

TEAM CONSULT

Gas.Power.Experience.



TEAM CONSULT

Gas.Power.Experience.



TEAM CONSULT

Gas.Power.Experience.



Market Study

**A glimpse at the landscape of European LNG
regasification infrastructure**

Final Version

June 2017



TEAM CONSULT

Gas.Power.Experience.

Table of Content

Abstract	7
1 Introduction	8
2 The European Regasification Business in Numbers	10
3 Access to European Terminal Capacity	14
4 The Jungle of European Regasification Costs	17
5 Markets for Regasification Capacity	21
6 Conclusion	24
Authors	25

List of Figures

Figure 2-1: Development of Regasification Capacity in Europe 10

Figure 2-2: Development of LNG Imports to Europe 11

Figure 2-3: European Regasification Terminals in 2016..... 12

Figure 3-1: Terminal Landscape Europe 15

Figure 3-2: Contracted vs. Available Capacity 2017..... 16

Figure 5-1: Publication Dates for UIOLI Slots 23

DISCLAIMER

This article was prepared by TEAM CONSULT G.P.E. GmbH (TEAM CONSULT) with utmost care. It is based, among other things, on information, the validity and completeness of which is not the responsibility of TEAM CONSULT. Therefore, TEAM CONSULT cannot assume any liability for the completeness, accuracy and up-to-date nature of the data used in this article.

This article in its entirety is the intellectual property of TEAM CONSULT G.P.E. GmbH, and is thus protected by copyright.

Abstract

The energy industry will likely face the occurrence of a global oversupply of natural gas for the next years to come as further 115 mtpa of liquefaction capacities were under construction globally as of January 2017. The European market as a residual market for LNG could be able to absorb additional volumes since the infrastructure is available and since Europe is a large gas consumer and has a number of liquid trading hubs for gas.

Therefore, this paper aims at providing an overview of the landscape of the LNG regasification infrastructure in the European Union (EU) by first giving some numbers on the regasification business in recent years and then providing an overview of the two different access regimes found at European terminals and laid down in EU legislation.

Based on our comprehensive data collection we provide guidance through the jungle of different regasification tariffs and the tariff system in the EU. Thereby, we shed light on special features in different countries and find cost levels for spot tariffs for the terminal throughput process in the range from 0.65 €/MWh up to 2.50 €/MWh in certain months of a year and in some specific cases. Overall, we find that comparing terminal tariffs is difficult due to a multitude of different technical factors of each terminal.

In summary, we conclude that Europe is well-positioned to receive additional volumes of LNG as there is still surplus capacity to offer for third-party-access (TPA). The available capacity is likely to arouse interest in future years in an oversupplied global market as Europe offers liquid markets as well as storage opportunities and the necessary infrastructure to move gas around. Third-party access rules to terminal capacity are established in Europe and an effective secondary market for regulated as well as exempted terminals is implemented. However, if more LNG should reach Europe, it is not only a matter of availability of import capacity and LNG markets being long. Key is a fundamental understanding of access conditions for terminals in view of technical and commercial conditions.

1 Introduction

The energy industry will likely face the occurrence of a global oversupply of natural gas for the next years to come as further 115 mtpa of liquefaction capacities were under construction globally as of January 2017.¹ This means an expected increase of existing export capacities by at least 34% by 2022 whereas global gas demand growth so far remains behind expectations.

Therefore, the LNG market is changing. LNG liquefaction operators and suppliers need to find sales markets for their surplus LNG volumes in order to amortize their investments made. In addition, the recently started trend to more flexible and liquid LNG markets will continue along the whole value chain.

The European market as a residual market for LNG could be able to absorb additional volumes since the infrastructure is available and since Europe is a large gas consumer and has a number of liquid trading hubs for gas. Furthermore, LNG is strongly supported by EU policy² due to reasons of security and diversification of supply.

Key factors determining the future European LNG demand are the role of natural gas in the future energy mix and the strategies suppliers of pipeline gas to Europe will adopt. There are two extreme scenarios conceivable with different impact on the future price development. First, if natural gas is able to regain its position in power generation there is significant need for additional volumes. Between 2010 and 2014, European markets could have absorbed up to 36 mtpa of additional pipeline gas and LNG for power generation if incentives would have had been set in favor of gas for power.³ Contrary, there is a negative scenario if gas does not benefit from its environmental advantages and if prices for coal as well as emission allowances remain low, which means that gas demand from the power sector will remain low. Finally, LNG has to compete against pipeline gas deliveries from Russia, Norway and Algeria.

¹ See: IGU World LNG Report – 2017 Edition, p. 19.

² In February 2016, the European Commission published its EU strategy for liquefied natural gas and gas storage (COM (2016) 49 final).

