



PROSPECTS FOR SUSTAINABLE DIVERSIFICATION OF THE EU'S GAS SUPPLY

CIEP PERSPECTIVES ON EU GAS MARKET FUNDAMENTALS

This paper is part of the series 'CIEP Perspectives on EU Gas Market Fundamentals'. This is the result of a comprehensive research project conducted in 2016 with a view to anticipate possible developments in gas supply and demand in the EU in the run-up to 2025 and discuss the sustainability of the EU's diversification efforts.

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FUNDAMENTALS

1 EXECUTIVE SUMMARY

The current environment of growing geopolitical tensions has given rise to concerns about the EU's gas import dependency, particularly in connection with its high volume of gas imports from Russia. This paper proposes that for the foreseeable future, this and even larger sales should in fact not be a matter of concern.

While the EU gas market is struggling with the question of what the future role of gas will be, and thereby the corresponding level of demand, it is clear under every scenario that import dependence will grow due to declining indigenous production. The focus among policy makers is therefore to find ways to diversify the gas supply in order to reduce dependency on Russian gas. Diversification in the classical sense, by means of other secure supplies under long-term contracts, is not going to be attainable, at least in the medium term: for one, from the perspective of potential new sources, the EU is not a particularly attractive market for long-term supplies, especially since the EU gas market players have no appetite for committing to purchasing such supplies in the current business environment; and for two, as long as the role of gas in the energy mix remains unclear it does not make sense to commit to long-term contracts.

However, the EU is finding itself in the midst of an unprecedented buyer's market, which offers the opportunity for a different type of diversification. This market not only enjoys a significant overhang of pipeline gas, notably from Russia, but also substantial volumes of 'surplus' LNG will be looking for a place in the EU market, ready to replace Russian supplies at any time. The considerable unused LNG import capacity now comes in good stead.

This situation could well last until the mid-20s, particularly in a stagnant global gas market. While it lasts, any physical diversification or market share is of no real importance: a higher market share of any source does not mean a greater dependence on that source. In order to benefit from these competitive gas flows, however, it is important that pipeline and processing capacity do not pose a constraint on gas reaching the market. With LNG import capacity abundantly available, construction of additional pipelines to the EU should be welcomed, while any potential restriction of market access or regulatory hindrance of trade should be avoided.

Regular reviews of the global market outlook should nonetheless be conducted to avoid a situation in which the EU would find itself without adequate competitive supplies in the event of a tightening market.

2 INTRODUCTION

Political tensions in recent years between the EU and Russia have placed gas supply security high on the agenda of EU policy makers. Concerns about the EU's (over-)reliance on Russian imports have led policy makers to explore the potential for more supply diversification.

Certain aspects of supply security are normally managed by individual member states and their market players, while others may benefit from a collective EU approach.

When discussing security of supply (SoS), it is necessary to distinguish the following types:

- Operational security, i.e., the conditions that ensure that there is sufficient supply on any given day of the year (particularly during a cold spell);
- Strategic security, or being able to handle supply conditions in the case of an interruption or a substantial reduction of either internal or external supply, be it from a supply source or due to transportation/processing infrastructure;
- Long-term security, which is about ensuring adequate and affordable supplies over the medium- to longer term; and
- Political and geopolitical security, which addresses measures to reduce the probability or effect of geopolitical conflicts, leading to an interruption or substantial reduction of supply from one or more states (including transit states) or from multiple sources.

Each of these types has its own time span (from days to months to years), its own issues, conditions and remedial options.

Furthermore, for the EU, security of supply has both an external and an internal dimension.

The internal dimension deals with the manner in which the EU and its member states address the security of their energy systems. For operational and long-term security, finding solutions to enhance security (if this is considered necessary) normally remains the domain of the individual member state and its market

players¹, while for strategic security synergies may also be found in cooperation with other member states. Operational and strategic security may involve investments in infrastructure, which are often redundant or oversized. Given the very different energy mixes of EU member states, it is difficult and inefficient to apply a single process or to set a single security standard for EU member states. To develop cost-effective measures, analysis has shown that the solution space for operational and strategic security should in the first place be found in the total energy system of each country.² Some countries may find all or part of their solutions in multiple firing capabilities, or in the strategic storage of gas. In the case of strategic security these may be complemented by further cooperation with other states and possibly investments in new infrastructure (e.g. LNG terminals or interconnecting pipelines).

The external dimension concerns strategic and long-term security of gas supplies into the EU. Shortages of external supplies, be it from interruptions or from insufficient supply, have a bearing on every member of the EU and thus deserve everyone's full attention. However, adequate security of external supply does not necessarily equally satisfy the SoS concerns of individual member states. It still leaves each member state with the responsibility of reviewing its own security position.

