



THE DEPENDENCE OF GERMANY ON RUSSIAN GAS: ANALYSIS AND PROSPECTS IN THE CONTEXT OF THE CURRENT UKRAINIAN CRISIS

La dependencia de Alemania del gas ruso: análisis y contingencias en el contexto actual de crisis en Ucrania

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Germany and Russia share a strong economic interdependence, Germany being presently the largest importer of Russian gas. At the time of writing, the on-going conflict between Ukraine and Russia, compounded with economic sanctions imposed on Russia by the European Union, has raised concerns about Russia as a reliable gas supplier. This article analyses Germany's dependence on Russian gas within the present economic and political contexts and assesses a) the most plausible course of action of German energy policy, taking into account Germany's current role as a gas transit country; and b) the impact of the present context on the shaping of Germany's foreign policy towards Russia. It is concluded that energy policy measures will not enable drastic reductions in Germany's dependence on Russian gas in the short term and, moreover, that no abrupt change of direction in German foreign policy towards Russia is to be expected.



Abstract

Germany's natural gas dependence; German-Russian economic interdependence; German energy policy; Germany's Russian policy; Ukrainian crisis
dependencia alemana de gas natural; interdependencia económica germano-rusa; política energética alemana; política exterior rusa de Alemania; crisis en Ucrania



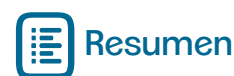
Key words

Recibido: 31-05-15. Aceptado: 24-11-15



Fechas

Alemania y Rusia están unidas por una relación de interdependencia económica, en la que Alemania destaca como el principal consumidor de gas ruso. El conflicto entre Ucrania y Rusia, vigente al tiempo de redactar este artículo, unido a las sanciones económicas impuestas por la Unión Europea a Rusia, han generado inquietud acerca de la fiabilidad de Rusia como suministrador de gas. Este artículo analiza la dependencia alemana del gas ruso en los contextos político y económico actuales con el fin de evaluar a) las opciones más plausibles de la política energética teniendo en cuenta el papel de Alemania como país de tránsito; y b) el impacto del contexto actual en la política exterior de Alemania hacia Rusia. Se concluye que no son de esperar medidas energéticas que reduzcan drásticamente la dependencia alemana del gas ruso, al tiempo que se prevé una continuidad en la política exterior alemana hacia Rusia.



Introduction

Unlike the eminently global oil market, natural gas markets have distinct regional features owing to the existence of geographically differentiated suppliers and transport infrastructures, which result in significantly different regional prices. The largest regional gas markets are the European, North American and Asian markets, as well as the emerging South American market. As a consequence of this regionalization, consumer countries are more sensitive to critical events affecting any of the parties in the supply chain.

The current crisis in Ukraine has much further reaching consequences than all previous gas disputes with Russia and its governmental “energy arm”, Gazprom. A wide range of complex contentious issues whose discussion is beyond the scope of this paper, underlie the conflict. This has led to a situation with Russian military overtones and western economic sanctions, which is unlikely to be resolved merely through agreements on gas prices and debt payments. Meanwhile, all European Union (EU) states, including Germany, Russia’s largest importer and traditional political guardian, have come to share the initial eastern European view, according to which Russia’s President Putin is unwilling to seek an outright solution to the crisis. Gazprom, being a majority state-owned company, complies with the Kremlin’s geopolitical strategy towards Ukraine, which can have potential awkward consequences for the gas supply to central and eastern European countries.

Russian Energy Minister, Alexander Novak, announced in January 2015 company plans to bypass Ukraine in the gas transport to Europe by 2019 (Information Directorate, OAO Gazprom, 2015). In parallel, Gazprom pursues a strategy of strengthening Germany’s role through the Nord Stream and Turkey (currently, Russia’s second largest gas importer) via the Turkish Stream (TS). The TS will replace the cancelled South Stream pipeline and will upgrade the existing offshore pipeline Blue Stream that currently supplies gas to Turkey. It is expected to reach the Turkish-Greek border with a maximal throughput of 63 billion cubic meters (bcm)¹, of which 47 bcm would be delivered to the east and southeast European countries. The deployment of the first segment of the TS was launched on 8th May 2015 and it is planned to be operational in December 2016 (Miller, 2015). Russia’s attempt to wield its power by redefining the European regional gas transport map raises unease among those EU members opposed to leaving Ukraine

The current crisis in Ukraine has much further reaching consequences than all previous gas disputes with Russia and its governmental “energy arm”

¹ Billion cubic meters is the standard unit used by the Anglo-Saxon literature, equivalent to 10⁹ cubic meters.

outside the European energy concept, but it also raises expectations for those other countries, particularly Greece, for which the Turkish Stream would bring in substantial revenues. The European Commission's reluctance towards the Turkish Stream project, on the one hand, and its full support for the Southern Gas Corridor, which will enable transport of Azerbaijani gas to the EU² on the other, allow no reliable assessment of prospective EU policy to be made at present. Donald Tusk's proposal of April 2014 for creating an "energy union" and fostering the production of indigenous coal and shale gas reveals an on-going, latent mistrust on the part of those EU member states suffering, as a whole, from insufficient gas diversification. For some of these states (i.e., the Czech Republic, Hungary, Poland, Estonia and Lithuania) Gazprom is the largest gas supplier, whereas for others (Bulgaria, Finland, Latvia and Slovakia) the Russian company is in fact the sole supplier (European Commission DG for Economic and Financial Affairs, 2013; President of the Republic Lithuania, 2015).

Germany's natural gas supply system shows two features that may be regarded as structural weaknesses, namely the substantial dependence on Russia as a gas provider, and the fact that the transport infrastructure through which Germany imports natural gas is based entirely on pipelines. Since the assessment of a prospective development of the European gas infrastructure requires a more in-depth analysis, which is beyond the scope of this paper, this article focuses on the impact of the above-mentioned events for the German case. Inasmuch as the lack of Liquefied Natural Gas (LNG) facilities *per se* poses a structural barrier severely constraining supplier and regional transit routes diversification, it is worth analysing the German dependence on Russian gas within the current political and energy contexts.