³ Kübler, Madjid/ Völler, Jens/ Bluhm, Hannes (2016): Can the European gas market absorb additional gas volumes? How? How much? Where?, December 2016, p 19.

However, when speaking about additional LNG imports another important issue comes up: third-party access (TPA) to regasification capacity. According to a recent publication by KAPSARC, 54% of global regasification capacity offer some sort of TPA – at least in theory. TPA is mostly implemented in Europe, which is kind of a forerunner region where this access indeed happens in practice supported by two functioning trading hubs – the British NBP (National Balancing Point) and the Dutch TTF (Title Transfer Facility).⁴ However, access to regasification capacity is not easy as existing long term capacity contracts, complex access codes and tariff systems need to be taken into account.

The scenario of Europe as an outlet for LNG suggests taking a closer look at the European LNG import terminals. In recent years, not even half of the nameplate throughput capacity at European regasification terminals was used. However, this does not necessarily mean that access to the entire surplus of capacity is easily available. When it comes to access to European regasification capacity the most striking feature is that regasification capacity is not homogenous at all. Different aspects have to be evaluated when eyeing to deliver LNG to Europe. In addition, there is a myriad of technical aspects to be considered. Furthermore, terminals can be divided into two different groups related to their type of third-party access regime which in turn has an impact on capacity booking procedures, tariffs and transparency.

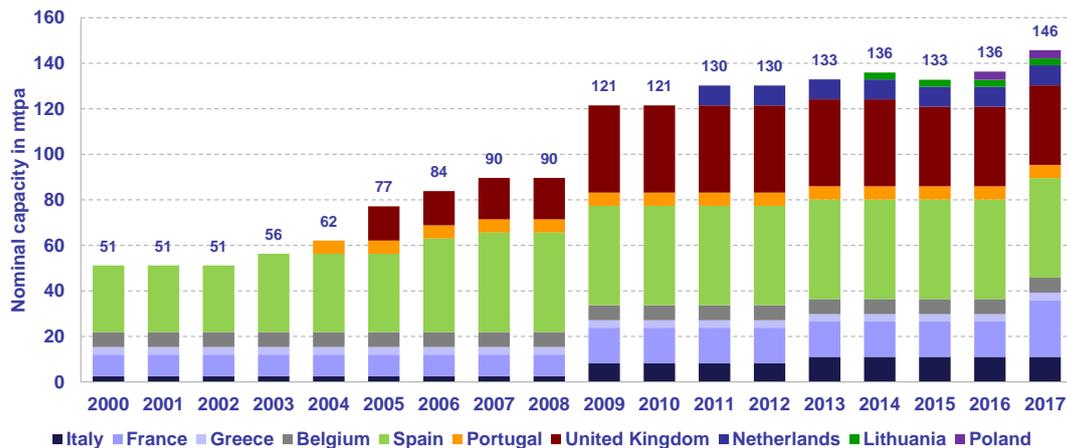
This paper aims at providing an overview of the landscape of European LNG regasification infrastructure by describing the two different access regimes as well as the markets for capacity and by providing an introduction into the tariff systems.

⁴ Six, Sammy/ Corbeau, Anne-Sophie: Third-Party Access to Regasification Terminals: Adapting to the LNG Market's Reconfiguration, February 2017, KAPSARC, p. 3.

2 The European Regasification Business in Numbers

The European regasification landscape is made up of 22 terminals classified as large-scale in ten different countries.⁵ Since the construction of the first terminal in Barcelona in 1968, the overall capacity constantly increased, especially after 2004 (refer to Figure 2-1). Today, total nameplate capacity stands at 146 mtpa (204 bcm/a) with the Polish terminal in Świnoujście and the French Dunkerque terminal being the newest members in the family. While there might be extensions to one or the other terminal⁶ as well as the purchase of additional FSRUs (Floating Storage and Regasification Unit), further additional large onshore terminals are not under construction yet. The major European player measured by LNG import capacity is Spain (44 mtpa, 30%) followed by the United Kingdom (35 mtpa, 24%) and France (25 mtpa, 17%).

Figure 2-1: Development of Regasification Capacity in Europe



Sources: IGU World LNG Reports

All regasification terminals conduct broadly the same functions, which are berthing and unloading of LNG vessels, storage of LNG as well as regasification and send-out to the grid in order to supply natural gas to end-users. Thereby, terminals differ by their initial investment drivers, level of utilization, mode of operation and ownership.

