

Department of War Studies  
& King's Russia Institute



KING'S  
*College*  
LONDON

# Assessing Nord Stream 2: regulation, geopolitics & energy security in the EU, Central Eastern Europe & the UK

Professor Andreas Goldthau



# EUCERS Advisory Board

**Marco Arcelli** Executive Vice President, Upstream Gas, Enel, Rome

**Professor Dr Hüseyin Bağcı** Department Chair of International Relations, Middle East Technical University İnönü Bulvarı, Ankara

**Andrew Bartlett** Managing Director, Bartlett Energy Advisers

**Volker Beckers** Chairman, Spencerham Limited

**Professor Dr Marc Oliver Bettzüge** Chair of Energy Economics, Department of Economics and Director of the Institute of Energy Economics (EWI), University of Cologne

**Professor Dr Iulian Chifu** Advisor to the Romanian President for Strategic Affairs, Security and Foreign Policy and President of the Center for Conflict Prevention and Early Warning, Bucharest

**Dr John Chipman** Director International Institute for Strategic Studies (IISS), London

**Professor Dr Dieter Helm** University of Oxford

**Professor Dr Karl Kaiser** Director of the Program on Transatlantic Relations of the Weatherhead Center for International Affairs, Harvard Kennedy School, Cambridge, USA

**Frederick Kempe** President and CEO, Atlantic Council, Washington, D.C., USA

**Ilya Kochevkin** Executive Director of Gazprom Export Ltd.

**Thierry de Montbrial** Founder and President of the Institut Français des Relations Internationales (IFRI), Paris

**Chris Mottershead** Vice Principal, King's College London

**Dr Pierre Noël** Sultan Hassan al-Bolkiah Senior Fellow for Economic and Energy Security, IISS Asia

**Dr Ligia Noronha** Director Resources, Regulation and Global Security, TERI, New Delhi

**Janusz Reiter** Center for International Relations, Warsaw

**Professor Dr Karl Rose** Senior Fellow Scenarios, World Energy Council, Vienna/London

**Professor Dr Burkhard Schwenker** Chairman of the Supervisory Board, Roland Berger Strategy Consultants GmbH, Hamburg

**Media Partners**

**ep** independent • international • incisive  
**energy post**

**ICIS**

**BIZZ**  
**energy**  
**today.**

## Design

Calverts  
www.calverts.coop  
Approved by  
brand@kcl.ac.uk  
July 2016

## Impressum

© 2016 EUCERS. All rights reserved. Brief excerpts may be reproduced or translated provided the source is stated. Please direct all enquiries to the publishers.

The opinions expressed in this publication are the responsibility of the author(s).

**Cover image** © 2015 Nord Stream AG, courtesy of the Euro Institute for Information and Technology (EITEP).

## Published by

**The European Centre for Energy and Resource Security (EUCERS)** was established in the Department of War Studies at King's College London in October 2010. The research of EUCERS is focused on promoting an understanding of how our use of energy and resources affects International Relations, since energy security is not just a matter of economics, supply and technological change. In an era of globalization energy security is more than ever dependent on political conditions and strategies. Economic competition over energy resources, raw materials and water intensifies and an increasing number of questions and problems have to be solved using holistic approaches and wider national and international political frameworks.

**The King's Russia Institute** was established in 2012 to support interdisciplinary, balanced and cutting-edge research and learning on Russian politics, economics and society, as well as on the country's place and impact in global affairs. This mission, which includes a range of postgraduate programmes of study and an active public policy agenda, is strengthened by King's commitment to global studies. Working in tandem with the King's Global Institutes and situated in the heart of the world's leading global city, the King's Russia Institute is a hub for discussion and debate, linking UK, Russian and global audiences in education, the cultural and creative sectors, business and government.

[www.eucers.eu](http://www.eucers.eu)

### About the Author

**Andreas Goldthau** is Fellow with King's Russia Institute, Professor of Public Policy at Central European University and Associate with the Belfer Center for Science and International Affairs, Harvard Kennedy School. His academic career includes appointments with the RAND Corporation, the German Institute for International and Security Affairs and SAIS, Johns Hopkins University, where he also serves as an Adjunct Professor in the MSc program in Energy Policy and Climate. Dr Goldthau's research interests focus on energy security and on global governance issues related to oil and gas.

### Editorial

**Prof. Dr. Friedbert Pflüger** Director, EUCERS  
**Carola Gegenbauer** Operation Coordinator, EUCERS

**European Centre for Energy and Resource Security (EUCERS)**  
 Department of War Studies, King's College London,  
 Strand, London WC2R 2LS, UK

### About EUCERS

**Professor Dr Theo Farrell** Head of Department, Department of War Studies, King's College London, Chair, EUCERS Advisory Board  
**Professor Dr Friedbert Pflüger** Executive Director, EUCERS  
**Dr Frank Umbach** Research Director, EUCERS  
**Dr Adnan Vatansever** Associate Director, EUCERS  
**Carola Gegenbauer** Operations Coordinator, EUCERS

### Senior Research Associates (non resident)

**Dr Petra Dolata** University of Calgary  
**Androulla Kaminara** European Commission

### Research Associates

**Jan-Justus Andreas**  
**Alexandra-Maria Bocse**  
**Gus Constantinou**  
**Julia Coym**  
**Kalina Damianova**  
**Arash Duero**  
**Moses Ekpolomo**  
**Lorena Gutierrez**  
**Lamya Harub**  
**Sandu-Daniel Kopp**  
**Maria Kottari**

**Dr Maximilian Kuhn**  
**Dr Guy CK Leung**  
**Flavio Lira**  
**Philipp Nießen**  
**Philipp Offenbergl**  
**Marina Petroleka**  
**Dr Slawomir Raszewski**  
**Aura Sabadus**  
**Ka-Ho Yu**  
**Shwan Zulal**

# Contents

<b>Executive Summary</b>	<b>06</b>
<b>Acknowledgements</b>	<b>06</b>
<b>Introduction and scope of the study</b>	<b>07</b>
<b>Nord Stream 2, Eurasian energy geopolitics and the EU regulatory state</b>	<b>09</b>
<b>European gas market dynamics</b>	<b>11</b>
Shifts in market structure	<b>11</b>
Europe's gas balance and supply options	<b>12</b>
<b>Gazprom's export challenge</b>	<b>16</b>
The political economy of Russia's gas sector	<b>16</b>
Russian gas outlook	<b>17</b>
Gazprom's Europe strategy	<b>17</b>
<b>Nord Stream 2 and EU energy regulation</b>	<b>21</b>
Reviewing the legal context	<b>21</b>
The geopolitical perspective	<b>23</b>
<b>Discussing Nord Stream 2 impact on EU gas markets and energy security</b>	<b>26</b>
As-is: gas market developments since 2011	<b>26</b>
Impact on Central European gas markets	<b>27</b>
An eye on South Eastern Europe	<b>29</b>
Impact on the UK	<b>30</b>
Does Nord Stream 2 present a security of supply threat for Europe?	<b>31</b>
<b>Conclusion: Nord Stream 2 and Europe's choice</b>	<b>34</b>
<b>References</b>	<b>35</b>

**List of figures**

Figure 1: Possible routes of Nord Stream 2	08
Figure 2: EU gas pricing structures, USD/MMBtu	11
Figure 3: EU gas supply and demand: select projections, bcma	13
Figure 4: Dynamics in Russian gas production: Gazprom and competitors	16
Figure 5: Russian gas: comparative cost structures and export routes	19
Figure 6: East-West cross-border gas flows, select European countries, in bcm	26
Figure 7: Selected Central European hub and cross-border import prices, 2012–2014 (EUR/MWh)	28
Figure 8: UK-continental European gas trade, bcm	30
Figure 9: Russian gas import prices to Ukraine and Russian gas discounts, 2015	32

**List of boxes**

Box 1: Eco-efficiency of LNG and pipeline gas	20
Box 2: Energy Union and external EU energy policy	24

## Executive Summary

This study assesses the geopolitical, regulatory and energy security aspects as discussed in the context of Nord Stream 2. The study makes the following main points:

- The EU will remain an import market in gas going forward, and its import gap will widen. Significant changes in market structure will force Gazprom to take choices regarding its market strategy. In case Gazprom opts for optimizing market share, this will put pressure on revenues.
- Gazprom faces severe challenges related to a complex political economy on its home market and the imperative to diversify its export portfolio beyond Europe. Nord Stream 2 is part of Gazprom's strategy to minimize transit risk to its prime export market, the EU, for which the company is ready to put down significant investment. On a marginal costs basis, Nord Stream 2 might emerge an important hedging strategy against competitively priced US LNG imports.
- Nord Stream 2 will enhance the liquidity of Central European gas hubs in EU gas trading and pricing, and strengthen their role as continental price markers. As a corollary, Central European gas markets are set to integrate further, which may give consumers choice and increase gas-on-gas competition in the region. Russian gas might end up competing with Russian gas but also with gas from other sources.
- While Nord Stream 2 does not exert significant impact on South Eastern Europe, the situation of SEE nonetheless merits attention. Of primary importance are interconnectors to North-Western markets, notably in the shape of the 'Vertical Corridor' linking Greece to Austria.
- With regard to the UK, Nord Stream 2 gas will likely exert structural or pricing effects only, if at all. Its most important contribution to UK energy security might lie in keeping the continental North-Western markets liquid, so that the UK can continue sourcing from international LNG markets and continental Europe, which maintains gas-on-gas competition.
- Energy security concerns over Nord Stream 2 as expressed by East European leaders seem to define energy security exclusively in terms of diversified routes and suppliers. Market logic, however, suggests that energy security is primarily enhanced through competition policy and structural market changes. Integrated markets help keeping players that some see as keeping a too dominant market position, such as Gazprom, in check and foster price competition.
- The future of Ukraine will not hinge on it remaining a transit country for Russian gas. Whilst the country will indeed lose transit fees should the bulk of Russian gas exports to Western Europe no longer flow through the country, it stands to gain in terms of lower gas prices.
- Nord Stream 2 will be built and operated in a contested geopolitical environment. It is important to acknowledge this environment in order to appreciate the complex political dynamics possibly informing regulatory decisions as taken by EU authorities.
- The Commission already experimented with using its regulatory tools in the foreign policy domain and vis-à-vis external actors, including Gazprom. This suggests that it is not the legalistic reading of EU energy law which will determine the viability of Nord Stream 2, but the degree to which Commission will interpret its mission as a political or regulatory one.
- Nord Stream 2 demonstrates that Europe needs to take choices on whether the Commission emerges a political actor in its own right or whether it remains a powerful competition watchdog; and whether EU rules are applicable across the board or be applied so that they follow political objectives.

## Acknowledgements

This study was produced as part of a one-year fellowship on Eurasian energy at King's Russia Institute. The Institute and the author gratefully acknowledge the financial support of Shell, OMV, Wintershall, Uniper and Engie. The author would also like to thank the participants at a peer event at King's for their insightful comments and feedback. A particular thanks goes to King's Adnan Vatansever for all his scholarly trust, his continued support and his excellent management of the entire process. The author would also like to thank the European Centre for Energy and Resource Security for inspiring discussion and great cooperation.



# Introduction and scope of the study

On September 05, 2015, Russia's Gazprom and its five Western European partner companies signed the Shareholder Agreement on Nord Stream 2 at the Eastern Economic Forum in Vladivostok. Almost a year later, Gazprom's CEO Alexei Miller on June 16 2016 at the St. Petersburg Economic Summit reported the completion of the first pipeline tenders. The proposed pipeline, which will largely follow the route of existing Nord Stream, is set to carry 55 bcm of gas a year from Russia's Baltic coast to Germany's Greifswald as of 2019, in two strings of 27.5 bcm each.<sup>1</sup> It will be operated by the Zug (CH) based Nord Stream 2 consortium, which is planned to comprise Russia's Gazprom (50 percent stake), Germany's Uniper (10 percent) and Wintershall (10 percent), UK's Royal Dutch Shell (10 percent), Austria's OMV (10 percent) and France's Engie (formerly GDF Suez, 10 percent) (Nord Stream 2 AG 2016).<sup>2</sup>

Technically, the pipeline will stretch some 1200 kilometers under the Baltic Sea which makes it one of the world's longest undersea pipelines, and it will operate without compressor stations on the way. Politically, however, the expansion of Nord Stream – a pipeline of another two strings of 27.5 bcm each – is strongly contested. Together, Nord Stream and Nord Stream 2 will have 110 bcm of export capacity for Russian gas, which compares to overall exports of 130 bcm to Europe and Turkey in 2015 (Gazprom Export 2016). Numerically, Nord Stream 2 might therefore make other export routes redundant, notably the Ukrainian transit network. Moreover, Gazprom is on record to stop shipping gas through the country upon the expiry of existing contracts in 2019 (Interfax Ukraine 2015). As a corollary, this is argued to have fiscal implications for Ukraine as the country stands to lose some estimated USD 2 billion of transit fees a year (Reuters 2015a). On similar grounds, other East European transit countries such as Poland and Slovakia have voiced objections against Nord Stream 2.

More importantly, possibly, it is geopolitical aspects that make Nord Stream 2 a contested project. Concerns are rooted in deep-seated fears over Moscow's increasingly assertive foreign policy – not the least in Ukraine. Russian gas supplies, therefore, are also discussed in the context of national security, a reason why many new EU member states – and Washington DC – have pushed for higher diversification of the European gas import portfolio. By some, Nord Stream 2 is seen as cementing Russia's dominant role in EU gas suppliers and depriving Eastern Europe of an important insurance policy against Russian

meddling – their role as transit countries. It has therefore also been argued that the Nord Stream 2 project runs counter to the EU's stated objective to keep Ukraine a transit country for Russian gas exports to Europe, and more broadly the spirit of the Energy Union, the EU's latest energy policy initiative (see European Commission 2015a). On March 07 2016 nine East European leaders signed a letter against Nord Stream 2, whilst Amos Hochstein, the U.S. special envoy for international energy affairs, suggested that the pipeline 'revives the Cold War line as an economic one' (Politico 2016a). EU Commissioner for Climate Action and Energy Miguel Cañete called the project 'not a commercial project only' but one that has significant political implications (Bloomberg 2016). In short, as much as Nord Stream 2 is a commercial project between a Russian and Western energy companies, it is also subject to heated debates about European energy security, Russian gas supplies and EU foreign policy preferences more generally.

This study assesses the geopolitical, regulatory and energy security aspects as discussed in the context of Nord Stream 2. More to the point, it assesses a set of questions: what role might Russian gas play in the European import portfolio, and what informs Gazprom's export strategy in this regard? What is the legal environment pertaining to Nord Stream 2 and how do geopolitics play into relevant regulatory choices? What will be its potential impact on Europe and EU gas market structures? More specifically, what will be its impact on Eastern and South Eastern Europe and on the UK? And how can the findings be interpreted in light of energy security concerns? This study seeks to explore these questions and to offer a set of tentative answers – to the extent possible, by adopting a long term perspective, stretching into 2040.

It is important to note that this study does not seek to generate statements on whether Nord Stream 2 is desirable or not, whether it is likely that Nord Stream 2 will be built or remain in the planning phase, or on legal views adopted by EU authorities. Instead, it aims at shedding light on the complex dynamics and multi-faceted aspects pertaining to Nord Stream 2, with a view to informing the analytical debate surrounding the project. This caveat is merited also with a view to Nord Stream 2 remaining a 'moving target', as political decisions and legal verdicts remain imminent, whilst market structures remain in flux.

The next section sets the scene and elaborates in more detail on the geopolitical dynamics pertaining to Nord Stream 2. Section 3 explores Europe's shifting gas market fundamentals and a changing international pricing regime. Section 4 focuses on Gazprom in this new context and sheds more detailed light on the domestic challenges the Russian monopolist is facing. Section 5, then, assesses EU energy regulation and its implications for Nord Stream 2.

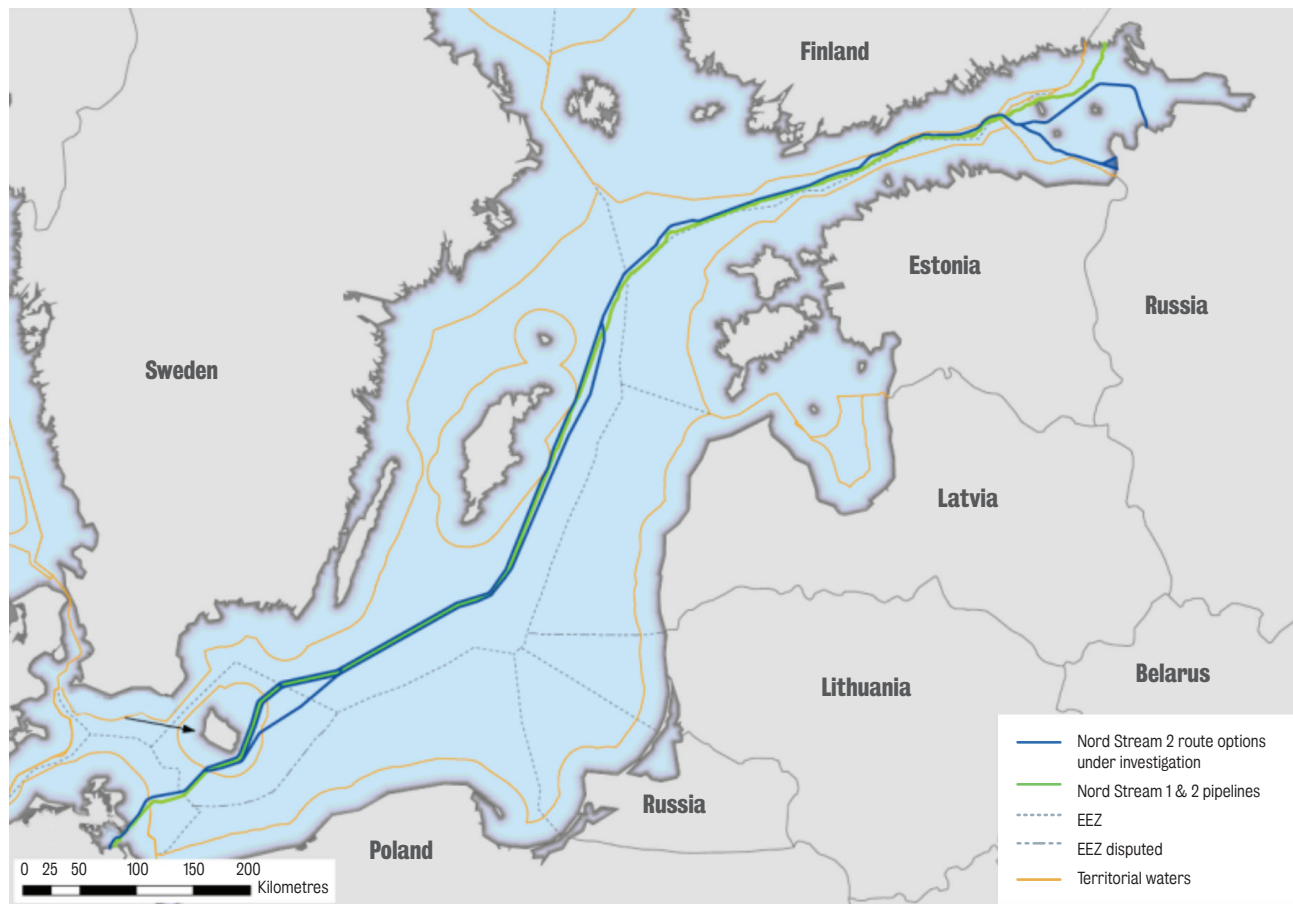
1 This study will refer to the initial two-string pipeline as Nord Stream and the additional strings as Nord Stream 2.

2 A shareholder agreement among the six involved parties is in place, but not in force. This study will refer to the involved parties and future shareholder as 'consortium' however acknowledging that the partnership structure is not in force yet.

The section discusses the legal perspective but also offers a geo-economic interpretation of EU energy law. Section 6 discusses the impact of Nord Stream 2 on EU gas markets and energy security. Here, focus is placed on Central

and South Eastern Europe, and the UK. The section also discusses energy security concerns as expressed by the nine East European leaders against the study's findings. A seventh section concludes.