Since the *Ostpolitik* times, Germany has proved to be a reliable trade and political partner for the former USSR, later Russia. The premise "change through rapprochement" which guided the German foreign policy towards the USSR during the Cold War evolved in the 2000s into a concept of "change through interdependence" to enhance the economic and commercial links between both countries and to help promote democratic values in Russia. The theoretical foundations of this policy rely upon theories of interdependence and liberal peace.

Interdependence implies a mutual dependence relationship, with high opportunity costs associated with a potential breaking of the relationship (Baldwin, 1980, p. 482). The cost-benefit balance for each of the parts involved "will depend on the values of the actors as well as on the nature of the relationships" (Keohane & Nye, 2001, p. 8). In their revised edition of *Power and Interdependence*, Keohane and Nye regard bargaining and issue-linkage as important drivers that can redefine the relation between asymmetry and power, as stated by Wagner (1988, p. 462). (A)symmetry refers to (in)equality in the costs borne by each of the parts when bargaining for alternatives, considering actor's preferences and the scope of the negotiation. Therefore, asymmetry is *per se* neither a necessary nor a sufficient condition to exert (political) influence on a relationship (Keohane & Nye, 2001, pp. 273-275).

The argument, based on Immanuel Kant's ideal of perpetual peace, that the existence of shared democratic institutions, economic interdependence and cooperation among states fosters peace and reduces the prospect of conflict has spurred ample research (on this issue, Levy, 2013; Mansfield & Pollins, 2003a). After decades of inductive analysis, there exists no consensus on

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2 The Southern Gas Corridor is conceived as a major milestone towards reducing the European dependence of Russian gas by enabling gas supplies from Azerbaijan from 2020 onwards.

the potential pacifying effects of economic interdependence and the underlying correlation mechanisms. From the standpoint of liberal theory, the focus lies on the “opportunity costs” of “trade-disruption” (Levy, 2013, p. 591), i.e. the threat of welfare losses associated with lost trade (Polacheck, 1980, p. 67). Neo-Realist and dependence theory authors refute this claim whilst highlighting the effect of several factors, e.g. intensity of the interdependence, asymmetry or regime type, on fostering interstate conflict (Barbieri, 1996; Barbieri & Schneider, 1999; Gelpi & Grieco, 2008). Mansfield and Pollins (2003b, pp. 20-22) argue that the diversity of existing theoretical and methodological approaches prevents conclusive statements on the nature of the links between economic interdependence and conflict and, by extension, in the realm of international relations. Central questions remain open concerning how to proceed “from declarative statements and claims of empirical regularity [...] to the normative realm of policy prescription” (Mansfield & Pollins, 2003b, 21).³

This paper addresses two main objectives taking into account the economic interdependence between Germany and Russia, and amid the current political and energy conflict in Ukraine. The first one is to illustrate the (a)symmetry and the bearing of energy trade in the German-Russian commercial relationship. The second target of this article is to analyse the German dependence on Russian gas with the aim of assessing the most plausible alternatives for the German energy policy in order to reduce its dependence from Russian gas. This article contends that the tight economic interdependence existing between Germany and Russia bears heavily on Russia’s restraint to retaliate against EU sanctions with gas cut-offs. The paper also considers the impact of a potential bypass of Ukraine as transit country on the gas supply to Germany. The collected data show that Germany itself is enhancing its position as a transit country for other EU states. The article concludes that there will be no abrupt changes neither in the German energy policy leading to drastically reduce dependence from Russia in the short and medium terms nor in the German policy towards Russia.

German-Russian trade is mainly based on the exchange of technical manufactures, knowledge and capital in return for energy resources

1. Interdependence between Germany and Russia

German-Russian trade is mainly based on the exchange of technical manufactures, knowledge and capital in return for energy resources. This commercial model has prevailed since its inception in the seventies during the Cold War. To support this relationship, there is an extensive network of public agencies, semi-public discussion fora, private cooperation partnerships and exchange programmes, which together with German-Russian governmental summits, are involved in asset enhancing and in defining reliable and secure frameworks for stakeholders. There is nevertheless widespread concern among the German export industry. Short after the EU imposed the first set of sanctions against Russia on March 2014, the CEOs of several prominent German businesses met with President Vladimir Putin as a signal of support and rejection to the restrictive measures (Dams, 2014; Reuters/dma, 2014). According to a questionnaire conducted by the Ifo Institute, approximately 30 % of companies having commercial links to Russia affirmed that the present conflict would negatively impact their business (Seiler & Wohlrabe, 2014, p. 56). Another research carried out in April-May 2014 by the German-Russian chamber of commerce, the *Deutsch-Russische Auslandshandelskammer*, concluded that

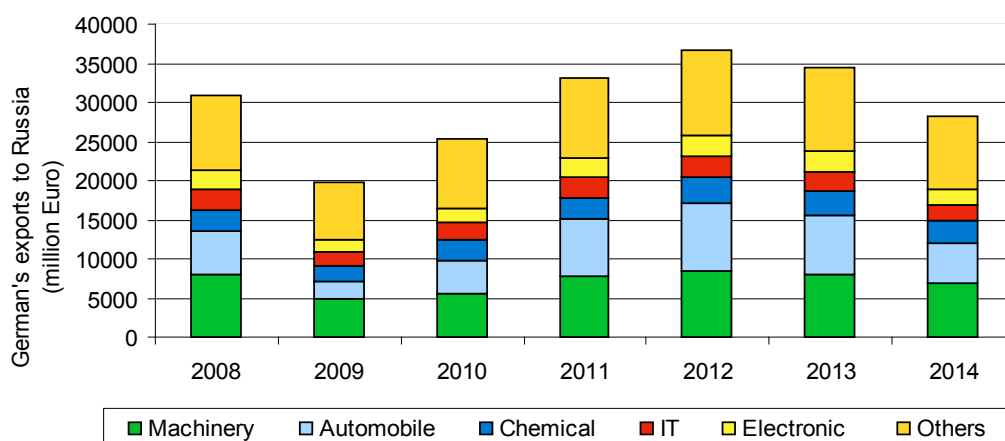
³ Due to extension reasons, this article cannot elaborate on the whole theoretical and empirical foundations of the debate. On this issue, see: Levy, 2013; Mansfield & Pollins, 2003a.

about 25 % of the companies asked evaluated the trade situation as “bad” and that, in general, it was perceived as demotivating for new investments. As stated by the *Ost-Ausschuss*, by 2015 the frame conditions for economic exchange have degraded very significantly.

