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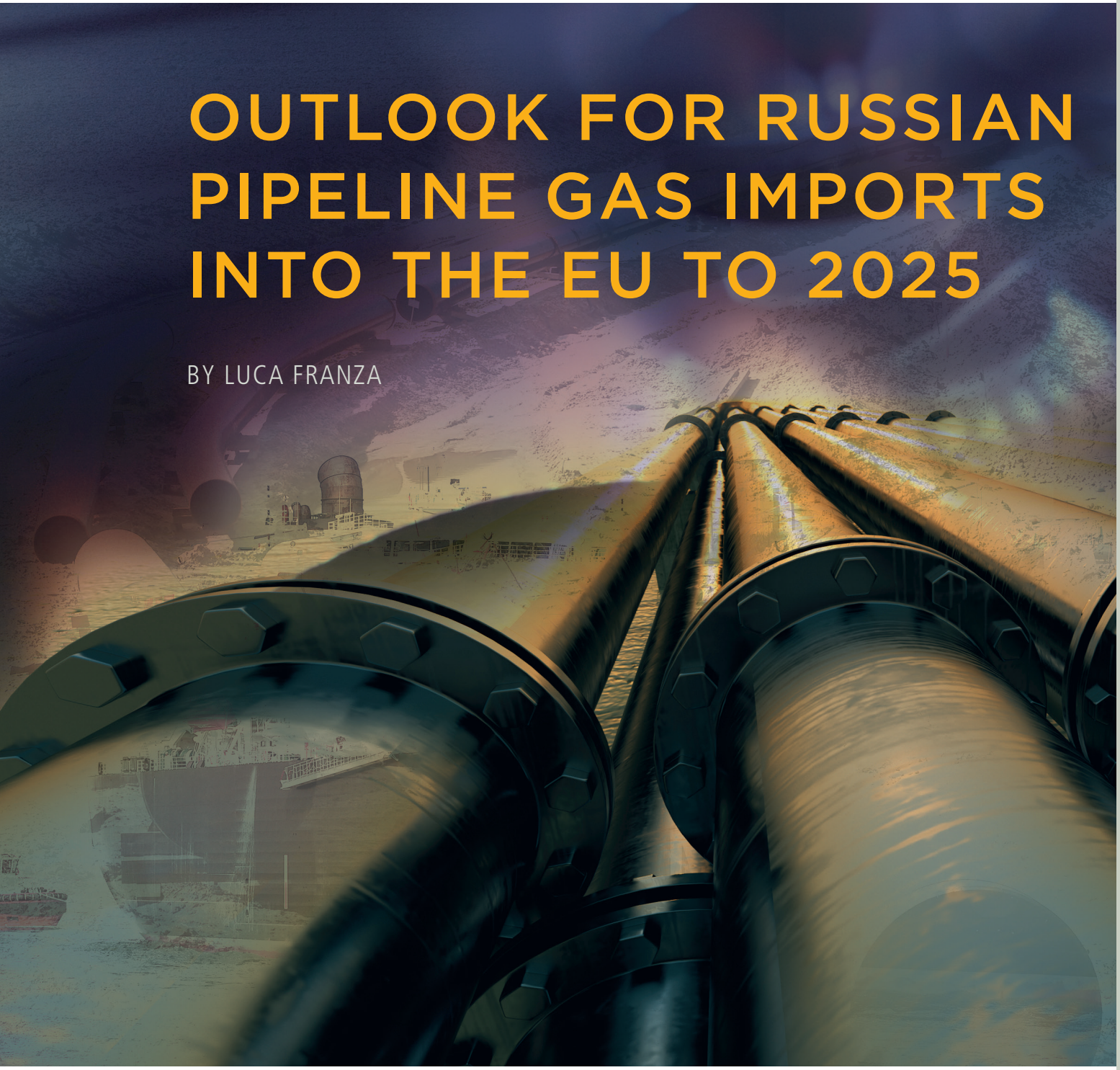
OUTLOOK FOR RUSSIAN PIPELINE GAS IMPORTS INTO THE EU TO 2025

BY LUCA FRANZA



CIEP PERSPECTIVES ON EU GAS MARKET FUNDAMENTALS

CIEP PAPER 2016 | 2B

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.

The authors would like to express their gratitude to CIEP colleagues and CIEP associate fellows involved in this research project for their crucial support in providing feedback and guidance. Additionally, the authors are grateful to all the external reviewers from the industry, who greatly contributed to strengthen the analysis.

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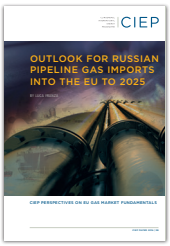

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SERIES
CIEP PERSPECTIVES ON EU GAS MARKET FUNDAMENTALS

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NUMBER
2016 | 2B

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DESIGN
Studio Maartje de Sonnaville

PUBLISHED BY
Clingendael International Energy Programme (CIEP)

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OUTLOOK FOR RUSSIAN PIPELINE GAS IMPORTS INTO THE EU TO 2025

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CIEP PERSPECTIVES ON EU GAS MARKET FUNDAMENTALS

1 INTRODUCTION

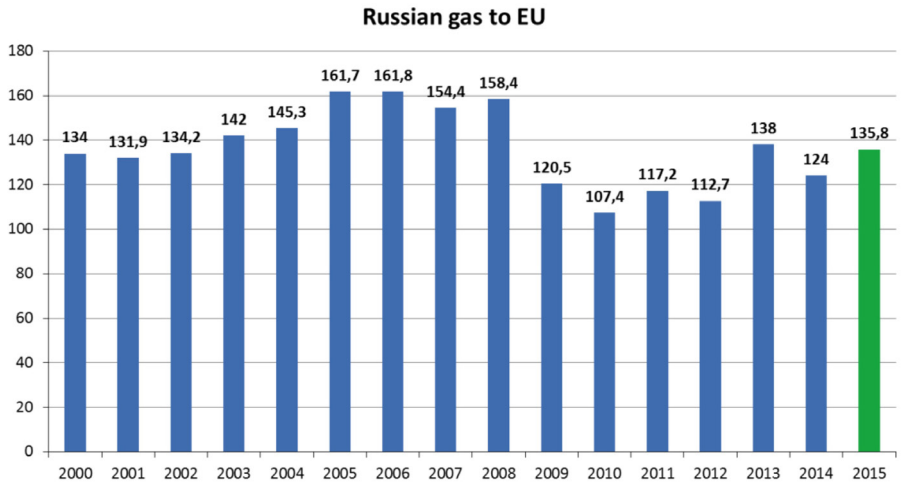
The objective of this report is to discuss the main variables that will shape Russian gas supplies to the EU in the next decade. This is part of a broader outlook on European gas supply and demand in 2025, which also examines prospects for LNG and other pipeline supplies. This dedicated paper is devoted to Russian pipeline gas, given the country's position as Europe's main gas supplier and the important role that it will play in filling Europe's widening supply-demand gap. Prospective exports of Russian LNG to Europe – particularly volumes from the Yamal LNG project – are covered by the study on LNG.

Three decisive trends appear to be affecting Russia's commercial position in the EU gas market: 1) the recent decline in European gas demand and the uncertainty about future demand recovery and thus also about additional import needs; 2) the profound changes underway in the EU gas market since the onset of the liberalisation process, which notably include the breakup of incumbents, unbundling and non-discriminatory access to infrastructure, and the promotion of market-based pricing mechanisms – as well as Russia's responses to these changes; and 3) renewed geopolitical tensions between the EU and Russia, fuelled by the ongoing crisis in Ukraine. The discussion is conducted through the lens of these trends.