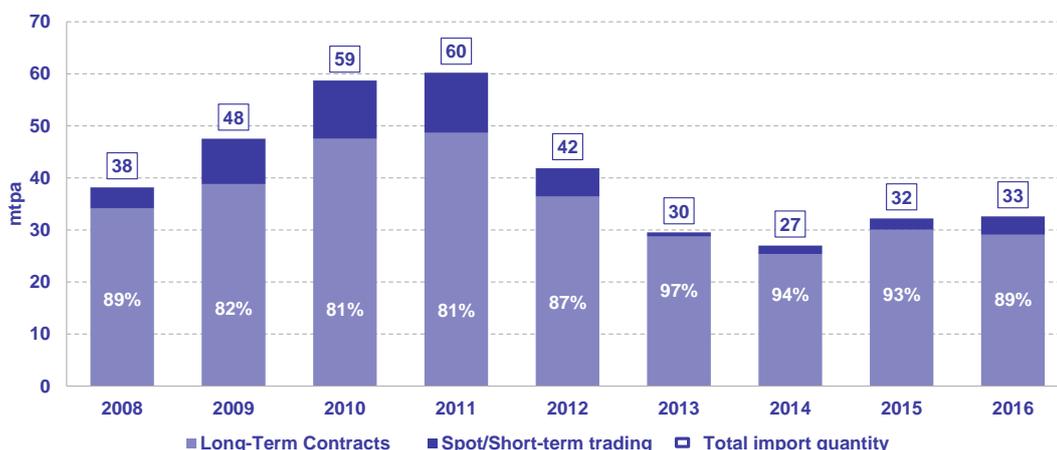
⁵ There are three further terminals in Turkey often assigned to Europe. However, Turkey is not in the scope of this paper as it does not fall under EU regulation.

⁶ Extensions are planned at the Polish Świnoujście terminal, the Greek Revithoussa terminal and the Belgium Zeebrugge terminal.

However, the role of terminals has changed. In the current market environment of global oversupply, they have to become more flexible and customer oriented. Market participants seek options to react to and capitalise on short-term market dynamics. Additional storage capacity as well as re-exports and transshipment provide value by enabling profit from seasonal or geographical arbitrage. This is the reason why next to their core business terminal operators started to offer a wide range of additional terminal services. Terminal operators constantly enhance their offers related to services such as ship loading, truck loading, small ship loading, bunkering and transshipment. Most of the terminals offer one or the other small scale service or have concrete plans to develop such services.

Imported volumes to Europe rose from 27 mtpa in 2014 to 33 mtpa in 2016 with about 89% of LNG delivered on a long-term basis (Figure 2-2). However, LNG import volumes remain small compared with pipeline imports.⁷ Qatar remains the super-supplier with about half of the imported volumes to the EU being shipped from the LNG giant in the Middle East in 2016. In terms of supply volumes Algeria ranked second (7.63 mtpa) and was followed by Nigeria (5.98 mtpa). Deliveries from the Sabine Pass Terminal in the US, which commenced operations in February 2016, remained behind expectations due to European prices being not “competitive” to price levels paid by Latin American and Asian buyers. However, this might change in the future with more liquefaction capacity on the starting blocks.

Figure 2-2: Development of LNG Imports to Europe



Source: GIIGNL Annual LNG Reports
net of re-exports (3.56 mtpa)

⁷ See: Council of European Energy Regulators (CEER): CEER Analysis on the role of LNG to improve security of supply, C15-LNG-25-03, 3 February 2016, p. 9.

Based on the European terminal capacity, there is a huge amount of unused capacity although the LNG import business saw a slight recovery in 2015 and 2016 from post-2011 lows with annual throughput utilisation rates (net of re-exports) slightly increased to 27% on average.

The busiest terminals in 2016 were those in France, Italy and Lithuania (Figure 2-3) with annual throughput utilisation rates above 30%.

Figure 2-3: European Regasification Terminals in 2016

Country	Number of terminals	Throughput capacity	Gross throughput in 2016*	Utilization	Storage capacity
Unit		mtpa/year	mtpa/year	%	bcm liq
Belgium	1	6.60	1.79	27%	0.38
France	4	15.50	6.72	43%	1.41
Greece	1	3.30	0.53	16%	0.13
Italy	3	11.00	4.59	42%	0.49
Lithuania	1	3.00	1.00	33%	0.17
Netherlands	1	8.80	1.05	12%	0.54
Poland	1	3.60	0.82	23%	0.32
Portugal	1	5.80	1.50	26%	0.39
Spain	6	43.70	10.30	24%	3.32
United Kingdom	3	35.00	7.86	22%	2.1
Summe		136.30	36.16	27%	9.25

Sources: GIIGNL, IGU, GLE, TEAM CONSULT Analysis
* incl. re-exports

However, low utilisation rates do not necessarily pose a problem as the tendency for an excess of annual regasification throughput capacity is normal due to several reasons. Global regasification capacity exceeding global liquefaction capacity provides optionality to LNG players as they are able to flexibly change destination or secure access to different regions in order to be able to arbitrage. Furthermore, due to security of supply reasons capacities are determined by peak send outs and are not expected to be permanently and fully utilized over a longer period. Additionally, factors such as shipping constraints, gas blending and quality adjustment and multi-user terminal operations can also restrict the actual available capacity.