**Figure 1: Possible routes of Nord Stream 2**



Source: Nord Stream AG, <http://www.nord-stream2.com/download/image/20>, accessed 08.04.2016



# Nord Stream 2, Eurasian energy geopolitics and the EU regulatory state

Although frequent reference is made to the long-standing nature of European-Russian energy relations, the latter have barely been of purely commercial character. Gas trade dates back to the 1970s, when the USSR started deliveries to Western Europe, against the stated objection of Washington where fears arose that its allies might become dependent on the 'Evil Empire' and hence less reliable partners. Observers tend to point to the smooth nature of gas deliveries for most of the past 30 or so years, and the fact that even during the heydays of the Cold War, Moscow abstained from cutting supplies to its customers. Yet, more recently, a series of gas disputes raised serious concerns in Europe over the future of this relationship. The most important incidents occurred in 2006 and 2009, when Russia and Ukraine quarreled over gas deliveries and prices, resulting in temporary cut offs of gas supplies to downstream customers in Europe. Western observers established a causal link between the timing and intensity of these conflicts and Ukraine's 'Orange Revolution' and its subsequent re-orientation toward the West.

In Europe, the effects of what at the core was a contractual dispute were particularly felt in 2009, when a 13-day long gas supply cut to 16 EU member states particularly impacted East European countries and their economies. To be sure, Gazprom also faced severe costs related to the standoff, which by some estimates amounted to USD 1.5 billion (Stern, Pirani, and Yafimava 2009, 61). Yet the 2009 crisis for many highlighted the political links between Gazprom and the Russian government, and the strategic importance of Russian gas exports for the Kremlin. In fact, studies suggest that energy and Russian foreign policy are much closer linked than commonly assumed, with oil or gas deliveries either being a cause of Russian intervention or a means thereof. For instance, an analysis by the Swedish Defense Research Agency, commissioned in the wake of the 2006 gas crisis, suggests that of the 55 incidents involving Russian energy supplies to foreign countries between 1991 and 2005, only 11 can be labeled entirely 'non-political' (Larsson 2006), 262). Prominent post-2006 examples include Russia stopping crude deliveries to Lithuania's Mažeikių Nafta refinery (2006), Georgia being cut off from Russian gas supplies in 2006, the explosion of a Turkmen gas export pipeline to Russia (2009), and even a standoff with ally Belarus (2007), which involved the threat of stopping gas deliveries (Woehrel 2009).

These incidents, and particularly the Russian-Ukrainian gas disputes of 2006 and 2009 had far reaching political effects and resulted in lasting damage done to Russia's reputation as an energy supplier. What is more, energy security experienced a sudden return to the top of policy agendas in the context of the G8, notably during the St Petersburg and

Heiligendamm summits (Goldthau and Sitter 2014), and triggered EU level policy responses in the shape of the 2010 Regulation on Gas Security (European Parliament and the Council 2010). Unsurprisingly, Russia's 2014 annexation of Crimea immediately led to renewed concerns about the security of gas supply among European leaders, who in turn reacted with sanctions against Russia, also targeting its oil industry. In short, if there indeed was a time when Russian-European energy relations were characterized by mutual trust and cooperation, these times were gone by 2009 at the latest. It is in this context that Nord Stream 2 has to be analyzed – as a commercial project embedded in a charged geopolitical context.

Against this backdrop, Europe started to reconsider the extent to which Russian gas should play a role in the EU energy mix going forward, and what elements an effective hedging strategy should involve. Key elements of this rethink include the above mentioned Regulation on Gas Security (2010), which makes clear reference to a 'difficult' international political environment and the possibility of supply disruptions. The Regulation aims at enhancing cooperation among EU member states, includes Preventive Action and Emergency Plans and fosters the build-up of reverse flow capacity in gas infrastructure, in addition to setting supply standards and supporting alternative sources of gas in the shape of LNG. Moreover, the 2014 Energy Security Strategy (European Commission 2014c) – explicitly mentioning the gas disputes of 2006 and 2009 – stresses the importance of diversifying supplies and routes, and of reducing Russia's dominant role in the EU's energy import portfolio.

Referring to the stress tests commissioned by Brussels in the fall of 2014 – a reaction to mounting political tensions in Ukraine and Russia's annexation of Crimea – and the fact that several EU countries still exhibit a significant energy security risk pertaining to external gas supplies, the Commission on February 16 2016 adopted a 'Security of Supply Package' which centrally includes a revision of the Regulation on Security of Gas Supply, gives the Commission the powers to vet Intergovernmental Agreements (IGA) between EU countries and third suppliers, and lays out an LNG Strategy (European Commission 2016g).

In addition, the EU prioritized 195 'Projects of Common Interest' (PCI) in gas and electricity infrastructure, the most significant of which will receive supportive funding of up to €5.35 billion from the Connecting Europe Facility (CEF) until 2020. In addition to enhancing competition PCIs must 'boost the EU's energy security by diversifying sources' in order to be eligible for financial support (European Commission 2016f). To be sure, rather than

building the physical infrastructure, ECF funding supports proposed projects by way of funding feasibility and design studies, market surveys, or regulatory and environmental assessments. With this, its primary role is facilitating, clearly leaving the job of implementing the project to market actors. The importance of PCI status – in addition to the rather symbolic EU endorsement – lies in prioritizing what EU Commissioner Šefčovič refers to as the ‘hardware’ of a more resilient EU energy system: fostering bi-directional flow capacity, integrating national energy markets and making gas more fungible a commodity within Europe. Energy infrastructure PCIs therefore complement the EU’s regulatory ‘software’ in the shape of European energy law (European Commission 2015c).

These measures come on the back of the EU’s move toward a more competitive internal energy market which started with the Commission’s 1990 initiative to liberalize the electricity and gas sector. Since then, three regulatory ‘packages’ fundamentally reshaped the European energy sector. The 1998 package fostered limited and gradual market opening (European Parliament and the Council 1998). The second ‘package’ in 2003 went further and introduced independent energy regulators, made EU countries adopt a regulated access tariff and stipulated the goal of non-discriminatory third party access (TPA) to energy infrastructure (European Parliament and the Council 2003). The Third Energy Package of 2009, then, fully enforced TPA provisions through ownership unbundling, detailed the operative modes for transmissions system operators (TSOs) and equivalent models (independent system operators/ISOs and independent transmission operators/ITOs), and led to the establishment of an EU level representation of national regulatory agencies (ACER) and of TSOs (ENTSO) (European Parliament and the Council 2009b; European Parliament and the Council 2009c; European Parliament and the Council 2009d; European Parliament and the Council 2009e). ENTSO-G and ENTSO-E, the European Network Transmission Operators for gas and electricity, were also tasked with developing Ten Year Network Development Plans (TYNDP) for European energy infrastructure.

Although there still exists a significant heterogeneity in national energy governance models (some EU countries also fall short of fully transposing the Third Energy Package into national law and implementing it), the EU’s efforts to the liberalize energy sector have deep effects. The incumbent model of nationally fragmented energy markets characterized by monopoly utility companies and long-term gas supply contracts (LTCs) started to give way to an increasingly integrated EU market where largely privatized companies compete and hubs now cover more than half of overall traded gas (IGU 2014). As Andersen et al. (2016) argued, this represents the ‘triumph of liberalization as a policy paradigm’.

The EU’s push for three consecutive liberalization packages was clearly intended to extend the Single European Market to the energy sector. Against the backdrop of emerging

tensions with Russia, however, pro-market regulation arguably also emerged as a means to check Gazprom’s ambitions on the European gas market. This particularly pertains to infrastructure projects to the extent they are subject to the Third Energy Package, in which case they may not be operated without Brussels’ consent. A case in point here, which we shall discuss in further detail below, is South Stream, a Russia-sponsored pipeline project which was intended to help circumvent Ukrainian transit and bring Gazprom gas into South Eastern Europe. South Stream consisted of an offshore part through the Black Sea landing in Bulgaria and onshore extensions to Austria’s Baumgarten hub. The Commission hinted that the Intergovernmental Agreements (IGAs) governing South Stream’s onshore parts might breach TEP provisions, in addition questioned Bulgarian procurement, as a consequence of which the entire project was halted end of 2014. When insisting on legal and regulatory clarity, and the application of EU law in the case of the South Stream project, the Commission also set a precedent for future pipeline infrastructure projects bringing non-EU gas into the Union, and particularly their onshore extensions.

To be sure, the Commission’s ruling on TPA provisions remains firmly within the remits of what is typically referred to as the European ‘regulatory state’ (Majone 1994; McGowan and Wallace 1996; Moran 2002). As such, the EU’s policy toolbox is restricted to law and regulation (rather than involving gunboats and troops), and the main focus rests on creating markets and making them work (rather than on foreign or security policy). Yet, as the case of South Stream indicates and as we shall discuss in further detail in section 5, the regulatory state toolbox, albeit restricted, can be used in very strategic ways. With this, laws and regulation are not mere neutral acts conducted by a Brussels based regulator. Rather, they become means for targeted action and for policy purposes other than European energy market integration. This is where rather ‘soft’ legal policy instruments acquire what Goldthau and Sitter (2015b) termed a ‘hard edge’, also vis-à-vis foreign actors such as Russia’s Gazprom.

Overall, the Nord Stream 2 project operates in a different environment than its predecessor, Nord Stream. Admittedly, the latter faced similar criticism and considerable opposition from Eastern EU countries, related to an alleged over-dependence on Russian gas and related security implications. This culminated in Poland’s then-defense minister Sikorski likening the German-Russian project to the infamous Molotov-Ribbentrop Pact of 1939 (Euractiv 2009). And yet, Nord Stream was planned during a time when Russia was by and large seen as a partner still, geopolitical tensions over Ukraine were at relatively low levels, and – probably most importantly – the liberal EU energy paradigm was only in the making. As this study will argue, it is precisely the broader geopolitical context in which EU regulatory decisions need to be read.

Before exploring the legal context in more detail, the next section turns to the changing dynamics in EU gas demand.

## European gas market dynamics

European gas markets are in flux. A number of factors will fundamentally impact on gas demand dynamics going forward, change the incumbent market structure, and affect gas companies and their traditional business models. These centrally include a shifting international market environment, European policy frameworks, and EU decarbonization targets. All of these directly or indirectly impact on the EU's demand trajectory in natural gas and the pricing models that come with it. In addition, a European gas balance tilting toward heavier imports going forward warrant strategic decisions on supply options.

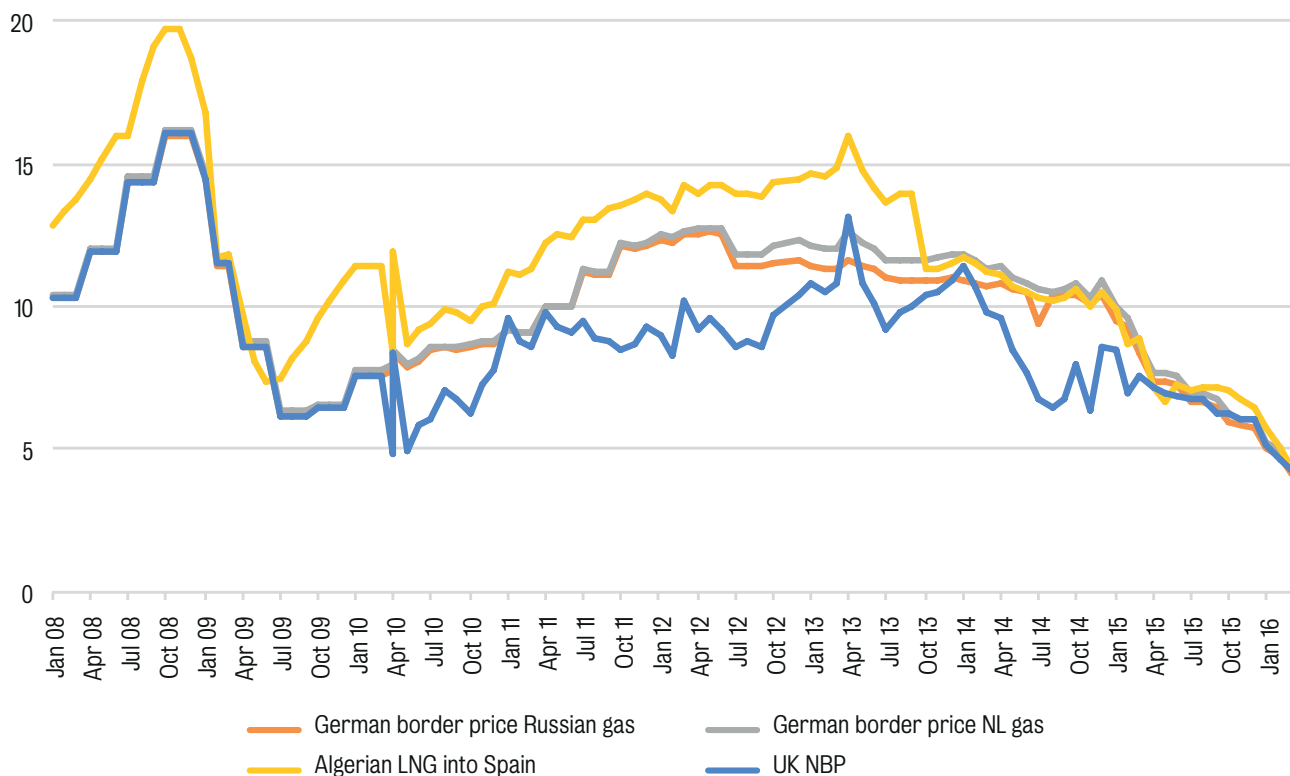
### Shifts in market structure

Having seen extraordinary growth rates for some three decades in a row, European gas demand flattened out by the mid-2000s. Demand peaked around 2010 at 543 billion cubic meters (bcm) (IEA 2014). Since then, European gas demand decreased consistently and by the end of 2013 stood at 471 bcm (IEA 2015b). This is for reasons related to market maturity, rising competition from renewables but also cheap coal, a series of relatively mild winters, and a persisting economic crisis. At the same time, the international market environment turned from a sellers' market to a buyers' market. Three major factors came

together at that time: a financial crisis that pushed major economies including the US and Europe into recession, depressing gas demand; US shale gas production taking off, reducing US LNG import needs; and substantial Middle East LNG capacity coming online at exactly that time.

In fact, the post-2008 environment amounted to a 'perfect storm' for natural gas, as a glut of LNG was in search for new destinations outside the US and hit depressed European markets instead, where demand was down around 40 bcm compared to before-crisis levels. This set in motion a well-documented chain of events, at the end of which incumbent European market structures had given way to new, and arguably more competitive, models. First, additional LNG intake depressed gas prices on the UK's National Balancing Point (NBP) which widened the spread between spot markets and oil-indexed LTCs. In turn, European mid-stream energy trading companies started to feel the heat from their downstream customers. This, and second, made European companies including E.ON, RWE, GDF Suez, OMV and Eni renegotiate their supply contracts with a view to adjusting price levels downward and to indexing a larger part of the pricing mechanism to (cheaper) spot gas. Key suppliers, including Norway's Statoil and eventually also Russia's Gazprom granted discounts and adjusted

Figure 2: EU gas pricing structures, USD/MMBtu



Source: Energy Intelligence Group, author's calculations

pricing structures, moving contracts further away from the incumbent oil-indexed LTC model. Finally, and adding to this, the Commission in a series of contractual renegotiations with Gazprom, Sonatrach and GDF/ENEL/ENI (who held LNG swap agreements with Nigeria's NLNG) put a final end to destination clauses entailed in LTCs and pushed for gas market liberalization (for a detailed discussion see Talus (2011)). Within a short period of time, this perfect storm eroded the traditional model which had governed the European market for decades. As of 2013, and although there still exist significant regional differences within Europe, more than half of overall EU gas demand is priced against spot not oil (IGU 2014). As a consequence of price discounts and revised pricing structures, spot and pipeline gas started to converge again. (For a detailed discussion of EU gas markets see (Boersma 2015).)

Going forward, the international market environment is projected to remain soft this side of 2020. Until then, as the IEA suggests, additional global LNG capacity will increase by 40 percent compared to 2015 levels (IEA 2015a). A further internationalizing and increasingly liquid gas market will arguably perpetuate the dynamics started in 2008. Going forward the US is projected to emerge a significant exporter of LNG, with additional ripple effects for international markets and indeed European gas pricing dynamics, an aspect we shall return to below. Moreover, natural gas also started to push coal out of the US energy mix, as Henry Hub gas prices bottomed out and replaced coal as a fuel of choice in the power sector. In fact, on a monthly basis, gas surpassed coal in US power generation in April 2015, and is set to do so on an annual basis as of 2016 (EIA 2016b). As a consequence, US coal exports picked up, the effects of which are felt in the European power sector where gas came under additional pressure. As a side effect, EU CO<sub>2</sub> emissions rose again, even if only temporarily.

The changing natural gas landscape comes against the backdrop of European policies pertaining to decarbonization. The EU's push for a low carbon future, as epitomized in its 20-20-20 goals, the 2030 Energy Strategy and the 2050 Roadmap, puts a policy priority on the transition toward a sustainable energy system, by way of supporting renewables (RES), energy efficiency measures and reducing the share of fossil fuels in the energy mix (European Commission 2011b; European Parliament and the Council 2009a). This is not the place to discuss in detail the merits or pitfalls of EU carbon policies, nor the largely diverging national policies in this regard. Suffice to say that large economies, and indeed the ones that matter most for Nord Stream 2 such as Germany, are at the forefront of such policies. As BNEF data suggest, grid parity for solar and wind power becoming a reality in various Europe countries, which is a function of pro-RES regulation, subsidy policies (phasing out in many places) and rapidly faltering installation costs (Bloomberg 2015b). This is not to suggest that the end is near for gas in the European energy mix. But a policy priority put on low carbon regulation coupled with a positive discrimination of RES put natural gas second rank in the merit order.

As a consequence of all the above, large utilities such as RWE or E.ON, which traditionally relied on LTCs and rents locked-in through a monopoly structure in the midstream and end consumer gas markets, have come to face huge difficulty. In fact, as Stern and Rogers (2014b) argue, the 'business model for mid-stream energy trading companies in Europe is becoming gradually obsolete'. Reacting to demand side changes, structural market shifts and a policy priority put on low carbon energy services, several European gas utilities have split, pooling their fossil assets (including gas) in separate 'bad bank' entities, with E.ON (now Uniper) representing the prime example.

## Europe's gas balance and supply options

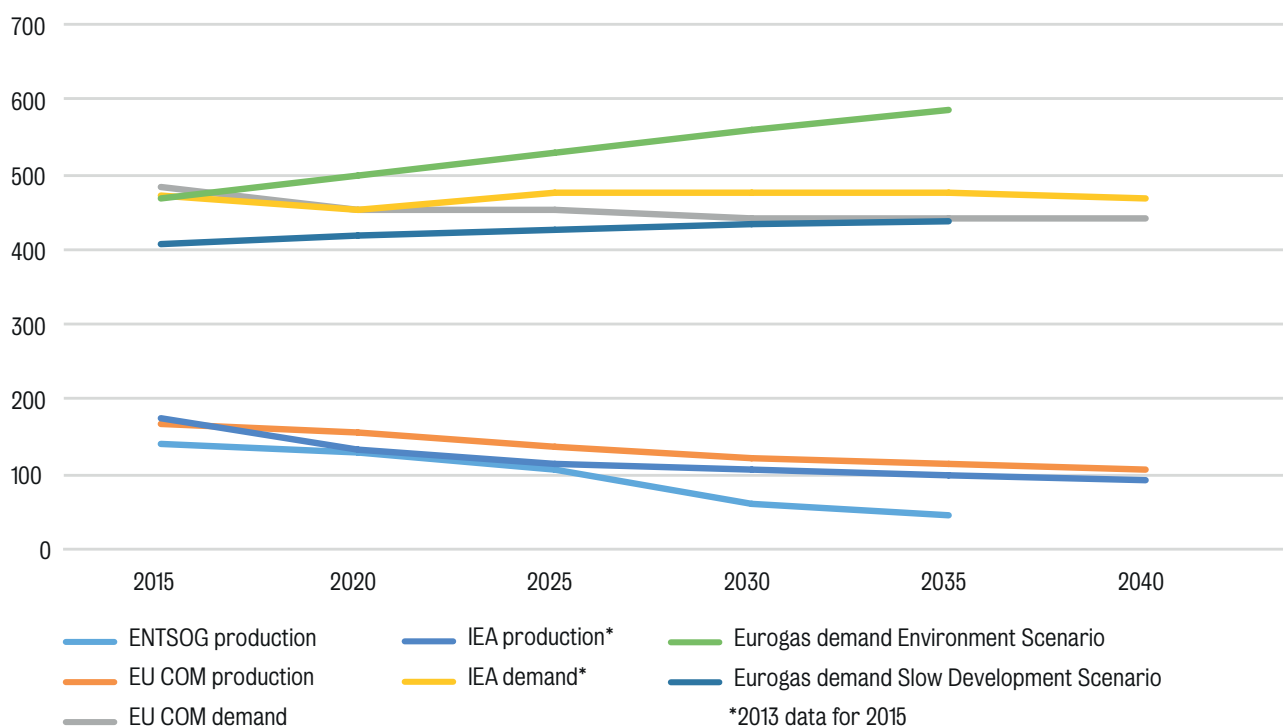
A key question for external supplies into Europe lies in Europe's gas balance going forward. It is outside the scope of this study to model the European gas balance out to 2040. An analysis of available scenario analyses from the public and the private sector, however, generally points to two key trends: a flattening demand coupled with declining domestic production. That said, existing projections vary widely, as do their underlying assumptions on key input factors such as oil price developments, economic growth, cost structures for RES or policy or indeed also projected timelines.