2 THE OUTLOOK FOR IMPORTS OF RUSSIAN GAS INTO THE EU

FACTORS AFFECTING GAZPROM'S POSITION IN THE EU GAS MARKET: DECLINING DEMAND, PRICE EROSION, TIGHT REGULATION AND STRAINED POLITICAL RELATIONS

In absolute terms, Russian gas exports to the EU – carried out primarily through long-term contracts – have dropped since 2008 (-23 Bcm between 2008 and 2015). This reflects the shrinkage in EU gas demand (-118 Bcm between 2008 and 2015[1]), the causes and consequences of which have been analysed extensively in a number of studies. This coincides with other developments that have negatively affected Gazprom's revenues, such as price erosion in the EU gas market (-60% between mid-2008 and the end of 2015)[2]; competition from new entrants in the domestic market[3]; and weak gas demand in both Russia and Former Soviet Union (FSU) republics. Owing to low gas demand both domestically and internationally, the year 2015 saw record-low gas production levels for Gazprom (417 Bcm).[4]



GRAPH 1: RUSSIAN GAS SALES TO THE EU FROM 2000 TO 2015, IN BCM (SOURCES: RUSSIAN CENTRAL BANK, GAZPROM)

1 Gas consumption in the EU was 544 Bcm in 2008 and 426 Bcm in 2015, Eurogas (2016).

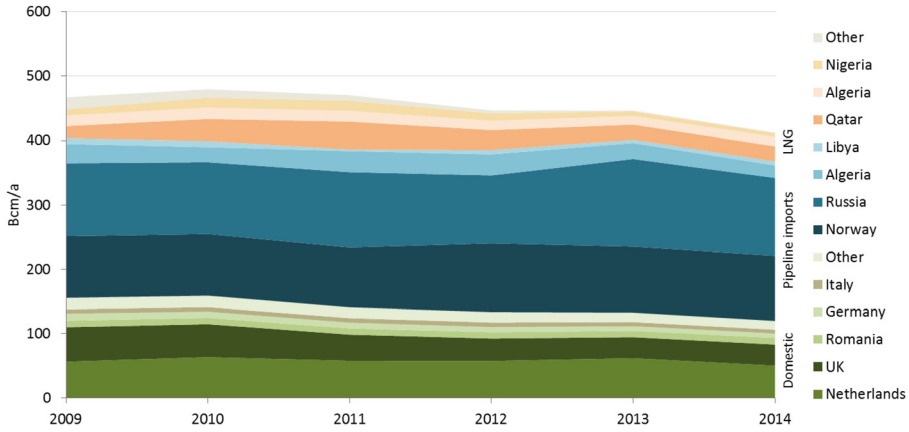
2 The average price of Russian gas sold in the EU under long-term contracts had reached 13-14 USD/MMBtu in 2008, when the oil price was around 140 USD/barrel (cfr. Natural Gas Market Review 2009, IEA), and was as low as 5.5 USD/MMBtu at the end of 2015.

3 'НОВАТЭК остался вторым после Газпрома', Коммерсант.ru, 13 January 2016.

4 'Газпром в 2015 году сократил добычу газа на 6%' Вести Экономика, 10 February 2016.

As a result of price erosion and lower exports, it is estimated that the company's gas revenue in Europe dropped by 23 billion USD between 2013 and 2015. The expectation is that it will contract by another 10 billion USD in 2016, to the lowest level since 2004[5,6]. An additional difficulty for Gazprom at the moment is that although not targeting the gas sector directly, Western sanctions against Russia complicate access to capital. All these factors suggest that Gazprom is facing significant challenges, which constrains its capacity to allocate new investments. As is discussed later, this is not going to result in lower exports of Russian gas to the EU.

On the other hand, it is important to underline that while Russia has experienced an erosion of its gas sales and prices, it has not lost market share in the EU. In fact, Russia's market share has remained stable at around 30% of consumption and 40% of imports over the last few years. This is because, apart from definite periods in which a noticeable gap has existed between hub prices and long-term contract prices (notably between 2010 and 2012, and between 2014 and early 2015), European importers have not specifically minimised the purchase of gas from Russia – partly because they have been prevented from doing so by take-or-pay (ToP) commitments and partly because Gazprom has gradually had to offer better contractual terms to its buyers, as it was facing adverse arbitration rulings or the threat thereof.[7] In the past year, an additional reason why importers that still pay oil-indexed gas prices in long-term contracts with Gazprom have not specifically minimised their purchases of gas from Russia is that oil prices have dropped considerably.



GRAPH 2: SOURCES OF GAS CONSUMED IN THE EU (2009-2014), IN BCM (GRAPH BY CIEP)

5 "The company's gas revenue in Europe may shrink to less than $28 billion this year (2016), the lowest level since 2004, if the average oil price remains at $40 or lower", Mazneva, E., Popina, E., 'Gazprom Sees Record EU Exports as it Shrugs Off U.S. LNG', Bloomberg, 1 February 2016. In 2015, revenues were 38.6 billion, compared to 62 billion in 2013.

6 This is also reflected in a fall in the company's market capitalisation. Since 2008, Gazprom's value has plummeted. In early August 2015 it had a market capitalisation of $51bn – losing more than $300bn, 'How Russian Energy Giant Gazprom Lost $300bn', Guardian.com.

7 Franza, L., 'Long-term Gas Contracts in Europe: The Evolution in Pricing Mechanisms', CIEP, December 2014.

One way of summarising the results of the turbulent period that created the 'perfect storm' of 2008-2009 is that in the EU market, Gazprom has been generally successful in protecting sales volumes – albeit not at full contractual levels – but has had to forego monetary value.

In most of the EU, discounting for persistent short-term cost minimisation behaviours by end users, the contract prices of Russian gas are now generally in line with the hub prices, reducing any commercial incentives that may have existed in the past to structurally move away from Russian gas.[8,9]

Over the last few years, some gas markets in the Eastern part of the EU have paid higher prices for their gas imports from Russia and have actively sought diversification. Not coincidentally, these are the countries that lobbied the most within EU institutions to launch an antitrust probe against Gazprom in 2012 – whereby the Russian company was accused, among other things, of abuse of its dominant position and price discrimination. In spite of a few persisting divergences within the EU, the overall trend is one in which the process of contract renegotiations and changes to indexation formulas is spreading throughout the Continent, as interconnectivity and gas-to-gas competition increase. The latest success story is Lithuania's ability to obtain a substantially lower price for its imports from Russia, following the country's opening of its Klaipeda LNG terminal. Moreover, as mentioned above, the drop in oil prices is now also lowering import prices in countries that have been unable to secure access to alternative sources of gas and/or renegotiate long-term contracts.

This suggests that while gas from Russia has become cheaper in most of the EU, owing to structural adjustments, its affordability in a few countries is still contingent on low oil prices. Moreover, the interest of Eastern European countries to diversify away from gas imports from Russia is not only grounded in economics, but also in politics. For all of these reasons, Eastern European countries will still proactively engage in supply diversification efforts both nationally and at an EU policy-making level.

