to another.

In Zeebrugge LNG terminal the standard slot includes the basic send-out right of 4.20 GWh/h during 20 high tides (≈250 hours). However if the total terminal nominations do not reach a level, users shall increase their nominations at the LSO request:

- If the total terminal nominations of the terminal terminal users are less than 0.92 GWh/hour, then, the shall increase their nominations to an aggregate total of 0.92 GWh/hour pro rata to each terminal user's gas in storage.
- If during the unloading of a carrier, the total terminal nominations of the terminal users are less than 4.60 GWh/hour, the LSO may oblige the 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.
- If up to 36 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, the LSO may oblige the user, whose LNG carrier was the last to be unloaded, to increase, in addition to the terminal user's obligations mentioned two paragraphs bellow, its terminal nominations by up to 0.68 GWh/hour.

The send-out requirements at French LNG terminals are related to the user's profile of LNG delivery. Users can either subscribe to a "30-day band" emission service or to a continuous service. The "30-day band" emission service is designed for small/medium users who unload less than 12 cargos over the year, in this case, the regasification of one cargo is spread out over 30 days through constant emissions to the transmission network. Under the continuous service, designed for medium/large users who unload more that 10 cargo over the year, the LSO provides a continuous emission over the contractual period, as regular as possible for the user. Besides, spot cargos are regasified under the "30-day band" format.

On contrary, the quantities regasified at Revithoussa LNG terminal mainly depend on the necessary quantities needed downstream by transmission users. Besides, the minimum daily send-out rate of is defined to be the minimum quantity of LNG must be regasified per day so that it is possible to ensure the uninterrupted operation of the LNG facility.

The guaranteed daily production at Panigaglia LNG terminal may not exceed 17,500 m^3liq/day, and must be considered equal to 0 when the tanks reach a level corresponding to an LNG volume of 10,000 m^3liq.

The minimum send-out of Sines LNG terminal under normal circumstances is up to 67.500 m^3(n)/h and during the unloading of a LNG cargo or after the 12 consecutive hours is up to 135.000 m^3(n)/h.

At Spanish LNG terminals 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, Energy and Tourism has developed the so-called "Winter Plan". According to the latest plans, the volumes kept by user during the winter season at LNG tanks shall be at least three days of the daily regasification capacity booked. The latest "Winter Plan" published refers to 2011-2012.[70]

In the UK, the send-out requirements vary from one terminal to another. Grain LNG send-out rate is over 5 to 12 days depending on the phase, in Dragon LNG is over 10 days and in South Hook is over 7 days

5.10 Balancing regime/ Management of LNG stock levels.

Only regulated LNG terminals provide public information of the balacing regime. Although not the information given is not very detailed at neither of the facilities.

In general, all the terminals balance the LNG at the tanks every day in order to provide users the quantities stocked. The inventory variation for any given day is summarised by the following formula:

$$InitialStock \quad GasEntries \quad Losses \quad OwnConsumption \quad GasExits \quad FinalStock \quad GasExchanges \quad 0$$

5.11 Own consumption record and gas in kind.

The definition of own consumption record and gas in kind varies from one LNG terminal to another.

At Zeebrugge LNG terminal the gas in kind is set in 1.30%. However, 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 LSO'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%.*

According to Fluxys the actual fuel gas reimbursement percentage in 2010 accounted for 1%.

As regards France, the LSO shall take off 0.50% of the total unloaded quantities as payment for gas in kind for Montoir and Fosmax LNG and 0.20% for Fos Tonkin. However, the part of the gas off taken that is not used by the operator is returned to the customers. In 2011, 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 Fosmax LNG and 0.08 for Fos Tonkin.

In the Greek case, by September 1 of each year the LSO publishes, following approval by RAE, an estimate for the value of the approved LNG facility losses coefficient that will be in effect for the next year. During a year the value of the approved LNG facility losses coefficient can be revised after approval by RAE and upon LSO request.

In Italy, the Authorità yearly published by Delibera the gas in kind percentages for Panigaglia and Adriatic LNG terminals. For the thermal year 2012/2013[78] these percentages are set at 1.7% for Panigaglia and 0.66% for Adriatic LNG.

In the Spanish case, the percentage for own consumption is yearly established by the Ministerial Order based on studies carried out by the LSO. For the year 2013, the gas in kind at 0.01%.[71]

On contrary, at Sines LNG terminal users do not have to provide any gas in kind to access the LNG terminal.

As regards the exempted terminals, the gas in kind percentage is not provided.

Table 18: Own consumption at EU LNG terminals.

Country	LNG terminal	Theorical own consumption
Belgium	Zeebrugge	1.30 %
France	Fosmax LNG	0.20 %
	Fos Tonkin	0.20 %
	Montoir de Bretagne	0.50 %
Greece	Revithoussa	No data available
Italy	Adriatic LNG	0.66 %
	Panigaglia	1.70 %
Portugal	Sines	0.00 %
Spain	Barcelona	0.01 %
	Cartagena	
	Huelva	
	Bilbao	
	Mugardos	
	Sagunto	
The Netherlands	Gate LNG	No data available
UK	Dragon LNG	No data available
	Grain LNG	No data available
	South Hook	No data available

5.12 Charges and penalties for imbalance, cancellation and other, including Ship-or-Pay and minimum payment obligations.

Different charges and penalties are applied in each LNG terminal. In general the most common penalties applied at EU are for late cancellation of an unloading, for late arrival of a cargo or for not complying with the quantites previously scheduled.

The following table summarises the charges, penalties and minimum payment obligations applied at EU terminals.

Table 19: Charges, penalties and minimum payment obligations at EU LNG terminals.

Country	LNG terminal	Charges/penalties/minimum payment obligations
Belgium	Zeebrugge	• For slot or additional service lost or interrupted • For early termination of contracts • For late arrival of the cargo • For exceeding the allowed laytime
France	Fosmax LNG	• For late cancellation of the cargo • For exceeding the allowed laytime • For unloading quantities below 95% the contracted capacity • For unloading less than 95% of the contracted number of unloading operations • If the mean interval between cargos multiplied by the total quantities unloaded is less than 95% of the mean interval between LNG carriers calculated on the basis of the contractual number of unloading operations multiplied by the contractual quantity unloaded • For seasonal difference less than 95% of the contractual schedule
	Fos Tonkin	
	Montoir de Bretagne	
Greece	Revithoussa	• For cancellation of a cargo • For exceeding the allowed laytime • For mandatory adjustment of the regas quantities
Italy	Adriatic LNG	• For not complying with the laytime • For not complying the quality specifications • For not complying with the regas quantities previously scheduled
	Panigaglia	• For rescheduling an unloading of a cargo • For cancellation of a cago • For nor carring out the unloading withing the unloading window • For not complying with the laytime • For not complying the quality specifications • For not complying with the regas quantities previously scheduled

Country	LNG terminal	Charges/penalties/minimum payment obligations
Portugal	Sines	• For not complying with the quantities nominated • For not using the slot • For not maintaining the minimum stock levels at the terminal
Spain	Barcelona	• For LNG stored in exceess • For nominations below 85% or over 105% the daily contracted capacity • For delays in the unloading of the cargoes • For imbalances
	Cartagena	
	Huelva	
	Bilbao	
	Mugardos	
	Sagunto	
The Netherlands	Gate LNG	No data available
UK	Dragon LNG	No data available
	Grain LNG	No data available
	South Hook	No data available

5.13 Financial guarantees.

In order to guarantee payment obligations, terminal users must provide financial guarantees or be in possession of a credit rating.