Finally, strategic security is not only a matter of gas supply from its sources, but it is also dependent on the supply channels from these sources into the EU. A broad variety of LNG import terminals contributes to security, as does a choice of alternative pipeline supply routes.

This paper deals with strategic and long-term security of supply and focuses on the external dimension for the EU, without delving into issues specific to individual member states. It particularly addresses enhanced security through diversification of external supplies. Though the future EU gas demand is uncertain, with its declining indigenous production, the EU will certainly need to import a larger share of its gas demand in the coming decades. Diversification of gas imports is seen by policy makers as a way to enhance security of supply and is therefore high on the EU policy agenda. Diversification is also highly valued by market players as, besides enhancing security of supply, it offers competitiveness between (external) suppliers and in this

1 In the case of long-term security, cooperation between market players across the EU may contribute to unlocking supplies from new sources.

2 Study EU Energy Supply Security and Geopolitics, CIEP, 2004; at <http://www.clingendaelenergy.com/publications/publication/study-eu-energy-supply-security-and-geopolitics>

way results in competitive prices of natural gas. In the policy discussions on security of supply much attention is attributed to the geographic origin of (pipeline) supplies, while the organisation of the market, i.e., the number of players on the market from one or various geographical locations, also matters. Very often a state approach is applied to certain countries, while a market player approach is applied to others.

In the current business environment, the traditional business model of contractual diversification, which has served the EU in the past and is based on long-term contracts, does not offer a realistic option for the EU market for additional import volumes. A different concept of supply diversification is presented in this paper, which we will refer to as 'Competitive Diversification', and which provides an attractive alternative in the anticipated global market environment of the next few years.

This paper reviews these two forms of diversification of gas supply to the EU, based on the findings of four separate and comprehensive CIEP papers reviewing the EU gas demand outlook, the prospects for Russian and other pipeline supplies, and developments in the global LNG market, and discusses their implications for security of supply.^{3,4,5,6}

The study focuses on the period up to 2025, during which a buyer's market is expected for most if not all of the time.

The analysis in this paper was made before the UK referendum on its EU membership (Brexit). The evaluations and data presented here are based on the current EU. Brexit would create a smaller EU. However, the main observations and conclusions of this paper would not be any different: the run-up to Brexit only contributes to more uncertainty in the EU gas market; the conditions for Competitive Diversification would also apply to an EU without the UK. The recent events in Turkey could impact the development of gas flows through the Southern corridor. Also this was not taken into account in this study.

3 Pisca, I., Outlook for EU Gas Demand and Import Needs to 2025- CIEP Perspectives on EU Gas Market Fundamentals, CIEP, 2016.

4 Franza, L., 'Outlook for Russian Pipeline Gas Imports Into The EU to 2025 – CIEP Perspectives On EU Gas Market Fundamentals', CIEP, 2016.

5 Franza, L., 'Outlook for Gas Imports From New Suppliers Into The EU to 2025 – CIEP Perspectives On EU Gas Market Fundamentals', CIEP, 2016.

6 Franza, L., 'Outlook for LNG Imports Into The EU to 2025 – CIEP Perspectives On EU Gas Market Fundamentals', CIEP, 2016.

3 DIVERSIFICATION

Diversification of gas supplies contributes significantly to overall security of supply. It is a process which involves the supply of the commodity as well as the availability of infrastructure. To be effective it requires that gas supplies from different sources independently find their way to the market, using secure transportation channels and import facilities. Diversification of supply channels enhances strategic security. The EU is well-endowed with LNG receiving terminals along its coastline, and more are being planned. Regarding pipelines into the EU, there are plans to add new capacity to the supply pipelines out of Russia. As will be discussed later in this paper, this will remove potential bottlenecks in the supply infrastructure. Once in place, the EU will enjoy a beneficial diversity of import channels and hence of gas supply avenues, both for LNG and for pipeline gas from existing sources. The remaining question which will be addressed here is by which means the EU market can achieve diversification of gas supplies. Two distinctive types of diversification are presented below.

Contractual Diversification can be realised by creating a system of secure, longer-term supply arrangements from different sources on a firm contractual basis. While some of these contracts still run until 2035, it is unlikely that the EU gas market will continue to ensure supply diversification by means of new long-term contracts to meet future demand, especially in the current buyer's market.

The objectives of diversification can also be realised by a market model, which will be referred to as 'Competitive Diversification'.