According to the *Statistisches Bundesamt* (2014), circa 10 % of all German export companies sell goods to Russia. For 73 % of these companies, the resulting trade earns 25 % of their whole revenues. In the opposite direction, only 1 % of the German import companies are responsible for the whole import activity with Russia. In 2014, German trade with Russia declined by 18.1 % for export and by 6.9 % for import goods with respect to 2013 (*Statistisches Bundesamt*, 2015). For Russia, Germany is the largest gas importer and the third most important trading country after China and the Netherlands (*Botschaft der Bundesrepublik Deutschland, Germany Trade and Invest & Deutsch-Russische Auslandshandelskammer*, 2015, p. 7). Political instability, rouble depreciation and EU-restrictive measures on capital and on certain goods, i.e. infrastructure for oil exploration and exploitation in Arctic and for shale oil, which are subject to permission by the authorities, have created trade and investment barriers and risks.⁴

Figures 1 and 2 illustrate, respectively, the evolution of the volumes of German exports to, and imports from, Russia since 2008. The data is grouped by activity sectors. A significant slump in the value of imports and exports occurred in 2009 as a consequence of recession in Germany. Manufacture sector leads the German exports to Russia; Russia’s export activity relies upon the fossil-fuels sector.

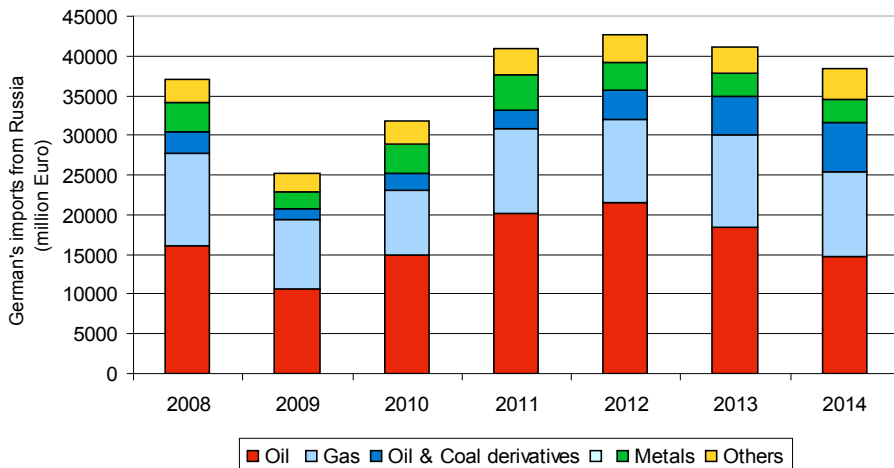
Figure 1: Evolution of the volumes of German exports to Russia by sectors (in million Euro)



Source: own elaboration based on data from *Statistisches Bundesamt*' Genesis on-line database on foreign trade.

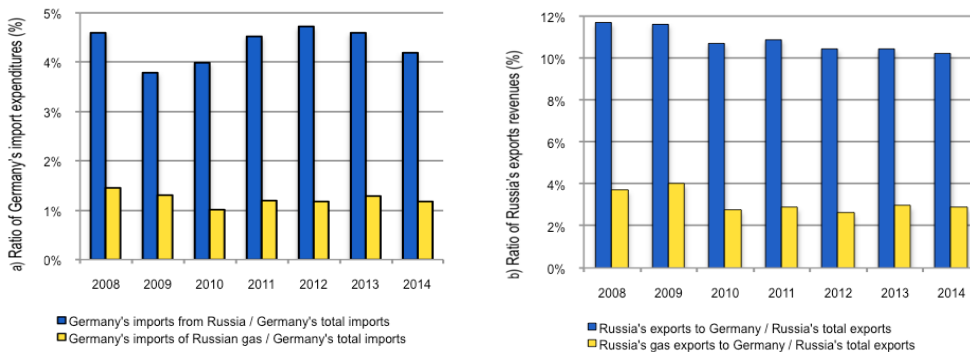
⁴ At the time of this writing no restrictive measures affect the natural gas branch.

Figure 2: Evolution of the volumes of German imports from Russia by sectors (in million Euro)



Source: own elaboration based on data from Statistisches Bundesamt's Genesis on-line database on foreign trade.

Figure 3: a) Annual ratios of German expenditures; b) Annual ratios of Russian revenues



Source: own elaboration based on data from Statistisches Bundesamt's Genesis on-line database on foreign trade; Botschaft der Bundesrepublik Deutschland, Germany Trade and Invest, & Deutsch-Russische Auslandshandelskammer, 2015.

The data shown in Table 1 and Fig. 3 indicate that the commercial relation between Germany and Russia is not one of single-sided dependence, but one of mutual dependence. Figure 3a) represents, for Germany, the ratio (blue) of import expenditures from Russia to total import expenditures; and the ratio (yellow) of the expenditures of imported gas from Russia to total import expenditures. Figure 3b) plots, for Russia, the ratio (blue) of export revenues obtained from Germany to total export revenues; and the ratio (yellow) of the revenues from gas exports to Germany to total export revenues. (All ratios are expressed as a percentage).

Table 1: Gas revenues and expenditures as a percentage (%) of Gross Domestic Product

	2008	2009	2010	2011	2012	2013	2014
Germany's expenditures due to gas imports from Russia	0.47	0.36	0.32	0.41	0.40	0.42	0.37
Russia's revenues due to gas export to Germany	1.03	0.98	0.71	0.79	0.68	0.73	0.76

Source: own elaboration based on data from the Statistisches Bundesamt; Botschaft der Bundesrepublik Deutschland, Germany Trade and Invest, & Deutsch-Russische Auslandshandelskammer, 2015.