Another (closely related) factor that is affecting Gazprom's commercial position in Europe is the European Commission's increasingly proactive posture in implementing

8 This does not mean that short-term cost minimisation behaviours by European buyers will not persist in future.

9 In 2014 and in the first half of 2015, Russian gas exports to Europe diminished, as the gap between hub prices and (partly oil-indexed) contract prices re-opened due to the time lag with which lower oil prices translate into lower oil-indexed prices. As the gap closed again in the second half of 2015, Russian exports rose. At the time of writing, oil-indexed supplies were even cheaper than supplies priced on the basis of the TTF benchmark – something that was hard to conceive until a few months ago.

the Third Energy Package. While market liberalisation is a long-standing process – one which was initiated in the past decade and which arguably does not specifically target Russian interests – the recent deterioration in political relations between the EU and Russia has the potential to influence the way in which regulation is interpreted and applied. For example, ample discretionary powers are enjoyed by EU institutions in establishing whether certain business propositions enhance or damage security of supply.

The most visible consequence is that it has been increasingly difficult for Gazprom to execute new pipeline projects, as witnessed by the failure to secure full third-party access exemption on OPAL, which limits the transportation capacity available to Gazprom in Nord Stream, and the cancellation of South Stream. Aside from pipeline projects, Gazprom has had a harder time upholding some of its traditional commercial terms and conditions, such as: preserving oil indexation in long-term contracts; enforcing destination clauses and opposing reverse flows, particularly to Ukraine; defending strong market positions in Central-Eastern Europe; and acquiring midstream and downstream positions in the EU. The dismantlement of vertical integration, which enables end users to purchase gas on hubs, has weakened the position of EU importers that have traditionally guaranteed market access to Gazprom. This, as well as the feared risk of an emerging mismatch between supply and transport contracts, are long-term matters of concern for Gazprom. These evolutions are still in flux, and there is a possibility that they will prompt Gazprom to change the way in which it sells gas on the European market, for example by offering gas at auctions and delivering at the EU's external borders. A similar shift would certainly affect the company's commercial position in Europe, although it is difficult to measure the impact in terms of volumes delivered. It can be argued that if Gazprom embraces the new 'rules of the game' promoted by the Commission, for example by delivering on hubs or on a hub base and/or renouncing its monopoly on exports, it would be more difficult for the Commission to restrain gas imports from Russia on antitrust grounds. For the moment, the antitrust probe against Gazprom remains pending. The way in which it is settled will influence the future commercial relationship between Gazprom and its EU customers.

To conclude this introductory section, we observe that Gazprom is facing declining gas demand, price erosion, tighter regulatory oversight and an unfavourable political climate in the EU. However, the company has managed to preserve its market share in this region over the last difficult years, and in spite of announced plans to diversify sales to Asia, sales to European markets remain of prime importance. This is both because ventures to export gas to Asia are constrained by financial difficulties and because gas-to-gas competition is expected to increase in Europe due to the influx

of US LNG. In Europe, the willingness to diversify away from gas imports from Russia (particularly strong in the East) seems more grounded on politics than on economics, as Russian gas remains a highly competitive source of supply.

PROSPECTS FOR RUSSIA'S FUTURE COMMERCIAL POSITIONING IN THE EU GAS MARKET TO 2025

There is a clear rationale for Russia to protect its European market share in the years to come, and the company has made it explicit that it wants to keep its market share at least stable at about 30% through 2035.[10] The perceived need to protect market share applies both to the upcoming period of low gas prices and mounting competition from volumes of uncontracted LNG (which is expected to last at least until 2020) and to the longer term, in which Russia has an interest in discouraging investment decisions that would bring alternative gas supplies to Europe, either through pipelines or as LNG.

Although the EU is interested in diversifying away from gas imports from Russia for political reasons, it has limited instruments with which to achieve this goal. In fact, if gas from Russia is competitive on the basis of price, policy-makers will be unable to prevent European buyers from purchasing more gas from Russia under already agreed upon frameworks. To provide an approximate quantification, simply having reached ACQ (Annual Contracted Quantity) levels under existing long-term contracts would have resulted in 35 additional Bcm of Russian gas delivered to the EU in 2015.[11] This is more than Algerian exports to the EU, and more than three times as much as future Azeri supplies to the EU secured after relentless diversification campaigns.

The same holds true for Russia, whose demand diversification efforts are severely hampered by financial constraints. As mentioned in the introduction, a number of factors in and outside of the EU market are negatively affecting Gazprom's financial position. This entails that Gazprom will have to make a selection among the hefty number of projects that it has announced, ranging from new pipelines to Europe (Turk Stream, Nord Stream-2) to upstream ventures in Eastern Siberia (Chayandinskoe and Kovykta), pipelines to Asia (Altai, Power of Siberia, Sakhalin-Hokkaido and Trans-Korea) and LNG terminals (Sakhalin-2 expansion, Vladivostok LNG and Baltic LNG). Although the Kremlin could theoretically come to the rescue with fresh injections of capital into Gazprom-sponsored projects, it should not be forgotten

10 Gazprom's meetings with investors in New York and London, first week of Feb 2016: http://www.bloomberg.com/news/articles/2016-02-01/gazprom-meets-investors-as-it-prepares-record-exports-to-europe

11 Around 170 Bcm of Russian gas are contracted to the EU on a long-term basis. The offtake in 2015 was 135.8 Bcm.

that Russia's financial position as a country has also been debilitated by the ongoing economic crisis, fuelled by low oil prices and compounded by Western sanctions. The aggregate cost of the abovementioned projects – with the addition of Yamal LNG and Sakhalin-1 – could be as high as 200 billion USD[12], almost a fifth of Russia's nominal GDP in 2016.[13]

However, Gazprom's and Russia's financial woes will not result in lower volumes of gas from Russia to the EU, at least in the time horizon covered by this brief, which is the period until 2025. Russia is in fact currently selling far below its potential, and investments to bring substantial new production on stream have already been made in recent years in the expectation of higher EU demand. If anything, a standstill in investments by Gazprom today would have a negative impact on its plans to diversify demand, with the possible consequence of actually deepening its trade ties with the EU. While Gazprom can rely on expanding legacy assets for supplies to the EU, it would have to invest in greenfield developments to service the Asian market. Schemes to secure Chinese funding for these developments are vacillating due to China's own financial troubles and wait-and-see attitude, adopted in the wake of sluggish gas demand growth in the country.[14]

THE RANGE OF RUSSIA'S EXPORT POTENTIAL TO THE EU GAS MARKET TO 2025

The next section attempts to provide an approximate quantification of potential future Russian imports into the EU, bearing in mind that exact predictions are impossible, particularly due to the uncertainty surrounding EU import needs.