The IEA in their New Policies Scenarios projects gas demand to remain flat in the European Union through 2040. By that time, consumption is estimated to stand at 466 bcm a year, roughly the same levels the IEA reports for 2015 (IEA 2015b). It is particularly in the power sector that gas will gain market share, whereas it will lose in buildings/heating and industry. Honoré (2014) uses a sectoral and country based, bottom-up approach and largely confirms the estimates for a mid-range outlook. In her analysis, European gas demand is slow to recover to pre-2008 levels, and any growth will remain modest up to 2030. Eurogas suggests a European demand between 437 – 585 bcm by 2035, depending on policies favorable or hostile to natural gas (Eurogas 2013). The updated impact assessment accompanying the EU Commission's Energy Roadmap 2050, which is based on the PRIMES model and looks favorable at RES policies and their growth in the EU energy mix, assumes an annual gas consumption of 397669 ktoe or 429 bcm in 2040 (European Commission 2014d).

Flat demand or an only modest increase in consumption contrasts with domestic gas production levels projected to fall sharply. By 2040, the IEA assumes indigenous supplies to stand at 92 bcm a year, a reduction of 81 bcm compared to 2013 levels. This, in turn, calls on imports to cover 83 percent of EU demand. BP suggests similar numbers and estimates that imports will make up for almost three-quarters of Europe's gas consumption by 2035 (BP 2015a). In their Ten-Year Development Plan for European energy infrastructure, ENTSO-G forecasts conventional gas production within the EU to contract up to 68 percent until 2035, in case projects with pending Final Investment Decisions do not materialize (ENTSO-G 2015). This ties



Figure 3: EU gas supply and demand: select projections, bcma



Sources: ENTSO-G, IEA, EU Commission, Eurogas

into the Commission's projection of 95373 ktce or 103 bcm of domestic production in 2040 (European Commission 2014d). The causes for the decline in production are manifold, and range from maturing fields (UK) to pricing or policy environments disfavoring investment into production capacity (such as the Netherlands putting a cap on production). In addition, Norwegian production – formally a non-EU country but tied to the Union through the EEA – is projected to peak in the 2020s and to slowly contract thereafter, reaching 84 bcm in 2040 (IEA 2015b).

Notwithstanding the spread between individual projections and the status assigned to natural gas features in the EU's future energy portfolio, the overall finding is that even as demand flattens out the Union faces a widening import gap. Again contingent on the study and its assumptions, this gap may well be significantly above 100 bcm a year compared to current levels. This will cement Europe's role as the world's largest – and still comparably high priced – import market for natural gas.

To be sure, demand side measures, energy efficiency gains and fuel switches – leaving aside 'silver bullet' solutions such as technology leapfrogging – may alleviate some of the pressure arising from a growing supply gap in the European gas balance. *Ceteris paribus*, however, the question emerges where the additional supplies might be sourced from. In terms of supply options, the EU as a market indeed is comfortably located at first sight. It is surrounded by some major reserve holding countries in Northern African, the

Middle East and the Former Soviet Union, which jointly hold roughly 70 percent of the world's conventional gas supplies (BP 2015b). As the world's largest import market for gas and a USD 18 trillion economic bloc with one of the world's highest purchasing power, the EU gas market should be an attractive export destination, where companies of reserve holding countries compete for market share. Russia has for long been the supplier of choice, a function of geographic proximity, resulting cost structure advantages and the political support Russian-European energy deals have enjoyed in the Cold War and thereafter. We shall discuss the prospects of Russian gas in Europe's import portfolio in further detail in the next section. Suffice to state here that in the context of rising geopolitical tensions, Europe is keen to diversify its import portfolio beyond Russia, which warrants a brief discussion of the alternatives.

A major challenge in diversifying gas supplies lies in the political turmoil besetting Northern Africa and parts of the Middle East. Cases in point are post-Arab Spring Libya which descended into civil war effectively prohibiting investment into the energy sector going forward; post-war Iraq which is at risk of breaking up into separate entities; and the fierce conflict in Syria and the Levant, which impacts on regional political and economic stability more broadly. It is important to note that some of these conflicts are likely to persist and carry on for decades. Representing the archetype of 'intractable conflicts', it is their 'self-perpetuating cycle of hostility' (Jones 2015) that will impact on and in fact limit investment opportunity and



hence supply capacity going forward. This puts in question the region's ability to fill a widening European import gap going forward.

Against this backdrop, the EU turned to the 'Southern Corridor' as a priority for securing alternative, that is non-Russian, sources. Broadly targeting gas supplies in the Caspian region, the Southern Corridor involves an upstream segment, notably in Azerbaijan and possibly Turkmenistan or even Iran going forward; a midstream segment in the shape of transit countries, centrally including Georgia and Turkey; and a downstream segment particularly benefitting Southern Europe (notably Italy) and possibly South-Eastern Europe (SEE). To be sure, the Southern Gas Corridor emerged in energy policy debates as early as in 2002, when plans were launched for constructing the Nabucco pipeline, initially intended to bring 31 bcm of Caspian – notably Iranian – gas to Europe by 2020. (The project in 2013 lost out against TANAP / TAP<sup>3</sup>, the rivaling pipeline system bringing gas from Azerbaijan's Shah Deniz II field to Europe by the end of the decade.) Yet, it was particularly in the context of the Russian-Ukrainian gas disputes that the Southern Gas Corridor gained political traction as integral part of the EU's energy security strategy (European Commission 2008). The EU granted financial assistance to the Southern Gas Corridor under the Connecting Europe Facility (CEF) and gave TAP and TANAP the status of 'Projects of Common Interest', which prioritize strategically important energy infrastructure. It also invested political capital in the shape of the Southern Gas Corridor Advisory Council, launched in February 2015, and a series of energy diplomacy initiatives reaching out to the Caspian states.

However, a brief assessment of the Southern Corridor suggests three important limitations to it becoming a major supply route for the EU's energy supplies going forward. First, there are doubts whether upstream capacity in the Caspian will see significant increases. Existing upstream capacity feeding into TANAP hinge on Azerbaijan's Shah Deniz fields, whose second phase is set to raise overall production to 25 bcma by 2018. By 2019, TANAP is set to feed 10 bcm into TAP and further into Europe. Yet, although Azerbaijan plans to expand gas production significantly going forward, volumes destined for Europe remain limited. Dickel et al (2014) estimate that a mere 3-8 bcm of Azerbaijan's additional production may end up being available for Europe, notably for reasons related to transit states Georgia and Turkey taking their share, and increasing domestic consumption in Azerbaijan (25).

Turkmenistan, Kazakhstan and Uzbekistan could produce further gas to Europe but they seem to prefer exports eastwards. This is on the one hand because of persisting legal disputes pertaining to gas transit through the Caspian Sea, and on the other hand due to a strong push to service

expanding Chinese demand. Turkmenistan in 2014 exported 25 bcm to China, which is set to increase to 65 bcm by 2020, notably through the enhanced Central Asia – China pipeline (NGE 2015b). Kazakhstan and Uzbekistan are intent to follow suit. Post-sanctions Iran, finally, has frequently been named a possible supplier of natural gas for Europe. Yet, the country's export capacity remains restricted by significant infrastructure investment needs which in the domestic gas sector alone amount to some estimated USD 20 billion (EIA 2016a). Moreover, it remains questionable whether Iran will find most value in exporting gas to Europe, or in exporting it at all. Buyers in the region have indicated interest, including Pakistan. More importantly, possibly, Iran may want to use natural gas for fostering domestic economic development in a post-sanction environment and for building a competitive industrial base. So while the country is projected to produce 290 bcm by 2040 (IEA 2015b), not much might become available for Europe and its Southern Corridor. Overall, and as confirmed by pertinent studies such as Dickel (2014) et al and Pirani (2012), Caspian exports will materialize but remain limited in volume through the 2030s and thereafter.

Second, there are strategic considerations impacting on the EU's inclination to make the Southern Corridor a key route of gas supplies. These relate to the challenge entailed in pipeline infrastructure transiting several national jurisdictions. In essence, each state Caspian molecules have to cross along the way to Europe sits on what may be termed a 'geographical monopoly' (Stevens 2009). This gives these states leverage over what some may want to export and others import. Monopolies, by their very definition, seek to extract rents, which in its simplest form comes in the shape of transit fees. While these can be dealt with in contractual arrangements, problems pertaining to 'obsolescing bargaining' might over time shift the negotiating power further to the transit country. Once pipelines are laid and capital is sunk, transit states are therefore likely to pressure for more favorable (read: lucrative) terms. An example of a country turning its geographical monopoly position into economic rent is Ukraine, which for long benefited from relatively low gas prices (this changed in 2009), and which arguably also sought to turn its control of the bulk of Russian gas exports to Europe into a political bargaining chip. While this amounts to a purely rational strategy, it triggered an equally rational response by Russia and European importers – Nord Stream, which lowered the share of Russian gas transiting Ukraine from 80 percent in the mid-2000s to around 50 percent as of 2011.

Arguably, the Southern Corridor will come with comparable challenges. Although TANAP will be governed by the Energy Charter Treaty regime, the EU will not have the means to enforce transit or exert influence over any of the involved parties – including transit country Georgia. The Energy Community, the EU's Vienna-based vehicle for exporting its regulation into the 'near abroad', will prove powerless as neither of the TANAP transit countries

3 The Trans Adriatic Pipeline (TAP) takes Azeri gas from the Transanatolian Pipeline (TANAP) into South-Eastern Europe and further into Italy.

is a signatory state to it. Moreover, emerging debates surrounding Turkey becoming an 'energy hub' (FT 2015) point to the pivotal position the country is aspiring when it comes to energy transit and trade. Indeed, Turkey has been keen on building a position as a transit state for both Caspian and Russian gas destined for Europe. Besides EU-supported projects such as TANAP and TAP it remained open to Russia-sponsored projects such as Turkish Stream (the South Stream successor) or an expanded Blue Stream pipeline, both running across the Black Sea.

Leaving aside a detailed discussion of the prospects of these individual projects, it is not inconceivable, and indeed to be expected from a rational choice perspective, that Turkey – as any transit country – would try and turn its 'transit monopoly' position into political value, even more so as it becomes home to a growing number of pipelines carrying both Caspian and Russian molecules to Europe. As the 2016 events surrounding the refugee crisis vividly demonstrated, Turkey does not shy away from 'issue-linkage', as it demanded a change in the EU visa regime for Turkish citizens in return for cooperation in migration policy. Arguably, therefore, the EU will try and hedge external influence and limit the importance of Southern Corridor states in the EU's overall gas import portfolio.

Third, questions arise regarding infrastructure capacity and use. As hinted by Offenberg (2016), Azerbaijan's SOCAR is effectively in the position of a gatekeeper for additional volumes feeding TANAP, due to its majority stake in the shareholder structure which gives the company 58 percent while Turkey's BOTAŞ and the UK's BP hold minority shares of 30 percent and 12 percent respectively. SOCAR will face little incentive to allow competing gas supplies into TANAP, even if not fully utilized by the time it reaches its final capacity of 31 bcm in 2026. This, as Offenberg argues, may put in question the degree to which Turkmen or Iranian gas – even if eventually available – may find its way into the Southern Corridor and into Europe.

In addition to prioritizing the Southern Gas Corridor, the EU aims at tapping the increasingly globalizing market of Liquefied Natural Gas (LNG) and therefore fostered the development of infrastructure to bring more LNG into the European gas balance. This is the primary goal of the LNG Strategy as tabled by the European Commission in 2016 (European Commission 2016b). As we shall discuss in more detail when analyzing the role of Russian gas

in the European import portfolio going forward, LNG may indeed be cost competitive with pipeline gas under certain circumstances. The problem here is not the EU's lack of LNG regasification capacity, which in 2015 stood at 191 bcm (EU-28), with another 23 bcm being under construction (GIE 2015). Rather, it is that – in addition to LNG being largely outcompeted by cheaper pipeline gas, as a result of which utilization rates hovered at less than 20 percent in 2015 – LNG infrastructure does not exist where needed, nor does the pipeline infrastructure to ship gas to demand centers. This particularly applies to the Baltics and Central and South Eastern Europe, where additional sources of supply would provide for optionality on supplies. As a consequence, the Commission is intent to help fund new LNG import facilities, for which it also eyes the support of the European Investment Bank (EIB) and the European Fund for Strategic Investments (EFSI).

Another key element in the EU's LNG strategy are interconnectors so that gas can move within the European market and respond to price differentials, and to back these up by storage capacity. More to the point, infrastructure priorities for South Eastern Europe focus on two corridors, one from the planned Krk LNG terminal in Croatia towards the east, and another one from Greece northwards. Regarding the Baltics, the primary focus will be placed on connecting Finland and the Baltic States to European gas market networks. The Commission regards physical gas infrastructure, as laid out by its LNG strategy and defined by the choice of funded PCI projects, as the 'hardware' of a resilient EU gas market going forward. However, as stressed by Energy Commissioner Šefčovič, this hardware only works in conjunction with market regulation, the underlying 'software'. The LNG strategy therefore also puts emphasis on implementing pro-market policies flanking energy infrastructure investment (as infrastructure policies more broadly). This ties back to the Commission's 'liberal project' in EU energy markets and its broader mission of market creation. It is in this vein that Brussels put a key focus on the creation of regional gas hubs, particularly in Eastern Europe, and the successive transition to gas-on-gas competition and spot pricing.

In addition, and finally, the Commission recommends to politically flank these efforts by way of establishing high level talks with LNG producing countries, as part of its 'energy diplomacy' efforts.

## Gazprom's export challenge

Gazprom, the Russian partner in the Nord Stream 2 project, faces several challenges. Two merit specific attention in this context: a complex political economy in the Russian energy sector, which translates into increasing pressure from Gazprom's competitors on the domestic market; and the need to diversify away from its key revenue making export market, the EU. Both impact on its export strategy going forward.

### The political economy of Russia's gas sector

It is fair to state that energy resources are of strategic importance for the Russian economy and the country's political leadership. The country is home to 17 percent of the world's conventional gas reserves (BP 2015b), and overall the natural resource sector contributes 19 percent to Russia's gross domestic product (Worldbank 2014), a number which tends to even underestimate the importance of the energy industry for domestic economic development. In fact, because growth is significantly driven by large infrastructure investment, the energy sector resumes a key role in the country's economy. Moreover, oil and gas revenues account for over half of the Russian budget income and two thirds of total export revenues (EIA 2014). They are also the source of significant rent opportunities, which have contributed to ensuring the stability of the current political system as well as the power of incumbent political actors, including President Vladimir Putin. While gas revenues represent a smaller share in federal income compared to oil revenues, the sector is key in driving the industrial development particularly in the Eastern provinces, for instance in the shape of Gazprom's gasifikatsiya program. Finally, the Russian – and formerly Soviet – leadership has always strategized the development of the domestic gas sector against the backdrop of the broader international political context. This goes all the way back to the 1970s when Moscow inked its first gas supplies with West European countries, as part of a policy of détente. Because of the strategic nature of the Russian gas industry, it is state ownership that prevails as the sector's dominant governance pattern, with the Russian government holding the majority share in Gazprom, the key player.

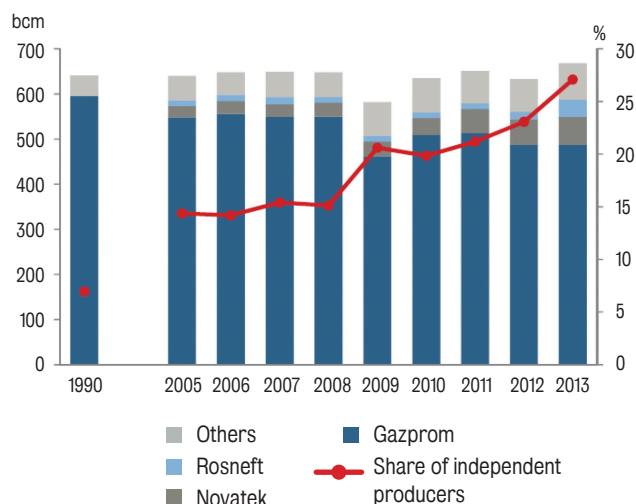
This, however, is not to suggest that the role of Gazprom is uncontested within Russia. To the contrary, although in public debates Gazprom is portrayed as a mighty Russian gas monopolist, the incumbent has seen the rise of domestic competition which may also impact on its traditional export monopoly. Domestic competition was on the one hand triggered by prudent regulatory steps toward third party access in Russia's Unified Gas Supply System (UGSS) network, which had remained under Gazprom's control. This secured Gazprom's dominant position on the domestic market as the company was able to force emerging competitors such as Novatek to sell their gas at low prices,

thus effectively disincentivizing non-Gazprom investment in upstream capacity. On the other hand, the 2009 Russian gas flaring regulation made oil companies look for ways to access the condensate market in order to market their associated gas. Russia's efforts toward domestic netback pricing further incentivized that marketization strategy. Competition among Russian gas companies also grew when it comes to supplying the domestic power sector. This adds to Rosneft, the Russian oil incumbent, taking over TNK-BP in 2012, which in addition to crude assets came with a gas portfolio (Belyi and Goldthau 2015). As a result, non-Gazprom gas production reached more than 25 percent in Russia's total gas output (Platts 2013).

As a consequence of their growing market power, the 'Independents' – a term which in fact blatantly ignores Novatek's strong ties to the Russian leadership as well as Rosneft's state ownership – have taken legal steps against Gazprom's incumbent monopolist position in the domestic gas infrastructure. Gazprom always defended this monopoly position with its public service obligation to keep the gas flowing to households and industry, which does not apply to the Independents. Still, the latter pushed for an end Gazprom's export monopoly in gas. As for LNG, this was met with success, as a result of which Rosneft and Novatek are keen on entering the LNG market. Although Gazprom retains control over the Russian trunk pipelines, Gazprom's competitors are testing the incumbent export regime, for instance in the case of the 10-year 2 bcm gas deal concluded between Novatek and EON, effectively a swap agreement (Reuters 2012).

Against this backdrop, Gazprom faces two intertwined challenges related to the domestic political economy of

**Figure 4: Dynamics in Russian gas production: Gazprom and competitors**



Source: ERI RAS 2014



Russian gas: on the one hand, its monopoly position on the domestic market has come under pressure, and is in fact eroding. This will impact on its investment decisions. On the other hand, Gazprom needs to react on the strategic positioning of its competitors, and particularly their efforts to ship gas abroad. This will influence the company's export strategy.

### Russian gas outlook

Naturally, projections on Russia's energy outlook for the next two and a half decades differ widely. Russia's draft Energy Strategy up to 2035, presented in 2014, sets a target of 935 bcm of annual gas production, which compares to 585 bcm of consumption by that year (Министерство энергетики Российской Федерации 2014). These numbers roughly square with estimates of the Russian Academy of Sciences, which in their baseline scenario suggest production levels of 870 bcm by 2040 (and 970 bcm presuming significant growth in Asian demand). Consumption in the baseline scenarios stands at 474 bcm by that year (ERI RAS 2014). The IEA in their New Policies Scenario remains more cautious and suggests 720 bcm of production by 2040 and 412 bcm of domestic consumption (IEA 2015b).