Competitive Diversification relies on an EU market model based on trading hubs, liquidity, market depth and competition between different sources that respond to price signals. It also requires a market model in which at all times there are two or more external parties willing to supply the EU market. Finally, these external suppliers must be able to find sufficient infrastructure at the EU borders to effectively place gas in the EU market.

Both types of diversification will be discussed in the following sections.

3.1 CONTRACTUAL DIVERSIFICATION

A large share of Europe's gas demand is still covered by long-term contracts – the traditional backbone of gas supply contracts in Europe – though the share of these contracts in the total supply is decreasing. International gas trade has traditionally been organised around a number of pillars, notably:

- Long-term contracts between large producers and (often national) resellers;
- Resellers supplying demarcated markets, which provides assurance of market volume; and
- 'Net-back' prices with oil-indexation offering assurances of competitiveness vis-à-vis other fuels in EU markets.

This market model has enabled the EU resellers, both jointly and individually, to unlock supplies from new, remote sources. By aggregating supplies from different sources, the resellers in the larger gas markets that rely on imports have maintained robust and diverse supply portfolios. Most smaller markets, especially close to the Eastern border of the EU, have used a single supplier. In total no external supplier to the EU as a whole has had a market share of more than 30%.

These contracts still are the bedrock of the European gas import market. However, for a variety of reasons explained below, it is unlikely that contractual diversification is sustainable for EU buyers, at least in the medium term.

CONTRACTUAL DIVERSIFICATION IS NO LONGER A REALISTIC OPTION FOR EUROPE

Contractual diversification needs both:

- 1) A willingness from EU buyers to enter into long-term contracts with external suppliers; and
- 2) A willingness on the part of external suppliers to enter into long-term contracts with EU buyers.

EU buyers have reasons for shying away from this option. However, in many cases, external suppliers committing to new greenfield projects need long-term contracts to justify and finance their substantial investments in new production and transportation infrastructure. Given this requirement and their alternative options, they do not all regard the EU as their market of choice. Both perspectives are further discussed in the following paragraphs.

THE EU BUYERS' PERSPECTIVE

- EU gas demand for the coming ten years is highly uncertain, mainly due to the uncertainties surrounding the effects of future environmental policies on the power sector.⁷ In the period up to 2025 the range of uncertainty in the projections analysed in the paper on the demand outlook is considerable, varying from demand reduction to significant growth. However, under all scenarios the import demand of the EU will not decrease, due in part to declining indigenous production.⁸ Future projections of imports vary between stagnant volumes and substantial growth (more than an extra 100 bcm by 2025 compared to 2015). The assumptions and insights underlying these scenarios are not very clear, which makes it hard to compare and test their validity and to fully understand the basis for the projections. Nevertheless, in all cases policy assumptions seem to have the biggest impact on expectations of demand and cause most of the uncertainty. In the absence of clear guidance from the published demand scenarios, EU market players may well develop their own views on the matter as to whether the EU needs to secure more imports. However, signals sent by policy-makers – including scenarios by the European Commission that systematically point to a relatively lower growth in gas demand – risk discouraging investors from taking steps to secure new supplies.
- The global LNG market is likely to remain a buyer's market for some time, due to an expected overcapacity of LNG production mainly caused by a number of projects coming on stream in anticipation of a fast growing Asian gas demand.⁹ It is expected that once all other demand for LNG outside the EU has been met, part of this capacity (the 'surplus') will find its way to Europe and compete for supply to the EU market. EU buyers of inexpensive LNG, competing its way into the EU market, could leave behind those with long-term gas contracts.
- In addition, the EU gas market could benefit from surplus production capacity in Russia without having to commit to long-term contracts. An estimated additional 100 bcm (or more) per year could be produced and sold out of Russia¹⁰ in Europe at relatively low additional costs and on relatively short notice (less than two

7 Pisca, I., Outlook for EU Gas Demand and Import Needs to 2025- CIEP Perspectives on EU Gas Market Fundamentals, CIEP, 2016.

8 The demand estimates are all based on the current EU membership. The results would be different for an EU in which the UK is no longer a member.

9 Franza, L., 'Outlook for LNG Imports Into The EU to 2025 – CIEP Perspectives On EU Gas Market Fundamentals', CIEP, 2016.

10 Dependent on availability of pipeline capacity, see section on surplus production and transportation capacity.

years).^{11,12} Any buyer with a long-term contract could risk competition from this surplus gas out of Russia.