In terms of revenues and expenditures, the weight of gas exports for Russia in its GDP is higher than the weight of the gas imports for Germany in its GDP. Germany is, and will continue to be in the foreseeable future, highly dependent on Russia's energy resources (Gabriel, 2014). Gas is a strategic good for Germany since any attempt to reduce its gas dependency will imply high costs and extended time frames of action. In Germany, Gazprom's most important business partner is Wintershall, a subsidiary of BASF; their commercial relationship dates back to 1993. Gazprom has a significant penetration in the German markets of gas trading and gas storage through Wingas and Astora, both of which are subsidiary companies of W&G, a joint venture of Gazprom and Wintershall. In addition, Gazprom acts as a gas pipeline operator through Gascade, OPAL Gastransport and NEL Gastransport (all of which are subsidiaries of WIGA, another joint venture with Wintershall), and as the owner of the OPAL and NEL pipelines through its shareholding in W&G. On the other hand, German gas companies have expanded their business activities in the exploration and exploitation projects of Russian gas fields in conjunction with Gazprom. Wintershall and E.ON Ruhrgas are involved in the exploitation of the Yuzhno Russkoye gas reservoir, which actually supplies Nord Stream. Wintershall is also involved in the exploitation of the Achimov gas field through Achimgaz, a joint venture with Gazprom. When considered in a broader perspective, it may be contended that Gazprom's strong dependence on the European market makes it unfeasible for the commercial and financial exchange with China to generate, in the medium term, revenue volumes and capital injection comparable to those arising in Europe (Gabuev, 2015, p. 5).

2. Germany's dependence on Russian gas

Germany is one of the world's largest energy consumers (BP, 2014)⁵. Its world leading hi-tech export industry relies on secure, competitive and sustainable access to energy resources. Energy policy has therefore become an essential remit for the German federal government, aimed at preserving current socioeconomic and productive attainments.

With respect to gas, Germany is the largest natural gas consumer in the European Union, with ca. 19 % of the whole EU gas consumption (Eurostat, n. d.). With a total consumption of ca. 72 bcm in 2014, natural gas represented about 21 % of the Germany's primary energy supply mix. It serves industrial and residential use (61 %), followed by heat and power generation (24 %) and services (13 %). Since the early 2000s, there has been a remarkable upward trend in Germany's natural gas dependence from imports, due to sustained consumption levels and a steady

⁵ According to data of 2014, Germany occupies the seventh and eight positions in the overall energy and natural gas consumption worldwide, respectively.

shrink of indigenous natural gas reserves and production (Bundesministerium für Wirtschaft und Energie [BMWi], 2015). In 2014, the dependence on gas imports was of 90 % (Ziesing, 2015, p. 18). With a 38.7 % share in 2014, Russia is Germany's largest gas supplier,⁶ followed by Norway (29.4 %), the Netherlands (26.1 %), and Denmark and the UK with 5.8 % of the total imports (BMWi, 2015). There is a concern about an eventual increase of the dependency on Russian gas, inasmuch as significant drops on Russian gas exports to Germany could not be fully compensated by Norway or the Netherlands and, at the time of writing, Germany lacks LNG infrastructure which would enable further supplier diversification.

The German gas import infrastructure is entirely based on pipelines. Three pipelines with a total of 54 bcm annually ship Norwegian gas to Germany: the Nordpipe and the Europipe I accessing Emden, which are operational since 1977 and 1995 respectively; and the Europipe II pipeline working since 1999, which accesses Dornum. Geographically next to each other, Germany and the Netherlands gas transmission systems are connected through seven interconnection points. In addition there is an interconnection point to Denmark and one transit point from UK through Belgium.

3. Routes to Germany for Russian gas

Russian gas deliveries to Germany have been traditionally transported through three major pipelines, all of which were built under highly specific historic and political circumstances. The Brotherhood/Transgas via Ukraine, Slovakia and the Czech Republic is in operation since 1973; the Jamal-Europe pipeline through Belarus and Poland operates since 1997; and the Nord Stream, an off-shore pipeline, which transports Siberian gas directly to Germany circumventing transit countries since 2011.

During the 1950s, the exploration and exploitation of the natural gas deposits located in western USSR boosted the construction of a dense pipeline transmission network to serve internal consumption and which would later evolve into providing gas supplies to Eastern and Western Europe through long distance pipelines (Högseilius, 2012, pp. 20-21). The Brotherhood pipeline commissioned in 1967 for gas transport from Ukraine to the former Czechoslovakia⁷ was later upgraded to absorb and transport Siberian gas towards the profitable, expanding western European market, where the impact of the oil crisis had raised widespread awareness about the need of access to substitute fossil fuels. In 1973, the Transgas pipeline (the extension line from Brotherhood in Czechoslovakia) started to supply soviet gas to both the Democratic and the Federal German Republics. After the disintegration of the USSR, the Ukrainian transport network slipped out of the Russian control, but retained its role as an all-important transit route for gas supply towards Europe. At present, the transmission capacity of the Brotherhood/Transgas line at the cross-border interconnection point between Ukraine and Slovakia, Uzhgorod-Velké Kalpušany, is 85 bcm per annum; while the capacity between

Russian gas deliveries to Germany have been traditionally transported through three major pipelines, all of which were built under highly specific historic and political circumstances

6 In the mid-eighties, the USSR became the major gas supplier for Germany retaining its predominant position in the German gas market until the present times.

7 Brotherhood connected the Sheblinka reservoirs with eastern and central Europe. From 1971 and 1974, it was enlarged to reach both German borders and Austria from where to supply westwards. In 1976 gas supplies arrived Hungary and in 1979 the former Yugoslavia. The southern stream runs across Ukraine to Rumania and Bulgaria supplying gas from the Orenburg region. At present time, the pipelines Northern Lights, Urengoy-Pomary-Úzhgorod and a branch of Jamal-Europe pour gas into the Brotherhood pipeline.

Slovakia and the Czech Republic, at Lanžhot interconnection point, is about 40 bcm (ENT-SOG, 2015a). In its course towards Germany, the Czech transmission network (Transgas) splits in two branches, which extend northeast up to Hora Svaté Kateřiny/Sayda interconnection point; and to the southeast until Rozvadov/Waidhaus border point; both routes have traditionally transported gas to Germany, the latter, also to the French market through the German national transmission system.

The disintegration of the former USSR, and Ukraine's subsequent attempts to exploit its new position as a unique transit country for Russian gas to Europe, spawned strife and distrust between the former Soviet Gas Industry Ministry, Gazprom, and the Ukraine. Russian plans for route diversification through Belarus and Poland were favourably met in western countries, in particular the reunified Germany. The construction of the Jamal-Europe pipeline started in 1994 and became operational at the end of 1999. It reached its maximum technical capacity of 33 bcm p.a. in 2006 and marked the end of Ukraine's gas transit monopoly to Europe.