Assuming that LNG regasification terminals could work in the range of 50% utilisation rate and even higher, imports could – from a mere technical point - at least double compared to 2016 numbers. Although there is enough spare capacity at European regasification termi-

nals, it has to be kept in mind that import capacity is not distributed evenly across the EU and especially South Eastern European regions still lack LNG import infrastructure.

3 Access to European Terminal Capacity

Open access regimes to terminal capacity as they exist in Europe come along with different challenges concerning the operational management of the terminal as well as the treatment of different gas qualities. Furthermore, access rules are required to be non-discriminatory and transparent for all terminal users and the access to the gas pipeline network has to be ensured at any time.

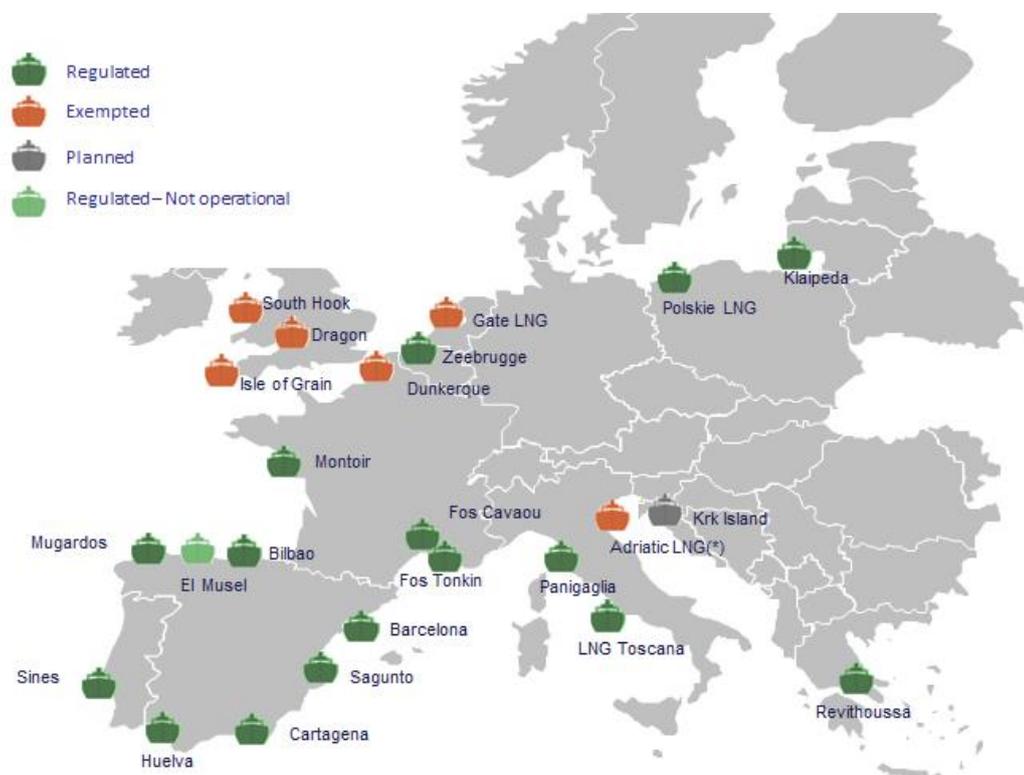
A major issue in the EU's regasification business is the treatment of terminals from a regulatory perspective. With market liberalization, terminals that were considered to be a strategic element of the downstream infrastructure became subject to regulatory requirements concerning to non-discrimination, transparency, unbundling and market opening. Dealing with regulatory issues is well advanced in the European Union as already under the First Gas Directive of 1998, two regimes of terminal access were introduced: negotiated and regulated Third Party Access.

Today, access to LNG terminal capacity is provided via those two regimes that coexist - sometimes in the same country and even at the same terminal leading to a diverse European terminal landscape (Figure 3-1). Those two regimes are authorized by European regulation as regulated third-party access (rTPA) and negotiated third-party access (nTPA) as exemptions to rTPA. The currently relevant documents on LNG regulation are Directive 2009/73/EC (the Directive) and Regulation 715/2009, which are part of the so-called "Third Energy Package" of 2009.