In the mid-term, Russia is set for what Henderson and Mitrova (2015) term a 'gas bubble'. This is a function of stagnating domestic demand, depressed exports into Europe and the Former Soviet Union, past investment decisions taken in a more benign price environment and the rise of the Independents as gas producers. It is particularly Gazprom that was hit hardest by these developments, as a consequence of which the company's production fell to a record low of 443.9 bcm in 2014 (Gazprom 2015a). Observers expect this situation to last out to the 2020s. Russia's draft energy strategy until 2035 regards the energy sector, and notably gas as a key driver for moving the country from 'resource-based to resource-innovative development'<sup>4</sup> (Министерство энергетики Российской Федерации 2014). While it remains to be seen to what extent this strategy will materialize, one can still expect gas eventually regaining traction in the country's energy economy.

Against the backdrop of maturing fields in Western Siberia and the Tyumen region, Russian gas production will see an eastward shift going forward. Besides the North-West Siberian Yamal Peninsula, which RAS projects to add between 180 bcm and 235 bcm of capacity by 2040 and which Gazprom CEO names as a supply base for Nord Stream 2, new production will come from Eastern Siberia (95 bcm) and the Far East (80 to 90 bcm) (ERI RAS 2014). In addition to replacing ageing fields, this also reflects Russia's ambition to serve growing Asian demand. Indeed, Russia and Gazprom have for long been keen to tap the growing Asian gas market. In particular, it is Chinese

demand prospects which made Gazprom look east. In May 2014, Gazprom and China National Petroleum Corporation (CNPC) inked a much-noticed 30-year contract on Russian gas deliveries of 38 bcm per annum, a deal President Vladimir Putin called an 'epic event' (Bloomberg 2014). Reflecting Gazprom's determination to 'go east', RAS in their Baseline scenario estimates that by 2040 roughly 30 percent of Russia's total of 310 bcm of natural gas exports will go into Asia (which includes LNG). In case of high Asian demand, this share will rise to 40 percent even, or 155 bcm overall (ERI RAS 2014). (For a discussion of Russia's Asia and China strategy see (Chow and Lelyveld 2015; Henderson 2014).

Still, Russia's gas balance offers sufficient capacity to satisfy additional European import needs going forward. In fact, most studies, including the ones remaining rather skeptical regarding the European gas outlook (including ENTSO-G (2015)), expect Russia to remain a major import source for Europe. In their excellent study on Gazprom's supply options to Europe out to 2030, Henderson and Mitrova (2015) identify a wide range of scenarios for Russian gas in the European import portfolio. At a minimum, these would be set by the Take-or-Pay volumes defined by existing LTCs, which by 2030 stand at 79 bcm. A mid-range estimate puts Russian gas at a 30 percent share of overall European demand (the current levels), resulting in 178 bcm. Finally, a high case scenario results in 254 bcm into Europe, provided Gazprom maintains its current import share of 70 percent. (The remaining import gap, naturally, would need to be filled by non-Russian sources, and particularly LNG.) Other available studies seem to support Henderson and Mitrova's mid-range estimate. RAS estimates 50 percent of all Russian gas exports, or 155 bcm, to go to Europe by 2040 (ERI RAS 2014). The IEA is more cautious and projects around 140 bcm of Russian gas exports to OECD Europe in 2040, including to Turkey, which is some 10 bcm less than today (IEA 2015b).

### Gazprom's Europe strategy

So how will Gazprom's export strategy toward Europe, its traditional customer base, take shape against these trends? The European market is where the company makes the bulk of its revenues, and where it in 2014 sold 146.6 bcm of gas or 33 percent of its overall output and 70 percent of its exports (Gazprom 2015b), so it is the market Gazprom cannot let go. Moreover, the company has good reasons to assume that Europe might need additional supplies going forward, a function of declining indigenous production and policies discriminating against heavy-polluting fossil fuels such as coal (see Figure 3). In terms of export infrastructure, Gazprom faces the challenge of having to transit its gas through third countries in order to market it. This is a function of the breakup of the Soviet Union, as a result of which Gazprom inherited an export pipeline system which had been built across the then-integrated Soviet bloc, but which became Balkanized once FSU countries gained independence. Today, Gazprom exports gas westward

<sup>4</sup> Original text: 'переход от ресурсно-сырьевого к ресурсно-инновационному развитию'

through Ukraine gas network (151 bcm nominal throughput capacity of Soyuz, Druzhba and Trans-Balkan) and the Yamal Europe Pipeline (Belarus and Poland, 33 bcm). In addition to the 'geographical monopoly' issue discussed above, such as setting also presents challenges related to the maintenance of the transit grid. A case in point is Ukraine, where a long-standing lack of investment into an aging pipeline network brings about significant leakage rates (Roshchanka and Evans 2014) and effectively limits the throughput capacity to some estimated 90 bcm.

Gazprom's answer to this situation was essentially to diversify export routes, preferably offshore.<sup>5</sup> Yet, arguably, Gazprom pursued this strategy without a masterplan. In fact, various strategic shifts characterize the company's decisions since the mid-2000s. Following on the gas crises of 2006 and 2009, Gazprom and the Russian leadership intensified efforts to diversify its export routes, which include Blue Stream through the Black Sea (16 bcm) and Nord Stream through the Baltic Sea (55 bcm). Moreover, Gazprom championed the construction of the 63 bcm South Stream pipeline, rivaling both the Southern Corridor projects as preferred by the EU (Nabucco and TANAP / TAP), and Ukrainian transit. South Stream was replaced by Turkish Stream in December 2014, a pipeline initially planned at a 63 bcm capacity on which Turkey's BOTAS and Russia's Gazprom signed a Memorandum of Understanding in December 2014. Turkish Stream was supposed to get around the Third Party Access problem by way of making landfall in Turkey instead of Bulgaria, an EU country. The Russian gas would then be sold at the Greek-Turkish border, rather than further-on in the European downstream market. This, however, would have required moving the delivery points as stipulated in Gazprom's LTCs with European customers, a considerable challenge and one that would require additional infrastructure investment to market the gas downstream. Moreover, a more detailed assessment of the projects economics led to it being downscaled to 32 bcm. This added to disagreements over price levels for the volumes Turkey would take off. Russia-Turkey relations souring in 2015, culminating in the downing of the Russian Sukhoi Su-24 warplane and the subsequent Russian sanctions against Turkey, effectively led to a halt of the project. The latest twist in Gazprom's export strategy came with the announcement of Nord Stream 2 in June 2015. Although the expansion of Nord Stream had for long been an option, Nord Stream 2 taking shape in earnest came to the surprise of most observers. Flanking announcements around Nord Stream 2, Gazprom's Deputy CEO Medvedev declared the company will end transit through Ukraine upon the expiry of existing supply contracts in 2019, 'even if hell freezes' (Interfax Ukraine 2015). This statement was qualified just half a year later, when Gazprom hinted that Ukraine could be kept as a gas transit country even beyond 2019 (Reuters 2016; TASS 2016). Indeed, short of Turkish Stream materializing, Gazprom will need to transit gas destined for Turkey

through Ukraine's Southern pipeline branch connecting to the Trans-Balkan pipeline (though these are comparably small and amount to some 15 bcm a year).

This somewhat erratic behavior comes against the backdrop of Gazprom having a track record in misreading strategically important political and economic developments, and their potential impact on the company's business prospects. A case in point is South Stream (onshore), where Gazprom's leadership clearly underestimated the power of EU energy market rules, and indeed the ability of the European Commission to stop the project on the basis of its reading of EU law. Another example is US shale gas, which the senior Gazprom leadership for long dismissed as a temporary phenomenon, and whose effects on global LNG markets were underestimated. Overall, therefore, and as stressed by various observers, Gazprom's export strategy to a certain degree appears reactive to shifting political environments in key transit countries and broader market developments, and driven by short term concerns rather than long term strategy (Aslund 2010; Henderson and Mitrova 2015).

That said, Gazprom's key preference remains clear: retaining its presence on the crucial European market. For this, as demonstrated by the significant costs coming with shifting pipeline plans – South Stream is reported to leave behind 4.5 billion in stranded assets (Sutyagin 2014) in the shape of unused steel pipes – Gazprom is ready to invest significant sums in physical infrastructure. Put differently, it is not necessarily costs that inform the choice of Gazprom's export routes. Rather, it is the reduction of transit risk that seems to feature prominently in Gazprom's long term infrastructure investment. While Gazprom indeed incurred a reported loss of USD 1.5 billion during the gas standoff of January 2009, it is still remarkable how heavily the company factors in the possibility of future export bottlenecks through Ukraine or other existing routes.

An alternative way of framing this is to say that Gazprom reveals a preference for retaining flexibility in export options. A quick back-on-the-envelope calculation on nominal export capacity – which admittedly say little about flow rates and the pipeline's capacity to deal with peak demand situations – suggests that even without Nord Stream 2 existing capacity to Europe (and Turkey) exceeds current exports by 100 bcm per year, though technically this number is down to roughly 50 bcm if the current state of the Ukrainian transit grid is factored in. Adding Nord Stream 2, this brings up export capacity to more than 300 (respectively 250) bcm, roughly double (or 100 bcm on top) of current volumes Gazprom sends west. In case shelved plans for pipelines through Turkey into South Eastern Europe are revived, this number would further increase.

The question arising in this context is which strategy Gazprom will pursue in Europe going forward when it comes to marketing its gas. In the 'good old days' – the time referred to by both European gas managers and their Russian counterparts when describing a gas world where LTCs secured long term demand for Gazprom and supply

<sup>5</sup> Gazprom tried to buy the Ukrainian and Belarussian gas transit grids but only succeeded with the latter where it now holds a majority stake.



for European utilities, and oil indexation took care of the price risk – this question was essentially irrelevant. As the post-2008 international pricing environment turned more competitive, Gazprom opted for revenue maximization and for long clung on to oil indexation even as LNG flooding spot markets started to depress European hub prices.

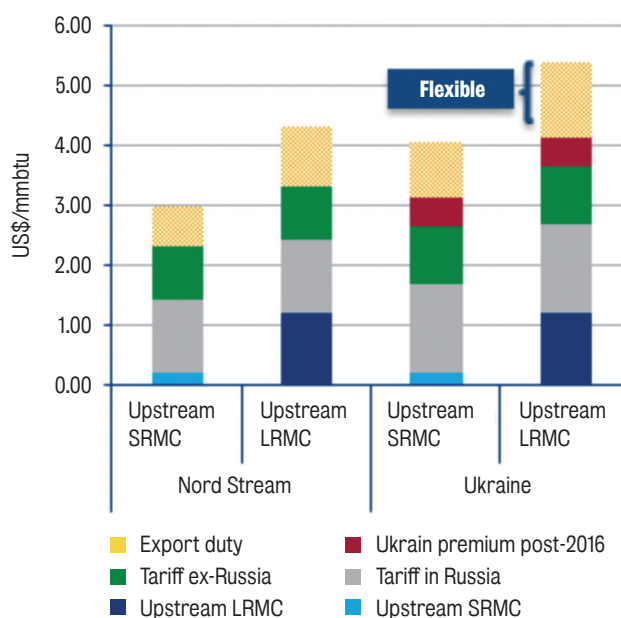
This seems to change and Gazprom arguably started to shift toward defending market share. This does not mean that Gazprom is ready to give up oil-indexation once and for all, but the company has shown readiness to adapt to changing circumstances. Though officially remaining firm on keeping indexation mainly tied to crude and crude products, Gazprom started to grant discounts, bringing down overall price levels, and enhance spot-indexation through the retroactive payments model (Mitrova and Molnar 2015). This, clearly, is a function of the changing international environment and the European market having become a lot more price sensitive than it used to be in the past. An additional reason lies in European regulation and the fact that EU competition watchdogs started to investigate Gazprom's business model, including alleged discriminatory pricing. In fact, the EU's push for market liberalization was met with great criticism from Moscow. Third Party Access requirements were interpreted as motivated by political considerations, not market regulation, and were seen as attempts to expropriate Gazprom's assets. Russian Foreign Minister Lavrov called the antitrust charges against Gazprom 'unacceptable' and deplored that the 2009 energy package was applied retroactively (EurActiv 2015). President Putin even issued a decree aimed at shielding Gazprom and other 'strategic' companies from EU investigations (FT 2012). Eventually, Russia filed complaint against the EU energy laws with the WTO.

Still, Gazprom seems to tacitly accept changing circumstances and adapt its strategy. This strategy, essentially, is about defending market share by way of competing on the price. As OIES analysis suggests, Gazprom indeed started to accept the coexistence of oil-indexed LTCs and gas hub trade, which might eventually lead the company to embrace full market principles (Stern and Rogers 2012). Yet, defending market share may come at a cost: potentially declining revenues on the European market. Some indicative calculations conducted by Henderson and Mitrova (2015) suggest that on a Long Run Marginal Costs (LRMC) basis, Russian gas remains competitive with US LNG even at currently low Henry Hub prices. Yet, the moment liquefaction costs are regarded as sunk, US LNG will prove significantly more competitive both against NBP and LTC gas. OIES' Henderson and Mitrova estimate that at a USD 2 Henry Hub price level, US LNG could come into Europe at below USD 4 per MMBtu, and even a USD 5 Henry Hub level import prices would be a bit above USD 7 per MMBtu. Moreover, EIA projections suggest that Henry Hub prices might stay at USD 5 MMBtu all through 2040 (EIA 2016a). This suggests that Russian LTC gas, even at adjusted levels, would have hard times competing against LNG.

It is beyond the scope of this study to carry out detailed estimates of comparative costs structures of US LNG and Russian pipeline gas. What existing analyses based on marginal costs suggest, though, is that Gazprom will face difficulty in maintaining current price levels going forward, if it at the same time wants to defend market share. If Gazprom maintains oil indexation as an important element in its pricing strategy into Europe, it will feel pressure to adjust prices (downward) to the extent US LNG cargos start competing on an SMRC basis. This pressure will become even more pronounced should oil prices rebound (low prices at present help Russian oil-indexed gas to stay competitive). In case Gazprom moves further toward spot indexation, this will happen automatically, a function of hub prices reacting to competition from LNG.

This relates back to the issue of export strategy. In fact, if marginal costs play a role, then the choice of export infrastructure may form an important element in Gazprom's efforts to stay competitive (see Figure 5). According to estimates by Wood Mackenzie, Nord Stream and the Ukrainian transmission system come with different cost structures, related to differing tariffs, export duties and transit fees (notably in a post-2019 environment when the latter will rise significantly (Interfax Ukraine 2016)).<sup>6</sup>

**Figure 5: Russian gas: comparative cost structures and export routes**



Source: Wood Mackenzie, courtesy of Shell

<sup>6</sup> At the June 2016 St Petersburg Economic Forum (SPIEF), Gazprom CEO Miller hinted that the Nord Stream transit fee would amount to USD 2.1/tcm per 100km, which compares to a current fee for Ukrainian transit of USD 2.5/tcm per 100km – roughly 20 percent more.

This is important as it might support Gazprom's claims that it is commercial logics not geopolitics underpinning its export strategy.

It may be argued that Figure 5 is hardly indicative for the competitiveness of gas sent through the planned Nord Stream 2 pipes, as infrastructure costs are not factored in, whereas the Ukrainian pipeline network is amortized. Yet, arguably the costs pertaining to the Ukrainian transit infrastructure are not entirely sunk either, as the ageing pipeline network requires significant investment, with estimates ranging from 5.3 billion (Naftogaz) to USD 3.2 billion (European Union) USD 9 billion (Gazprom) (IHS CERA and Ministry of Energy and Coal Industry of Ukraine 2012). Moreover, this is not to suggest that the cost estimates as presented in Figure 5 are directly comparable to the ones presented by OIES. So while they do not necessarily allow drawing conclusions on the export strategy Gazprom will adopt as a reaction to tougher competition on the European market, they still are indicative on the possible choice if marginal prices are the determining factor.

Eco-efficiency may, finally, factor into the choice of export routes, bearing in mind the declared European goal of reducing the carbon footprint of its energy system. A detailed eco-efficiency analysis of existing and planned export infrastructure is beyond the scope of this study. Suffice to state here that modern pipelines with low leakage rates tend to outperform Soviet infrastructure systems which, as in the case of the Ukrainian grid, also tend to

be poorly maintained, leading to methane leakage (see Box 1). Admittedly, eco-efficiency stands to influence Gazprom's export strategies only at the margins. While ecological benefits present a well justified case for a European audience, Gazprom is likely to prioritize other factors, including costs, market competitiveness and transit security. With this, we turn to the legal aspects surrounding Gazprom's planned export infrastructure to Europe.

### Box 1: Eco-efficiency of LNG and pipeline gas

Pipelines are likely to be more ecological in terms of carbon footprint than LNG, while shorter and modern pipelines are less GHG intensive than longer and older ones. Evaluating the entire logistics /supply chain, the EU Commission's JRC finds that LNG is more GHG intensive than pipeline gas due to the addition processing that LNG requires, higher evaporation rates during transport, and the comparably higher energy input during production, liquefaction, shipping, and transport and storage (Kavalov, Petric, and Georgakaki 2010). It is only at very long distances that LNG comes out as less GHG intensive and 'breaks even' once transportation exceeds 6000 km. When comparing pipelines, the shorter the distance covered, the higher the pipeline pressure and the fewer compressor stations along the way, the lower the resulting carbon footprint.

# Nord Stream 2 and EU energy regulation

As the European Union moves toward a fully integrated energy market and eventually an 'Energy Union', an analysis of Nord Stream 2 merits a discussion of the pertinent EU energy regulation. This section first discusses key aspects pertaining to gas infrastructure in this regard, and reviews the arguments as made in the current legal debate. Second, the section offers a strategic reading of EU energy regulation which embeds regulation as applied by the Commission in the broader context of energy geopolitics.

## Reviewing the legal context

The legal context of Nord Stream 2 is generally defined by EU energy regulation, and specifically in the shape of the 2009 Third Energy Package (TEP). Two aspects warrant a separate discussion in this context: the implications of the Third Energy Package on the onshore extension of Nord Stream 2; and its applicability on the offshore parts, i.e. the two subsea strings. Both represent two distinct projects and separate pieces of infrastructure, both physical and legally. That said, they can hardly be analytically separated: if one part does not come through, the other part remains worthless, and the investment stranded as there arguably exist few competitors that would be interested in using particularly offshore infrastructure.

In strictly legal terms, the TEP's Gas Directive 2009/73 details three aspects that are central for the operation of gas infrastructure: the unbundling requirement, which warrants the separation of pipeline operation from ownership (Article 15); Third Party Access (TPA), which a pipeline operator must grant to market competitors (Article 13); and security of supply risks which need to be taken into consideration when certifying operators involving non-EU companies (Article 11, the so-called 'Gazprom clause'). No rule without exception though: Article 36 of the Gas Directive provides the option to grant an exemption from TPA and unbundling requirements for major new infrastructure projects or projects significantly increasing the capacity of existing infrastructure. The precondition is that the infrastructure project enhances energy security in gas and market competition, and that the exemption does not tilt risk assessments into the project's favor. Still, Article 36 defines that 'the infrastructure must be owned by a natural or legal person which is separate at least in terms of its legal form from the system operators in whose systems that infrastructure will be built'. In terms of process, unbundling and TPA requirements need to be ensured by the national regulator when certifying a new TSO, but the decision must eventually be vetted by the European Commission. This gives the latter the final say on the matter. Article 11, by contrast, is under the auspices of the national authorities as Gas Directive asks national regulators to consider supply security risks when certifying the ownership or operation of gas infrastructure.

The case of the Ostsee Pipeline Anbindungsleitung (OPAL), Nord Stream's southward onshore extension, illustrates the implications: as per Article 15, ownership, operation and marketing were separated. In terms of operation, OPAL is currently exempt from certain TEP requirements. This, however, comes with the caveat that dominant suppliers to the Czech gas market are not allowed to book more than 50 percent of OPAL's exit capacity at the Czech border (Bundesnetzagentur 2009a; Bundesnetzagentur 2009b). (The Gazelle pipeline, carrying the gas onward in the Czech Republic, received full TPA exemption, whereas NEL, the Nordeuropäische Erdgasleitung onshore extension going west, operates without exemption (European Commission 2011a; Kommission der Europäischen Gemeinschaften 2009). Under the current exemption, OPAL therefore represents a bottleneck for Nord Stream, as its entry capacity of 36 bcm is neither fully booked nor fully used. As a consequence, Nord Stream is reported to having run at only half its capacity at times (Reuters 2015c).