Users of Belgian, French, Portuguese and Spanish LNG terminals have to deposit a bank guarantee in favour of the TO in order to guarantee their payment obligations under the contract. These bails are calculated on the basis of the TPA tariffs.

At Panigaglia LNG terminal, users must provide three different types of financial guarantees:

- to cover the payment related to the obligations of the regasification contract, the user has to be in possession of a credit rating equal to or greater than BBB (S&P)
- for the provision of the service users shall deposit a financial guarantee to cover the obligations for an amount up to 3% of the annual payment obligations established in the contract, and
- to cover the payment of the penalty for the missed subscription of the regasification contract for the indicated quantity obligations, the user shall deposit a financial guarantee for an amount equal to 20% of the maximum payment obligations established in the contract.

On contrary, at Adriatic LNG terminal shippers to cover the payment obligations related to the regasification contract have to be in possession of a credit rating equal to or greater htan BBB (S&P).

The financial guarantees at Revithoussa are established in the LNG Agreement each user signs with the TO.

The following table summarises the financial guarantees necessary to contract capacity at each LNG terminal in the EU.

Table 20: Financial guarantees at EU LNG terminals.

Country	LNG terminal	Financial guarantees
Belgium	Zeebrugge	Bank guarantee calculated on the basis of the total amount of the invoices anticipated for the contractual year
France	Fosmax LNG	Bank guarantee equal to: • for the contract period for which the vessels program is known, the amount due for the 2 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: o one sixth of the users's minimum payment obligations[8] multiplied by the number of contractual years o the minimum of the following: o the users's minimum payment obligations, o 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.
	Fos Tonkin Montoir de Bretagne	Bank guarantee calculated on the basis of the number of vessels and quantities unloaded during 2 months of at least 4 billing periods, or the whole billing period

[8] If at the end of a billing period, the total unloaded quantities or the total unloading operations performed or the used of the reception capacity or the seasonal variation is less thant 95% of the contractual quantities, the user shall pay to the TO at least 95% of the contractual quantities

Greece	Revithoussa	Specified in the LNG Agreement that each user signs with the TO
Italy	Adriatic LNG	Credit rating equal to or greater than BBB (S&P)
	Panigaglia	Credit rating equal to or greater than BBB (S&P) and bails
Portugal	Sines	Bank guarantee to ensure a period of (45+n) days of estimated billing, being "n" the number of days, with a maximum of 15, as agreed under particular conditions
Spain	Barcelona	Bank guarantee equal to 12 times the fixed term of the TPA tariff applied over 85% of the capacity booked by user
	Cartagena	
	Huelva	
	Bilbao	
	Mugardos	
	Sagunto	
The Netherlands	Gate LNG	No data available
UK	Dragon LNG	Applicant who wishes to contract secondary capacity must make a payment of £6,000 plus VAT to each primary user
	Grain LNG	No data available
	South Hook	Only applicable for the secondary market. Credit requirements not publicly available

5.14 Secondary market.

Most LNG terminals in the EU have in place a secondary market although its functioning varies from country to country. The secondary market can be considered a effective procedure in case of contractual congestion and to prevent capacity hoarding. LNG terminal users are required to place back on the market all the capacity they do not intend to use.

Some LNG terminals such us Zebbrugge, the Spanish and the French ones have in place Bulletin Boards where users publish the slots they do not intend to use or the slots they are willing to contract.

As regards Zeebrugge LNG terminal, users have the possibility to negotiate unused capacity on the secondary market at a price inferior or equal to the regulated tariff. In particular, more than 20 days before the start date of the slot, the user of the LNG terminal can only sell its slots on the secondary

market in the form of full slots (without breaking them down into their constituent services). From 20 days before the start date of the slot, the user of the LNG terminal can sell the different services that constitute a slot separately on the secondary market.

At French LNG terminals initial users are entitled to offer their unused capacities on the secondary basis by entering into bilateral basis. Reselling primary capacity is the user's choice; whereas the TO is only the facilitator by providing a Bulletin Board where the two parties meet. Besides, a charge is applied for using the Bulletin Board: the publication of a capacity transfer/acquisition offer on the secondary market costs €2,000, and the publication of an anonymous transfer/acquisition offer costs €4,000.

As regards the Spanish LNG terminals, Enagás has made available to its users a Bulletin Board at its website to facilitate secondary capacity market. Enagás does not bill any extra charge for this service. Users 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 relacionship between Enagás and the initial user will not be modified in any case.

- Resell of capacity. The capacity contract signend by the initial user will be transferred to the user contracting capacity in the secondary market; this implies that the rights and obligations will also be transferred to the second user.

Secondary capacity markets are not active at Revithoussa LNG terminal. The Code establishes the conditions for transferring booked regasification capacity between users and the conditions for resaling the LNG stored in the tank.

The situation at Panigaglia and Adriactic LNG is quite similar, there is no secondary market but the both Regasification Codes establish the conditions for exchanging regasification capacity between LNG terminal users.

Through this service, users shall contact between themselves and arrange the exchanges of LNG. Once users have organised the exchange, they shall inform the TO of the respective requests detailing the capacity expressed in m^3_{liq}, the exchange period (month/s), the daily regasification capacity related to the exchange dates and the number of unloadings.

Taking into account that in Portugal the unbundling process has not being totally implemented, and there is only one terminal user, the secondary market procedures are still not implemented. However, by mid 2010 the Portuguese NRA established a mecanishm to incentivise the regulated exchanges of LNG between existing users of the portugueses natural gas system and new comers.

Users allowed to use this incentive are those who wish to deliver at Sines a quantity greater than or equal to 2 TWh, equivalent to about 4 ships of 70,000 m^3 of LNG. Through the mecanishm to incentivise the regulated exchanges of LNG the new entrants shall pay the existing user the regulated tariff for LNG exchanges.

Extempted LNG terminals in the UK (i.e Isle of Grain, South Hook and Dragon LNG) have in place secondary markets to prevent capacity hoarding by primary users in accordance with the conditions

set by Ofgem in the exemption orders.

In every terminal, primary holders of capacity have the right to offer their unused capacities on the secondary market, either by entering into bilateral deals or through their formal secondary market, whereby slots are sold by auctions and notice periods vary from 7 days to 10 days before the unloading date.

Thus, at Isle of Grain phases 1 and 2, parties interested in obtaining secondary capacity need to contact primary capacity holders who publish on their own website the available berthing slots from 10 to 7 days for Grain phase 1 and from 14 to 12 days for Grain phase 2 before the slot date. On D-7 to D-12, the berthing slot is sold by auctions. Similar arrangements are currently put in place at Isle of Grain 3.

In Dragon, the unused capacity is sold by auctions on the Dragon website and notification of the auction is given at least 12 working days before the berthing slot. Each primary shipper sets a reserve price for the slot (to take into account the market value of the slot and the cost of emptying tanks). The successful bidder is notified at least 8 days before the berthing slot date.

In South Hook, 14 days in advance of each day, the TO assesses whether a release of the slot is possible. If so, the slot is sold by auctions. The winning bid is announced in D-10.

Table 21: Secondary market in EU LNG terminals.