TAKE-OR-PAY VOLUMES IN LONG-TERM CONTRACTS AS FLOORS

The sum of the MCQs (Minimum Contracted Quantities, or ToP, take-or-pay levels)[15] in long-term contracts between Russia and Europe[16] can be seen as the (approximate) floor for future supplies to Europe, bearing in mind that not all Russian gas is sold to Europe under long-term contracts. For example, Gazprom aims to offer 10-15% of

12 Chow, E., Cuyler, Z., 'New Russian Gas Export Projects – From Pipe Dreams to Pipelines', CSIS, 2015.

13 Russia's nominal GDP in 2016 is 1.17 trillion USD according to the International Monetary Fund (IMF).

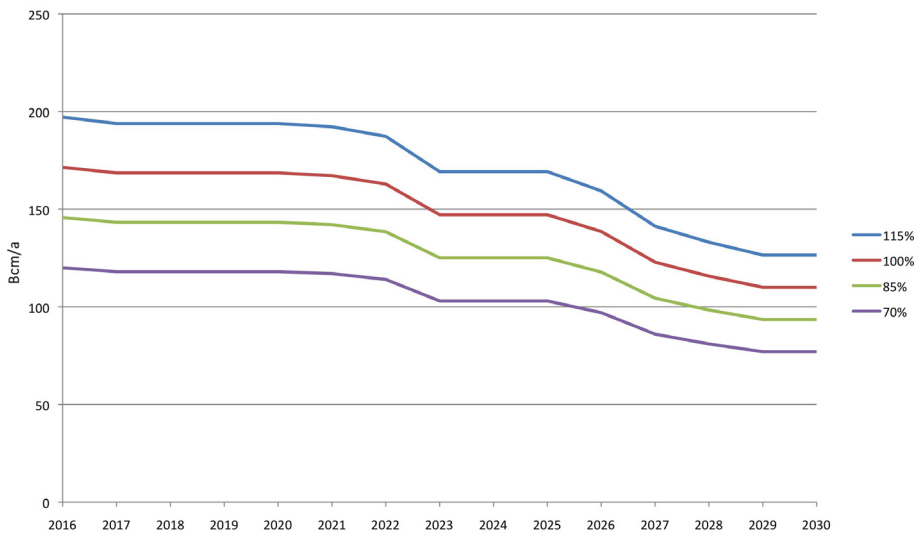
14 Gazprom has earmarked roughly 1.2 billion USD for construction of the Power of Siberia pipeline in 2016 and is willing to proceed further without Chinese backing. But commodity prices remain well below Russia's believed breakeven price for gas exports to China. Barring a quick market turnaround, Russian deliveries to the patient Chinese market are unlikely before 2021 at the earliest (http://oilprice.com/Energy/Natural-Gas/Defending-Gazproms-Market-Share-Will-Cost-25-Billion.html).

15 Take-or-Pay thresholds are confidential, so Minimum Contracted Quantities (MCQs) can only be estimated (usually with the assumption that they are 70-80% of the Annual Contracted Quantity or ACQ).

16 In this case, Turkey is included.

its total supply to Europe via auctions by 2017-2018.[17] Graph 3, below, shows that ToP thresholds will be in the range of 120 to 140 Bcm in 2020, and still between 100 and 125 Bcm in 2025. A first round of contract expirations will occur between 2022 and 2023, meaning that until those years contracted quantities will remain more or less constant. A second round of expirations will take place only after 2025.

Russian sales have been at near-MCQ levels frequently for the past 7 years. A scenario in which they would hover near floor levels is one in which European (import) demand would continue to be as depressed as in recent years and/or, for a variety of reasons (for example, if oil prices rise and Russia keeps partial oil indexation in its contracts), volumes sold under long-term contracts were not competitive with spot (or spot-indexed) volumes. As mentioned earlier, this is more likely to be the case in Eastern Europe, where the share of oil-indexed gas is higher than in Western Europe.



GRAPH 3: ESTIMATES OF ANNUAL CONTRACTED QUANTITIES (ACQs), MINIMUM CONTRACTED QUANTITIES (MCQs) AND UPWARD FLEXIBILITY IN RUSSIAN LONG-TERM CONTRACTS WITH EUROPE (IN BCM)

LACK OF A CLEAR CEILING FOR ADDITIONAL GAS SUPPLIES FROM RUSSIA TO EUROPE

If gas from Russia remains competitive relative to other sources of gas and European demand recovers, imports could rise to ACQ levels (which will be some 170 Bcm in 2020 and 150 Bcm in 2025) or more, as most long-term contracts have upward

17 'Russia's Gazprom Edges towards Flexible Gas Market-driven Auctions', Platts, September 2015.

flexibility. If this flexibility is estimated at around 15%, the prospective upper limit of volumes purchased under existing Russian long-term contracts is around 195 Bcm for 2020 and 170 Bcm for 2025. This would be respectively 60 and 35 Bcm more than what was purchased in 2015. Identifying a rigid ceiling for gas imports from Russia into the EU is difficult, however. Import levels could rise beyond the figures mentioned above, as new long-term contracts could also be signed, and/or Russian gas could be bought on the spot market (unless the European Commission takes an active role in opposing a further increase in the market share of gas from Russia on antitrust grounds, which could perhaps be avoided if the Russian government broke up Gazprom's export monopoly). An examination of the supply side does not help us in narrowing the range of forecasted volumes. In fact, it is estimated that the 'shut-in', or 'spare' capacity that Russia has available is at least close to 100 Bcm.[18] This is the legacy of investments made in the 2000s, particularly in Bovanenko, when EU demand was projected to increase. These are supplies that can be brought back onto the market in less than two years, with small additional investments in compressors.[19] Although the opening of the Altai pipeline to Western China could give Russia an alternative outlet for this spare capacity, this is not expected to occur any time soon, or in any case take Europe by surprise, given that the Chinese market is oversupplied and that it would take time to build the connection.

TRANSPORT AS A POTENTIAL BOTTLENECK

One potential bottleneck for additional supplies of Russian gas to Europe is transport, particularly due to the difficulties surrounding transit through Ukraine. Provided that the transport contract with Naftogaz due to expire in 2019 is renewed, Gazprom already disposes of the transport capacity necessary to ship both contracted volumes and a significant share of its spare production capacity to the EU. In fact, the overall transport capacity currently available from Russia to the EU exceeds 200 Bcm.

If measured as the sum of maximum gas flows into all of the EU border points[20], this figure reaches 250 Bcm. However, this measurement does not take into account the existence of technical limitations due to the lack of investment in the Ukrainian pipeline system[21] and the fact that part of the entry capacity is reserved for

18 Oxford Institute for Energy Studies, ERI RAS and others.

19 Tatiana Mitrova (ERI RAS).

20 IEA GTS Service: 38 Bcm of usable capacity in Nord Stream (i.e., taking into account the lack of a full exemption to TPA on OPAL) + 7 Bcm of the direct link with Finland + 2.6 Bcm of the direct link with Estonia + 6.9 Bcm of the direct link with Latvia + 11.4 Bcm on the Belarussian/Lithuanian border + 41.6 Bcm in the Yamal-Europe pipeline via Belarus + 142.6 Bcm via Ukraine, measured at the borders with Poland, Slovakia, Hungary and Romania = 250.1 Bcm.

21 We follow here the estimate by the Oxford Institute for Energy Studies (OIES) that transport capacity through Ukraine is actually 120 Bcm/y due to deterioration owing to a lack of investment. This is 22.6 Bcm less than what is measured as cross-border capacity. See Pirani, S. and Yafimava, K. 'Russian Gas Transit Across Ukraine Post-2019', OIES, February 2016.

throughput to non-EU countries, including Turkey, Former Yugoslavian republics, Switzerland and the Kaliningrad Oblast.[22] If these two elements are taken into account, the transport capacity effectively available from Russia to the EU is reduced to 210 Bcm. This still does not take into account hold-ups owing to the lack of matching transport capacity within the EU (notably in the Baltic Republics), though this may be solved by newly constructed infrastructure.