In 2006, Gazprom, E.ON Ruhrgas and Wintershall, concluded the foundation agreement of Nord Stream AG for the construction of an offshore pipeline from Russia to Lubmin, in Germany. Gasunie and GD Suez later joined the project. The Nord Stream twin lines operational since October 2011 and 2012 have a total capacity of 55 bcm p.a. and enable direct gas conveyance from Russian reservoirs to Germany minimizing transit supply risks. Nord Stream is the main component of a "northern corridor" which comprises two onshore extensions in Germany, a northern pipeline *Norddeutsche Erdgasleitung* (NEL) and an eastern duct, *Ostsee Pipeline Anbindungsleitung* pipeline (OPAL), as well as the Gazelle transit pipeline in the Czech Republic, which is connected to OPAL.⁸ The NEL and OPAL pipelines were designed to absorb the whole of Gazprom gas entering via Nord Stream, which is destined for local supply and further transit. The NEL pipeline, with a maximal capacity of 22 bcm p.a., converges with the German transport network for local supply and for further transit to the Netherlands and Belgium. OPAL has a capacity of 36.5 bcm p.a.⁹ and connects to the Gazelle in the Czech border. This latter pipeline, with a length of 165 km and an annual capacity of 32.81 bcm, is conceived to transit Gazprom's gas up to the southern German/Czech border point Waidhaus/Rozvadov, from which it is transported farther afield on to the French border.

The regulations concerning the OPAL operations regime have not been fully clarified yet. According to Third Energy Package (TEP) stipulations, Gazprom is obliged to reserve 50 % of the OPAL and NEL transmission capacities for third-supplier access. Whilst, the EU Commission has compelled NEL to observe the TEP rules, at the times of this writing no decision has been made concerning Gazprom's plea for OPAL to be freed from this obligation, although Gazprom is OPAL's sole provider and such exemption has already been granted to Gazelle for a period of 22 years until year 2035 (European Commission, 2011, p. 15). The ensuing process will most certainly be closely linked with the EU antimonopoly actions against Gazprom and the evolution of EU–Russia relations in the context of the Ukrainian crisis.

The disintegration of the former USSR spawned strife and distrust between the former Soviet Gas Industry Ministry, Gazprom, and the Ukraine

8 Launch dates. OPAL: November 2011; NEL: November 2012; Gazelle: January 2013.

9 About 4.5 bcm out of the 36.5 bcm whole OPAL capacity are reserved for the northeast German demand.

4. The role of Germany as transit country

The purpose of this section is to show how the entry in service of Nord Stream has altered the distribution of gas flows in route to Germany, and hence the role of Germany itself as a transit country for the Czech Republic and Slovakia.

As shown in Table 2, Slovakia, and to a less extent, Germany, have been the traditional gas transit countries for the Czech Republic. In Germany, gas flows from Russia delivered via the Jamal-Europe pipeline, and gas flows from Norway, are both conveyed by separate ducts that terminate at a common interconnection point in the Czech Republic. With the commissioning of the Nord Stream–OPAL–Gazelle (NSOG) transit network, all gas flows that were traditionally routed via Ukraine and Slovakia with destination the German, Czech and French markets, have been gradually re-routed from Brotherhood to Nord Stream, with awkward consequences for Slovakia and Ukraine because of their loss of significance as transit countries (see Table 2). At present, there is no gas flowing via Ukraine and Slovakia towards the Czech Republic and Germany. Germany's and Czech's imports of Russian gas are conveyed by the Nord Stream and the Jamal-Europe pipelines, thus minimizing transit risks and enhancing the position of Germany in the supply chain. As illustrated in Table 2, in 2014 the volume of gas through Brotherhood and Transgas, measured at the interconnection point between Ukraine and Slovakia, was only one half of the volume of gas for 2010. Although gas flows destined for the Austrian and Italian markets¹⁰ continue to be transported through Ukraine and Slovakia, at the present time, approximately 60 % of the Brotherhood-Transgas transit line capacity remains unused.

Table 2: Gazprom gas flows (in bcm per annum) measured at the cross-border points between the indicated countries (the direction of gas flow is indicated by an arrow)

	2011	2012	2013	2014	2015*
via Brotherhood/Transgas					
Ukraine ⇌ Slovakia	68.8	49.9	52.5	30.8	8.8
Slovakia ⇌ Czech Rep.	25.5	11.3	7.2	0.5	0
Czech Rep. ⇌ Germany	19.7	8.6	3.1	0	0
via Jamal-Europe					
Belarus ⇌ Poland	27.5	28.5	34.1	34.0	6.8
Poland ⇌ Germany	24.2	23.0	29.3	29.1	8.8
Germany ⇌ Czech Rep.	3.9	6.0	5.3	8.9	2.9
via Nord Stream					
Russia ⇌ Germany	0.6	11.3	23.5	33.9	10.1
Germany ⇌ Czech Rep	0	0	0.8	8.7	3.2
Reverse flows					
Czech Rep. ⇌ Slovakia	0	0.2	0.6	9.6	5.4
Slovakia ⇌ Ukraine	0	0	0	3.5	4.5

Source: own elaboration based on data from *European gas trade flows in Europe 2015* © OECD/IEA; and from *Eustream, Gascade, Net4gas, and OPAL Gastransport*. Note: *Data available until 30/04/2015, except for the case of Jamal-Europe, which data are available until 30/05/2015.