The Directive requires member states to provide third-party access to gas infrastructure on fair, transparent and non-discriminatory terms. Therefore, third-party access is the default access mode in Europe⁸. Member States are urged to ensure the implementation of a system of TPA to LNG facilities based on published tariffs that have to be applied objectively and without discrimination between system users. The national regulators must approve the tariffs.

⁸ See: Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009, Article 32.

Figure 3-1: Terminal Landscape Europe



Source: TEAM CONSULT Analysis

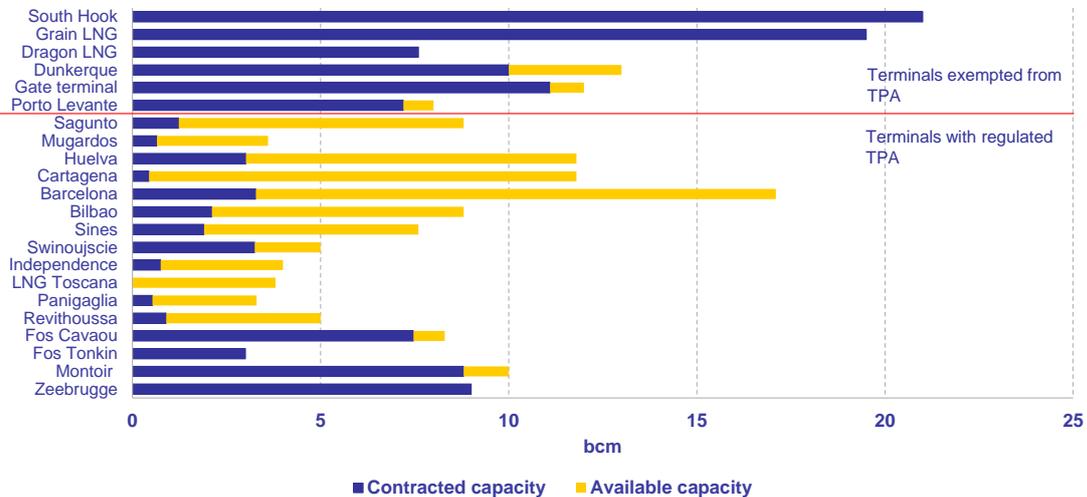
However, exemptions from rTPA⁹ for new import facilities or for capacity extension of existing facilities might be granted by regulatory authorities in order to trigger investments¹⁰. Exemptions are normally granted for 20 or 25 years. Once regulated a terminal cannot be exempted afterwards.¹¹ An exemption from rTPA involves that capacities are normally sold on a long-term contractual basis (open-season process) and that tariffs are the result of commercial negotiations with the primary shipper/ customer and do not have to be published. Nevertheless, the national regulators will have an eye on terminal operations and monitor anti-hoarding mechanisms. Shippers can normally get access to such terminal capacities only via the secondary market as the majority of the capacity at exempted terminals is contracted on a long-term basis (Figure 3-2).

⁹ There are five exemption criteria that have to be fulfilled according to Article 36 of Directive 2009/73/EC.

¹⁰ See: Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009, Article 23 & 36.

¹¹ An exception is the OLT terminal in Italy which initially applied and was granted exemption from TPA but later on in 2012 asked to revoke it due to low utilization.

Figure 3-2: Contracted vs. Available Capacity 2017



Sources: Terminal websites

There are five terminals exempted from rTPA covering 53 mtpa or 36% of regasification capacity in 2017. This means that a major amount of capacity is contracted on a long-term basis. Well-known capacity holders are producers such as Qatar Petroleum, ExxonMobil, Eni, Shell, BP, Sonatrach and Total as well as European players like DONG, Uniper, Centrica and others. Terminal access to those terminals for third parties can only take place via the secondary market. 16 terminals underlie regulated TPA (87 mtpa). Adriatic LNG in Italy is the only terminal that pursues a hybrid approach with 20% of the overall capacity being subject to rTPA whereas the other 80% are exempted.

Overall, a large part of the regasification capacity in the EU is contracted on a long-term basis.

4 The Jungle of European Regasification Costs

Access to regasification capacity and regasification costs are key drivers to be considered when making decisions on where to market LNG. This section will shed some light on European regasification costs based on our data collection.

First of all, terminals exempted from regulation are not obliged to publish their tariffs. Therefore, there is a lack of transparency on regasification tariffs especially in the UK and the Netherlands (Gate). The new French terminal in Dunkerque also does not publish any tariffs as is the case for the exempted part of the Italian Rovigo terminal (Adriatic LNG).

By contrast, regulated terminals have to make their tariffs transparent to the public. However, this does not mean that each terminal operator publishes the very same tariff for the same service or in other words tariffs cannot be compared easily. The tariff landscape is multifaceted – from all-inclusive tariffs, to tariffs per cargo (independent of the actual cargo size), to two component tariffs (fixed and variable) to even more complicated systems.