As mentioned, this confidence in the availability of sufficient transport capacity hinges on the renewal of Gazprom's contract with Naftogaz. An extreme scenario that is worth considering from a theoretical point of view is one in which Nord Stream-2 (or any other new export line) would not be built and the Ukraine transit contract would expire in 2019 without being renewed. In this scenario, Russia would not have enough transportation capacity to comply with its contractual obligations. In fact, transport capacity through routes that do not cross Ukraine is around 100 Bcm – insufficient to deliver today's ACQ volumes of 170 Bcm (and 150 Bcm in 2025), let alone today's 115% ACQ volumes of almost 200 Bcm (and 170 Bcm in 2025). This seems a sufficient reason to discard such a scenario, which would materialise only in case of an all-out confrontation between the EU and Gazprom and a premature termination of long-term contracts. The next section discusses in more detail the pipeline projects proposed by Russia and their potential impact on flows of Russian gas to Europe.

RUSSIA'S PLANNED PIPELINE PROJECTS: FILLING EUROPE'S WIDENING SUPPLY-DEMAND GAP AND REROUTING FLOWS FROM UKRAINE

Gazprom's proactive behaviour in planning new pipelines to the EU market reinforces the hypothesis that Russia is willing to defend its market share in the EU gas market.[23] Russia has declared that it may transfer delivery of gas to Greifswald (Nord Stream's landing point in Germany), and the establishment of SPIMEX is allegedly a test for future spot sales through Nord Stream-2. Russia will probably refrain from taking unilateral steps in constructing new pipelines. This is especially true in a phase where the outlook for long-term demand growth in the EU is highly uncertain, as is discussed in a separate paper.[24] New pipeline projects mainly serve two purposes: a) the elimination or reduction of transit through Ukraine; and b) filling the supply-

22 18 Bcm of Russian gas cross EU territory to be delivered to non-EU countries: Turkey (12.7 Bcm), the Kaliningrad Oblast (3 Bcm), Serbia (1.7 Bcm), Switzerland (0.3 Bcm), Bosnia Herzegovina (0.2 Bcm) and FYROM Macedonia (0.1 Bcm).

23 Franza, L., 'From South Stream to Turk Stream: Prospects for Rerouting Options and Flows of Russian Gas to Parts of Europe and Turkey', CIEP, November 2015.

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

demand gap, which is expected to widen in the EU, although it is unclear by how much. As shown by CIEP's paper on European gas demand in 2025, it is important to realise that this may not so much be due to growing gas demand, but to falling domestic production in the EU. A strategic consideration that Russia is certainly making is that it is necessary to be an early mover to prevent alternative suppliers – whose prospects to supply the EU are analysed in a separate paper[25] – from securing long-term contracts and starting to build competing pipelines.

After the cancellation of South Stream in December 2014 and the souring of Turkish-Russian relations in 2015, which led to a suspension of works on Turk Stream, the project stirring the highest political and commercial interests has been the expansion of Nord Stream (Nord Stream-2). In a more recent twist of events in the summer of 2016, Nord Stream-2 suffered a setback from objections by the Polish antitrust authority, while a rapprochement between Moscow and Ankara revamped dialogue on Turk Stream. These developments show the changeability of prospects for new pipeline projects and therefore call for cautious prognosticative statements. The focus here is mainly on Nord Stream-2 given that prospects for Turk Stream have been analyzed in a dedicated paper.

In order to measure the potential bearing that Nord Stream-2 could have on future exports of gas from Russia to the EU, the extent to which the pipeline would be used for rerouting currently supplied volumes needs to be ascertained, as does the extent to which it would instead be used for shipping additional volumes. This also depends on the further evolution of the political crisis in Ukraine and on what choices will be made with regard to Ukraine transit, namely on the gas transport contract between Gazprom and Naftogaz that is due to expire in 2019.

At the height of the political crisis, Gazprom officials declared that the transport contracts with Ukraine would not be renewed beyond 2019 "even if the sun replaces the moon".[26] In the last few months, however, Russia has relaxed its stance and now seems willing to renegotiate these contracts. Yet Ukraine's insistence on increasing the transport fee remains a thorny issue. Scenarios ran by a number of studies, conducted by CIEP[27] and other institutes[28], allow us to conclude that transit through

25 Franza, L., Outlook for Gas Imports from New Suppliers into the EU to 2025 - CIEP Perspectives on EU Gas Market Fundamentals', CIEP, 2016

26 Declaration by Alexander Medvedev (Gazprom), reported by ITAR TASS on 10 June 2015.

27 Franza, L., 'From South Stream to Turk Stream: Prospects for Rerouting Options and Flows of Russian Gas to Parts of Europe and Turkey', CIEP, November 2015.

28 Pirani, S. and Yafimava, K., 'Russian Gas Transit Across Ukraine Post 2019', Oxford Institute for Energy Studies (OIES), February 2016.

Ukraine could be completely eliminated only if both Nord Stream-2 and some sort of new capacity to Southeast Europe[29] are built by 2019. Another conclusion to which these scenarios point is that this outcome is highly unlikely, so the expectation is that there will probably be a reduction in transited volumes through Ukraine but that some will remain.

Nord Stream-2 would enable the rerouting of Ukraine-bound Russian supplies to Western and Central Europe, as far southeast as Hungary. The idea that Nord Stream-2 could also enable rerouting to Italy has gained footing in the last year, though it would also be necessary to expand North-South capacity to ship Russian gas from Greifswald to Italy through Germany, Austria and /or Switzerland, particularly in light of record-high exports of Russian gas to Italy in 2015. Italy remains the most exposed to transit through Ukraine in absolute terms (24 Bcm, or around half of all gas volumes transiting through Ukraine in 2015) and is one of Russia's most important partners in the EU.[30]

Another piece of infrastructure would be necessary for the rerouting of volumes to Southeast Europe[31]. This seems to hold true despite plans to improve interconnections within the EU market. These plans have become more concrete since the 'LNG Strategy' adopted by Brussels has identified 14 priority projects within the list of European PCIs. Six of these projects aim to better connect Southeast Europe with the rest of the market, ending its isolation. Although redundant from an EU-wide import capacity perspective, these projects have a relatively good chance of succeeding (although not necessarily by 2019), as security of supply concerns are now central in EU energy policy-making.

While technically the newly planned interconnectors could be also used by Russia to reroute volumes earmarked for Southeast Europe from the Ukraine transit system to Nord Stream-2, this would be met by opposition from the EU. For the abovementioned rerouting scheme to succeed, OPAL would in fact need be expanded or the Commission would need to grant a full exemption to third-party access on the existing OPAL line. Given the Commission's oversight on Gazprom's alleged monopolistic behaviour in Southeast Europe, this is unlikely to happen.

29 Be it Turk Stream or a new edition of South Stream, e.g. what is sometimes referred to as 'Bulgarian Stream'.

30 Italy bought as much as 24 Bcm of Russian gas through Ukraine in 2015, partly to make up for lower Algerian volumes.

31 Due to internal bottlenecks in Europe, it is difficult to imagine gas shipped through Nord Stream 2 reaching Bulgaria or Greece.