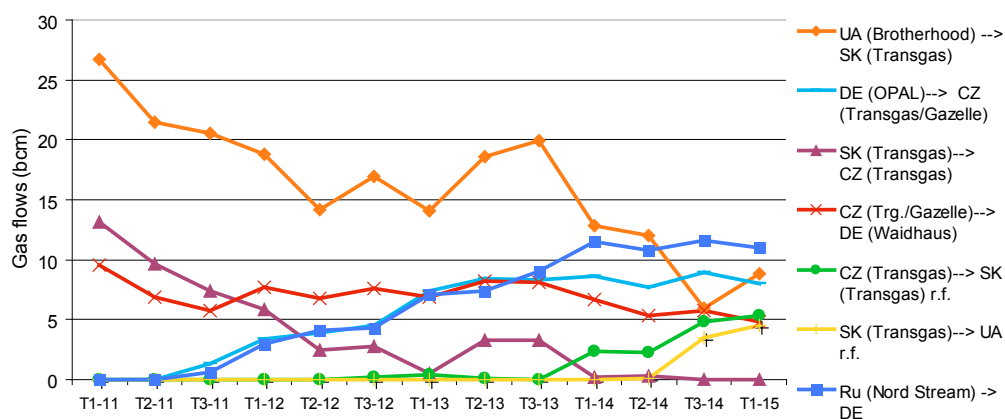
¹⁰ This volume of gas is also exported farther afield onto Slovenia and Croatia. For the European natural gas transmission map, see ENTSG, 2015b.

Figure 4 depicts the evolution of the Russian gas flow per route, as measured at the interconnection point between the specified countries. Though the volume of gas delivered via Nord Stream has rapidly increased, it is operating below its maximal technical capacity as until the present time Gazprom has not been authorized for full access to OPAL. Prior to the commercial launch of Gazelle in January 2013, gas flowing to the Czech Republic via OPAL accessed the Czech national network (Transgas), and was then further transported –together with the transit gas still delivered via Ukraine/Slovakia– to Waidhaus. Between T1-13 and T3-13, the entry volume at the interconnection point between OPAL and Gazelle is about equal to the exit volume at Waidhaus (see Fig. 4). From T3-13 onwards, the exit volume from Gazelle at Waidhaus is lower than that entering from OPAL. This difference can be explained by the fact that a fraction of the gas entering Gazelle remains in the Czech Republic for both internal consumption, and for reverse flow to Slovakia. Since August 2014, Slovakia is delivering gas to Ukraine via reverse flow mechanisms.

In conclusion, the deployment of the NSOG pipeline network has strengthened the role of Germany in the European gas market. Presently, Germany is no longer dependent on Ukraine for obtaining its gas supply and it has evolved into a fundamental component of the gas supply chain in Central and Eastern Europe.

The deployment of the NSOG pipeline network has strengthened the role of Germany in the European gas market

Figure 4: Evolution of the Russian gas flow per route (in bcm), measured at the interconnection point between the specified countries



Source: own elaboration based on data from *European gas trade flows in Europe 2015* © OECD/IEA; and from *Eu-Stream, Cascade, Net4gas, and OPAL Gastransport*. Note UA: Ukraine; DE: Germany; CZ: Czech Republic; SK: Slovakia; r.f.: reverse flow.

The current conflict in Ukraine has had, to date, no remarkable consequences for the maintenance of gas supplies for Germany. This, however, has proved insufficient to avoid a growing sense of unease among political, business and social circles. Gazprom prospects for circumventing Ukraine could actually strengthen the role of Germany as hub country for central Europe. Because of EU solidarity, however, Germany feels obliged to defend the interests of the Russian gas import countries, and especially of those with a deficient diversification system. For the EU, Gazprom's announced plans to bypass Ukraine by 2020 poses a challenge. It is difficult to ascertain their feasibility, and whether they merely are a demonstration of strength in the context of the current crisis. Gazprom has offered the construction of the Turkish Stream as an alternative to Ukraine, so that it can satisfy the eastern and central European market with two main routes (Nord Stream and Turkish Stream). Replacing the current Ukraine network would

demand huge investments from the EU states to redesign their current transmission networks in order enable additional capacity and new gas routes between them. The EU's picture of gas supply for Central and Eastern Europe does not contemplate a two-route map but a three-route map including Ukraine.

5. Germany's alternatives to reduce dependence on Russian gas

The most recent energy forecast study for Germany was commissioned by the Ministry of Economic Affairs and Energy and due to the uncertainty in national and international energy market assumptions, the results of this study are only for orientation and should be interpreted cautiously. According to Schlesinger et al. (2014), a decreasing trend in total gas consumption, comparable with a general decline of primary consumption, is to be expected as a consequence of extensive deployment of renewable energies and smart grids, and of higher energy saving and efficiency rates. Nevertheless, by 2030 the fossil-fuel share will still represent 77 % of the energy mix. In this scenario, the gas share in the German energy mix would be similar to the current one, with ca. 21 % (Schlesinger et al., 2014, p. 79).

The future evolution of natural gas consumption in Germany are expected to depend upon three main elements: 1) efficient energy consumption and savings in the industrial and residential sectors; 2) the success (or otherwise) in the roll-out of renewable sources, including smart grids; and 3) the replacement of coal-fired power plants with gas-fired, encouraged by the climate targets and the foreseen elevation of greenhouse certificate prices by the early 2020s. Energy saving and energy efficiency is a fundamental pillar in any energy system, contributing to reduce the energy imports from third parties, thus promoting these two principles in every socioeconomic sector is an unquestionable remit for the federal government.

Considering the existent economic interdependence between Germany and Russia, and the role that the former is increasingly adopting as a transit country, it is not to be expected that Germany will make any abrupt changes in its gas import relationship to Gazprom, neither by the government nor by the gas-related companies (Gabriel, 2014). The target of Germany's energy policy is to ensure a cost-competitive acquisition of energy resources while complying with climate objectives on the way to a low-carbon-based economy. In this way, a number of plausible alternatives that would help reduce the dependence on Russian gas are briefly introduced below.

LNG gas for supplier and route diversification. Germany currently imports gas exclusively via pipeline networks, which severely constrains its diversification alternatives. LNG is an important contribution to enhance security of supply, since it enables access to new sources and suppliers. LNG infrastructure would also encourage competition with market-dominant companies, such as E.ON and Winthershall, involved in the whole gas supply chain processes from exploitation to commercialization.

The construction of a LNG terminal in Germany has been envisaged since the seventies in order to import gas from Algeria from 1981 onwards. The agreement was cancelled and no terminal was built. In 2007 and 2011, E.ON and RWE discarded the outspoken goal of deploying a LNG terminal in Wilhemshaven as the lack of commercial feasibility discouraged capacity demand from third parties (Bundesregierung, 2014, p. 2). Instead, both companies opted to acquire capacity in the LNG terminals in neighbour countries, i.e. Netherlands and Belgium.