Country	LNG terminal	Secondary market in place
Belgium	Zeebrugge	✓
France	Fosmax LNG	✓
	Fos Tonkin	✓
	Montoir de Bretagne	✓
Greece	Revithoussa	Transfers of booked regasification capacity
Italy	Adriatic LNG	Exchanges between LNG terminal users
	Panigaglia	Exchanges between LNG terminal users
Portugal	Sines	
Spain	Barcelona	✓
	Cartagena	✓
	Huelva	✓
	Bilbao	✗
	Mugardos	✗
	Sagunto	✗
The Netherlands	Gate LNG	✓
UK	Dragon LNG	✓
	Grain LNG	✓
	South Hook	✓

5.15 Limitation in vessel size.

The technical characteristics of existing LNG terminals limit the maximum vessel size that is able to unload at each LNG terminal. The following table provides a detailed description of the type of vessels that can unload at each LNG terminal:

Table 22: Limitiations in vessels size in EU LNG terminals.

Country	LNG terminal	Vessels size
Belgium	Zeebrugge	Minimum: 40,000 m^3 Maximum: 135,000 m^3
France	Fosmax LNG	Maximum: 216,000 m^3
	Fos Tonkin	Maximum: 75,000 m^3
	Montoir de Bretagne	Maximum: 216,000 m^3
Greece	Revithoussa	Maximum[9]: 135,000 m^3
Italy	Adriatic LNG	Maximum: 152,000 m^3
	Panigaglia	Maximum: 65,000 - 70,000 m^3
Portugal	Sines	Minimum: 35,000 m^3 Maximum: 165,000 m^3
Spain	Barcelona	At present, all LNG terminals are prepared for dealing with cargoes up to at least 140,000 m^3. Some Spanish terminals are already prepared to receive Q-Flex (between 210,000 m^3 and 216,000 m^3) and Q-Max (266,000 m^3) vessels
	Cartagena	
	Huelva	
	Bilbao	
	Mugardos	
	Sagunto	
The Netherlands	Gate LNG	Maximum: 267,000 m^3
UK	Dragon LNG	Maximum: 217,000 m^3
	Grain LNG	Minimum: 70,000m^3 Maximum: 205,000m^3
	South Hook	Maximum: 265,000m^3

[9] Bigger ships may be accommodated under certaion conditions, the facilities can accommodate LNG vessels with a length of maximum 290 m and a draft of maximum 11.43 m.

5.16 Standard contracts.

Standard contracts facilitate access to LNG terminals in EU. The next table specifies whereas a standard contract is in place at each LNG terminal.

Table 23: Standard at EU LNG terminals.

Country	LNG terminal	Standard contract in place
Belgium	Zeebrugge[10]	✗
France	Fosmax LNG[56]	✓
	Fos Tonkin[57]	✓
	Montoir de Bretagne[57]	✓
Greece	Revithoussa[72]	✓
Italy	Adriatic LNG[11]	✓
	Panigaglia	✓
Portugal	Sines[73]	✓
Spain	Barcelona[74]	✓
	Cartagena[74]	✓
	Huelva[74]	✓
	Bilbao	✓
	Mugardos	✓
	Sagunto	✓
The Netherlands	Gate LNG	✓
UK	Dragon LNG[12]	✗
	Grain LNG	✗
	South Hook[13]	✗
		✗

[10] 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".

[11] 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").

[12] Dragon does not offer any information on the "standard contracts" to access the facility. However, the "Customer Information

5.17 TPA tariffs.

Current access tariffs to the LNG terminal in Belgium are in force since April 1st 2007 to March 31st 2027. The TPA tariffs, expressed in 2003 prices, are monthly updated by a formula that varies according to the Belgian Consumer Price Index.[75]

The following table shows the monthly slot price.

Table 24: TPA tariffs to the LNG terminal in Belgium, 2003.

		FLUXYS LNG
Slot	750,443	€/slot
Storage		
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
Send-out		
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
Commodity Element		
Gas in kind	1.30%	sent-out quantity

(*) Tariffs expresed as values of July 2003. The monthly index, starting in August 2003, is calculated as follows:
$0.65+0,35*I_{m-1}/I_{mo}$

Source: *Fluxys LNG website.*

CRE's Deliberation dated on 13 December 2012 approved new tariffs for the utilisation of LNG terminals from April 2013[76] for a duration of 4 years. This Deliberation introduced an increased of

[13] 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.

the TPA tariffs at Montoir, Fos Tonkin and Fosmax, 4%, 10% and 12% respectively, for the first 2 years, and a higher increased up from the second year for Montoir and Fos (22% and 58% from current TPA levels.)

This Deliberation increased up to 100% of the level of ship-or-pay to foster a higher use of capacity at LNG terminals.

The basic price of tariffs in force since 1 April 2013 include five terms:

1. an unloading numbers term (TND), which applies to each cargo unloaded,

2. a unloaded quantity term (TQD), which applies to the unloaded LNG quantities expressed in MWh (0°C),

3. 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,

4. 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 October of year N and 31 March of year N+1) and the quantities of LNG unloaded in the summer (i.e. between 1 April and 30 September of year N),

5. 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.

Table 25: TPA tariffs to LNG terminals in France, 2013.

LNG Terminal Access rates 1stApril 2013					
Fos Tonkin	**TQD**	Unloaded Quantity Term	1.127	€/MWh	*Continuous service*
			1.127	€/MWh	*Uniform service*
			0.845	€/MWh	*Spot service*
	TND	Term of Number of Unloadings	45,000	€/unloading	
	TUCR	Regasification Capacity Utilization Term	0.120	€ 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*	0.20%	of unloaded quantities	
Montoir	**TQD**	Unloaded Quantity Term	0.870	€/MWh	*Continuous service*
			0.870	€/MWh	*Uniform service*
			0.653	€/MWh	*Spot service*
	TND	Term of Number of Unloadings	50,000	€/unloading	
	TUCR	Regasification Capacity Utilization Term	0.120	€ 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	1.768	€/MWh	*Continuous service*
			1.768	€/MWh	*Uniform service*
			1.326	€/MWh	*Spot service*
	TND	Term of Number of Unloadings	60,000	€/unloading	
	TUCR	Regasification Capacity Utilization Term	0.120	€ 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*	0.20%	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 w inter season
N	Average duration betw een tw o 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. How ever, 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: *CRE website*

In Greece, current tariffs for TPA the LNG terminal were set by the Ministerial Decision 4955/2006.[77] 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 LSO 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 26: 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
1.1.2011-31.12.2011	25.262	0.019606
1.1.2012-31.12.2012	26.096	0.019690
1.1.2013-31.12.2013	26.487	0.019985

Source: *DESFA.*

As regards Italy, the TPA tariff for both Adriatic LNG and Panigaglia terminals is calculated according to the next formula:

$$TL = Cqs * QS + Cna * NA + (CVL + CVL^{P} + CVL^{U}) * E$$

Where:

- QS: is the contractual LNG quantity unloadable during the thermal yaear, expressed in m^3_{liq}/year.
- Cqs: is the unitary compensation associated to the contractual quantities of LNG, expressed

in €/m^3_{liq}/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:

$$TL^{SPOT} = \quad * Cqs * QS + Cna * NA + (CVL + CVL^P + CVL^U) * E$$

The term 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.

In Italy TPA tariffs are yearly updated.

On 26 July 2012, the Authorità published at the Delibera ARG 312/12[78] the tariff proposal for the thermal year 2012-2013, which is available at the Authoritá's website. This proposal included the tariff values for Panigaglia LNG terminal and Adriatic LNG terminal. This tariffs proposal is valid for the transition period from octubre 2012 to December 2013 as established by the Delibera 237/2012[79] which extended the regulatory period until December 2013

Table 27: TPA tariffs to the Panigaglia LNG terminal in Italy, 2012/2013.