Even in the event that all of OPAL's capacity may be used going forward,<sup>7</sup> Nord Stream 2 will require additional onshore capacity to bring molecules to market. This additional infrastructure comes in the shape of EUGAL, a new 51 bcm onshore pipeline to follow OPAL on its route to the Czech border. This raised comments to the effect that Nord Stream 2 will face legal difficulty in putting in place and operating new connecting pipelines (Riley 2015). And indeed, the historical track record of Gazprom's dealings with the Commission in the case of OPAL suggests that any model based on Article 36 involves a lengthy and cumbersome process. After the Commission in 2011 set the utilization cap at 50 percent, lowering an initially 100 percent exemption granted by the German authorities in 2009, Gazprom for years sought to get permission for also using the remaining transmission capacity if not used by competitors. In the wake of Ukraine crisis a decision on this issue was deferred by the Commission (Interfax Energy 2014) and as a consequence Gazprom's application remains in a limbo to this date. This procedural aspect extends to a more geopolitical reading of how TEP rules are applied, which we will turn to in the next section in more detail.

Yet, contrary to more skeptical views, there is reason to assume that the regime governing additional onshore pipeline capacity might indeed satisfy TEP provisions if materializing as planned. For the post-2019 period additional infrastructure needs were indeed earmarked with German authorities and fed into the German network development plan (FNB 2016). However, incremental capacity requirements were assessed based on a broader

<sup>7</sup> Note that OPAL's exemption regime was granted reluctantly, and then-Energy Commissioner Oettinger stressed that it would be 'exceptional' (Oettinger 2010).

market survey which takes into account supply increments from Nord Stream 2 but also infrastructure request from other market participants, that is the TSOs active in GASPOOL, the Northern German gas market area (GASCADE Gastransport GmbH 2015). As part of new infrastructure needs in the GASPOOL area, EUGAL is set to take Nord Stream 2 gas into the Central European market. Yet, rather than setting up a new operator for the pipeline, EUGAL is planned to be built and run by an existing and certified ITO – Gascade (GASCADE Gastransport GmbH 2016). Moreover, capacity booking for GASPOOL including entry and exit capacity will happen on the common PRISMA platform, not with Gascade, the operator.

It amounts to speculation to what extent past experience informs the choice of the legal and operational construct, or whether Gazprom eventually decided to fully embrace EU infrastructure regulation. Clearly, however, Gazprom is keen to avoid similar problems as they pertained to South Stream (onshore) and also follow a different pathway than the one taken in the case of OPAL (which was based on Article 36). This different pathway involves an institutionalized process between market participants, network and transmission operators and regulators in order to determine overall additionally needed capacity. Further, while the lawyers' verdict is still out, the regime governing EUGAL indeed seems to satisfy TEP requirements pertaining to legal, institutional and technical separation of operation, ownership and sales.

While it is undisputed that the onshore extension of Nord Stream 2 system will be subject to EU energy law, observers have hinted that TEP rules also extend to offshore infrastructure – the two subsea strings of Nord Stream 2 (Riley 2015). An important issue here is the nature and legal definition of the pipeline. For the Nord Stream 2 consortium, the 55 bcm extension represents an import pipeline, whose only function it is to bring gas to the border of the internal gas market. As such, Nord Stream 2 would not fall under the rubric of transmission infrastructure and hence the scope of the TEP, and it would be comparable to existing pipelines carrying non-EU gas to Europe. In fact, historic precedent suggests that import pipelines are not subject to EU energy regulation. In this context, Pirani and Yafimava (2016) point to offshore pipelines bringing gas from North Africa into Europe which were not made subject to Commission ruling. Indeed, neither Green Stream (Libya-Italy) nor the Maghreb Europe Pipeline (Algeria-Morocco-Spain), Medgaz (Algeria-Spain), the Transmed-Pipeline (Algeria-Tunisia-Italy) or Galsi (Algeria-Italy) were asked to fulfill unbundling or TPA requirements.<sup>8</sup>

Presenting a somewhat special case, Norwegian import pipelines are governed by the provision of the European Economic Area (EEA) which Norway is part of. As such, Norway is subject to Single Market Rules and therefore obliged to fully implement EU energy law (Talus 2011). As a consequence, Norway transposed European regulation into national law and restructured its energy sector with a view to bringing it in line with the EU regime. This meant, among other, dismantling the former Norwegian export monopoly in gas (GFU) and enforcing TPA provisions (Andersen, Goldthau, and Sitter 2015; Goldthau and Sitter 2015a). Moreover, because TEP rules would represent an obstacle to the involvement of external suppliers in gas import infrastructure, Article 34 of Directive 2009/73 exempts upstream infrastructure from TEP requirements. The obvious intention of Article 34 is to encourage the construction of gas import infrastructure linking suppliers from EEA countries, that is countries that adopted the EU regulatory regime such as Norway, to the internal gas market.

Turning east and to Yamal Europe, the pipeline bringing Russian gas into Poland, its Polish section was indeed fully made subject to EU energy law. Russia opposed the Commission's legal requests pertaining to the operational model of Yamal but eventually had to give in. The pipeline now operates an ISO model (European Commission 2014a). Yet, Yamal directly supplies the Polish market after entering the EU, and as such is not a veritable import pipeline. The crossing of Exclusive Economic Zones of Finland, Sweden and Denmark, an argument also raised in this context, is also unlikely to make the case for EU intervention on Nord Stream 2. EEZs are governed by the United Nations Convention of the Law of the Seas (UNCLOS) not EU law, and according to Articles 58 and 79 of UNCLOS subsea pipelines may be laid in the EEZ of other states.<sup>9</sup>

Overall, it is therefore hard to maintain the argument that Nord Stream 2 will be subject to EU energy rules. Yet, Pirani and Yafimava's reference to import infrastructure from Northern Africa also touches upon another issue, which is a lack of consistency in applying EU law to major gas infrastructure projects. Most pipelines which bring gas into Europe operate under an exemption regime or have not been made subject to TEP rules at first place – Nord Stream being a case in point here. Making the offshore parts of Nord Stream 2 fully subject to EU law would, therefore, arguably entail an element of arbitrariness. Moreover, it is the nature and function of Directives to define the legal guidelines whilst leaving it to case law, then, to further specify secondary EU law and rules on pertinent aspects of the Directive. However, because of few existing cases and a track record of past exemptions or the outright non-application of EU regulation to gas infrastructure, there exists ample room for politically motivated interpretations of EU regulation.

At the time of writing, the Commission itself has not adopted an official legal position on Nord Stream 2 and its onshore

8 Legal aspect of offshore pipelines as they pertain to environmental impact assessment, health and safety aspects or force majeure provisions, are typically covered by Intergovernmental Agreements (IGAs) between the supplier and the importing country. The obvious exception here is Nord Stream, for which an IGA was never concluded, and which the Commission 'tolerates' despite its unclear legal status.

9 I owe this point to Ana Stanic of E&A Law.



extension. Moreover, the EU's competition watchdog will need to follow due process and let national authorities go first. This includes environmental approvals as required in countries whose territory Nord Stream 2 will be transiting. (The Environmental Impact Assessments arguably present minor regulatory challenges, given the precedent of Nord Stream, whose route the additional two strings will largely follow.) However, EU Commissioner for Climate Action and Energy Miguel Cañete made clear that when it comes to new pipelines, the Commission will be 'vigilant about the rigorous application of EC law' (European Parliament 2015). The Directorate General for Energy, which Cañete oversees, also issued an opinion suggesting that EU energy regulation would apply to both the onshore extension of Nord Stream 2 and its offshore section to the extent it falls under territorial jurisdiction of EU member states (Bloomberg 2016). Moreover, there is indication suggesting that the Commission indeed regards Article 11 an issue that needs to be assessed in detail. For instance, Commissioner Šefčovič argued that '[...] eastern European countries will clearly have their energy security decreased' because of Nord Stream 2 (Bloomberg 2015a). With this, we turn to a more geopolitical reading of EU energy law.

### The geopolitical perspective

As part of its 'market making strategy', the EU sought to integrate the EU gas market, enhance physical infrastructure and put in place adequate regulatory frameworks aimed at preventing market abuse. This is, on the one hand, clearly a function of the EU's main mission – political and economic integration – and of the liberal paradigm it is built on. Three 'energy packages' as discussed above underpin the EU's drive to expand free market principles also to the energy sector. The primary goal of EU regulation here is to enhance consumer choice, market transparency, hub trading and competition in natural gas. The EU's regulatory efforts also aim at enhancing market robustness and resilience. Whilst the liberal market paradigm informs the EU's gradual opening of national gas markets, it can therefore also be a tool for addressing increasing insecurity over (Russian) supplies, (Ukrainian) transit or other external energy challenges.

Taking this further, scholarly analysis suggests that although the EU as an actor lacks many of the attributes of nation states – treasury, troops and tanks in particular – the Commission started to strategically use its regulatory tools in the foreign policy domain and vis-à-vis external actors, including Gazprom. A case in point is the EU's somewhat arbitrary practice of granting exemptions to pipeline projects. As discussed above, the Third Energy Package stipulates that companies cannot feed gas into pipelines which they operate (the unbundling requirement) and have to grant infrastructure access to third parties (the TPA requirement). It can be argued that the Commission used its power to grant exemptions from these requirements to pipelines that were politically more favorable such as the Nabucco pipeline (which eventually failed from becoming

a reality) or TAP (Nabucco's de facto successor). In the case of Nabucco, the Commission in 2008 decided to grant a 25-year long 50 percent exemption from TPA requirements and from the rules on tariffs, and renewed that decision in 2013 (European Commission 2013a), while TAP enjoys a 25-year full exemption from TPA requirements (European Commission 2013b).<sup>10</sup> Moreover, TANAP/TAP were made a priority project as part of Europe's 'Southern Corridor' aimed at diversifying gas supplies. In the case of the Russia-sponsored South Stream, by contrast, Brussels turned its regulatory big guns against the project's onshore parts (Goldthau and Sitter 2015a). This included questioning the conformity of the South Stream partner countries' IGAs with Gazprom, objecting against Bulgarian procurement procedures and warning against the country's considerations to label South Stream an interconnector (which may have opened the door for Article 36). Leaving aside questions over legal interpretation, the timing of the Commission's intervention – which happened in the context of Ukraine crisis – can be questioned. In December 2014 Moscow abandoned South Stream whilst TANAP, the BP-led project in the Southern Corridor feeding TAP, moved ahead.

Moreover, the Commission cited Ukraine conflict as the reason for putting on hold its ruling on Gazprom's request for further TPA exemptions for the OPAL pipeline, which would enable Gazprom to book unused capacity beyond its current 50 percent share. Yet, although the remaining 50 percent capacity attracted no third party interest when auctioned off in fall 2015 as per request from the Commission, the EU's competition authority did not alter its position on OPAL. If the goal of the TPA regime is to test market demand and ensure market competition, then the fall 2015 auction clearly stood this test. Therefore, as argued by Pirani and Yafimava (2016) 'the EC decision look[s] increasingly illogical, strongly suggesting that it may have been political rather than regulatory' (30).

Further, it arguably is not only EU regulation as applied by the Commission that can be interpreted as part of broader political scheming. It also the design of the regulation itself. An example here is the Article 11 of the Third Energy Package, which enables national European transmission operators to reject the certification of an external company in case of 'supply security' risk. This regulatory provision applies to non-EU firms only, and clearly was designed with Gazprom in mind (Cottier, Matteotti-Berkutova, and Nartova 2010). In other words, EU regulatory provisions themselves bear an element of selective and targeted action.

What is more, the EU started to extend domestic market rules beyond its territory. Indeed, the EU for long sought to shape international markets by way of projecting its own regulatory regime onto the international stage (Bradford 2016; Damro 2015), and to make neighboring non-EU states comply with EU rules (Lavenex 2014). The material basis of this 'Brussels effect' (Bradford 2012) was a sizeable internal market – the world's largest by total GDP –, whilst the ideational background was provided by the liberal



outlook of its regulatory state model. In the energy sector, a case in point is the Energy Community, which in essence serves as a vehicle to bring non-EU countries under the EU energy regime. Yet, the EU's quest for exerting (regulatory) influence on non-EU actors and establishing a rule based framework for energy investment and trade might well blend into using regulatory tools for non-commercial ends, i.e. objectives that go beyond mere market-making (Andersen, Goldthau, and Sitter 2016). An example is Ukraine adopting the EU energy acquis as part of its obligations as an Energy Community member, which due to TPA and unbundling provisions stand to also alter the transit regime for Russian gas – arguably a political goal, rather than one related to market making.

Taking the idea of market might one step further, Donald Tusk, former Polish Prime Minister and now President of the European Council, argued in the Financial Times that 'A united Europe can end Russia's energy stranglehold' (Tusk 2014). His article was written in the context of Russia's annexation of the Crimea and the war in Eastern Ukraine and kick-started the Energy Union, the EU's latest energy policy initiative. The initial Energy Union proposal as presented by Tusk entailed various elements that would build on and indeed utilize the sizeable internal energy market in order to put Russia (and possibly other external suppliers) into a less favorable position. A case in point is the proposed – and eventually dropped – purchase vehicle for joint European gas imports from third countries. Along similar lines, and reinforcing Tusk's point, Maroš Šefčovič, the Commission's Vice President for the Energy Union, argued that '[...] we should also use our political and economic weight as the biggest energy buyer in the world a little bit more vehemently in our relationship with our principle energy suppliers' (Politico 2016b). This gives EU energy policy an outright geopolitical spin: a large roughly 500 bcm gas market, the world's largest in terms of imports, may well serve as a means to coerce non-EU actors into changing their behavior, particularly if these actors need that very European market as a prime export destination. This approach makes market access the key tool for exerting geo-economic power and influence (Goldthau and Sitter 2015b).

To be sure, it is unlikely that the EU will develop a monopsony in natural gas which at the very end runs counter to EU market principles. Nor will the Energy Union do away with the liberal market paradigm the EU is built on. Yet the Energy Union clearly represents an attempt to react to geopolitical shifts in the European neighborhood and a more assertive Russia, the bloc's key energy suppliers. It certainly envisages the use of the entire regulatory toolbox at EU level in a more strategic and more targeted way, toward external actors, with a view to serving the goal of ensuring 'energy security, solidarity and trust'.

In this context it is worth noting that the European Council – the EU heads of states – in their December 2015 declaration clearly stated that 'Any new infrastructure should entirely comply with the Third Energy Package

### Box 2: Energy Union and external EU energy policy

The Energy Union, as adopted in 2015, integrates various existing policies on the EU level, and aims at transforming them into a more coherent framework. Its goals are supply security (now ranking top) and full market integration, in addition to fostering energy efficiency, climate action and low carbon technologies. Although observers suggested that the Energy Union remains a far cry from indeed giving the EU the much discussed 'single voice' in external energy affairs (Youngs and Far 2015), the move itself is remarkable as it for the first time unites different energy policy agendas under one umbrella framework. Moreover, as the history of the EU suggests, novel policy frameworks tend to start small. Institutional spillovers as well as mission creep on part of the implementing administration – the EU Commission – then tend to lead to a gradual scaling up of that policy. Already now, the Energy Union is represented in the European Commission by Vice President Šefčovič, it started to build up own administrative capacity and expertise, and it is politically sanctioned by the European Council (European Council 2016; European Council and Council of the European Union 2015). This gives the whole initiative a much more benign start and political clout compared to other – eventually successful – initiatives the EU launched in the past. It is therefore not inconceivable that the Energy Union, albeit remaining still incoherent to date, will eventually emerge an important element in the EU's external energy affairs, including in its gas relations with Russia.

and other applicable EU legislation as well as the objectives of the Energy Union' (European Council 2015). This not only signals support for a potentially tough stance adopted by the Commission. It also elevates the Energy Union objectives to political guidelines for regulation as applied. The Energy Union among other defines energy security and a Strategic Partnership on energy with Ukraine as key goals for the EU (European Commission 2015a). Whilst the objectives of the Energy Union do not have legal character, the European Council decision suggests that they now define the broader political context in which EU regulation should be put to operation.

Arguably, therefore, the most important impact of the Energy Union with regard to Nord Stream 2 – for now – is that it defines several overarching objectives of EU energy policy, which may serve as reference points for the Commission's stance on new and Russia-sponsored infrastructure. By extension, these references points hand EU policy makers a formidable instrument to push their foreign policy priorities also by way of interpreting European rules on gas infrastructure, including keeping

Ukraine as a transit corridor and maintaining the status quo in existing import infrastructure for Russian gas. Strategies may include national regulators dragging their feet (e.g. Polish authorities extending investigations into the Nord Stream 2 joint venture), or the Commission setting precedents on Nord Stream 2, for instance by arguing that Nord Stream 2 represents a transmission pipeline according to Article 2 of Directive 2009/73. In this case, the pipeline could be exempt from TEP provisions but nevertheless needs to be unbundled with third party access ensured. (This admittedly represents a theoretical option only – it is inconceivable how to put such a ruling into practice.) In each of these cases Russia will be forced to fulfill its export commitments through existing pipelines, including the Ukrainian and Eastern European transit networks (arguably, South Stream, if revived, would experience a similar fate, as would Turkish Stream).

With this, the role of the Commission would also change from a neutral market regulator to one that intervenes in the market with the goal of a specific outcome – in this case, regarding the choice of the transit route. The

Commission as the guardian of the treaties, and as the Union's competition watchdog, would further move toward becoming a political actor which, according to current-Commission President Jean-Claude Juncker, is precisely how the College should view its mandate (European Commission 2015b). It is outside the scope of this study to judge whether such an approach is politically or normatively desirable, or whether it is legitimate. For sure, however, it would make the EU leave the realm of the liberal paradigm, give European energy regulation a more mercantilist touch and question the neutrality of EU law as it arguably is applied selectively.

In all, the point here is that the legal environment leaves ample room for a more strategic political reading of relevant EU regulation. It therefore is not the regulatory framework in the strict sense that will determine how and under what legal conditions Nord Stream 2 will move ahead (it probably will) and operate. Instead, it is material interests of EU member states and the broader international security environment as perceived by key EU decision makers that will arguably be decisive.

## Discussing Nord Stream 2 impact on EU gas markets and energy security

This leaves the question what likely impact Nord Stream 2 might have on EU gas market structures and energy security. Whilst this chapter argues that the aggregate impact of Nord Stream 2 on EU gas markets is primarily of structural nature, its regional effects are highly contextualized, and therefore merit a separate analysis. In what follows, we discuss the effects of Nord Stream 2 with a focus on Central and South Eastern Europe, and on the UK.