It is not to be expected that Germany will make any abrupt changes in its gas import relationship to Gazprom

A potential LNG venture is at present being considered by private parts, for which the federal government has expressed its support as a strategic project included in the EU Task Force Report on EU Investments (Bundesregierung, 2015a, p. 9). It is premature to foresee whether the project will be implemented; information is also contradictory (“World’s LNG Liquefaction”, 2015).

Increasing supplies from current gas suppliers. German indigenous production of natural gas has decreased since 2004. Because this trend also affects the Netherlands and it is foreseen to happen for Norway, it is quite improbable that Germany will be able to substitute Russian imports significantly with the current import infrastructure. The following paragraphs briefly illustrate the prospects of production for Norway and the Netherlands.

The exploitation of Norwegian gas is technically more challenging and more cost-intensive than that of Russian. For European customers, this is compensated for by lower transport costs. Germany is the largest importer country of Norwegian gas via pipeline, totalling ca. 40.8 % of Norwegian gas exports. Since 1995, the production has steadily increased, reaching a throughput of 107 bcm in 2013. Production levels are expected to reach a maximum of 130 bcm by 2020, which is expected to be followed by a steady downward trend (Norwegian Ministry of Petroleum and Energy & Norwegian Petroleum Directorate, 2014, p. 45).

Gas production in the Netherlands is declining, and it is estimated that by 2025 the country will become a net gas importer. The annual production capacity has been limited due to two different reasons. Market strategy concerns led to amendments to the Gas Act in order to restrict extraction volumes in the Groningen area to 43.9 bcm/year until 2020 (Ministry of Economic Affairs, 2013, p. 24). Furthermore, due to earthquake activity caused by gas extraction in Groningen, the government decided to preventively reduce its production by 7.3 % for 2015 and 2016 (Kamp, 2014).

Renewable energies. A successful deployment of renewable energy sources is the second main pillar of the German energy transition. The targeted share for electricity generation of 80 % by 2050 would allow a reduction in the emissions of greenhouse gases of 85 % with respect to the levels of 1990. The power generation targets are being achieved overwhelmingly; the weakest element lies at the distribution and storage infrastructure. Energy fluctuations in wind and solar power generation requires of smart grids to balance the production and consumption levels and for distribution in the national transmission network. There is also a high volume of electricity being transported through the national grid due to large physical distance between the renewable power generating plants and the end customers, e.g., most of the wind shore parks are located in the north of Germany. Grid capacity and technology upgrading poses a challenge to the government’s renewable deployment plans.

Coal. It is expected that the decision to phase out nuclear power generation by the end of 2022 will cause a shortage of power generation that will not be completely compensated for through the use of renewable energy, thus requiring the deployment of conventional gas or coal-fired plants. There are four main criteria to be considered in the current process of reform of the German power market: the secure access to the available resources; the cost-efficiency for customers, in particular for the industry; the climate targets and the European emission trading scheme; and, to a lesser extent, expected impacts on the national labour system, namely the coal sector. On the one hand, gas-fired stations are less pollutant and can most adequately balance the fluctuations of generated power of renewable origin that the coal-fired power plants,

The exploitation of Norwegian gas is technically more challenging and more cost-intensive than that of Russian

though its costs are higher. On the other, it is expected that in the future, gas-fired plants will replace the old coal ones as a consequence of the foreseen elevation of greenhouse certificate prices by the early 2020s. At the time of this writing, it is unclear what the forthcoming role of gas in heat and power generation will be. The federal government is working on a Market Design Act, which is expected to be complete by early 2016.

Shale gas. A study of the Federal Institute for Geological Sciences and Raw Materials estimates an average recoverable volume of indigenous shale gas of ca. 1.3 bcm, which is about four times the volume of natural gas reservoirs (Andruleit et al., 2012, pp. 30-31). In April 2015, the Federal Government has issued a legislative package to regulate the deployment of fracking technology with drilling restrictions on protected natural reserves and reservoirs (Bundesregierung, 2015b). Commercial projects for unconventional fracking (i.e., in shale, clay, marl, and coal seam rocks beyond 3000 metre depths) are everywhere excluded up to 2018. During the intervening period, only scientific research under public supervision shall be allowed in order to assess the impact of this technique on the environment. Beyond 2018, the deployment of fracking projects might be permitted subject to strict approval criteria enforced by the German administration. The current parliamentary debate prior to final enactment reflects the division around fracking that exists in the German society. Deputies of the allied conservative and socialist government parties, and of the Left and Green parties, have publicly expressed their refusal to any possibility of commercial uses for fracking (dpa-AFX & AFP, 2015; Mxw, dpa & AFP, 2015). Social refusal to the exploitation of shale gas is bannered by a number of civic movements and initiatives such as the *Bundesverband Bürgerinitiativen Umweltschutz* (BBU) or the *Gegen Gasbohren* platform, as well as by beer and mineral water business associations and some protestant Churches. The German Industry Association (BDI) and the energy and mining labour unions (IB-BCE) welcome the government's proposal but demand a more flexible regulation. Fracking is not only a question of increasing energy security but also a window to endorse technology innovation and German know-how for the exporting extractive industry (Deutsche Industrie- und Handelskammertag, 2013, p. 2). Besides the issue of potential environmental threats, opponents of shale gas claim that cheap availability of this product will lock in fossil fuel consumption, thereby slowing down the so-called energy transition, *Energiewende*, towards cleaner energies, e.g., discouraging investments on low-carbon technology.

EU Energy Union. On March 2015, the European Council committed to building an Energy Union aiming at enhancing energy security and solidarity among the EU Members; fulfilling a European energy market; promoting energy efficiency; pursuing a low-carbon economy; and fostering innovation and competitiveness (European Council, 2015, p. 1). The Council's proposal aims at enhancing the role of the Commission in the negotiations with suppliers and at improving resilience to potential energy crisis by pushing ahead the European energy and climate targets.

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6. Ostpolitik revisited?