- In this uncertain buyer's market, making long-term commitments for the post-2020 period poses significant risks, in terms of both volume and price, and imposes a heavy financial burden on the buyer, while the potential benefits seem negligible. In a liberalised market, a buyer's only firm obligation is to have sufficient gas to cover his (short-term) contracts for his own clients.
- With the power sector offering the most uncertain prospects, the trend of increasing variability of gas demand in this market will not diminish. This clashes with the notion of a long-term supply contract, which inherently has limited flexibility.
- Moreover, for market players in the EU the uncertainty around total demand is reinforced by uncertainties around their individual future roles and market shares.
- Consequently, EU buyers can be expected to have little to no appetite for making long-term commitments for security of supply, particularly as long as ample gas supplies and alternatives are available for the foreseeable future.

THE EXTERNAL SUPPLIERS' PERSPECTIVE

Current suppliers

Russia and other current pipeline suppliers

Of all external pipeline suppliers from existing sources, only Russia evidently has the potential to sell additional volumes of gas under long-term contracts during the period under review in this paper.¹³ As a major supplier to Europe, it is currently considering its strategic options of how best to position itself in the EU market.¹⁴ In recent years it has been (and still is) engaged in arbitration cases around the terms of its contracts with EU buyers. If Gazprom were interested in offering more gas under new long-term contracts, it would not likely find much interest among EU importers, given the current market conditions and security of supply (SoS) considerations. However, both sides may well consider extension of current contracts.

11 Franza, L., 'Outlook for Russian Pipeline Gas Imports Into The EU to 2025 – CIEP Perspectives On EU Gas Market Fundamentals', CIEP, 2016.

12 It is unlikely, however, that Europe would want to increase import volumes from Russia, as this would increase its reliance on Russian gas imports.

13 Franza, L., 'Outlook for Russian Pipeline Gas Imports Into The EU to 2025 – CIEP Perspectives On EU Gas Market Fundamentals', CIEP, 2016; Franza, L., 'Outlook for Gas Imports From New Suppliers Into The EU to 2025 – CIEP Perspectives On EU Gas Market Fundamentals', CIEP, 2016.

14 Franza, L., 'Outlook for Russian Pipeline Gas Imports Into The EU to 2025 – CIEP Perspectives On EU Gas Market Fundamentals', CIEP, 2016.

Current LNG suppliers

- Of all current LNG suppliers to the EU, (i.e., Qatar, Algeria, Nigeria and Trinidad), Qatar is the only source with the potential to sell more gas under long-term contracts to EU buyers.¹⁵ Qatar still has not fully utilised its own regasification capacity in the EU and appears focused on establishing optional outlets for its LNG in the EU market.¹⁶
- Projects that have recently come on stream or have received final investment decisions (FIDs) have already contracted most of their output but may offer marginal volumes of LNG on the global market. Some buyers may need to resell all or part of their contracted volumes, as the slower than expected growth of the Asian market has caught many by surprise. Further, a share of Australian and US LNG¹⁷ that recently received FIDs has been left uncontracted.¹⁸ Together with the uncontracted capacity of other, producing LNG plants, these volumes can be directed to the highest value market on a short-term basis or sold on a long-term basis.
- Incremental, brownfield pipeline or LNG projects normally face far less capital expenditure than greenfield developments and will not necessarily require long-term contracts as a precondition for investments. These projects could therefore contribute to the pool of 'flexible' uncommitted gas.

New supply sources

Supplies from new sources require major investments in production and transportation. Long-term contracts with 'bankable' market parties offer investors security of demand and facilitate the financing of these investments, where needed, both for pipelines supplies and for LNG developments. Therefore, developers of such projects are generally interested in entering long-term contracts. The current international gas prices create an economic basis for few, if any, new supplies. Indeed, new investment plans may be delayed until the future offers a better outlook on prices, though new investments are furthermore dependent on project aspects such as costs, markets, contractual arrangements, risks and uncertainties. Even if market conditions were to improve and the EU were to refrain from any interventionist activities around

15 Franza, L., 'Outlook for LNG Imports Into The EU to 2025 – CIEP Perspectives On EU Gas Market Fundamentals', CIEP, 2016.

16 An example is the recent signing of a flexible PSA between RWE and Qatargas (July 2nd, 2016) for the delivery of up to 1.1 mt of LNG per year to NW Europe for 7.5 years.

17 It is estimated that 15-20 mtpa of prospective LNG from US projects are not pinned to a specific final buyer (they are either unsold or uncommitted in portfolios of IOCs or trading houses). Australian projects also left part of their output uncommitted; these volumes will reach 6-7 mtpa by 2020 (ref: Franza, L., 'Outlook for LNG Imports Into The EU to 2025 – CIEP Perspectives On EU Gas Market Fundamentals', CIEP, 2016.).