GNL ITALIA

TL = Cqs * QS + Cna * NA + (CVL + CVL^P + CVL^U) * E			
QS			contractual LNG quantities
Cqs	5,829651	€/year/cm	variable term applied to contractual LNG quantities
NA			number of unloadings
Cna	39.584,1	€/unloading	variable term applied to effective number of unloadings
E			send-out gas
CVL	0,028240	€/Gj	variable term applied to send-out gas
CVL^P	0,000000	€/Gj	'integrative' variable term applied to send-out gas
CVL^U	-0,006096	€/Gj	
Gas in kind	1,7%		of unloaded quantities

Source: *AEGG.*

Table 28: TPA tariffs for the spot to the Panigaglia LNG terminal in Italy, 2012/2013.

GNL ITALIA

TL = Cqs * QS + Cna * NA + (CVL + CVL^P + CVL^U) * E			
QS			contractual LNG quantities
Cqs	4,080756	€/year/cm	variable term applied to contractual LNG quantities
NA			number of unloadings
Cna	39.584,1	€/unloading	variable term applied to effective number of unloadings
E			send-out gas
CVL	0,028240	€/Gj	variable term applied to send-out gas
CVL^U	-0,006096	€/Gj	
Gas in kind	1,7%		of unloaded quantities

Source: *AEEG.*

As regards Adriatic LNG, the maximum tariffs are calculated on the basis of the criteria established by the Resolution ARG/gas 92/08.[80] The values for the thermal year 2012/2013 have been approved by the Authority for Electricity and Gas with Resolution ARG/gas 312/12.[78]

However, Adriatic LNG publishes discounted tariffs for the continuing regasification service for the use of the terminal each year.

Find below the tables summarising the TPA tariffs at Adriatic LNG terminal for the thermal year 2012/2013.

Table 29: TPA tariffs to the Adriatic LNG terminal in Italy, 2012/2013.

Adriatic LNG

TL = Cqs * QS + Cna * NA + CVL * E + CM^Q * QS

	Tariffs published by the AEEG		
QS			contractual LNG quantities
Cqs	38,332199	€/year/cm	variable term applied to contractual LNG quantities
NA			number of unloadings
Cna	661.631,3	€/unloading	variable term applied to effective number of unloadings
E			send-out gas
CVL	0,213373	€/Gj	variable term applied to send-out gas
CVL^U	-0,016127	€/Gj	
Gas in kind	66,0%		of unloaded quantities

Source: *AEEG.*

Table 30: TPA tariffs for the spot service to the Adriatic LNG terminal in Italy, 2012/2013.

Adriatic LNG

TL = Cqs * QS + Cna * NA + (CVL + CVL^P) * E

	Tariffs published by the AEEG		
QS			contractual LNG quantities
Cqs	26,832539	€/year/cm	variable term applied to contractual LNG quantities
NA			number of unloadings
Cna	661.631,3	€/unloading	variable term applied to effective number of unloadings
E			send-out gas
CVL	0,213373	€/Gj	variable term applied to send-out gas
CVL^P	-0,016127	€/a/mcliq	measurement service
Gas in kind	66,0%		of unloaded quantities

Source: *AEEG.*

Regarding Portugal, the "Regulamento Tarifário do Sector do Gás Natural"[81], approved in April 2013, establishes the criteria and methods for the calculation of regulated tariffs, including TPA tariffs to infrastructures. Section 6 deals with TPA tariffs to LNG terminals.

TPA tariffs are yearly published by ERSE for the gas year, which runs from 1 July to 30 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.

ERSE published the TPA tariffs for the thermal year 2013/2014 at Diretiva nº 10/2013[82], this Diretiva has involved a great changed in the way capacity is offered and billed, now it is based on the concept of standard products based on the Network Code of Capacity Allocation Mechanisms.[63]

The following table summarises the TPA tariffs for the thermal year 2013/2014

Table 31: TPA tariffs for the yearly products to the LNG terminal in Portugal, 2013-2014.

	REN Atlântico	
Unloading term	0.00021401	€/kWh
Regasification fix term	0.010493	€/kWh/day/month
Regasification variable term	0.0001979	€/kWh
Storage Fee	0.000877	€/kWh/day/month
Commodity Element Gas in kind	0.00%	(provided by the TO)

Source: *ERSE website.*

Table 32: TPA tariffs for the short-term products to the LNG terminal in Portugal, 2012-2013.

	REN Atlântico
Regasification	
Quarterly products	1.30
Monthly products	1.50
Daily products	2.00
Storage	
Quarterly products	1.00
Monthly products	1.00
Daily products	1.00

Source: *ERSE website.*

In Spain TPA tariffs are generally valid for one year (1 January – 31 December) and yearly updated by the Ministry of Industry, Energy and Tourism. For the year 2013 TPA tariffs were established by in Ministerial Order IET/2812/2012, of 27 December 2011.[83]

Table 33: TPA tariffs to LNG terminals in Spain, 2013.

Unloading fix term		
Cartagena, Huelva and Sagunto	33,214	€/unloading
Barcelona, Bilbao and Mugardos	16,606	€/unloading
Unloading variable term		
Cartagena, Huelva and Sagunto	0.000067	€/kWh
Barcelona, Bilbao and Mugardos	0.000034	€/kWh
Send out		
Tfr (Fix Term)	0.019171	€/kWh/day/month
Tvr (Variable Term)	0.000113	€/kWh
Storage included in regasification tariffs	0	days of consumption
Storage Fee		
Tv	0.031672	€ / MWh / day
Commodity Element		
Gas in kind	0.01%	

Source: *Ministerial Order IET/2812/2012.*

Table 34: TPA tariffs for short-term products to LNG terminals in Spain, 2013.

	Daily	Monthly
January	0.1	2.00
February	0.1	2.00
March	0.1	2.00
April	0.06	1.00
May	0.06	1.00
June	0.06	1.00
July	0.06	1.00
August	0.06	1.00
September	0.06	1.00
October	0.1	2.00
November	0.1	2.00
December	0.1	2.00

Source: *Ministerial Order IET/2812/2012.*

5.18 Effective access.

This section includes the publicly available data on effective usage and TPA access at European LNG terminals in Belgium, France, Italy, Spain and Portugal. In general, it summarises which amount of the technical capacity which available in the primary market

In general, most of EU terminals have all their technical capacity contracted under long-term terminals, in particular exempted terminals.

On contrary, Spanish LNG terminals where there is plenty of spare capacity in the primary market due to the fact that LNG terminals in Spain play an important role in terms of security of supply and have been designed to handle peak demand. In Portugal there are not long-term contracts, terminals users nominate daily capacity based on a Standard Contract where only the amount of capacity is specified.

All technical capacity at the Zeebrugge LNG terminal is subscribed under long-term contracts on the primary market; thus, there is no primary capacity available.

As regards Fos Tonkin and Montoir most the primary capacity has been contracted under long-term contracts. On contrary, in accordance with the deliberations of the CRE 10% of the technical capacity at Fos Cavaou has to be reserved for short-term needs; thus, in this terminal there is always some available capacity.

Desfa only publishes the available regasification capacity for the next 18 months. Besides, the available storage capacity is only published for the next month.

Figure 30: Available and booked capacity at Montoir LNG terminal.