In the sequel, several aspects are discussed concerning Germany's policy towards Russia, and the impact of the current European crisis thereon. First, a brief historic introduction is given. Taking cognisance of the role of the USSR as the main interlocutor to promote peace and security in Europe became a fundamental aspect of the foreign policy of the Federal Republic of Germany in the years after 1969. During the period from 1969 to 1982, the so-called *Ostpolitik* implemented

by the governments of Willy Brandt and Helmut Schmidt proved to be a multinational political instrument for the “policy of freedom”, *Friedenspolitik*, by means of which the political tension between the Eastern and Western blocks could be defused, and the living conditions of citizens in both German republics improved, all aimed at the prospect of German reunification (Genscher, 1978, pp. 8542-8545; Schmidt, 1970). Because the *Ostpolitik* originated in a context of heightened political and ideological antagonism, its fundamental postulate, i.e., “change through rapprochement”¹¹ (*Wandel durch Annäherung*), demanded honest cooperation between the two opposing blocks if a peaceful order in Europe, based on reciprocal understanding, was to be attained and secured. The process of rapprochement towards the socialist states involved making a number of far-reaching concessions to admit what, for decades, had been remained as unacceptable postulates of the West Germany’s domestic and foreign policy, namely the acceptance of the existing Oder-Neisse frontiers, and the *de facto* – not *de iure* – recognition of the existence of two independent German states. On an international scale, the most important consequences of this policy were, first, the UN entry of both German states in 1973; and, second, the celebration of the Conference on Security and Cooperation in Europe (Helsinki, 1973–1975). The Helsinki conference was the first international, multilateral forum since the end of World War II. The Final Act served as an instrument for the establishment of a pacific European order, as it sanctioned the post-war territorial *status quo*, by affirming the stability and inviolability of national frontiers, including the Oder-Neisse frontier, as were settled at the Yalta and Potsdam Conferences (García Picazo, 2000, p. 125; 2013, pp. 184-185).

The *Ostpolitik* brought about a richer set of dialogue elements between the parts: the more traditional political and military ties were supplemented with economic and energy relations. In fact, the economic aspects based on the exchange of soviet gas for German capital and infrastructure were instrumental in the actual shaping the *Ostpolitik* (Genscher, 1978, pp. 8542-8545). Such relations were, on the one hand, a natural consequence of the political *détente* that evolved between the two superpowers during the 1960s; and, on the other hand, they were an instrument in restraining Russia’s expansionism in the 1970s, whose foremost demonstration was the invasion of Afghanistan. In this sense, the economic and energy dimensions of the West Germany-USSR relations were not to be considered separately from the political and military dimensions (Stent, 1984, p. 461). Angela Stent has emphasised that the cognisance of the suffering inflicted by Germany to the Soviet Union during World War II, was indeed at the heart of the West Germany tolerant attitude and continuing efforts towards sustained dialogue with the USSR in spite of the embittered international political climate (1984, pp. 453-454).

The historical bearing of the *Ostpolitik* has, to a large extent, shaped the evolution of German policy towards Russia up to the present. The end of the Cold War and the ensuing German reunification intensified the commercial and energy relations between the two countries, serving the further objective of fostering democratic changes and the improvement of human rights in Russia through economic interdependence. The old *Ostpolitik* leitmotiv thus became “change through interdependence”, enhancing the export of industrial manufactured goods and technological know-how in exchange for Russian gas. In present times, the recent Ukrainian crisis has proved this belief erroneous. This does not mean, however, that substantial changes have taken place in the German political psyche as regards recognising the importance of Russia for

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11 This expression was made public for the first time on July 1963 by Egon Bahr, press spokesman of the then West Berlin mayor, see Bahr (1963).

guaranteeing political, social and economic stability in Europe (Gabriel, 2014; Merkel, 2015a, 2015b). In this sense, Germany now faces up to a dilemma. On the one hand, it is asked to show solidarity with those EU member states potentially most vulnerable to an energy crisis that might ensue in view of current political events. Moreover, in its role as a powerful, influential EU partner, it is demanded that it lend credibility to the EU stance towards the Ukrainian crisis by showing firmness against Russian actions. On the other, the existing strong economic ties between Germany and Russia, the impossibility of gaining energy independence from Russia, and Germany's historical legacy, are all at the heart of Germany's continuing efforts to mediate and to reach conciliatory agreements with Russia. In that regard, a most arduous task for the German federal government is that of reconciling its defence of international law with the strong economic and energy interests of the German industry.

7. Conclusions

The political relations between Germany and Russia fare at present through difficult times. Whilst renewed political measures and more intense diplomatic efforts are certainly called for, the course of economic and energy relations between both countries, however, continues to be one of mutual understanding. In regard to gas-related matters, the federal government faces up to some uncertainty arising from potential alterations in Russian gas supplies with cautious hope. Even though there have been no remarkable consequences for the gas supplies, a growing sense of unease has spread among the political, business and social circles. There are several reasons that lead one to expect no abrupt changes in German energy policy leading to a drastically reduced dependence from Russian gas in the short to medium term, as explained below:

1. The chances for a deliberate gas cut-off of Russian gas are substantially mitigated by the tight economic interdependence existing between this country and Germany (and, in fact, Europe at large), and the lack of well-developed alternative markets for Russian gas in the short term.
2. Following the commissioning of the Nord Stream, OPAL and Gazelle gas ducts, Germany has become an increasingly important transit country for eastern and central European countries, hence also a valuable Russian partner. Germany is no longer dependent on Ukraine for obtaining its gas supply.
3. The process of large-scale transformation of the German energy system required to make it largely independent from Russian gas supplies, would be an extremely lengthy and complex one. The infrastructure investment costs would be so enormous the ultimate energy objective, the so-called "energy transition" (*Energiewende*) in Germany, would be severely compromised.
4. The most plausible course of action for attaining progressive reduction of Russian dependence involves, on the one hand, energy savings and efficiency, technological innovation in renewable energies, low-carbon technology and transport and storage infrastructures for gas and electricity; and, on the other, the enhancement of the common European energy market. All such measures may be contended, imply no substantial change in energy relations with Russia.
5. To conclude, it must be contended that there exists mutual confidence between Germany and Russia concerning the reliability of their energy relations and the fulfilment

There are several reasons that lead one to expect no abrupt changes in German energy policy leading to a drastically reduced dependence from Russian gas

of their commercial agreements. On the part of Germany, its commitment to dialogue is a pillar of the German foreign policy towards Russia, which is firmly grounded on the historical experience of the former Federal Republic during the Cold War years.

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