18 Franza, L., 'Outlook for LNG Imports Into The EU to 2025 – CIEP Perspectives On EU Gas Market Fundamentals', CIEP, 2016.

the negotiation of long-term contracts with EU buyers, the prospective external suppliers would still be concerned about adopting pricing mechanisms dependent on unpredictable factors, from the jurisdiction of the buyer's country to the volume of alternative supplies. Further prospects for the EU over the period up to 2025 will be examined in more detail in the following paragraphs.

Potential new pipeline supplies:

- New potential pipeline suppliers to the EU include Turkmenistan, Kurdistan, Iran, Azerbaijan and the Eastern Mediterranean.¹⁹ Turkmenistan and Azerbaijan seem to have a specific interest in selling gas to Europe in order to respectively pursue demand diversification and to build on existing infrastructure and commercial frameworks. Other suppliers do not have a specific interest in Europe, as they seem to have more interesting and attainable options. In addition, for all except Azerbaijan the geopolitical, commercial and economic hurdles are of such complexity that they cannot be regarded as realistic sources of new supply to Europe in the next ten years. Azerbaijan seems to be the alternative pipeline supplier to Russia, with the fewest obstacles, but it is also the candidate with the least volumes to offer. Finally, any pipeline supply to the EU would need new infrastructure: the costs of gas transport by pipeline over long distances are very high and only become affordable if based on the firm supply of very large volumes. It is unlikely that any single EU market player will be in a position to purchase these on its own; the EU market is currently not in a position to offer this luxury. Consequently, this would imply a need for multiple long-term contracts, negotiated simultaneously with various EU buyers.
- Even if, in spite of all these hurdles, the above countries were to aim for supplies to the EU, they would most likely have to cross Turkey. Apart from the geopolitical implications, Turkey's growing gas demand for its own market and quest for diversification could impact prospects of these alternative supplies reaching the EU.
- Altogether, it is most unlikely that the EU will receive significant volumes from new sources via pipelines over the period under review.²⁰

19 Franza, L., 'Outlook for Gas Imports From New Suppliers Into The EU to 2025 – CIEP Perspectives On EU Gas Market Fundamentals', CIEP, 2016.

20 Construction of the new TAP pipeline has begun, providing 10 bcm per year to Europe (Italy) from Azerbaijan from 2019/2020 onward, as part of The Southern Corridor of the EU. There are several other plans for pipelines to Europe; however, it is rather doubtful as to whether any of these plans will be realised.

Potential new LNG supplies:

- Investors in new LNG supply sources that have not yet reached an FID may not find the current business and price environment conducive to committing to major investments. If and when they do, they will likely be looking for long-term contracts for at least a large proportion of their planned capacity, to make their projects financeable. Without the need for external project financing, investors may decide to invest in LNG projects without the security of robust long-term contracts. But there are only a few large players who can afford this. Where long-term contracts are needed to underpin investments in new LNG projects, investors are not likely to find much eagerness on the part of EU buyers to make such commitments.
- A relatively new business model in the LNG market, which could further impact its dynamics, is linked to the emergence of traders and particularly of aggregators, acting as intermediaries between producers and markets and offering flexibility in supplying different markets at different terms. Aggregation is not a new phenomenon in the gas industry; the European market was developed by resellers, aggregating supplies under long-term contracts and on-selling these in the market (as described earlier in this paper). LNG aggregators conduct their business on a global market. Most of them are substantial portfolio players. They have the financial strength and the portfolio reach to buy LNG Free-on-Board (FOB) under long-term contracts from new developments and sell from their portfolios, either directly in open, liberalised markets or under a range of contract terms to other markets. Committing supplies from a new LNG project to these parties can offer an attractive option for LNG developers.
- So, from the perspective of new pipeline and LNG developments, in most cases the projects need long-term contracts for most of their planned capacity to finance the investments. Speculative developments, without a secured market, will require financially robust investors, of which there are only a few. However, as long as European buyers do not see benefits in entering into long-term contracts for large volumes with little flexibility on their part, it is unlikely that investments will be made for new LNG supplies targeting the EU market, quite apart from the current investment climate, and from any reservations the investors may have themselves about selling to EU buyers (see above). In future, we may see that aggregators become the vehicles to bridge the needs of producers for long-term offtake commitments and the hesitance of markets to commit to long-term supplies.

In conclusion, contractual diversification does not seem to be a realistic option to meet additional demand for imports for the EU market over the period under review.

3.2 COMPETITIVE DIVERSIFICATION

A market with competitive diversification can be defined as an easily accessible and liquid market, in which at all times there are more suppliers interested in supplying gas than the market requires.