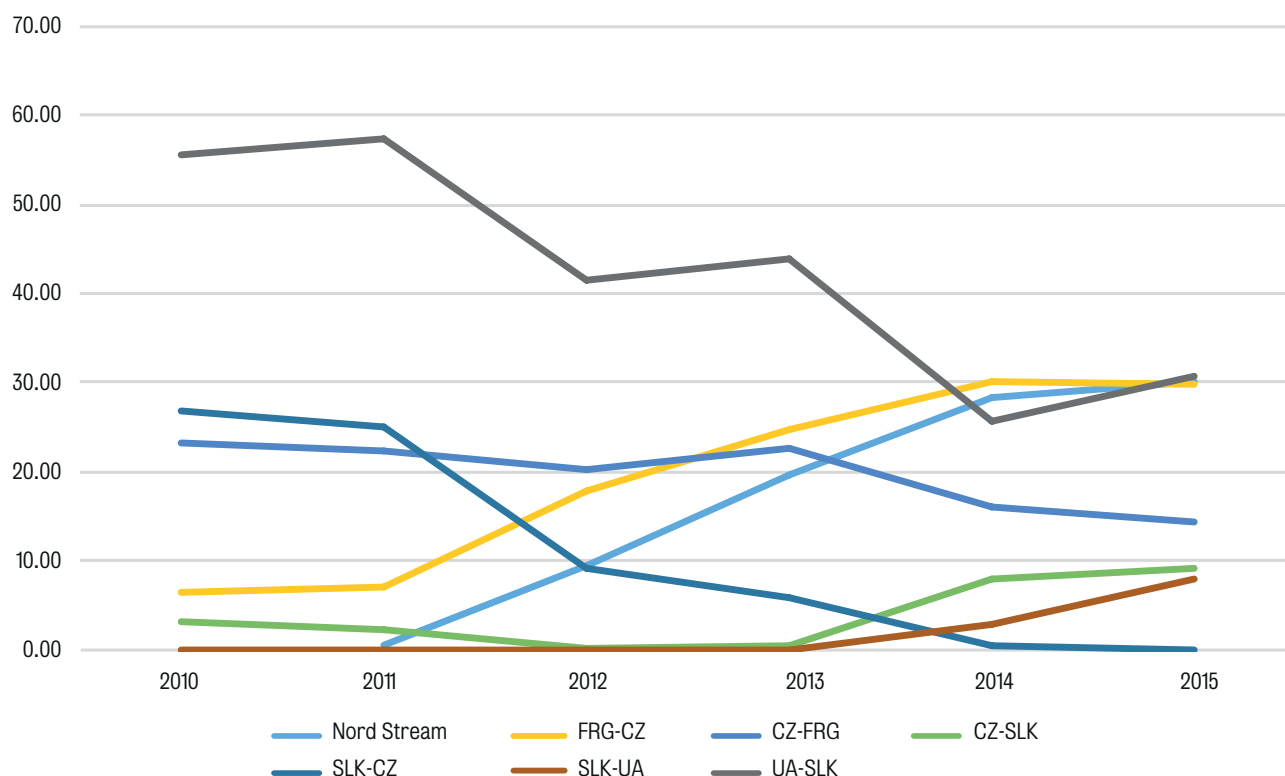
### As-is: gas market developments since 2011

As demonstrated by the deep shifts that occurred on gas markets only since 2008, it is hard to present a robust outlook on the implications of Nord Stream 2 all out to 2040. Yet, it is certainly possible to draw some tentative conclusions on the project's structural impact on European gas markets going forward. For this, we assume Nord Stream 2 will be built, as will be crucial additional onshore infrastructure, notably EUGAL (see below). We also assume *ceteris paribus* conditions for Turkish Stream or South Stream (projects on freeze or abandoned), a possible expansions of Blue Stream or Yamal Europe (which so

far remain on the drawing board), the Southern Corridor (which remains restricted to TANAP/TAP) and Ukrainian transit (which remains an option, as per Gazprom's statements). We deliberately abstain from generating detailed scenarios on the use of pipelines, Gazprom's ability to fulfill its export commitments at existing pipeline capacity or the possible effect of Nord Stream 2 on other transit routes, notably Ukraine. The study by Pirani and Yafimava (2016), is comprehensive here, and any attempt to construct own scenarios would be repetitive. Instead, we primarily rely on descriptive statistics on EU gas market trajectories post Nord Stream, and what likely impact might be extrapolated for Nord Stream 2.

In fact, it is particularly in Central Eastern European markets that significant shifts happened in the aftermath of Nord Stream coming online. These relate to deep changes in gas trade patterns. First, gas flows started to reverse (see Figure 6). While traditional gas would travel from East (Russia) to West (transiting Ukraine/Belarus and feeding Slovakia/Poland), West-to-East trade picked up. This trend coincides if not correlates with Nord Stream 2 coming

Figure 6: East-West cross-border gas flows, select European countries, in bcm



Source: IEA 2016

online. Second, country level analysis reveals significantly varying degrees of this change: gas trade between Germany and the Czech Republic started to net out, and in 2014 effectively reversed. In 2015, the Czech Republic effectively ceased to source gas from Ukraine (through Slovakia), the traditional transit country for Russian gas imports. Instead, its gas deliveries started to come from Germany as of 2013. This follows on Czech distributor RWE Transgas winning a landmark court ruling against Gazprom over unused LTC take-or-pay volumes that year. East-West gas trade between Slovakia and Czech Republic effectively ceased to exist by 2015. As Sharples (2015) suggests, the gas the Czech republic now sources from Germany might well also be Russian gas delivered through Nord Stream. In other words, the ‘unintended consequence’ of Nord Stream and its southward onshore infrastructure OPAL may have been Gazprom gas resold to Czech distribution companies, thus effectively squeezing out Gazprom LTC gas (Sharples 2015), 14).<sup>10</sup> Patterns in Polish-German gas trade, by contrast, did not change fundamentally, despite reverse flow capacity of Yamal being place since 2013. (IEA (2016) data indeed suggest gas flows from Germany to Poland decreased slightly from 1bcm in 2013 to 0.6 bcm in 2015 while gas volumes reaching Germany from Poland remain stable at 24 bcm). The reasons for this may be manifold and cannot be analyzed in detail here. Part of the story might be, however, that a combination of regulatory hurdles and strong incumbents in the Polish market, notably PGNiG, keep on preventing gas-on-gas competition from fully unfolding (EFET 2016).

Third, Ukrainian deliveries into EU gas markets went down significantly since 2011. Arguably, the reason for this is a combination of decreased demand in Europe and Gazprom’s generally lower export rates in the past years, and an effective rerouting of gas through Nord Stream. At the same time, Ukraine started to source gas from Slovakia, with West-East gas trade picking up in 2013. As a corollary, gas trade from the Czech Republic to Slovakia increased by roughly similar volumes, which suggests that this effectively is again ‘German’ gas transiting the Czech Republic eastward. In fact, as Sharples (2015) notes, increasing Czech-Slovak gas flows coincide with Ukraine’s Naftogaz starting gas purchases from Europe and the launch of Vojany-Uzhgorod interconnector between Slovakia and Ukraine. Indeed, the pipeline emerged a key supply route for Ukraine in the wake of Gazprom stopping its exports to the country in November 2015, and its capacity of 14.6 bcm is reported as fully booked for 2016 (NGE 2015a).

This is not to suggest that Nord Stream and OPAL were causal for the partial reversal of gas flows in Central Europe. Rather, it is enhanced reverse flow infrastructure capacity between Germany and Austria, and its Eastern neighbors, in combination with contractual changes such as the above

mentioned Czech supply agreement, in addition to the Commission putting an end on market barriers such as destination clauses, that facilitated these structural shifts in gas trade. However, additional Nord Stream gas arguably benefited these developments, as it brought additional volumes to the Czech border through OPAL and further into Slovakia and to Austria’s Baumgarten hub. That way, these regional markets were not only connected physically, but arguably also linked to more liquid market areas in North-Western Europe.

The impact of additional interconnector capacity and the resulting access to additional volumes of gas can be demonstrated also in terms of prices. Arguably, Czech companies would not source gas from Germany – albeit possibly Russian gas by origin – if it was not cheaper than Gazprom gas coming from Ukraine. But in addition to physical choice between low priced and high priced gas, the sheer existence of alternatives may exert downward pricing pressure on already contracted gas – particularly in regions with relatively few sources of gas, such as CEE. As ACER analysis suggests, this effect can indeed be observed in CEE, where gas prices started to align with German prices (see Figure 7). In fact, compared to the ‘traditional’ situation in which prices of gas tended to be higher in Eastern Europe than in Western Europe, a function of rigid LTC structures and a lack of optionality, this amounts to a qualitative shift in CEE gas prices.

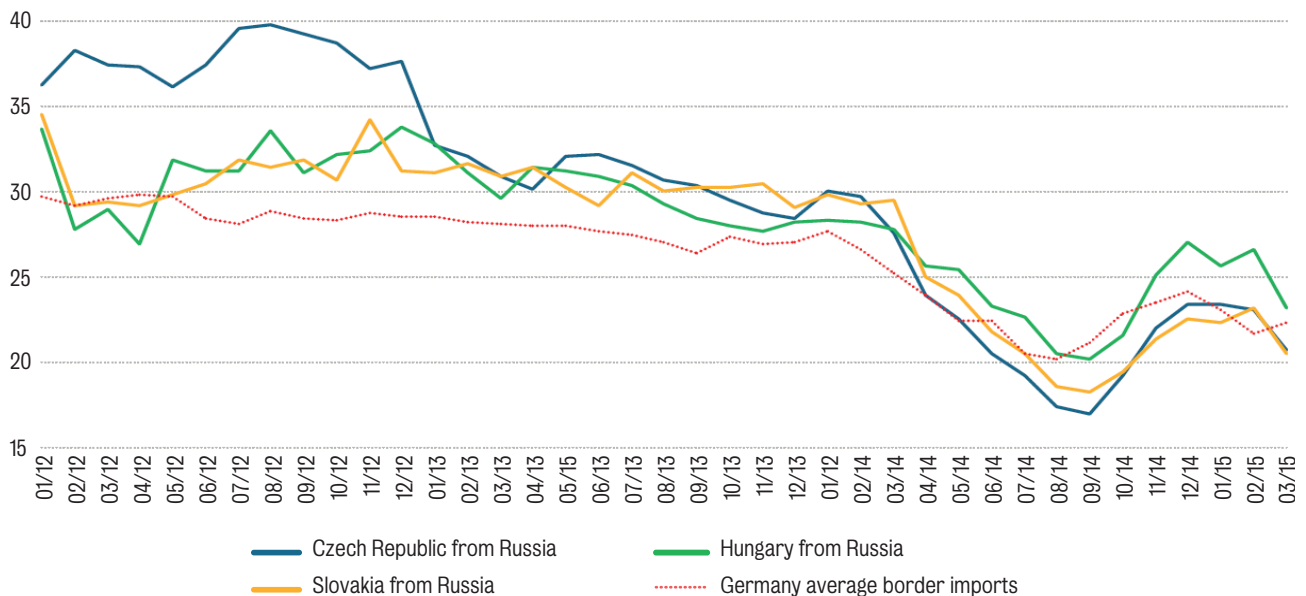
This ties into the more general finding that competitive, integrated and hub based markets tend to have the lowest gas sourcing prices in the EU, notably the UK, the Netherlands, Belgium and Germany. By contrast, countries lacking the physical interconnection and lagging behind in implementing pertinent EU regulation, tend to have persistently high import prices in the EU, notably in South Eastern Europe and in the past also the Baltics (ACER 2015), 238). Price spreads between highly integrated and liquid markets and ‘laggard’ markets remain significant and, as ACER argues, bear great opportunity for consumer surplus if withering away.

### Impact on Central European gas markets

Against this backdrop, several conclusions can be made regarding the impact of Nord Stream 2 on Central European gas markets. First, Nord Stream 2 stands the chance of enhancing the liquidity of regional hubs in which the additional volumes of 55 bcm will be primarily absorbed. This includes GASPOOL (GPL) and by extension the Central European Gas Hub (CEGH) via EUGAL and the Czech and Slovak grids, but also NetConnect Germany (NCG). Onshore infrastructure developments as triggered by Nord Stream 2, including EUGAL, additional capacity from GASPOOL particularly to Poland, the Czech Republic and to the Dutch market, stand to significantly enhance the interconnectivity between these markets (see Gascade’s market survey (GASCADE Gastransport GmbH 2015). This will help consolidating regional trading hubs through EU-induced structural reforms (in

10 IEA data on incremental East-West gas flows seem to correlate with Central Eastern European cross-border capacity expansions as reported by ENTSO-G.

Figure 7: Selected Central European hub and cross-border import prices, 2012–2014 (EUR/MWh)



Source: ACER 2015

which the criterion of liquidity plays an important role). Supporting this process, all EU countries are obliged to introduce Network Codes in order to facilitate market harmonization as part of the TEP requirements. By the end of 2016, 14 EU states will have implemented new codes, including most Western countries but also Central and East European countries such as Hungary or the Czech Republic. Remaining countries are reported to finalize implementation by 2019 (IHS Energy 2016).

Second, this will strengthen the role of regional Central European gas hubs in EU gas trading and pricing. Current 'transit hubs' such as CEGH will be upgraded to become what Heather (2012) refers to as full-fledged 'trading hubs' such as TTF and NBP. 'Transition hubs' GASPOOL or NCG will likely grow more mature, too. As observers have suggested, in the long run GASPOOL, NCG and CEGH may even stand a chance to become more important than TTF and NBP (Chyong and Reiner 2015). While this is debatable – UK and Dutch hubs dominate gas trade in Europe by a large margin and make up for almost 90 percent of traded volumes – it is likely that regional Central European hubs will exert price effects for currently separate national markets. This, clearly, is in line with the Gas Target Model and is the stated intention of EU regulators. In fact, Heather (2015) in his detailed assessment of European gas hub developments expects that between one and three more hubs will develop into European marker hubs, in addition to NBP and TTF. He identifies Southern Europe, North Eastern Europe, Central Europe or South Eastern Europe as possible regions in which such markers could emerge. It can be argued that because of their enhanced liquidity and their improved physical connection to neighboring markets, GASPOOL and CEGH stand a good chance of eventually

serving as the pricing reference for much of Eastern Europe, including Poland, Slovakia, Slovenia, the Czech Republic, Hungary, and possibly even South Eastern Europe in case the 'Vertical Corridor' (see below) eventually links the SEE region to Baumgarten.

Third, as a consequence of Central Eastern gas markets becoming more interconnected with North Western hubs, the above discussed price effect may be reinforced. To the extent that gas is sourced cheaper from, say, the GASPOOL area, Polish traders might prefer contracting volumes from Germany rather than from Russia through the Yamal-Europe pipeline. This puts pricing pressure on Gazprom gas along similar lines as already observed over the past years in parts of Central Europe (see Figure 7). This aspect goes back to Sharples 'law of unintended consequences': Nord Stream 2 might in fact end up making Russian gas compete with Russian gas. The overall net effect might therefore be consumer benefit. To be sure, as the example of the UK demonstrates, the development of an integrated (regional) market and a functioning and liquid hub is a matter of decades rather than years. Moreover, its precondition is physical infrastructure, transparency and political willingness (Heather 2015), which clearly is not present among some CEE countries and their political leadership. But the main point is that contrary to the prevalent debate about Nord Stream 2 putting in question CEE energy security, chances are that it might have the opposite effect (see 6.5).

As a more general observation, the development of strong and liquid regional gas hubs will also cement the liberal market model as the dominant regime in continental European gas governance, and particularly in the CEE



region in parts of which it remains contested still. To be sure, the basis of this enhanced liquidity and the growing maturity of regional continental gas hubs will still be Russian gas. But the likely effect of this gas being traded and (partially) priced on hubs represents a push for the liberal paradigm – arguably and primarily a change in market structure.

### An eye on South Eastern Europe

The main energy security challenge for South Eastern Europe (SEE) consists in its slow progress in energy sector reform coupled with lagging infrastructure development. This is, per se, not a problem linked to Nord Stream 2, nor caused by Nord Stream 2. Yet without determined action, SEE's energy woes might aggravate short of additional supply options and enhanced interconnector capacity to an integrating Central European market.

More to the point, and first, pipeline projects intended to supply the region did not come through, including Nabucco and Russian-sponsored South Stream and Turkish Stream. Indigenous production in the region is small, with Romania being the only significant gas producer and the bulk of the region's demand is imported from Russia. Judged against standard accounts such as the N-1 index or the supplier concentration index (SCI), most of SEE countries therefore score poorly. In the – presently unlikely – event that the Trans-Balkan pipeline seizes to bring gas through Ukraine, this will present a problem particularly for Bulgaria, and by extension adjacent countries. To be sure, SEE is a comparably small gas market that features low gas penetration rates particularly in households. In turn, however, this points to a significant upward potential in SEE gas markets when household grid access is brought to the EU average. Bulgaria, for instance, a presently 3 bcm market, has set the goal of a 30 percent gas grid access rate (Ministry of Economics 2011), up from less than 2 percent in 2013. Estimates differ, but in the medium term, overall SEE gas demand may stand around 45 bcm by 2025. By then, the World Bank estimates a supply gap of 8 bcm (World Bank 2010).

Second, current capacity and infrastructure planning pertaining to the Southern Gas Corridor will not primarily serve the SEE region. TAP sends most of TANAP's gas further into Italy, and pipelines potentially connecting the Balkans with TAP, such as the Ionic Adriatic Pipeline, which could connect TAP with the grids of Bosnia and Herzegovina, Serbia, Kosovo, Montenegro and Croatia, remain on the drawing board. This situation would warrant additional interconnectors. In this context, the planned 'Vertical Corridor', consisting of the Interconnector Greece-Bulgaria (IGB) and the Romania-Bulgaria Interconnector (IBR) could not only bring TAP gas into SEE but also link up to the Baumgarten hub, potentially enhancing gas-on-gas competition between the Southern Corridor and North-Western and/or Central European markets. Yet cross-border infrastructure development has notoriously been hampered by national policies, erratic maneuvers among the SEE

political leadership and regional rivalry. Adding to this, within-country natural gas infrastructure and transmission systems tend to be poor as well. This bears the risk of SEE developing into an 'energy island', similarly to what the Baltic States have been in the past.

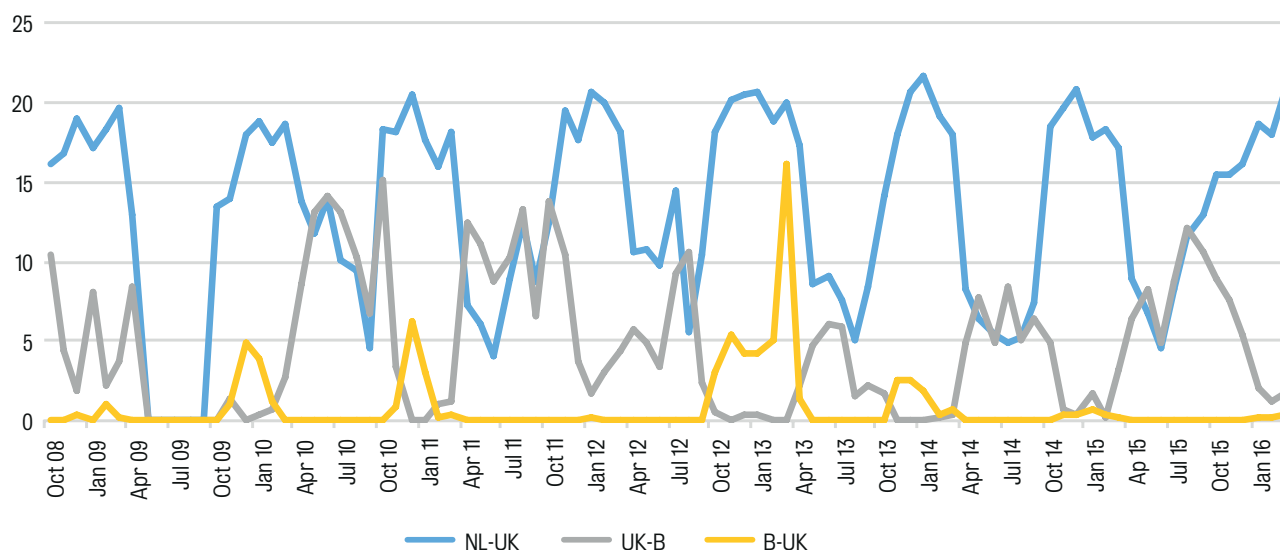
Third, energy sector governance in SEE remains poor. Regulatory uncertainty is high, transparency in policy making remains low, and so is capacity in public administration (European Commission 2016c; European Commission 2016d; European Commission 2016e). Various infringement procedures in SEE EU-member states drive home the point that European policy frameworks are not properly implemented, if at all. Incumbent monopoly companies – again, a case in point being Bulgaria's Bulgargaz – tend to defend the status quo and prevent competition from emerging, while regulated prices prevent market signals from exerting effects. In some instances, market reforms are even rolled back, such as in Hungary where the energy sector was recently re-nationalized.

In all, the development of South Eastern Europe as a gas region lags behind, and risks cementing the current trend toward a 'two speed Europe': a North-West European gas market characterized by high liquidity and hub pricing, partially integrating Central Eastern European gas markets; and a South East European gas market which remains characterized by low competition, a lack of investment and a significant and persisting supply risk. This assessment is supported by Henderson and Mitrova (2015) hinting at Gazprom aiming for a two-tier pricing strategy going forward – hub pricing in North-Western Europe and traditional oil indexation in SEE.