According to EU legislation, each member state is obliged to have an independent regulator with defined powers and duties. This is meant to the creation of a level playing field for all market participants. Tariffs for access to regasification infrastructure have to be approved by the regulator.¹²

Based on our data concerning European regulated regasification terminals, this section of the paper will give an initial overview about the costs of berthing, unloading, storing, regasifying and sending out of a spot cargo.¹³ Thereby, the results presented are based on tariffs in Belgium, Spain, Poland, Greece, France and Portugal.

In general, two systems of tariffs can be differentiated at regulated European terminals. On the one hand, there are tariffs that consist of different components according to the LNG service chain and thereby, have individual pricing tags for berthing/ unloading, storage and regasification. Examples for the first type are Belgium, Spain and Portugal. On the other hand, it is also quite common to distinguish between a fixed capacity charge per cargo or per

¹² See: Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009, Article 39 & 41.

¹³ The transformation into energy units neglects any losses from boil-off or the regasification process itself. Costs for other services such as e.g. the provision of jetty, mooring, grid access, quality adjustment, small-scale services or the equipment of the facility for cool down and partial filling of LNG ship tanks are not in the scope of this paper.

booked capacity and a variable commodity charge. Terminals that rather fall under the second group are the ones in France, Greece and Poland. Some terminals also distinguish between long-term and shorter-term products.

The Belgian Zeebrugge terminal is an example where the tariff is made up of different components for berthing/ unloading, storage and regasification. There is no difference between long-term or short-term products in Belgium, but the terminal offers a basic service defined as one slot consisting of a package of entitlements to a berthing right, basic storage and basic firm send out capacity. Basic storage means that the terminal operator has to provide a capacity of 140,000 m³ of LNG which should be made available at the start of the subscribed slot and decrease linearly over the basic storage duration. The basic storage duration equals about 10 days. The basic send out capacity is 4,200 MWh/hour. There is a fixed fee for all individual services. Additional flexible services for storage and send-out can be booked and paid on a volume basis. Fuel gas has to be provided in kind with the compensation rate amounting to 1.3%.

The French terminals were actually an example for a more complex tariff, which was established in 2012. However, the tariff system was simplified for the regulatory period commencing 1 April 2017. Thereby, a system of three different types of terminal services was reduced to just a basic and a spot service after a consultation of the relevant stakeholders. Furthermore, the tariff components were simplified. Today, the tariffs only consist of a fixed tariff for each berthing slot and a commodity tariff per unloaded quantity. Contrary to the methodology applied in Greece, the spot commodity tariff is lower than the one for the basic service. Therefore, additional options as special storage send-out options, dedicated storage or send-out flexibility service are reserved to basic storage users. The send-out profile of a spot cargo is determined by the operator and should correspond to the shipper's request as long as the impact on the send-outs of other shippers is below a predefined threshold, which means that spot send-outs are subordinated to the basic service users' send-out profiles.

Our analysis of European terminal tariffs based on our data collection revealed that tariffs vary strongly between European terminals. Thereby, we assessed costs for a spot cargo of a size of 135.000 m³ in EUR/MWh regasified.¹⁴ The lowest cost observed was just above 0.65 €/MWh (~0.20 \$/mmBTU¹⁵), whereas cost seen could be also higher than 2.50 €/MWh (~0.81 \$/mmBTU) for certain terminals in certain months and in some specific cases. In total

¹⁴ Except for Fos Tonkin (France) as this terminal can just receive LNG vessels up to 75.000m³.

¹⁵ Rates applied for conversion are 1 Euro = \$1.10 and 1 MWh = 3.41 mmBTU.

terms, those values correspond to about 0.6 to 2.3 Mio. EUR¹⁶ for a spot cargo of a size of 135,000m³ received, unloaded, stored and regasified.

Compared to the lowest Month-Ahead mid-price observed at the TTF between January 2016 and end of April 2017 of 10.65 €/MWh, this corresponds to 6% up to 23% of the hub price. However, measured to the highest Month-Ahead mid-price at the Spanish PVB hub seen in the same period, which was about 33.00 €/MWh the range is only 2% to 8% of the hub price.

The regasification tariffs in Lithuania and Italy were deliberately left out of the analysis for different reasons.

The regasification service price charged at the floating Klaipeda plant in Lithuania is stated to be 0.10 €/MWh (excl. VAT)¹⁷ and is therefore the only all-round carefree package. This tariff has a rather political background as the country seeks to diversify its gas supply away from Russian gas. Remaining operational costs of the terminal are covered by a supply security charge, which has to be paid by all Lithuanian gas consumers regardless of whether they buy from the Klaipeda LNG terminal.¹⁸ Therefore, the Lithuanian tariff was excluded from the selection of terminal tariffs.