Such a market environment needs:

- Surplus production and delivery capacity from sources, capable of supplying the EU market;
- Liquidity of the LNG market, i.e., flexibility to produce and supply at relatively short notice;
- Willingness of external suppliers to compete on price to deliver gas to the EU market;
- 'Surplus' import infrastructure; and
- An open and accessible market (no hurdles on imports).

Like contractual diversification, competitive diversification would meet the two objectives of diversification: SoS and market competitiveness. Yet there are significant differences. First, for competitive diversification there are external conditions which have to be met, which are beyond the control of the EU and its market players. Further, in a market environment which meets these conditions, market players do not need to arrange for physical diversity of supplies; the liquidity of the market will ensure that the most competitive supplies enter the market. The market share of any external supplier is basically irrelevant.

The above conditions are further examined for the EU market in the following paragraphs. Also, the consequences of failure to meet all conditions, and particularly the development of a tight gas market, will be discussed.

SURPLUS PRODUCTION AND TRANSPORTATION CAPACITY

- It is estimated that apart from the existing supply flexibility to meet its maximum contractual obligations, the 'spare' capacity that Russia has available is at least 100 bcm.²¹ These are supplies that can be brought onto the market in less than two years, with relatively small additional investments in compressors.
- By increasing its shale gas production capacity, the USA can make additional gas available at relatively short notice, when gas prices in Europe are attractive.
- Since the completion of Nord Stream-1, the total pipeline capacity from Russia to Europe is much higher than the current export volumes, above 200 Bcm. However, if the transit contracts with Ukraine are not renewed after 2019 (or

21 Franza, L., 'Outlook for Russian Pipeline Gas Imports Into The EU to 2025 – CIEP Perspectives On EU Gas Market Fundamentals', CIEP, 2016.

only renewed for a small volume) and no other transport capacity to Europe is built, Russian export volumes to Europe will be limited in the future by transport capacity. Today, non-Ukraine bound transportation capacity from Russia to the EU is around 100 bcm. With Nord Stream-2, this would rise to around 150 bcm, enough to ship current volumes (135 bcm) but insufficient to ship all contractually committed volumes until 2022 (above 160 bcm). With the addition of Nord Stream-2 and the concession of a full TPA (Third Party Access) exemption regime to OPAL²², non-Ukraine bound transport capacity from Russia to the EU would be ca. 170 bcm, barely sufficient to ship annual contract volumes and insufficient for shipping Russian 'spare' volumes.²³ A combination of new pipelines and at least partial renewal of Ukraine transit contracts is thus necessary to avoid bottlenecks in transport capacity, but political tensions risk undermining this plan.

- While the current situation of oversupply evolves, volumes of uncontracted LNG coming towards Europe could be significant. The availability of LNG carriers and natural gas supply to LNG plants are factors that could influence the 'reserve' supply capacity but are not expected to have any sizable limitation in the near-/midterm future.^{24,25}

Provided that a solution is found to the risk of future bottlenecks in transport capacity from Russia (by continuing the use of Ukraine transit capacity and by building new pipelines such as Nord Stream-2), there is ample production and transportation capacity for supplying the EU market with pipeline gas and LNG.

LIQUIDITY OF THE LNG MARKET

- The potential flexible²⁶ LNG available on the market in 2020 could be significantly more than today's 67 mtpa. Part of this could be sold on the spot or under short-term contracts. The volume effectively available will be influenced by the possibility of delays in constructing liquefaction plants or lower liquefaction capacity utilisation rates (especially in case of lower prices in Europe) as well as

22 Nord Stream is currently used at only 70% of its capacity because of the EC's refusal to grant Gazprom a full exemption to Third Party Access (TPA) rule on OPAL.

23 Franza, L., 'Outlook for Russian Pipeline Gas Imports Into The EU to 2025 – CIEP Perspectives On EU Gas Market Fundamentals', CIEP, 2016.

24 Franza, L., 'Outlook for LNG Imports Into The EU to 2025 – CIEP Perspectives On EU Gas Market Fundamentals', CIEP, 2016.

25 IHS Report of May 2016: <http://fairplay.ihs.com/commerce/article/4267941/lng-shipping-rate-slump-could-persist-through-2020>

26 Flexible LNG is defined as volumes of (planned) LNG production that are either not covered by a long-term contract (uncontracted) or, albeit being part of one, are not committed to a final buyer (uncommitted).

contract renewals or the signing of new long-term contracts (especially in Asia).²⁷ Nevertheless, given the direction taken by the global market, volumes of flexible LNG will increase in the next five years. Particularly for the new LNG production from the US, supplying the EU market will be an attractive option in the current global LNG price environment. As long as EU gas prices do not fall below 4 \$/MMBtu (12.4 €/MWh), in total some 100 bcm of LNG could overhang the EU market.