As mentioned above, this means that Russia would need to build a new export line if it intends to keep to its line of ending transit through Ukraine. A new Russian export line to Southeast Europe would not need to be a full-fledged, four-line, 63 Bcm/y infrastructure like the original South Stream project. In fact, Russian sales to Southeast European Member States that remain (relatively) isolated from Europe's integrated gas market are as low as 5 Bcm on aggregate.[32]

The implication is that even if Nord Stream-2 were to proceed and Italy were relieved of Ukraine transit in this way, Southeast Europe would remain dependent on the Ukraine route in default of a new 'Southern' export line. If Russian-Turkish relations improve, which seems plausible after the events that destabilized Turkey in July 2016, reviving Turk Stream could be an option.

However, considering that not even an intergovernmental agreement (IGA) has been signed between Ankara and Moscow, it is still unlikely that this infrastructure will be built before 2019. This means that Ukraine and Russia will have a huge incentive to sit at the negotiation table again for at least a partial renewal of the transit contract.

The perceived inescapability of negotiating a new transit contract with Ukraine actually increases the chances that Nord Stream-2 could instead (also) be used to supply additional volumes to the EU, particularly to Western European markets that are poised to receive less and less gas from declining fields in the North Sea. The size of these additional volumes will depend on the evolution in demand, which, as we pointed out, is highly uncertain. Yet Russia seems well positioned to be a competitive early mover if EU gas demand were to show signs of recovery. Russia would have the advantages of being able to expand existing infrastructure, disposing of a large reserve base with multiple brownfield options in addition to nurturing long-term commercial relations with a number of buyers within the EU.

As mentioned, should transit contracts with Ukraine not be renewed, or should they be renewed for very minimal volumes[33], Russian exports to the EU would risk being hampered by insufficient transportation capacity. Today, non-Ukraine-bound transportation capacity from Russia to the EU is around 100 Bcm. With Nord Stream-2, this would increase to more than 150 Bcm – enough to ship current volumes (135 Bcm) but insufficient to ship ACQ volumes until 2022 (above 160 Bcm). With the

32 Romania, Bulgaria and Greece. This figure reaches 7 Bcm if non-EU Serbia, Bosnia-Herzegovina and FYROM-Macedonia are included.

33 A standstill in the negotiations to renew the transit contract (which, it is argued here, would go against the interest of both parties) could happen if Ukraine insisted on higher transit fees and/or in case of a further political or military deterioration in relations between Russia and Ukraine.

addition of Nord Stream-2 and the concession of a full TPA exemption regime to OPAL, non-Ukraine-bound transportation capacity from Russia to the EU would reach approximately 170 Bcm, barely sufficient to ship ACQ volumes and insufficient for shipping spare production capacity.

In the coming years, a number of Eastern European countries will probably attempt to reduce their vulnerability to disruptions by improving interconnections with other EU markets (Romania-Hungary, Romania-Bulgaria, Bulgaria-Serbia, Bulgaria-Greece, Finland-Estonia, Estonia-Latvia, Latvia-Lithuania, Lithuania-Poland) and building new LNG terminals (Tallinn LNG, Krk LNG).

FIGURE 1: PRIORITY PROJECTS OF COMMON INTEREST (PCIs) IDENTIFIED BY THE EU LNG STRATEGY (2016)

While this will provide these countries with potential access to alternative supply sources, it will not substantially change the overall dependency of Europe on gas from Russia in volumetric terms. To the contrary, as is visible in Germany, the perception of having acquired additional optionality can contribute to relaxing security of supply concerns and therefore soften opposition to additional Russian gas exports.

A final remark is that Russia's ability to ship additional gas volumes through Nord Stream may also depend on the response by the European Commission (EC). In past months the EC's official position has been swinging between proclaimed neutrality and overt opposition. Given the current sentiment against increasing dependency on Russian gas and the political priority in Brussels of maintaining Ukraine's role as a transit country, it is safe to assume that the EC will not do anything to actively support Russian pipeline projects like Nord Stream-2. In this respect, it should not be forgotten that Nord Stream is already 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, while other pipelines (such as TAP) have been granted full exemption.

It is a matter of debate as to whether the EC would be in the position to deliberately take steps to discourage new pipelines or pipeline expansions, thus potentially preventing additional Russian gas from reaching the EU market. First of all, there is a debate on whether the Third Energy Package should apply to Nord Stream-2, an offshore import pipeline. This is relevant because the Third Energy Package requires unbundling, a condition that would not be met by the Nord Stream-2 project in its present setup. While the consortium rejects the idea by bringing the example of pipelines built in the past, some scholars hold the view that the Third Energy Package would apply to offshore sections of newly built pipelines.[34] An internal debate is also ongoing among various offices of EU institutions.[35] If it is found that the Third Energy Package applies to Nord Stream-2, a TSO certification process should be started for the section of Nord Stream-2 built in EU territorial waters and its Exclusive Economic Zone (EEZ). In the TSO certification process, national regulators have to take utmost account of the EC's opinion. Moreover, the EC arguably has the possibility to hamper or significantly delay onshore extensions of Russian projects through regulation. This would probably apply to south- and eastward OPAL (an international pipeline) but not to westward NEL (a domestic pipeline in Germany, on which the EC has no jurisdiction), strengthening the hypothesis that future Russian gas volumes flowing through Nord Stream-2 will be delivered in Western Europe. Two more overarching issues are whether the EC would attempt (and manage) to block Nord Stream-2 on political grounds (by placing pressure on national governments and/or regulators) and/or whether the EC would follow the 'antitrust' path and claim that Nord Stream-2 is strengthening the position of a dominant supplier already under investigation for abusing its position.

34 This is the view held by Prof Alan Riley of the City University of London, who says that the Third Energy Package would apply to the territorial waters of the relevant Member States (the 12-mile limits) and to their 200-mile Exclusive Economic Zones (EEZ).

35 Beckman, K., 'Can Nord Stream-2 Be Stopped?', Energy Post, April 2016.

RUSSIA'S STRATEGIC OPTIONS

As mentioned, the purchase of any volumes above take-or-pay levels by European buyers will depend on market fundamentals, especially on European gas demand and on the competitiveness of gas from Russia relative to flexible LNG. The dynamics that define Europe's appetite for supplies from Russia above ToP are captured in the graph below, which represents today's global market balance.[36] European domestic production[37] and contracted volumes can effectively be regarded as 'must-flow' supplies, as they find their way to Europe irrespective of price signals.