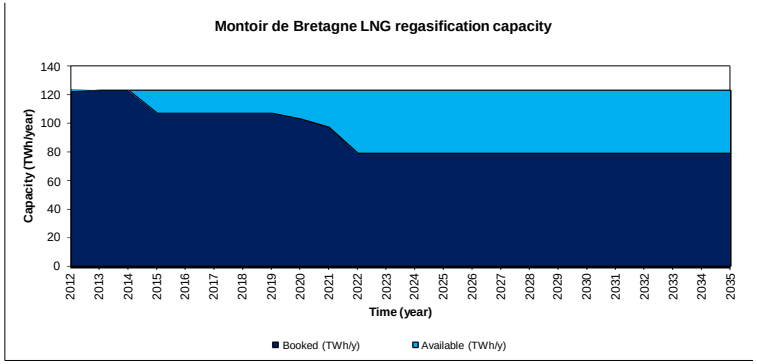


Figure 31: Available and booked capacity at Fos Tonkin LNG terminal.

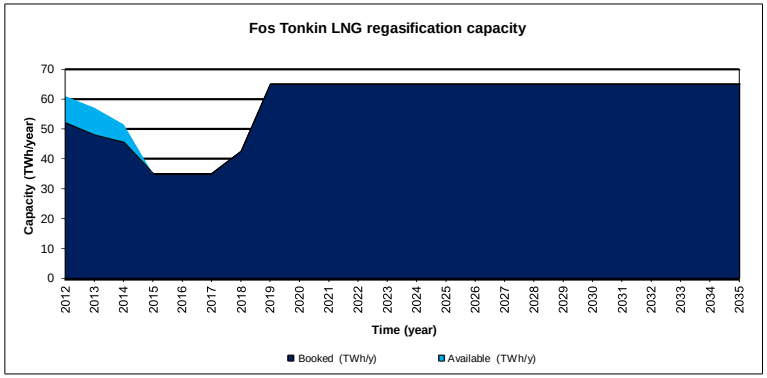


Figure 32: Available and booked capacity at Fos Cavaou LNG terminal.

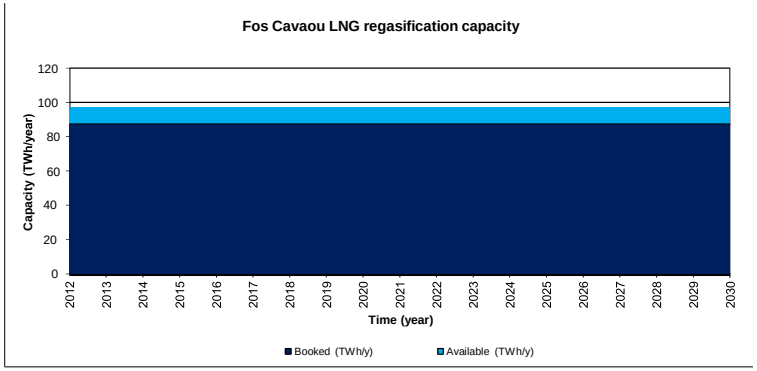


Figure 33: Available and booked capacity at Revithoussa LNG terminal.

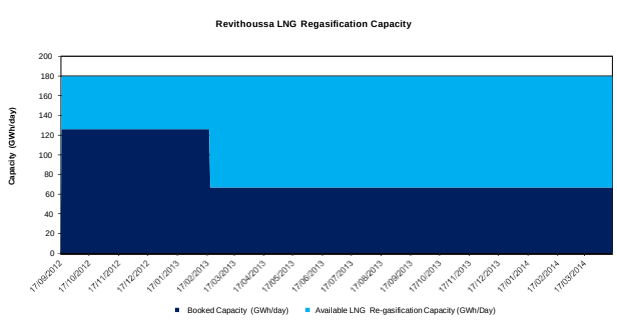


Figure 34: Available and booked capacity at Adriatic LNG terminal.

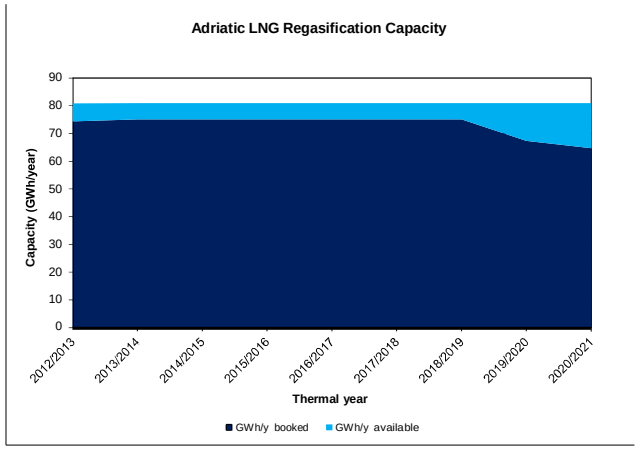


Figure 35: Available and booked capacity at Barcelona LNG terminal.

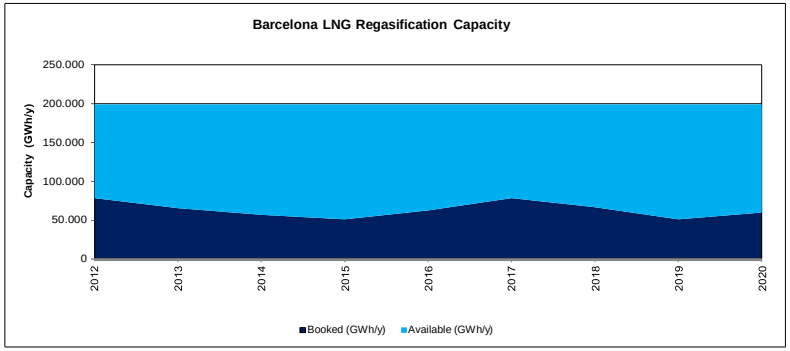


Figure 36: Available and booked capacity at Panigaglia LNG terminal.

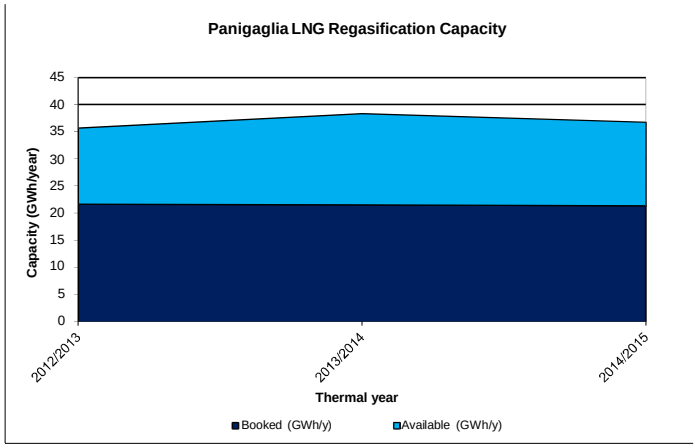


Figure 37: Available and booked capacity at Cartagena LNG terminal.

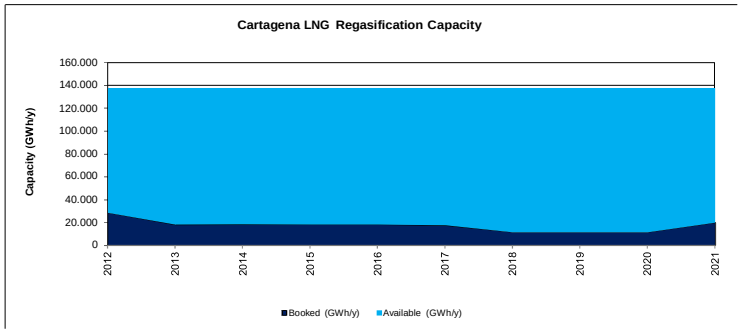


Figure 38: Available and booked capacity at Huelva LNG terminal.