- A new business model is evolving on the global LNG market, with the growing involvement of traders/ aggregators. These players hold part of the flexible LNG in their portfolio mix, which they could well place on the EU market. As long as there is surplus LNG capacity in the market, they will compete on price. As analysts do not expect any tightening of the LNG market before 2023/2025, Europe is likely to see competition of LNG suppliers in the coming years.

'SURPLUS' IMPORT INFRASTRUCTURE

- Europe has abundant and easily accessible LNG regasification capacity and storage available; only 23% of the EU's 190 bcm regasification capacity was utilised in 2015.²⁸ The absorption capacity of the EU for LNG is further supported by its internal gas transmission network and the fact that it is a liquid and traded market.
- The EU could have additional volumes from Russia, provided that Ukraine transport capacity will continue to be used.

IMPACT OF AN LNG SELLER'S MARKET

While in the medium term the global LNG market is expected to remain a buyer's market, the LNG market could become tight towards 2025 if Asian demand grows as expected and no additional investments in liquefaction capacity come on stream. In case of a tight or seller's LNG market, an important condition for competitive diversification falls away. EU market players would then either have to revert to long-term contracts to secure LNG supply to their markets, or rely on price competition between other LNG importing markets (notably Asia) and the liquidity of the global LNG market to bring supplies to the EU. If, at that time, the Asian market were to still meet its demand by means of long-term supply contracts, this would be a strong argument for EU market players to revert to contractual diversification and do the same. In all cases, EU gas prices would rise. However, if the EU market parties were

27 Franza, L., 'Outlook for LNG Imports Into The EU to 2025 – CIEP Perspectives On EU Gas Market Fundamentals', CIEP, 2016.

28 Franza, L., 'Outlook for LNG Imports Into The EU to 2025 – CIEP Perspectives On EU Gas Market Fundamentals', CIEP, 2016.

to rely on global LNG liquidity while the Asian buyers would enter long-term supply contracts, LNG prices for the EU could reflect the limited liquidity of the LNG market. If both the Asian and the EU markets were to rely on supplies from a liquid LNG market, this would imply that new LNG projects would have to be developed largely without the comfort of secure long-term contracts. The consequence could be that these new projects would be delayed until such time that global LNG prices have risen to a level that compensates for the higher investment risk.

The time delay between the initial market response and the availability of new supplies could mean that the European gas market would become LNG supply-constrained for a period of time – although the price effect could be dampened by the mobilisation of additional supply from Russia to Europe.²⁹ In a seller's market, questions regarding how to acquire future supplies at a reasonable price would come higher on the agenda of EU buyers, increasing interest in long-term contracts. Much will depend on the timing of new investments. Both the US market and the new aggregators could have a major influence in this respect. Analysts expect that another 10 viable US projects could receive FIDs in the coming years. As several of these pre-FID projects are brownfields and have already arranged the permits for retooling for import plants, they are very well positioned for further development. Geographically, most of these projects are well located to supply the European market and could compete with Russian supplies.³⁰ Among the potential parties who may be interested in booking this capacity are aggregators, who could play a pivotal role. Aggregators may also play a role in other new LNG projects, buying LNG under long-term contracts to position themselves for an expected tighter market. On the basis of these 'strategic' investments, early commitments to develop these US or other projects could also prolong the existence of the current buyer's market.

29 Russia could provide an additional ca 100 bcm in less than two years.

30 Wood MacKenzie expects that as much as 55% of US LNG could be sold in Europe.

4 CONCLUSIONS

- 1 The EU seems trapped with a very high degree of uncertainty about future gas demand.³¹ This contributes to stifling any active search for additional, alternative imports. At the same time, in all projections, the import need of the EU is increasing. Indecisiveness about securing future import volumes thus paves the way for potential additional Russian gas. More certainty about the expected role of gas in power generation as part of the EU's environmental and energy policies for the future would significantly reduce the demand uncertainty and could trigger both buyers and external sellers to structurally invest in supplying the future European gas market.
- 2 Contractual diversification for additional import volumes is not a realistic option for the future EU market in the current business environment, neither for pipeline imports nor for LNG, as EU buyers have little to no appetite for entering into long-term contracts. Without the security of long-term contracts, external suppliers from new, greenfield sources, other than Russian pipeline and – possibly – US LNG suppliers, will not invest in new supplies to the EU market.³² Still, the pursuit of long-term contracts by EU market players with external suppliers, in anticipation of a changing, tighter business environment and given political support, could reduce the risk of future underinvestment and will strengthen the EU's strategic and long-term security position.
- 3 Competitive diversification offers at least the same strategic and medium/long-term security and probably more competitiveness to the EU than does contractual diversification, at least for the near and medium term, as long as there is surplus production capacity in the global gas market. Additional supply potential to the EU is set by substantial volumes of overcapacity of Russian gas supply (potentially limited by transit infrastructure) and of LNG production in the global market. These volumes should presently give considerable security comfort to the EU market. To ensure that competitive diversification is successful, the EU market should be open and accessible to all external suppliers.