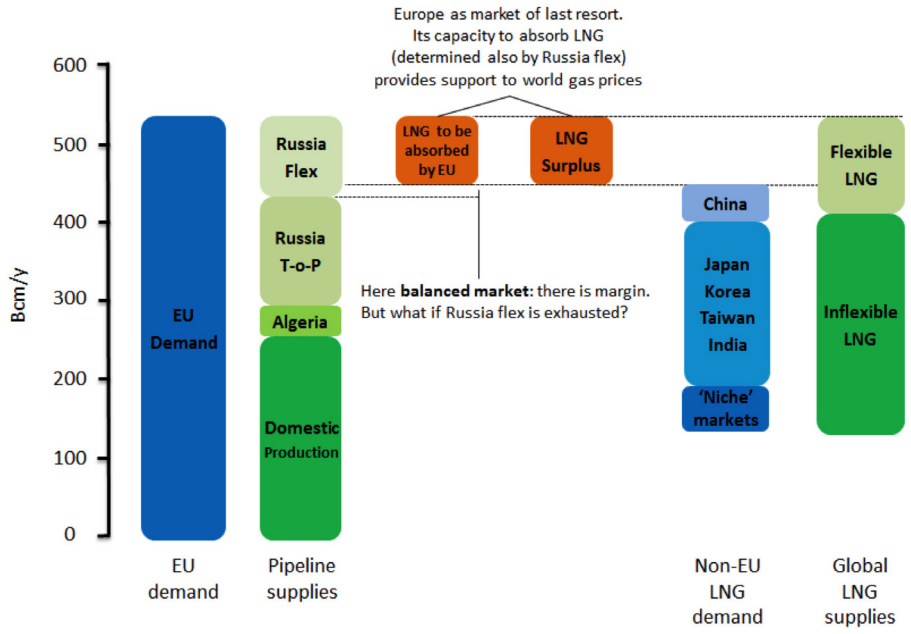


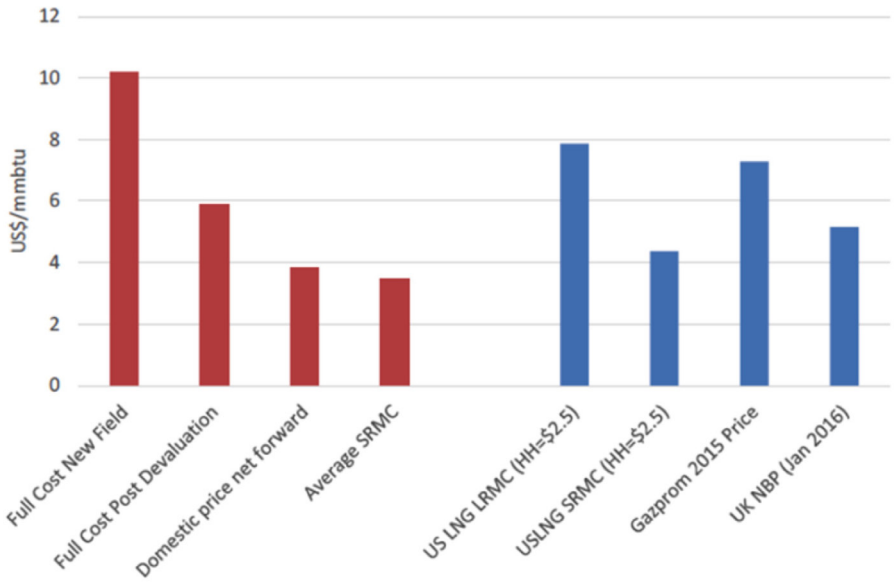
FIGURE 2: FRAMEWORK FOR THE GLOBAL GAS MARKET BALANCE (SOURCE: TIMERA ENERGY)

The offtake of other volumes instead can be articulated on the basis of price signals, either at the buyer's or at the seller's discretion. As long as European demand is higher than the must-flow supplies, European buyers will effectively be presented with a choice between flexible supplies from Russia (which can be bought under long-term contracts, but also on hubs) or flexible LNG that is not absorbed by other markets ('surplus LNG'). Such surplus may very well last until 2020 and possibly beyond. In the current context, Europe is the 'market of last resort' or 'sink market'. In fact, it provides crucial support to global prices: if Europe weren't there to absorb volumes of LNG not soaked up by saturated Asian markets, prices might collapse

36 Timera Energy, 2015.
37 Including Norwegian gas.

further. It is interesting to notice that Europe's ability to absorb these volumes depends on the flexibility remaining in long-term contracts with Russia.[38] If European buyers were to hit the bottom of their downward flexibility (ToP threshold) and had no means to further minimise offtake, while surplus LNG would still be landed in the European market, European (and global) hub prices would risk collapse, possibly in a downward spiral. As is shown by the representation in Figure 2 above, a scenario similar to the one triggered by a decrease in European gas demand could occur if there were a further increase in volumes of surplus LNG.

Gazprom is in a position in which it can withstand lower gas prices, meaning that it would still be interested in supplying gas to Europe if prices were to stay low. The short-run marginal cost (SRMC) for deliveries of gas from Russia to Europe is estimated at 3.5 USD/mmbtu[39], while the European spot price at the time of writing was around 4.5 USD/mmBtu.



GRAPH 4: COST OF RUSSIAN GAS AND US LNG DELIVERED TO EUROPE (SOURCE: OIES)

Lower gas prices could serve different purposes for Russia. The first would be to keep upcoming US LNG away from the European market. The second, which is related to the longer term, would be to defer final investment decisions (FIDs) on new projects in and outside of the US. Finally, where it is supported by policies

38 As is argued in a 2014 CIEP study on pricing, these contracts retain a substantial indirect influence on EU hub prices. In the current market balance, this influence extends to global gas prices.

39 Henderson, J., 'Gazprom – Is 2016 the Year for a Change of Pricing Strategy in Europe?', January 2016.

(notably the UK carbon price floor), gas is making a shy comeback thanks to its low price and gaining competitiveness vis-à-vis coal in the power market. This could convince Russia that a sustained period of low gas prices in Europe may be beneficial for gas usage and allow it to sell larger volumes.

Whether Russia would deliberately encourage a fall in European hub prices for strategic reasons (waging what is sometimes referred to as a 'price war') is, however, another story. For Russia, the rationale of a 'price war' would be grounded in the conviction that this war can be won. While Russia would lose further revenues from lower prices in the short term, similar to Saudi Arabia in the oil markets, this would be compensated by higher sales and gains in market share using its 'shut-in' or 'spare' capacity, estimated – as stated above – at around 100 Bcm.[40] Importantly, as shown in Graph 5, these volumes would beat US LNG on the basis of price (as the SRMC of US LNG is above 4 USD). It is important to realise, however, that this does not mean that surplus LNG will cease to come to Europe altogether, as some non-US volumes would remain competitive in the European market.

Russia's ability to dynamically compete on price would probably hinge on its further embracing hub sales.[41] As is well known, Gazprom has been reluctant to do so and is still defending traditional long-term contracts.[42] To be sure, though hesitantly, Gazprom has recently signalled its interest in exploring alternative commercial strategies. As mentioned, these include: an announced shift from aiming to reach final consumers in the EU to undertaking sales at the EU's external borders; an increased participation in hub trade, particularly on the Dutch TTF and on the British NBP (it is estimated that 10% of Gazprom's sales in the EU are executed on hubs); and the inauguration of auctions at the new Saint Petersburg Mercantile Exchange, SPIMEX. As shown by internal discussions, Russia may also decide to break up Gazprom's export monopoly and open export pipelines to competitors such as Novatek and Rosneft. This would bring Russian gas sales more in line with the principles of market liberalization defended by the European Commission and

40 Oxford Institute for Energy Studies, ERI RAS and others.

41 "At present, Gazprom's customers can nominate for excess gas (up to and beyond the ACQ level), sell the extra gas on the market and drive the price down before turning back to Gazprom and asking for a rebate or a renegotiation of terms. Under the hub re-delivery model (whereby Gazprom participates in hub trade, i.e., [re]sells gas that is not its own), Gazprom could control this situation by deciding where to source gas to supply its sales contracts, thus avoiding the potential for unwarranted over-supply. The Hub Re-Delivery Model would allow Russia to directly influence the price level of European hubs (through its control of physical volumes exported from West Siberia). This would give it the capability to deter short-term US LNG supply and future LNG projects. Gazprom already has the in-house capability to undertake such a transition." (OIES, 2016).