Reacting to this, the Commission in 2015 launched the Central East South Europe Gas Connectivity group (CESEC) representing 15 EU SEE member states and non-EU Energy Community Treaty (EnCT) countries. The group is tasked to identify critical energy infrastructure projects in the region, in order to enhance its connectivity and resilience. Arguably, LNG will play an important role in the SEE gas conundrum going forward. This includes Croatia's 6 bcm Krk terminal and the floating LNG terminal in Alexandroupoli, Greece (6 bcm). Both projects were granted PCI status and as strategic infrastructure projects they receive EU support. Owing to their current status as planned projects gas price estimates are difficult. But it is fair to assume that the LNG, potentially sourced from Chierne, the US company, will come with a premium. That said, as the case of Lithuania's floating 'Independence' LNG terminal demonstrates, optionality indeed plays a role in determining the terms and conditions under which gas is sourced. Lithuania is reported to having renegotiated the price for Russian gas, downward, around the time the new terminal got green light (WSJ 2014).

In case the necessary North-South links are established, Nord Stream 2 may add to the region's energy security by way of ensuring additional volumes feeding a growing market, but also, possibly, by making consumers profit

Figure 8: UK-continental European gas trade, bcm



Source: IEA 2016

from price competition. Indeed, the 'Vertical Corridor' ranks high in priority, including its extension to Austria, and pocketed the bulk of the EUR 217 million EU PCI investment announced in January 2016 (INEA 2016). Still, for price competition to emerge in the SEE region from sources as different as Krk LNG, Azeri gas or Nord Stream 2, the 'software' – EU energy regulation and liberal market regime – needs to be properly installed and put to work, which arguably is a task as tedious as the establishment of the necessary physical infrastructure.

### Impact on the UK

The UK's gas production peaked in 2000, and since 2004 the country is a net importer of gas. The UK will see a slow but inevitable decline of North Sea production which, by 2035, is projected to decrease to 12 bcm per year, down from today's 36 bcm (UK Oil & Gas Authority 2016). Demand is projected to largely remain flat (for an assessment of various scenarios see UKERC's McGlade et al. (2016)). This implies additional import requirements and may push UK import dependence up to 80 percent. Incremental demand might be sourced in the shape of LNG or from Norway (to the extent the country is capable of maintaining current production levels or increase them) but also come from continental Europe, through the existing Interconnector to Belgium's Zeebrugge (25.5 bcm annual bi-directional capacity) or the Balgzand Bacton Line to the Netherlands (BBL, currently 14 bcm).

IEA gas flow data don't suggest significant changes in trade patterns between the UK and the Netherlands or Belgium over the past years (IEA 2016). However, given that gas production from the Groningen field is capped while overall Dutch production set to decrease substantially throughout the coming decades, the Netherlands is expected to become

a net importer of gas sometime between 2020 and 2025. By 2035, the IEA projects Dutch production to fall to below 20 bcm a year (IEA 2012). This implies growing import needs in the North-Western continental market region, which come against the backdrop of equally growing import needs in the UK.

As integrated and liquid markets, the UK and the broader North-Western market region (essentially the Netherlands and Belgium) should be well positioned to source incremental gas needs in the shape of LNG or additional pipeline gas. Also, its mature and competitive market structure shields the UK from the types of veritable supply risks facing Central or South Eastern European countries.<sup>11</sup> In light of this, Nord Stream 2 gas will likely exert structural or pricing effects only, if at all. Its most important contribution to UK energy security might indeed lie in keeping the continental North-Western markets liquid. Nord Stream 2 gas might replace some of the declining production in the Netherlands, which ensures choice for traders. This will put the UK in the position to continue sourcing from international LNG markets and continental Europe, which maintains gas-on-gas competition and arguably helps capping or reducing price spikes. In order to properly assess the impact of Nord Stream 2 on the UK, a detailed supply chain approach may however be warranted, as conducted by Bradshaw et al's (2014) exemplary study.

It is important to note in this context that a clear factor of uncertainty is the UK having voted to leave the EU on June 23 2016. It is unlikely that the UK's 'Brexit' will put an end to the physical flow of gas or overall gas trade across

11 Gazprom is active on the UK market already, and in 2015 reports 11 bcm of gas exports to the country Gazprom Export 2016 which, however, is traded gas not necessarily 'Russian' molecules.

the channel. NBP and with it ICE also enjoy a competitive edge in European gas pricing, which they will profit from in a post-Brexit age. And yet, the UK leaving the EU would imply that they are no longer part of the joint energy policy regime, that future EU regulation will not be implemented domestically and that, most importantly, access to the European market is contingent on trade agreements whose shape and outcome are yet to be determined. The latter remain contested and range from a Norway style EEA agreement to operating UK-EU trade relations on the basis of the WTO regime. It is not inconceivable that the transition period toward a new trade regime – and a UK-EU arrangement more broadly – will take years. What this means, at the very least, is that the transition period toward such a new agreement will be characterized by uncertainty. Arguably, this will impact on the risk appetite of gas traders and other market actors to clinch major deals in the UK, and is susceptible to impact on the leading role as presently enjoyed by NBP and the UK as an LNG trading hub, and it may also influence gas cargoes across the channel.

### **Does Nord Stream 2 present a security of supply threat for Europe?**

Finally, it is worth recapping the above findings against concerns over Nord Stream 2 increasing Europe's dependence on Russian gas and impacting on the energy security of Central Eastern Europe. As noted, the main backdrop of the region playing a prominent role in the discussion on Nord Stream 2 is that it is highly dependent on Russian gas in overall gas imports (Eurostat 2014). Whilst a high dependency ratio is not necessarily indicative for these countries' overall level of 'energy security', due to the often dominant role coal plays in the power sector, it still points to a significant vulnerability of the CEE and SEE region regarding gas. As the October 2014 stress tests revealed, East European countries such as Poland would be hit hard in case of a lasting supply disruption (and Slovakia under certain circumstances), as would South Eastern EU member states Hungary, Bulgaria and Romania, the latter of which could face shortfalls of up to 40 percent. Non-EU SEE countries Serbia, FYRM and Bosnia and Herzegovina would see similar impact on the supply side (European Commission 2014b).

Against this backdrop, various observers have noted that the expansion of Nord Stream to an overall 110 bcm would strengthen Gazprom's role in the European gas balance and give Russia the opportunity to flexibly handle gas shipment to Europe through a variety of export routes, effectively handing Moscow an opportunity to cut some East European countries off supplies without hurting major West European customers such as Germany (Loskot-Strachota 2015; Natural Gas Europe 2016; Riley 2015). Some East European countries also represent transit states for Russian gas and, as it is frequently argued in the context of Nord Stream 2, stand to lose revenue in the shape of transit fees, should Nord Stream 2 take the gas currently shipped through Ukraine (or Yamal Europe). In short, the

argument is that while Nord Stream 2 enlarges Gazprom's export options, cements Russia's 'grip' on Europe and puts Germany in a strategically more advantageous position, it at the same time deprives some Eastern European countries of their 'transit monopoly' over Russian gas and hence an important insurance policy against politically motivated supply cuts.

However, all else equal, Nord Stream 2 itself arguably does not fundamentally alter European import or dependency ratios on Russian gas. On the one hand, Nord Stream 2 will indeed partially re-route already contracted supplies, whose effect on import rates should be rather neutral. On the other hand, the new pipeline will provide for additional capacity to serve a European market whose import rates are projected to increase – which arguably does not necessarily raise overall import rates either. Moreover, in conjunction with effective regulation, smart market design and stringent enforcement of EU market and competition rules, additional Russian gas brought into the common market pool is set to enhance overall market competition rather than enhancing bilateral contractual dependencies of old. Combined with properly connected markets – the crucial precondition – the Central European region should therefore be well positioned to buffer supply shocks, whether caused by technical failure or political purpose. Moreover, market integration represents a physical insurance against price spikes and supply shortages in case of arbitrary 're-routing'. Therefore, even in the case that Article 11 were to apply – which is doubtful because EUGAL will arguably not require the certification of a TSO – neither Germany's energy security nor the energy security of 'the Community' more generally (Article 11/3 b) seems to be at stake. In fact, the more pressing question arising in this context might in fact be related to the just distribution of the accrued consumer surplus in a more competitive market environment, which in essence is a matter of political economy, and warrants a separate discussion.<sup>12</sup>

It is understood, however, that East European leaders – judging from their March 07 2016 letter on Nord Stream 2 sent to Commission President Juncker – think about energy security primarily in terms of diversified routes and suppliers. This implies that gas sourced from Russia (even via Germany, for that matter) is considered insecure whereas Gulf LNG or Norwegian gas is regarded as secure. Yet, if market logic is applied, which is exactly what the EU energy market project is all about, then energy security is primarily enhanced through competition policy and structural market changes as they help keeping dominant market players such as Gazprom in check and foster price competition. In this case, the primary policy objective becomes harmonizing market rules and functioning, liberalizing and connecting so far still scattered national markets, in addition to fostering diversification of sources to enhance choice. Yet, it is particularly East European member states that have been most reluctant to

12 I owe this point to Georg Zachmann of Bruegel.

embrace cross-country gas market integration as a means to enhance European supply security and overall market resilience against supply shocks. While some countries such as Poland carefully safeguard the prerogatives of state-owned corporations, others such as Hungary recently re-nationalized the gas sector altogether. This ties into material interests of some incumbent East European (state) companies to keep the status quo, and the revenue streams from existing LTCs – in addition to Slovak or Polish governments remaining naturally interested in additional state revenue in the shape of transit fees. The result is an incentive to keep the status quo, i.e. Yamal Europe and the Ukrainian transmission system in operation.

Further, concerns have been expressed over Nord Stream 2 allowing Gazprom to leverage its position as the incumbent on Continental and East European gas markets even as this market changes in terms of structure. Thanks to Nord Stream 2, the company will have more optionality regarding export routes without having to change delivery points, which would be contractually difficult, at least into the late 2020s. At the same time, Gazprom will be the pivotal supplier on CEE regional gas hubs, which – depending on the strategy Gazprom adopts – may translate into market power. The concern here is if Gazprom decides to play the market game, this could give the company market leverage in the shape of volume management (Skalamera and Goldthau 2016). Indeed, its market share of presently a good third of European gas demand – which in Central Eastern Europe is significantly higher – coupled with its control over gas storage facilities, might hand Gazprom an opportunity to tinker with supply volumes in order to influence prices (Mitrova, Kulagin, and Galkina 2015), 7). The primary argument against such concerns is that the idea of gas market integration is precisely to deprive dominant suppliers of their ability to leverage their position on consumers. Moreover, it is somewhat ironic to warn against Gazprom's strategic positioning in a market environment as 'playing by EU market rules' is exactly what has been demanded of Gazprom for years. Finally, if market dominance indeed emerges a concern going forward, this primarily presents a calls on the establishment of a strong competition watchdog. In other words, the strategic imperative for EU leaders and authorities is to fully empower the Commission so that it can apply EU competition policies against all market participants – including domestic incumbents and external suppliers such as Gazprom.

Finally, the question of Ukraine merits a brief discussion, a country whose status as a transit state is alleged to be inextricably linked to the energy security of Central Eastern Europe according to the March 07 2016 letter. Indeed, the future of Ukraine in Russian gas exports remains in question and a number of scenarios emerge in the post-2019 period, when Nord Stream 2 is set to start operation (Pirani and Yafimava 2016). It can be argued, however, that the future of Ukraine will not hinge on it remaining a transit country for Russian gas. Whilst Ukraine will indeed lose transit fees

should the bulk of Russian gas exports to Western Europe no longer flow through the country, it stands to gain in terms of lower gas prices. The reason for more competitive prices lies in the gas Ukraine now sources from Western markets, which is gas that is priced on hubs and either comes cheaper or puts pricing pressure on Russian imports. Put simply, Ukraine might essentially trade a situation in which it accrues high transit fees but pays high prices for Russian gas for a situation in which transit revenues are small but coupled with lower expenses for gas imports.<sup>13</sup> Because the trade-off primarily benefits households and industry, financial benefits are in the long run shifted to consumers.

A back on the envelop calculation suggests that while the net effect for Ukraine might not be neutral it still looks far better than what the commonly cited figure of as loss of USD 2 billion a year suggests. In fact, based on 2015 numbers, the country might have already saved up to roughly USD 1.15 billion due to competitive pricing pressures. As a function of enhanced interconnectors to neighboring EU countries, Ukraine in 2015 sourced 10.3 bcm of its import needs from Europe, and the remaining 6.1 bcm from Russia (Naftogaz Europe 2016). Reacting to European gas pricing dynamics exerting effects on Ukrainian imports, Gazprom in 2015 started to grant discounts, a policy which continued in 2016 and which comes with the intention of bringing Russian gas prices closer to import prices from Europe (RFERL 2016). As a result, the price for Ukrainian gas imports exhibits a significant downward trajectory, as Figure 9 suggests.

**Figure 9: Russian gas import prices to Ukraine and Russian gas discounts, 2015**

	Russian price (incl discount (USD/tcm)	Russian discount (USD/tcm)
Q1	329	100
Q2	247	100
Q3	247	40
Q4	230	40

Sources: Reuters 2015b, Moscow Times 2015, RT 2015, ICIS 2015, authors own calculations

The discounts for Russian gas in 2015 as reported in various news outlets amounted to USD 100 in Q1 (Moscow Times 2015), USD 100 in Q2 (RT 2015), USD 40 in Q3 (ICIS 2015) and USD 40 in Q4 (Reuters 2015b). Russian price discounts can be assumed to bring Russian gas in line with European import prices, and in the absence of the 'European effect' all gas Ukraine imports from Russia can be assumed to come at undiscounted prices. For the sake of simplicity, it is also assumed that Ukrainian gas imports are equally distributed across the year (i.e. roughly 4 bcm per quarter). Calculating the overall benefit generated

13 I owe this point to a peer and would like to explicitly acknowledge his input here.



by the granted discounts against total imports, Ukrainian savings therefore amount to some USD 1.15 billion for 2015. With this, Ukrainian gas pricing displays similar effects as observed in Lithuania, where the availability of options – in the Lithuanian case the ‘Independence’ LNG terminal coming online – set in motion competitive pricing dynamics on Russian gas imports.

Arguably, therefore, rather than on transit fees, the policy focus needs to be on deep energy sector reforms in Ukraine, necessary energy efficiency gains and the country’s successful integration into the European gas grid, as all of these measures foster competitive gas market structures. Indeed, the country has embarked on ambitious reforms, notably in the shape of the April 2015 law ‘On the Natural Gas Market’. Among other, reforms comprise a restructuring (and eventual unbundling) of Naftogas, the state-owned incumbent; price liberalization for households, which in 2015 meant a three-time increase in tariffs, a measure that should trigger significant energy savings; and a change in the regulatory regime for gas E&P, aimed at incentivizing foreign investment in the upstream sector. Indeed, Ukraine saw falling gas consumption over the past years, which is partly a function of contracting GDP – which itself is partially induced by the war in Eastern Ukraine’s industrial base – and partially the effect of reforms. This led to a drop in imports of gas from Russia to the above mentioned 6.1 bcm in 2015, a significant decrease compared to 40 bcm only five years ago. Since

additional bi-directional pipeline capacity will link the Ukrainian grid to CEE gas systems (including a planned 8 bcm interconnector to Poland), the country should be put in the position to source its gas independently from Russian supplies in the future, or put the latter under pricing pressure. Still, as observers note, despite significant progress energy sector reform in Ukraine is staggering and bears the risk of falling back into ‘bad old habits’ related to rent redistribution, an inefficient energy system and indeed also ‘political corruption’ (Zachmann 2015). The call, therefore, is on supporting structural reforms, enhancing administrative capacity and enabling foreign investment in the Ukrainian energy sector, both upstream and in domestic transmission and distribution networks.

It is the declared intention of EU leaders to keep Ukraine a transit state for Russian gas, and to integrate the country into the European energy network. This is an EU policy goal whose primary motivation is stabilize the Ukrainian leadership’s domestic and foreign policy position, and to tie the country more closely to the EU through a strategic energy partnership. Achieving this policy goal, however, also implies that it is politics, not regulation or EU infrastructure policy that needs to drive the process. In other words, whilst enhanced Ukraine–CEE interconnectors and TEP driven energy sector reforms are positive for their price effects and consumer benefit, they can hardly replace the political impetus that is necessitated to influence the choice of Gazprom’s export routes.

## Conclusion: Nord Stream 2 and Europe's choice

This study assessed the geopolitical, regulatory and energy security aspects as discussed in the context of Nord Stream 2. Whether Nord Stream 2 makes economic sense against current trends in the EU gas market is for investors to decide, who depending on their risk inclination and perceived business prospects might be willing to sink money to the bed of the Baltic Sea. The future will bring clarity on the risk assessment of the parties involved in Nord Stream 2, and the commercial case behind the pipeline project. As this study argued, Nord Stream 2 may reinforce a pro-market push in EU gas markets by way of enhancing market liquidity and increasing the share of gas traded on hubs. The precondition for this to work is fully integrating European gas markets, strong regulatory frameworks setting pro-market incentives and the empowerment of the EU Commission as the gas market's competition watchdog.

Much will depend on Gazprom's export strategy and whether the company is determined to defend market share on a more competitive European gas market. Provided this happens Gazprom – possibly in conjunction with other Russian gas companies going forward – may find its gas well positioned to compete for share in European demand. In turn, facing growing import needs, European companies and consumers will have to choose where to source their gas from, including LNG, and at what price. As the EU seeks to enlarge its options in the shape of additional regasification capacity, more interconnectors and new pipelines in the Southern Corridor, additional supply routes and sources offer choice, and indeed also flexibility. In this context, the question is not necessarily whether all additional infrastructure is indeed needed, but to what extent it allows European consumers to leverage on their status as the world's largest, and arguably most attractive, import market.

Clearly, however, for it being so politically contested, Nord Stream 2 leaves the confines of commercial business cases, EU energy law or gas market structure. Material member state interests, EU energy security concerns and geopolitical considerations related to Russia's increasingly assertive – and in the case of Ukraine outright aggressive – foreign policy define the environment in which Nord Stream 2 becomes subject to political debates, not commercial ones. With this, references to Nord Stream 2's compatibility with EU energy frameworks essentially miss the point. The goal of law and regulation is to set frameworks, define the rules of the game and level the playing field. Given the long lead times in energy investments and the significant capital needs, planning security is imperative for all market participants. Legal and regulatory frameworks should provide for clarity and predictability. They should not be applied strategically, for principle reasons and because it may impact on the inclination of investors to get their checkbook out. Put in simple terms: the Commission's job is not to choose pipeline routes, but to ensure they are operated in a way that is compatible with market principles. Politics, by contrast, define policy preferences. If Nord Stream 2 is politically too contested or found as undesirable, then it also falls on the political domain – the EU heads of states – to act.

As the case of Nord Stream 2 demonstrates, the EU therefore needs to take choices on a central question: is the Commission a regulator (hence neutral) or a political animal? By extension, should rules be applied so that they follow political objectives, or are they applicable across the board? Regardless of individual preferences regarding Nord Stream 2, it is important to find answers on these questions, as they will determine the type and character of the EU as a political actor going forward.

# References

## A

- ACER. 2015. ACER Market Monitoring Report 2015, Ljubljana.
- Andersen, Svein, Andreas Goldthau, and Nick Sitter. 2016. From Low to High politics? The EU's Regulatory and Economic Power. In *Energy Union. Europe's new Liberal Mercantilism?*, edited by S. Andersen, A. Goldthau and N. Sitter. Basingstoke: Palgrave Macmillan.
- Andersen, Svein S., Andreas Goldthau, and Nick Sitter. 2015. The EU Regulatory State, Commission Leadership and External Energy Governance. In *EU Leadership in Energy and Environmental Governance? Global and Local Challenges and Responses*, edited by J. M. Godzimirski. Basingstoke: Palgrave Macmillan.
- Aslund, Anders. 2010. Gazprom: Challenged Giant in Need of Reform. In *Russia after the global economic crisis*, edited by A. Aslund, S. Guriev and A. C. Kuchins. Washington, DC: Peterson Institute for International Economics, 151-168.