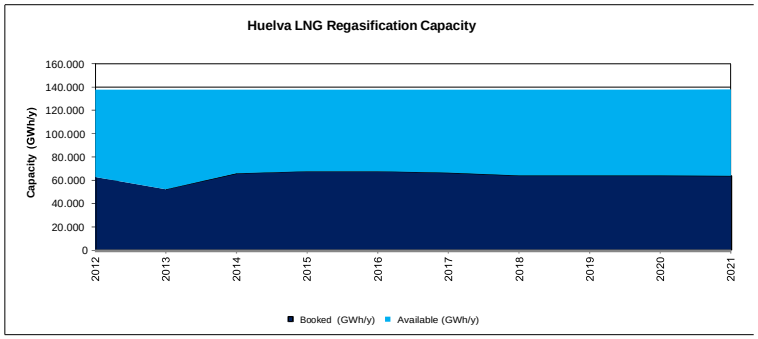


Figure 39: Available and booked capacity at Sagunto LNG terminal.

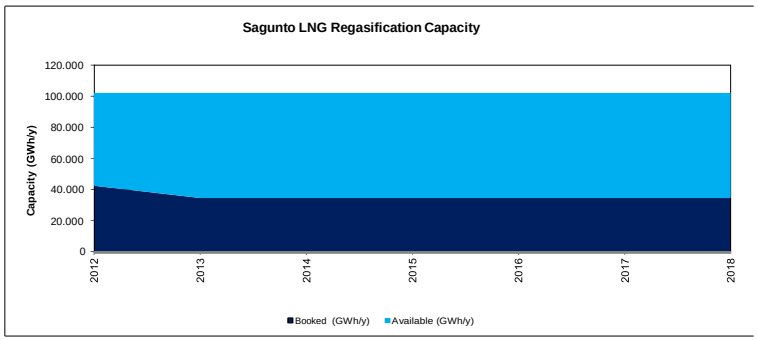


Figure 40: Available and booked capacity at Bilbao LNG terminal.

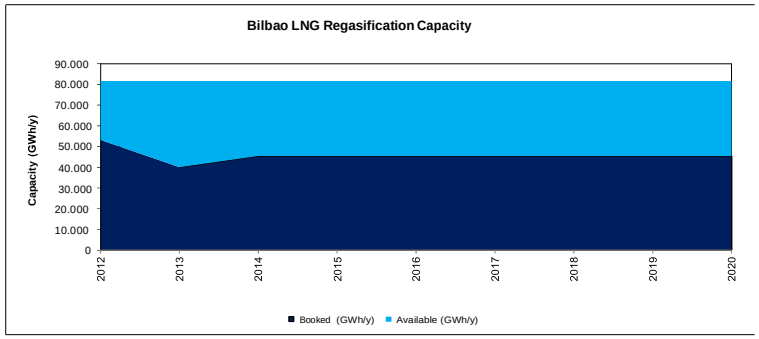
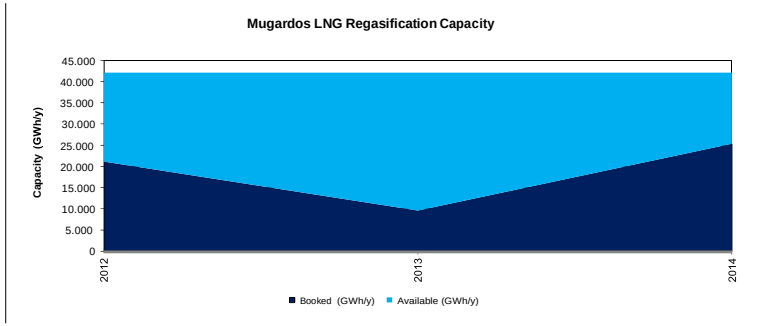


Figure 41: Available and booked capacity at Mugardos LNG terminal.



6 Conclusions.

LNG terminals are natural gas infrastructures which place and role in the gas value chain varies from one country to another. The main question on the regulation of these facilities is whether they are part of the downstream or of the upstream. In the former case, LNG terminals are considered essential infrastructures which must be regulated just like the transmission business; however, in the latter no regulation should be imposed over them. In practice, regulatory schemes are hybrid, showing features of both extreme models, and sometime allowing for coexistence of two models.

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. However, in 2002, FERC voted to remove barriers to the construction of new LNG import terminals, in the context of uncertain future natural gas production in North America.

The Hackberry policy has had impact not only in the US, but has fostered a lively debate in Europe and other parts of the world on the type of regulation that should be applied to foster investment in LNG regas terminals. In particular, it is frequently cited by the advocates of exemptions to the rTPA regime in Europe.

In Europe, LNG terminals are considered part of the downstream, and, thus, subject to rTPA access regime according to Directive 2009/73/EC and Regulation 715/2009. However, exemptions to rTPA are allowed under certain conditions, granted by national regulatory authorities on a case by case basis. This has lead Europe to a situation where both regimes (i.e regulated and non-regulated) coexist, sometimes even applied to the same physical terminal.

In Japan, LNG regasification terminal TPA access subject to negotiation between the parties concerned. In August 2004, the METI and the JFTC jointly published Guidelines to ensure the fairness of transactions. However, in practice there is no TPA access. In other parts of Asia TPA is not even considered.

The benefits brought by LNG in terms of security of supply, diversification of supply, flexibility, liquidity and competition, among others that are frequently taken into account by authorities when designing regulations.

Unbundling requirements over LNG regasification operators are present in some regulatory regimes. These requisites, aimed at ensuring effective independence of LNG operators, are naturally related to the regulatory access model. In general, it can be stated that:

No unbundling requirements are to be imposed where LNG regas is considered part of the upstream, whereas

Different requirements should be enforce where LNG regasificacion is regarded as part of the downstream (from accounting/legal unbundling to ownership unbundling)

In a comparison between the regulated and non-regulated regimes the following conclusions can be drawn.

Regulated regimes tend to be more transparent and easy to monitor than non-regulated regimes. Thus, non-regulated regimes might have regulatory pressure for harmonisation and increment the level of transparency provided, as is the case in Europe.

On the contrary, regulated regimes are less adaptable to the evolving market needs, changes regulation are lasting and quite difficult to carry out on short notice.

LNG terminals which are not subject to regulated regime generally enjoy more stability and predictability in its rate of return taking into account that the construction of LNG terminals is linked to the conclusion of long term contracts for upstream supply. Such contracts are in principle a way for project promoters to reduce the economic risk of their investment. However, these long-term contracts are also compatible with regulated regimes.

In regulated regimes, if a portion of the capacity is not linked to long-ter contracts, a sound and stable investment climate is crucial for capital-intensive LNG regasification infrastructure development. Regulation should ensure a fair rate of return which reflects the level of the risk attached to the LNG investment.

Authorisations, licences and other related permits for energy infrastructures, in an increasingly environmental-sensitive world, imply time-consuming procedures and negotiation in order to obtain the necessary authorizations with different government levels and agencies. A wrongly-designed regulation on authorisations may neutralise the positive effects of a good regulation in other areas.

Having said this, **regulated or non-regulated regimes are not good or bad *per se***, the decision to choose between them by regulators should take into account the characteristics of the market.

7 References.

[1] DIRECTIVE 2009/73/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC

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

[2] REGULATION (EC) No 715/2009 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005

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

[3] REGULATION (EC) No 713/2009 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 13 July 2009 establishing an Agency for the Cooperation of Energy Regulators

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

[4] With the exception of Article 11 (Certification in relation to third countries), which they shall apply from 3 March 2013. This article does not affect LNG operations.