42 This also leads us to the discussion of the second trend, identified in the introduction as a decisive driver behind Russian gas supplies to the EU: namely the profound, ongoing change in the way in which gas is traded in the EU.

possibly relax concerns in Brussels about overreliance on one supplier. It may therefore result in additional volumes of gas exports from Russia to the EU. Despite these novelties, Russia has not yet made a definite choice on whether the structure of its commercial arrangements with European buyers should be overhauled. In an extreme scenario, in which long-term contracts are demised and sales take place only on the spot, the impact on Russia's supply profile to the EU would probably be big. For starters, as Europe's larger supplier and one endowed with substantial spare capacity, Russia could probably gain a direct influence on European – and possibly global – hub prices, its current influence being only indirect and partial.

3 CONCLUSIONS

These legal and political rows add to uncertainties regarding future imports of gas from Russia into the EU. As suggested earlier, the issues of the Ukraine transit contract renewal and Nord Stream-2 are closely related to each other.

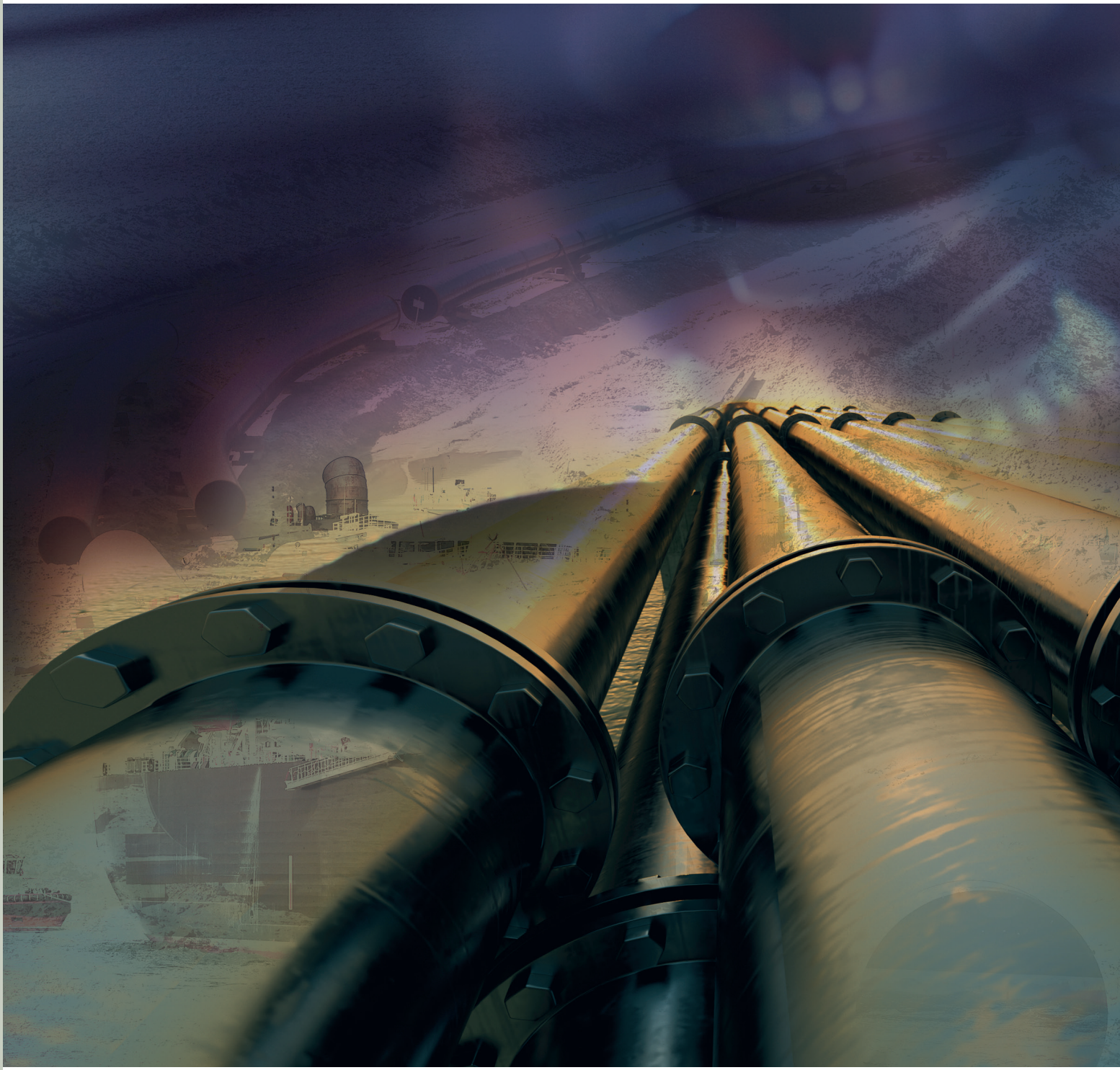
For Russia, the best scenario in terms of volumes sold would probably be one in which: a) the EU import needs would tend towards the higher end of the forecast range considered in CIEP's study on gas demand outlooks (+135 Bcm by 2025); b) Nord Stream-2 would be built and a full TPA exemption granted to OPAL; and c) the Ukraine transit system would continue to be used as an option of last resort, particularly to supply volumes to the markets located further away from Nord Stream's landing point in Germany. In this way, Russia could minimise the Ukraine transit risk but also use Nord Stream-2 to ship incremental volumes, instead of simply using it for rerouting purposes. Russia could then consider fine-tuning the volumes supplied to Eastern Europe via Ukraine on the basis of evolutions in Western European demand or, in other words, on the basis of the utilisation rate of Nord Stream-2. Under this scenario, the available transportation capacity to the EU could reach 280 Bcm in the early 2020s – 120 Bcm of this through Ukraine. Current Russian imports into the EU are 135 Bcm. If we take the most bullish import demand scenario (+135 Bcm by 2025) and assume that the entirety of EU's additional import needs will be supplied by Russia, Russian gas sales to the EU could reach 270 Bcm by 2025. As mentioned, Russia has the capacity to produce these volumes, or approximately similar ones, without allocating further upstream investments. Transit through Ukraine could be reduced if pipelines other than Nord Stream-2 (for example, Turk Stream) would also be built – which, in the current context, is difficult to predict. In such a scenario, Russia's market share in the EU would exceed 45%, though this may be prevented by an antitrust intervention by the European Commission.

The most plausible lowest-case scenario in terms of future imports of Russian gas to the EU is one in which Russian gas purchase is minimised at ToP levels (100-125 Bcm in 2025), which effectively indicate the floor of Russian gas exports to Europe. Considering that the most bearish import-need scenario discussed in CIEP's study on gas demand outlooks (the EC roadmap) projects an increase of approximately 20 Bcm in EU gas import needs between now and 2025, this 'Russian floor scenario' is

only compatible with an increase in volumes from alternative suppliers (either via pipeline or LNG) of more than 50 Bcm/y.

As concluded by other papers of this series, prospects for additional LNG imports are more solid than those for new pipeline supplies from the Caspian or the Middle East. The availability of LNG for Europe however hinges on global market conditions.

As argued throughout the paper, a more likely scenario is one in which: a.) imports of gas from Russia will increase in absolute terms, driven by the EU's rising import needs and the competitiveness of Russian gas but b.) Russia's market share will remain somewhat constant around 30%, given political opposition in the EU to a further substantial growth in it.



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