The tariffs charged at Italian terminals were also excluded from the range given above as the Panigaglia terminal is a quite old terminal; the OLT terminal has special features due to being a floating offshore terminal and at the Rovigo terminal 80% of the capacity is exempted from regulation. The published tariff therefore applies only to 20% of the capacity. Furthermore, there is a special guarantee factor for Italian terminals which shall cover 64% of the total revenue. From the published tariffs we estimate the regasification costs at Italian termi-

¹⁶ For a spot cargo of 135,000 m³ and a conversion factor of 1 m³ LNG = 6.788 MWh applied. Fuel gas costs or additional losses are not taken into account.

¹⁷ LNG regasification service price, approved by the Company based on LNG regasification service price cap set by National Commission for Energy Control and Prices (hereinafter, NCC) on November 17, 2016 by the resolution No. O3-368.

¹⁸ See: National Commission for Energy and Control Prices: AB "Amber Grid", website: <http://www.regula.it/en/Pages/ab-amber-grid.aspx>.

nals to be quite high¹⁹, which might be the main barrier to any spot LNG imports into Italy so far.²⁰

In summary, the comparison of European regasification tariffs is a difficult exercise as there is a multitude of technical factors inherent to the different terminals which in turn have an impact on the terminal access conditions and basic services, respectively. Thereby, each terminal and tariff has its specialities. As different as the approaches in tariffication are the final costs per megawatt hour of regasified LNG. Overall, in general four major factors influence the type and level of European regasification tariffs: access rules (rTPA versus nTPA), age of infrastructure, type of infrastructure (onshore/ offshore) and political aspects. The latter applies especially to terminals that were built for security of supply reasons.

¹⁹ E.g. regulated tariff at Rovigo terminal is above 1.4 USD/mmBTU.

²⁰ See: Mereghetti, Mathilde: Italy's regasification fees still too high for LNG spot deliveries – traders, published in ICIS Heren as of 24 February 2016.

5 Markets for Regasification Capacity

There is not only a jungle of different regasification tariff structures in Europe, but also the access to terminal capacity varies. In general, the main rights a capacity holder obtains at a regasification terminal are:

- Right to berth and unload a specified number of LNG tankers on specific berthing slots
- Right to use certain amount of temporary storage
- Right to nominate LNG for re-gasification and send out into the gas network

Those rights can be assigned to individual parties or can be shared between different parties.

Terminal users are obliged not to hoard capacities they do not use as determined by the Regulation EC No. 715/2009.²¹ Thereafter, capacity at European terminals can be obtained via primary and secondary markets and LNG facility contracts shall include measures to prevent any capacity hoarding, especially in cases of contractual congestion. The terms and conditions vary depending on the terminal – especially between regulated and exempted terminals.

Primary capacity

Primary capacity can be secured via long-term contracts at terminals with regulated third-party access and via open season processes at exempted terminals. Furthermore, free annual and monthly capacities might be booked according to the “first come – first serve” principle. This is e.g. the case at the Dutch Gate terminal, where 11.1 bcm/a out of a total capacity of 12 bcm/a is currently contracted on a long-term basis. The remaining capacity can be booked in the primary market.

If a third party is interested in delivering LNG cargos to European regasification terminals, the interested party can approach the primary capacity holder and conclude a bi-lateral trading agreement.

²¹ See: 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, Article 17.

Primary rights of berthing slots, temporary storage, send-out capacity and LNG stock in the facility can also be traded between the capacity holders at the very same terminal (internal transfer).

Secondary Market

If the primary capacity holder does not need the contracted capacity then capacity has to be made available to third parties on the secondary market. Thereby, two different forms are possible. The cargo could be handled by the primary shipper, which means that the LNG is delivered to the primary customer at the jetty and delivered back to the third party after send-out in form of gas at the hub (= "virtual service" or swap). The second option is that the third party obtains capacity from the primary holder for a pre-determined period of time and manages the unloading and nomination of the LNG through the terminal and into the gas network itself (= "physical" service). The difference between the two options is the level of interaction with the terminal.

Anti-Hoarding mechanisms

Additionally to the secondary market, different so-called anti-hoarding mechanisms were established with the aim to enhance competition at terminals and to prevent capacity holders from taking advantage of hoarding their capacities. Those mechanisms are commonly known as "use-it-or-lose-it" (UIOLI) mechanisms. Thereby, capacity is released back to the terminal operator by the primary holder with the primary holder does not need the capacity and did not sell it on the secondary market. The terminal operator will package and offer the UIOLI slot (berthing and storage capacity and interruptible deliverability) to the market via bulletin boards. The buyer of the capacity will be able to use the terminal to unload and regasify LNG within the same contractual framework as the primary shipper.