³¹ The analysis of this paper does not take account of any consequences of Brexit.

³² Barring the very few greenfield projects, if any, and incremental brownfield developments (e.g. Russian gas and possibly some US LNG projects) which do not need project financing.

- 4 An important condition for competitive diversification is surplus importing capacity in LNG import terminals and pipelines. There is ample spare capacity in LNG terminals, and plans for additional LNG import terminals exist. Plans to build additional pipelines to the EU market should not be opposed, transit through Ukraine should remain possible, and obstacles to imports of Russian gas should be removed. The availability of so much spare capacity has not come for free. It is the result of major investments made by suppliers, market parties and, in some cases, with public funds, to enhance security and optionality in an uncertain market.
- 5 In this environment of competitive diversification, the actual market share of any external supplier, including Gazprom, in the EU gas market is of no importance, as it poses no enhanced security risk as long as there are always sufficient numbers of suppliers competing for the European market, providing security of supply at an affordable price. A higher market share of any source does not mean a greater dependence on that source. Competitive diversification of the EU market could be further strengthened if a larger number of Russian companies were allowed to compete for the supply to the EU market, and if internal interconnection capacity were improved. This would particularly benefit those EU member states which have more limited access to LNG supplies.
- 6 How long the EU can enjoy the benefits of competitive diversification depends largely on developments in the global market, particularly in the LNG market. Rising demand for LNG in Asia could mop up surpluses and lead to an earlier than expected end of the current buyer's market. On the other hand, prolongation of the buyer's market, albeit with a much lower 'reserve' production capacity, is also conceivable, particularly given the low cost threshold of US LNG projects and the emerging role of aggregators. By the end of this decade the outlook for 2025 should be clearer.
- 7 If by that time the outlook is for a tight global LNG market, EU market players can review their import strategy, particularly if at that time more clarity exists on future demand and on the way in which the Asian market deals with its future import requirement. If at that time Asia acquires its future supplies by means of new long-term import contracts, this would be a reason for EU market players to also secure new supplies through long-term contracts. Alternatively, both markets could promote a new business model in which investments in new supplies, notably LNG, are made without the security of long-term contracts, at the risk that this could initially lead to a prolonged period of limited supplies and higher prices.

- 8 Being the market of last resort for many LNG suppliers would normally pose a supply risk in a balanced or tight market. However, in the current market conditions it reflects that EU gas prices are low relative to other LNG importing markets (as they have been for a long time). Competitive diversification, with the ability of Russian producer(s) to sell more gas to the EU, along with the overhang of surplus LNG, will allow this intensely competitive environment to continue to put pressure on prices and hence only contribute to benefitting the EU gas market.
- 9 Although the EU may not particularly be the market of choice for many LNG suppliers (or pipeline suppliers), policy makers and regulatory authorities should endeavour to make the EU an attractive market outlet for gas and LNG by avoiding any measures which could be construed as leading to delays in deal-making, restrictions to market access, interventions or obstruction of free trade, not only in connection with supplies from outside the EU to its markets, but also regarding regulatory measures in the internal market, which may limit the benefits of competitive diversification flowing to member states.
- 10 While supply diversification makes an important contribution to strategic security of supply, it does not give full wall-to-wall protection against the risk of a sudden interruption of supply. There are both short-term and longer-term effects which need be taken into account when measures are being considered. Following a sudden supply interruption, alternative supplies cannot always be immediately mobilised from one day to the next. Gas storage and interruptible supplies for short periods are among the possible remedies. Longer-term measures depend on the size of the volume loss and the duration of the interruption. Interruptions of a technical nature generally would be best covered by competitive diversification, even better than by contractual diversification, as long as the market conditions are supportive. While the current business environment significantly tempers the effect of disruption due to geopolitical instability, a full cessation or major reduction of supply from one or more states could have consequences, which would threaten the comfort provided by both contractual and competitive diversification, even if the supplies from any single country were limited to 30%. If the market tightens, any disruption due to geopolitical instability would have more severe consequences. Whether and how the EU wants to arm itself against supply boycotts from a hostile outside world is a separate issue. However, active energy diplomacy and relationship management by the EU with its key suppliers seems to be a suitable and economic basis for managing these geopolitical risks.



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