## B

- Belyi, Andrei, and Andreas Goldthau. 2015. Between a rock and a hard place: International market dynamics, domestic politics and Gazprom's strategy. *EU Working Paper RSCAS* 2015/22.
- Bloomberg. 2014. Russia, China Sign \$400B Gas Deal After Decade of Talks. May 21.
- Bloomberg. 2015a. Russia Gas Link Plan Will Hurt East EU Security, Sefcovic Says. October 01.
- Bloomberg. 2015b. Solar and Wind Just Passed Another Big Turning Point. October 6.
- Bloomberg. 2016. Russian Gas Link Extension May Face EU Law Compliance Risk. February 4.
- Boersma, Tim. 2015. *Energy Security and Natural Gas Markets in Europe – Lessons from the EU and the United States*. London: Routledge.
- BP. 2015a. *BP Energy Outlook 2035*. London.
- BP. 2015b. *BP Statistical Review of World Energy 2015*. London.
- Bradford, Anu. 2012. The Brussels effect. *Northwestern University Law Review* 107 (1):1-68.
- Bradford, Anu. 2016. The EU as a Regulatory Power. In *Connectivity Wars. Why Migration, Finance and Trade are the Geo-Economic Battlegrounds of the Future*, edited by M. Leonard, 121-128.
- Bradshaw, Mike, Gavin Bridge, Stefan Bouzarovski, Jim Watson, and Joseph Dutton. 2014. *The UK's Global Gas Challenge*. London: UKERC.

Bundesnetzagentur. 2009a. Änderungsbeschluss BK7-08-009. July 07.

Bundesnetzagentur. 2009b. Änderungsbeschluss BK7-08-010. July 07.

## C

- Chow, Ed, and Michael Lelyveld. 2015. Russia-China Gas Deal and Redeal. *CSIS Commentary*, May 11.
- Chyong, Chi Kong, and David Reiner. 2015. Nord Stream: the Sequel. *EUObserver*, August 12.
- Cottier, Thomas, Sofya Matteotti-Berkutova, and Olga Nartova. 2010. Third Country Relations in EU Unbundling of Natural Gas Markets: The 'Gazprom Clause' of Directive 2009/73 EC and WTO Law. *Working Paper* 2010 (06).

## D

- Damro, Chad. 2015. Market power Europe: exploring a dynamic conceptual framework. *Journal of European Public Policy* 22 (9):1336-1354.

Dickel, Ralf, Elham Hassanzadeh, James Henderson, Anouk Honoré, Laura El-Katiri, Simon Pirani, Howard Rogers, Jonathan Stern, and Katja Yafimava. 2014. Reducing European Dependence on Russian Gas: distinguishing natural gas security from geopolitics. *Oxford Institute for Energy Studies Paper* NG 92.

## E

- EFET. 2016. Consultation on gas market development/ Ankieta dotycząca oceny rynku gazu. EFET comments – 29 February 2016, Amsterdam: European Federation of Energy Traders.
- EIA. 2014. Today in energy: Oil and natural gas sales accounted for 68% of Russia's total export revenues in 2013. 23 July.
- EIA. 2016a. International Energy Outlook 2016, Washington, DC
- EIA. 2016b. Short-Term Energy and Summer Fuels Outlook, Washington DC. April
- ENTSO-G. 2015. Ten Year Network Development Plan 2015, Brussels
- ERI RAS. 2014. *Global and Russian Energy Outlook to 2040*. Moscow: Energy Research Institute, Russian Academy of Sciences.
- Euractiv. 2009. Nord Stream 'a waste of money', says Poland. January 11.
- EurActiv. 2015. Brussels and Moscow prepare for Gazprom fight April 23.

- Eurogas. 2013. Long-term outlook for gas to 2035, Brussels.
- European Commission. 2008. EU Energy Security and Solidarity Action Plan: 2nd Strategic Energy Review, Brussels: Commission of the European Communities.
- European Commission. 2011a. Commission Decision of 20 May 2011 on the exemption of the 'Gazelle' interconnector according to Article 36 of Directive 2009/73/EC. *C(2011) 3424* 20.05.2011.
- European Commission. 2011b. Energy Roadmap 2050, Brussels. COM(2011) 885 final.
- European Commission. 2013a. Commission decision of 16.5.2013 on a prolongation of the effects of the exemption decision of NABUCCO Gas Pipeline International GmbH from third party access and tariff regulation granted under Directive 2003/55/EC, C(2013) 2947 final (Text with EEA relevance). C(2013) 2947 final 16.5.2013.
- European Commission. 2013b. Commission Decision of 16.5.2013 on the exemption of the Trans Adriatic Pipeline from the requirements on third party access, tariff regulation and ownership unbundling laid down in Articles 9, 32, 41(6), 41(8) and 41(10) of Directive 2009/73/EC, C(2013) 2949 final.
- European Commission. 2014a. Commission Opinion of 9.9.2014 pursuant to Article 3(1) of Regulation (EC) No 715/2009 and Article 10(6) and 11(6) of Directive 2009/73/EC – Poland – Certification of Gaz-System as the operator of the Polish section of Yamal-Europe Pipeline. *C(2014) 6463*.
- European Commission. 2014b. Communication from the Commission to the European Parliament and the Council on the short term resilience of the European gas system. Preparedness for a possible disruption of supplies from the East during the fall and winter of 2014/2015. COM(2014) 654 final, Brussels.
- European Commission. 2014c. Communication from the Commission to the European Parliament and the Council. European Energy Security Strategy, Brussels. COM(2014) 330 final.
- European Commission. 2014d. EU Energy, Transport and GHG Emissions Trends to 2050, Brussels: DG Energy.
- European Commission. 2015a. Energy Union Package. A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank. COM(2015) 80 final, Brussels.
- European Commission. 2015b. Juncker, Jean-Claude, State of the Union 2015: Time for Honesty, Unity and Solidarity. SPEECH/15/5614, Strasbourg.
- European Commission. 2015c. Speech by Vice-President Maroš Šefčovič at the Celebration Ceremony of 10th Anniversary Energy Community. 27 August.
- European Commission. 2016a. Commission Opinion of 28.1.2016 pursuant to Article 3(1) of Regulation (EC) No 715/2009 and Article 10(6) of Directive 2009/73/EC – Italy – Greece – Certification of TAP AG. C(2016) 538 final.
- European Commission. 2016b. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on an EU strategy for liquefied natural gas and gas storage, Brussels.COM (2016) 23 final
- European Commission. 2016c. Country Report Bulgaria 2016 Including an In-Depth Review on the prevention and correction of macroeconomic imbalances, Brussels. Commission Staff Working Document SWD(2016) 72 final.
- European Commission. 2016d. Country Report Hungary 2016 Including an In-Depth Review on the prevention and correction of macroeconomic imbalances, Brussels. Commission Staff Working Document SWD(2016) 85 final.
- European Commission. 2016e. Country Report Romania 2016 Including an In-Depth Review on the prevention and correction of macroeconomic imbalances, Brussels. Commission Staff Working Document SWD(2016) 91 final.
- European Commission. 2016. *Projects of common interest* 2016f [cited 12 April 2016]. Available from <https://ec.europa.eu/energy/en/topics/infrastructure/projects-common-interest>.
- European Commission. 2016g. Towards Energy Union: The Commission presents sustainable energy security package. Press Release IP/16/307.
- European Council. 2015. European Council Conclusions on energy and climate policy. December 18.
- European Council. 2016. European Council Conclusions on the Energy Union. 19 March.
- European Council, and Council of the European Union. 2015. Council conclusions on the governance system of the Energy Union. Press release 869/15. 26/11.
- European Parliament. 2015. Answer given by Mr Arias Cañete on behalf of the Commission. *Parliamentary questions*, 13 August.
- European Parliament and the Council. 1998. *Directive 98/30/EC concerning common rules for the internal market in natural gas*, 22 June. Brussels: European Parliament and Council of the European Union.
- European Parliament and the Council. 2003. *Directive 2003/55/EC concerning common rules for the internal market in natural gas and repealing Directive 98/30/EC*, 26 June. Brussels: European Parliament and Council of the European Union.



European Parliament and the Council. 2009a. Decision No 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the effort of Member States to reduce their greenhouse gas emissions to meet the Community's greenhouse gas emission reduction commitments up to 2020. *Official Journal of the European Communities* L 140 (05.06.2009):136-148.

European Parliament and the Council. 2009b. *Directive 2009/72/EC concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC (Text with EEA relevance)*, 13 July. Brussels: European Parliament and Council of the European Union.

European Parliament and the Council. 2009c. *Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC*. Brussels: European Parliament and Council of the European Union.

European Parliament and the Council. 2009d. Regulation (EC) No 713/2009 of the European Parliament and of the Council of 13 July 2009 establishing an Agency for the Cooperation of Energy Regulators (Text with EEA relevance). *Official Journal of the European Union* L (2011):1-14.

European Parliament and the Council. 2009e. Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks and repealing Regulation (EC) No 1775/2005 (Text with EEA relevance). *Official Journal of the European Union* L (2011):36-54.

European Parliament and the Council. 2010. Regulation (EU) No 994/2010 of the European Parliament and of the Council of 20 October 2010 concerning measures to safeguard security of gas supply and repealing Council Directive 2004/67/EC (Text with EEA relevance). *Official Journal of the European Union* L 295 (12.11.2010):1-22.

Eurostat. 2014. Energy production and imports. Available at [http://epp.eurostat.ec.europa.eu/portal/page/portal/energy/data/main\\_tables](http://epp.eurostat.ec.europa.eu/portal/page/portal/energy/data/main_tables). Accessed on.

## F

FNB. 2016. Entwurf Netzentwicklungsplan Gas 2016, Berlin

FT. 2012. Kremlin shields Gazprom from EU probe. September 11.

FT. 2015. Analysis: Turkey pivotal to future of European gas supplies. April 15.

## G

GASCADE Gastransport GmbH. 2015. Demand analysis for the 'more capacity' market survey, Kassel.

GASCADE Gastransport GmbH. 2016. Fact sheet: overview of the EUGAL project, Kassel.

Gazprom Export. 2016. *Gas supplies to Europe 2016* [cited May 19 2016]. Available from <http://www.gazpromexport.ru/en/statistics/>.

Gazprom, OAO. Gas and oil production 2015a [cited 05-11-2016]. Available from <http://www.gazprom.com/about/production/extraction/>.

Gazprom, OAO. 2015b. OAO Gazprom Annual Report 2014, Moscow.

GIE. 2015. The European LNG terminal infrastructure 2015: Status and Outlook, Brussels.

Goldthau, Andreas, and Nick Sitter. 2014. A liberal actor in a realist world? The Commission and the external dimension of the single market for energy. *Journal of European Public Policy* 21 (10):1452-1472.

Goldthau, Andreas, and Nick Sitter. 2015a. *A Liberal Actor in a Realist World. The European Union Regulatory State and the Global Political Economy of Energy*. Oxford: Oxford University Press.

Goldthau, Andreas, and Nick Sitter. 2015b. Soft power with a hard edge: EU policy tools and energy security. *Review of International Political Economy* 22 (5):941-965.

## H

Heather, Patrick. 2012. Continental European Gas Hubs: Are they fit for the purpose?, Oxford: Oxford Institute for Energy Studies.

Heather, Patrick. 2015. The evolution of European traded gas hubs: Oxford Institute for Energy Studies.OIES PAPER: NG 104.

Henderson, James. 2014. The Commercial and Political Logic for the Altai Pipeline. *Oxford Energy Comment*, December.

Henderson, James, and Tatiana Mitrova. 2015. The Political and Commercial Dynamics of Russia's Gas Export Strategy: Oxford Institute for Energy Studies.OIES Report NG 102.

Honoré, Anouk. 2014. The Outlook of Natural Gas demand in Europe, Oxford: Oxford Institute for Energy Studies. NG 87.

## I

ICIS. 2015. Russia's gas discount for Ukraine to be cut to \$40/kcm. June 29.

IEA. 2012. Oil & Gas Security: The Netherlands, Paris

IEA. 2014. Energy Policies of IEA Countries: European Union, Paris.

IEA. 2015a. *Medium-Term Gas Market Report 2015. Market Analysis and Forecasts to 2020*. Paris.

IEA. 2015b. *World Energy Outlook*. Paris: OECD.

IEA. 2016. IEA – Gas Trade Flows in Europe, in Mcm. Available at <https://www.iea.org/gtf/>. Accessed on.

IGU. 2014. *Wholesale Gas Price Survey – 2014 Edition. A global review of price formation mechanisms 2005–2013*. Fornebu: International Gas Union.

IHS CERA, and Ministry of Energy and Coal Industry of Ukraine. 2012. *Natural Gas and Ukraine's Energy Future*, Kyiv.

IHS Energy. 2016. European Gas Hub Tracker. Third quarter 2015.

INEA. 2016. Connecting Europe Facility. Supported actions – January 2016, Brussels: Innovation & Networks Executive Agency.

Interfax Energy. 2014. OPAL dispute limits Russia's strategic options. September 18.

Interfax Ukraine. 2015. Gazprom: gas transit through Ukraine to end after 2019, come what may. June 09.

Interfax Ukraine. 2016. New tariff on Russian gas transit approximately 1.5 times higher. January 19.

## J

Jones, Dan. 2015. Conflict resolution: Wars without end. *Nature* 519:148–150.

## K

Kavalov, Boyan, Hrvoje Petric, and Aliko Georgakaki. 2010. *Liquefied Natural Gas for Europe – Some Important Issues for Consideration*, Petten, The Netherlands: European Commission, Joint Research Centre, Institute for Energy.

Kommission der Europäischen Gemeinschaften. 2009. *Ausnahmegenehmigung der Bundesnetzagentur für die Opal-Gasleitung gemäß Art. 22 der Richtlinie 2003/55/EG* (1). K(2009) 4694 12.06.2009.

## L

Larsson, Robert L. 2006. *Russia's Energy Policy: Security Dimensions and Russia's Reliability as an Energy Supplier*. Stockholm: Swedish Defence Research Agency.

Lavenex, Sandra. 2014. The power of functionalist extension: how EU rules travel. *Journal of European Public Policy* 21 (6):885–903.

Loskot-Strachota, Agata. 2015. The case against Nord Stream 2. *Energy Post*, November 23.

## M

Majone, Giandomenico. 1994. The rise of the regulatory state in Europe. *West European Politics* 17 (3):77 – 101.

McGlade, Christophe, Steve Pye, Jim Watson, Mike Bradshaw, and Paul Elkins. 2016. *The future role of natural gas in the UK*, London: UKERC.

McGowan, Francis, and Helen Wallace. 1996. Towards a European Regulatory State. *Journal of European Public Policy* 3 (4):560–576.

Ministry of Economics, Energy and Tourism. 2011. *Energy Strategy of Republic of Bulgaria till 2020*. For Reliable, Effective and Cleaner Energy, Sofia.

Mitrova, Tatiana, Vyacheslav Kulagin, and Anna Galkina. 2015. The transformation of Russia's gas export policy in Europe. *Proceedings of the Institution of Civil Engineers – Energy* 168 (1):30–40.

Mitrova, Tatiana, and Gergely Molnar. 2015. The Russian Gas Market: Entering a New Era. *CEDIGAZ Report* April.

Moran, Michael. 2002. Review Article: Understanding the Regulatory State. *British Journal of Political Science* 32 (2):391–413.

Moscow Times. 2015. Russia Ready to Consider Gas Price Discount for Ukraine, Novak Says. March 03.

## N

Naftogaz Europe. 2016. Ukraine purchased 63% of its imported gas in Europe in 2015. February 02.

Natural Gas Europe. 2016. Nord Stream 2: Trojan Horse or Guarantee of Security. March 23.

NGE. 2015a. Eustream Reports Shippers Entirely Booked Capacity of Vojany-Uzhgorod Pipeline. February 19.

NGE. 2015b. Turkmenistan: The Diversification of Gas Export Market. December 16.

Nord Stream 2 AG. 2016. Enhancing the EU natural gas market. 11. March.

## O

Oettinger, Günther. 2010. Answer given by Mr Oettinger on behalf of the Commission, Parliamentary questions, The European Parliament, 13 August 2010. *Official Journal of the European Union* C 191 E (01.07.2011).

Offenberg, Philipp. 2016. *The European Neighborhood and the EU's Security of Supply with Natural Gas*, Berlin: Jacques Delors Institute.

## P

Pirani, Simon. 2012. *Central Asian and Caspian Gas Production and the Constraints on Export*, Oxford: Oxford Institute for Energy Studies.

Pirani, Simon, and Katja Yafimava. 2016. *Russian Gas Transit Across Ukraine Post-2019: pipeline scenarios, gas flow consequences, and regulatory constraints*, Oxford: Oxford Institute for Energy Studies. OIES Paper: NG 105.

Platts. 2013. Gazprom expects to keep domestic gas market share at around 75% through 2020. May 28.

Politico. 2016a. Great northern gas war. February 10.

Politico. 2016b. Pro's Morning Energy: Comm's gas contract plans. 21 January.

## R

Reuters. 2012. UPDATE 1-Novatek says Gazprom not its agent in landmark Europe sales deal. August 14.

Reuters. 2015a. Nord Stream-2 pipeline to kill Ukraine's gas transit business – Naftogaz CEO. 06 November.

Reuters. 2015b. Russia energy min: discounted gas price for Ukraine in Q4 around \$230. October 03.

Reuters. 2015c. UPDATE 2-Gazprom mothballs extension of Nord Stream pipeline. 28 January.

Reuters. 2016. UPDATE 1-Russia backs down from abandoning gas transit through Ukraine. June 26.

RFERL. 2016. Russia Discounts Gas Price Offered To Ukraine January 02.

Riley, Alan. 2015. Nordstream 2: Too Many Obstacles, Legal, Economic, and Political to be Delivered?, Washington, DC: Atlantic Council.

Roshchanka, Volha, and Meredydd Evans. 2014. Incentives for methane mitigation and energy-efficiency improvements in the case of Ukraine's natural gas transmission system. *Earth's Future* 2 (6):321-330.

RT. 2015. Russia prices gas for Ukraine at \$247, cuts discount June 29.

## S

Sharples, Jack. 2015. Gazprom Monitor Annual Review. Analysing the External Dimensions of Russian Gas. Summer 2014 – Summer 2015, Brussels: European Geopolitical Forum SPRL.

Skalamera, Morena, and Andreas Goldthau. 2016. Russia Playing Hardball or Bidding Farewell to Europe? Debunking the myths of Eurasia's new geopolitics of gas. Belfer Center Geopolitics of Energy Project Discussion Paper (2016-03).

Stern, Jonathan, Simon Pirani, and Katja Yafimava. 2009. The Russo-Ukrainian Gas Dispute of January 2009: A Comprehensive Assessment: Oxford Institute for Energy Studies. 27.

Stern, Jonathan, and Howard Rogers. 2012. The Transition to Hub-Based Gas Pricing in Continental Europe. In *The Pricing of Internationally Traded Gas*, edited by J. Stern. Oxford: Oxford University Press.

Stevens, Paul. 2009. Transit Troubles. Pipelines as a Source of Conflict, London: Chatham House.

Sutyagin, Igor. 2014. Russia's 'South Stream' is Closed, but Nothing has Changed. *RUSI Commentary* (18 December).

## T

Talus, Kim. 2011. *Vertical Natural Gas Transportation Capacity, Upstream Commodity Contracts and EU Competition Law*. The Hague: Kluwer Law International.

TASS. 2016. Russia won't stop gas transit via Ukraine after 2019 – minister. January 15.

Tusk, Donald. 2014. A united Europe can end Russia's energy stranglehold. *Financial Times*, 21 April.

## U

UK Oil & Gas Authority. 2016. UKCS Oil and Gas Production Projections, London.

## W

Woehrel, Steven. 2009. Russian Energy Policy Toward Neighboring Countries, Washington, DC: Congressional Research Service. CRS Report for Congress RL34261.

World Bank. 2010. *The Future of the Natural Gas Market in Southeast Europe*. Washington DC.

Worldbank. 2014. *World Development Indicators: Contribution of natural resources to gross domestic product* 2014 [cited 22 September 2014]. Available from <http://wdi.worldbank.org/table/3.15>.

WSJ. 2014. Gas Terminal Plans Helped Lithuania Negotiate Lower Price From Gazprom. May 28.

## Y

Youngs, Richard, and Shahrazad Far. 2015. *Energy Union and EU global strategy. The undefined link*. Stockholm: Swedish Institute of International Affairs.

## Z

Zachmann, Georg. 2015. Helping Ukraine to reform Naftogaz's gas transmission business. *Kyiv Post*, November 23.

Министерство энергетики Российской Федерации. 2014. *Энергетическая стратегия России на период до 2035 года (основные положения)*. Москва.



**The European Centre for Energy  
and Resource Security (EUCERS)**

**Department of War Studies**

King's College London  
Strand

London WC2R 2LS

Email [info@eucers.eu](mailto:info@eucers.eu)

Telephone 020 7848 1912

[www.eucers.eu](http://www.eucers.eu)