[5] This table does not include vertically integrated undertakings (VIUs) which perform two or more infrastructure activities through different affiliates, such as GDF SUEZ or EoN, and which might be considered combined operators under article 29 of Directive 2009/73/EC.

[6] "COMMISSION STAFF WORKING PAPER. INTERPRETATIVE NOTE ON DIRECTIVE 2009/72/EC CONCERNING COMMON RULES FOR THE INTERNAL MARKET IN ELECTRICITY AND DIRECTIVE 2009/73/EC CONCERNING COMMON RULES FOR THE INTERNAL MARKET IN NATURAL GAS. THE REGULATORY AUTHORITIES." Brussels, 22 January 2010. Available at:

http://ec.europa.eu/energy/gas_electricity/interpretative_notes/doc/implementation_notes/2010_01_21_the_regulatory_authorities.pdf

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.

[7] GLE's LNG Map is available at:

http://www.gie.eu/download/maps/2013/GLE_LNG_MAY2013.pdf

[8] Bloomberg: "Essent, Vopak Cancel Eemshaven LNG Terminal Project", September 1, 2010. Retrieved on 3rd November, 2011

http://www.bloomberg.com/news/2010-09-01/essent-vopak-cancel-eemshaven-lng-terminal-project-update1-.html

[9] 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 Retrieved on 20th December, 2010

[10] Exemption decision for infrastructure in the European union are available at:

http://ec.europa.eu/energy/infrastructure/exemptions/exemptions_en.htm Retrieved on 3rd November 2011

[11] European Commission: "Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Regulation (EC) No 1775/2005 on conditions for access to the natural gas transmission networks", Brussels, 19.9.2007 COM(2007) 532 final, 2007/0199 (COD)

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

[12] COMMISSION DECISION of 11 November 2003 on establishing the European Regulators Group for Electricity and Gas.

Available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:296:0034:0034:EN:PDF

[13] ACER homepage: http://www.acer.europa.eu/portal/page/portal/ACER_HOME

[14] ERGEG: "Guidelines for Good Third Party Access Practice for LNG System Operators (GGPLNG). An ERGEG conclusions Paper", Ref: E08-LNG-06-03, 7 May 2008. Available at:

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

[15] On 13th December 2007, ERGEG launched a public consultation on its Draft Guidelines of Good TPA Practice for LNG System Operators (GGPLNG). The consultation closed on 23rd 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

[16] As regards underground storage activities, ERGEG launched on 28 July 2010 a Public consultation to enhance the GGPSSO taking into account the new requirements in the Third Package on CAM and CMP. ERGEG considered that "the 3rd Package rules alone were not considered sufficient to tackle the problems found in the ERGEG status reviews of 2008 and 2009". This later on resulted in an amendment of the GGPSSO in mid-2011, adding guidelines for CAM and CMP. According to CEER "This amendment is supplementary to the 3rd Package and aims to ensure a level playing field from which market players will benefit. In general, without these additional provisions the market might remain as it is today for a long time; namely congested in some parts of the EU."

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/CLOSED%20PUBLIC%20CONSULTATIONS/GAS/CAM%20and%20CMP%20for%20effective%20access%20to%20storage/CD/E10-GST-09-06_CAM_CMP_storage_28-Jul-2010.pdf

CEER: "Amendment of the Guidelines of Good Practice for Third Party Access (TPA) for Storage System Operators (GGPSSO). Guidelines for CAM and CMP", Ref: C11-GST-15-03, 14 July 2011

http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Gas/Tab/C11-GST-15-03_amdt%20GGPSSO%20on%20CAM%20and%20CMP_14-July-2011.pdf

[17] 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 tarification 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:

http://ec.europa.eu/energy/gas_electricity/forum_gas_madrid_en.htm

[18] 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

[19] ERGEG: "GGPLNG 2009 monitoring exercise", 28th May 2009, Madrid. XVI Madrid Forum. Available at:

http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_WORKSHOP/Stakeholder%20Fora/Madrid%20Fora/16supthsup%20Madrid%20Forum/ERGEG_GGPLNG-monitoring_v2.ppt

In order to carry out this monitoring exercise, 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.

[20] ERGEG: "Congestion management procedures and anti-hoarding mechanisms in the European LNG terminals", 17th Madrid Forum. Presentation delivered by Rocío Prieto (CNE) and Benoît Esnault (CRE) as ERGEG LNG TF Chairs. Available at:

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

[21] ERGEG: "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

[22] ERGEG: " Final ERGEG study on congestion management procedures & anti-hoarding mechanisms in the European LNG terminals", Ref: E10-LNG-11-03b, 12 April 2012.

http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_PUBLICATIONS/CEER_PAPERS/Gas/Tab/E10-LNG-11-03b_CMP%20in%20LNG_%2012_Apr_2011.pdf

[23] CEER First Workshop on access to European LNG terminals, Madrid, 6 September 2011. Agenda, list of participants and presentations available at:

http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_WORKSHOP/CEER-ERGEG%20EVENTS/GAS/1st%20workshop%20on%20access%20to%20European%20LNG%20terminals

[24] 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

[25] EIA, "Legislation and Regulations. The Hackberry Decision", Available at:

http://www.eia.doe.gov/oiaf/archive/aeo04/leg_reg7.html Retrieved on 21st January 2012

EIA, "FERC's Hackberry Decision (2002)", Available at:

http://www.eia.doe.gov/oil_gas/natural_gas/analysis_publications/ngmajorleg/ferc.html Retrieved on 21st January 2012

[26] FERC's Hackberry decision: http://elibrary.ferc.gov/idmws/common/opennat.asp?fileID=9608751 Retrieved on 21st January 2012

[27] EIA, "Amendments to Deepwater Port Act of 1974", Available at:

http://www.eia.doe.gov/oil_gas/natural_gas/analysis_publications/ngmajorleg/amendments.html Retrieved on 21st January 2012

[28] 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 Retrieved on 21st January 2012

[29] 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.

[30] FERC: "LNG, Laws and Regulations". Available at: http://www.ferc.gov/industries/lng/gen-info/laws-regs/state-rights.asp Retrieved on 21st January 2012

[31] 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.

Available at: http://web.mit.edu/ceepr/www/publications/workingpapers/2006-018.pdf

[32] Although it can be argued that European models are not pure "common carriage" models.

[33] This was the case of Unión Fenosa, the third power utility in Spain at the time (later acquired by Gas Natural in 2009), which did so by investing in LNG liquefaction (Damietta, Egypt) before its alliance with Italy's ENI in the gas sector. Supported by the rTPA

regime, Fenosa promoted its project and gained the race to other previous projects promoted by oil and gas majors such as BP and BG. Another prominent example is Iberdrola, following a different strategy, signing LNG contracts with a number of producers in Nigeria, Norway or Algeria, among other, but not investing directly in the upstream.

[34] HIRSCHHAUSEN, Christian von, *Op Cit*.

[35] World Gas Intelligence, "Opposition Grows to US LNG Exports", Vol. XXIII, No. 3, 18 January 2012

[36] EIA: "Effect of Increased Natural Gas Exports on Domestic Energy Markets as requested by the Office of Fossil Energy", January 2012.

Synthesis available at: http://www.eia.gov/analysis/requests/fe/

Full report available at: http://www.eia.gov/analysis/requests/fe/pdf/fe_lng.pdf

[37] Icis Heren, "US LNG export requests show no signs of slowing down", 9 January 2012. Available at: http://www.icis.com/heren/articles/2012/01/06/9521477/us-lng-export-requests-show-no-signs-of-slowing-down.html

[38] 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.