There are no common guidelines on when UIOLI slots have to be published and often they are published at relatively short notice. As can be seen in Figure 5-1, publication dates range from seven days prior to the berthing slot to 30 days before the relevant arrival window. This seems to some extent to make it unattractive, respectively impossible, for a shipper to bring in a cargo. Transparency has been improved in recent years but debates on transparency lost momentum in the overhang of LNG import capacity.

Figure 5-1: Publication Dates for UIOLI Slots

Terminal	Publication of UIOLI slot
Gate	Earliest 30 days before the relevant arrival window starts
Grain LNG	Re-offered 7 days prior to the berthing slot
South Hook	14 day ahead of the berthing slot
Dragon LNG	12 days prior to the relevant berth slot
Dunkerque	No information

Sources: Terminal operator websites

There is no direct involvement of any primary capacity holder in the transaction. The contractual relationship is directly between the terminal operator and the third party. Thereby, the third party becomes a shipper to the terminal.

6 Conclusion

The way in which capacity is managed at LNG terminals is crucial in ensuring that market participants are able to gain access to terminal capacity for storage and regasification on a long-term and even more important, on a spot basis. LNG supplies can contribute to security of supply along with diversification and the provision of more flexibility to the system through openness to a wider market.

There are no new terminals in a detailed planning stage in Europe, except for maybe on islands and in Eastern Europe due to security of supply reasons. In case of Western and Southern Europe new terminal capacity is not required as there is a lot of spare capacity left.

Europe is well-positioned to receive additional volumes of LNG as there is still surplus capacity to offer for TPA. The available capacity is likely to arouse interest in future years in an oversupplied global market as Europe offers liquid markets as well as storage opportunities and the necessary infrastructure to move gas around. Therefore, it might be good to have an eye on the European regasification business.

Transparency for exempted terminals is quite low. Whereas tariffs do not have to be published, available UIOLI slots are sometimes published on short notice making it difficult for potentially interested parties to organize the delivery of a cargo.

Overall, regulated European terminals are quite transparent when it comes to the services offered and tariffs as they are required by EU regulation to publish information on tariffs, access codes, available capacities, nomination procedures. Thereby some countries set very good examples in terms of transparency. When it comes to tariffs, the exercise of comparing different terminal tariffs is difficult due to a multitude of different technical factors of each terminal. The products offered at each terminal are different in terms of the services included.

To summarize, we see full or partial third-party access in Europe which is working quite well. Furthermore, an effective secondary market for regulated as well as exempted terminals is implemented. However, if more LNG should reach Europe, it is not only a matter of availability of import capacity and LNG markets being long. Key is a fundamental understanding of access conditions for terminals in view of technical and commercial conditions.

Authors

Dr. Dietrich Gerstein

Dietrich has over 25 years of in-depth knowledge of international natural gas, LNG and energy markets. He has excellent understanding in handling international projects and inter-governmental relationships. Lately, Dietrich worked as Global Director LNG of Royal Dutch Vopak and managed the operation of the company's regasification terminals. As CEO of the LNG business unit of E.On Ruhrgas, he was responsible for initiating and implementing LNG supply and purchase projects. Next to his current position at Team Consult he works with the German Gas and Water Association and governmental institutions on facilitating the use of LNG as a clean fuel.

Jörg Blaurock

Jörg Blaurock joined our team as an independent consultant on July 1, 2014. He has over 25 years of experience in many positions along the value-chain in the energy industry. He was Managing Director and Sales Manager of DONG Energy and responsible for the sale of gas, power and services in Germany and worked as International Commercial Manager on price revisions of long-term gas supply contracts in Copenhagen. His professional career began in 1989 with Mobil Oil and ExxonMobil where he was in various Line-Management positions with a local and functional connection to the German gas production.

Stefanie Segeth

Stefanie Segeth graduated from the University of Duisburg-Essen with a M.Sc. in Energy and Finance. She gained first practical experience in the energy business during her integrated Bachelor's programme with Vattenfall and has over 5 years of experience in the energy industry. Prior to joining TEAM CONSULT, she gathered experience in the mechanisms of gas markets and gas trading as an analyst with a national energy company. Stefanie joined TEAM CONSULT as Consultant in July 2015.

Page intentionally left blank



TEAM CONSULT

Gas.Power.Experience.

Robert-Koch-Platz 4
10115 Berlin

Tel: 030.400 556 0

Fax: 030.400 556 99

E-Mail: info@teamconsult.net

Internet: www.teamconsult.net