[39] In the LNG report commissioned by the DG ENER, to MVV Consulting, aimed at identifying factors that can hamper the emergence of LNG as a valid contribution to the integration of the European gas market, to the development of fair competition across Europe and to Security of Supply, and to evaluate the appropriateness of an LNG action plan at EY level, Hafner, Moraleda and Vermeire cite as relevant strategic issues the following: (1) contriution of LNG to security of supply, competition and liquidity in the internal market, (2) competition with pipeline gas and (3) LNG storage and underground gas storage: technical and cost differences.

HAFNER, M.; MORALEDA, P. and VERMEIRE, J. (2008): *Study on Interoperability of LNG Facilities and Interchangeability of Gas and Advice on the Opportunity to Set-up an Action Plan for the Promotion of LNG Chain Investments*, MVV Consulting

GIIGNL (2012: "The LNG Industry 2012". Available at: www.giignl.org/fileadmin/user_upload/pdf/A_PUBLIC_INFORMATION/LNG_Industry/GIIGNL_THE_LNG_INDUSTRY_IN_2012.pdf Retrieved on 5th July 2013

[41] REGULATION (EU) No 994/2010 of the European Parliament and of the Council of 20 October 2010 concerning measures to safeguard security of gas supply and repealing Council Directive 2004/67/EC

http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:295:0001:0022:EN:PDF

[42] HAFNER, M.; MORALEDA, P. and VERMEIRE, J., Op Cit.

[43] HEATHER, P. (2013): "The evolution of gas pricing: The transition from oil linked to spot pricing of gas and The future role of gas in the generation mix", presentation given at Platss' European Gas and Power Trading Conference London, 26th June, 2013. Available at: http://www.platts.com/IM.Platts.Content/ProductsServices/ConferenceandEvents/2013/pc353/presentations/Patrick_Heather.pdf Retrieved on 5th July 2013

[45] Quotation required

[46] NPC Study on Global Oil and Gas Supply: "Liquefied Natural Gas (LNG)", Working document made available on 18 July 2007. Available at: http://www.npc.org/Study_Topic_Papers/13-STGLiquefiedNaturalGas.pdf

[47] Napoli, F., Portatadino, S., Sileo, A.: "The Influence of Regulation on Energy Infrastructure Development: LNG Terminals in Italy" Presented at the 9th IAEE European Energy Conference, "Energy Markets and Sustainability in a Larger Europe"

Available at:

http://www.ambientediritto.it/dottrina/Politiche%20energetiche%20ambientali/politiche%20e.a/influence_of_regulation_napoli_portatadino_sileo.htm

[48] Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC. Available at:

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

[49] On 1 September 2009 the Greek government said 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

Reuters, "Greece to restructure gas monopoly DEPA before sale", retrieved on October 26, 2011:

http://www.reuters.com/article/rbssEnergyNews/idUSL121320820090901

[50] Enagas S.A. 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). 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%.

[51] In the Netherlands a network operator (or an affiliated group company) cannot hold shares or otherwise participate in companies (or an affiliate in a group of companies) that are active in the production, trade or supply of electricity in the Netherlands (Section 10b(3) of the Electricity Act 1998 and the Gas Act).

[52] 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

[53] "FERC Order 636: The Restructuring Rule (1992)", retrieved on October 25, 2011.

http://www.eia.doe.gov/oil_gas/natural_gas/analysis_publications/ngmajorleg/ferc636.html

[54] "The History of Regulation", retrieved on October 25, 2011

http://www.naturalgas.org/regulation/history.asp#gasact1978

[55] "LNG ACCESS CODE FOR THE ZEEBRUGGE LNG TERMINAL". Based on version approved by the CREG on November 15th 2012. Retrieved on June 2013. Available at:

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[56] "The Contract for Access to the Fos-Cavaou LNG Terminal", version of 1 April 2013. Retrieved on June 2013. Available at:

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"Appendix 1 - Specific Conditions", retrieved on June 2013. Available at:

http://www.fosmax-lng.com/fileadmin/user_upload/documents/contrat-acces-terminal/Master_Agreement_FCXXXMMAA_Annexe%201_Conditions_particuli%C3%A8res_TRANSLATION.pdf

"Appendix 2 – General Conditions", retrieved on July 2012. Available:

http://www.fosmax-lng.com/fileadmin/user_upload/documents/contrat-acces-terminal/20130401_Annex%202_General_Conditions_va.pdf

"Appendix 3 - Vessel-related Procedures", retrieved on June 2013. Available at:

http://www.fosmax-lng.com/fileadmin/user_upload/documents/contrat-acces-terminal/20130401_%20Annex%203_Vessel_related_procedures_va.pdf

"Appendix 4 - Measurement, Metering and Quality Procedures", retrieved on June 2013. Available at:

http://www.fosmax-lng.com/fileadmin/user_upload/documents/contrat-acces-

terminal/20130401_Annex%204_Measurement_counting_and_quality_procedures_va.pdf

"Appendix 5 - Titles and Values of the Rate Terms", retrieved on June 2013. Available at:

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"Appendix 6 - Calculation Terms and Conditions for the Reference Send-Outs", retrieved on June 2013. Available at:

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"Method of calculating for unloaded or reloaded energy", retrieved on June 2013. Available at:

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[57] "LNG Terminal Access Contract – Appendix 1 – Specific conditions". Version of the 1st of April 2013. Retrieved on June 2013. Available at:

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http://www.desfa.gr/files/PR/N.%20KATSIS/ΕΛΛΗΝΙΚΗ%20ΝΟΜΟΘΕΣΙΑ/Microsoft%20Word%20-%20Unofficial%20Translation%20of%20the%20Network%20Code%20for%20the%20Regulation%20of%20the%20National%20Natural%20Gas%20System%20_2_.pdf

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http://www.adriaticlng.it/wps/wcm/connect/01d831004f301b27b9c9bb686a92b3fb/Regasification+Code+_+Courtesy+English+Translation.pdf?MOD=AJPERES

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http://www.gnlitalia.it/export/sites/gnlitalia/repository/business_servizi/codice_rigassificazione/codice_rigassificazione/Aggiornamento_codice_di_rigassificazione/Codice_di_Rigassificazione_RevV.pdf

[61] "Metodologia dos estudios para a determinação da capacidade no terminal de GNL", retrieved on June 2013. Available at:

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[68] Taking to account that primary capacity at Zeebrugge LNG terminal is allocated through Open Seasons, the content of the access request, the deadlines for application for capacity and the booking tools will vary from one OS to another. It should be clarified that the information included in this table for Zeebrugge LNG terminal corresponds to the non-binding phase for the 2nd capacity enhancement Zeebrugge LNG Terminal launched in February 2011. Fluxys, "Attachment 1: Non binding capacity form", retrieved on July 2012. Available at:

http://www.fluxys.com/en/NewsAndPress/2011/~/media/files/services/lng%20terminalling/openseasonlngterminal/fluxyslngterminal_openseason_bindingphase_attachment1%20pdf.ashx

[69] Capacities reserved for short-term are allocated through OSPs which take place, generally, each year. However, the detailed OSP procedures are approved by the CRE. The information included in this table for Fosmax corresponds to the OSP to sale of short-term capacities for 1Q2013 approved by CRE through the "Deliberation of the French Energy Regulatory Commission (CRE) of 29 May 2012 regarding short-term capacity allocation rules marketed at the Fos Cavaou LNG terminal for the first quarter of 2013" available at:

http://www.cre.fr/en/documents/deliberations/decision/fos-cavaou-lng-terminal2/read-the-deliberation

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