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Russo-Polish energy security relations: a case of threatening dependency, supply guarantee, or regional energy security dynamics?

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Abstract

Dependency on Russian energy supplies is often cited as a threat to Central European energy security. A critical analysis of this argument requires consideration of the objective level of Central Europe's dependency on Russian energy imports, and an examination of the counter-argument that Russia's ability to satisfy the region's energy import needs actually makes Russia a guarantor of the region's energy security. Poland represents a valuable case study due to its significant Russian energy imports, role as a transit state, active engagement in EU energy policy, and potential to diversify not only its own, but also Central Europe's energy sources. This article suggests that Poland's dependency on Russian supplies is not inherently a threat to Poland's energy security, nor is Russia's ability to satisfy Poland's energy import needs an inherent guarantee of Poland's energy security. A focus on the bilateral Russo-Polish energy relationship fails to take into account the influence of other regional actors and dynamics. Therefore, a regional energy security complex analysis is employed to consider the role of regional actors such as transit states, the dynamic of the EU internal gas market, and Polands' potential to diversify its gas supplies. It is concluded that developments in the regional energy security complex, rather than purely the bilateral Polish-Russian energy relationship, will determine perceptions of Russia as a threat to, or guarantor of, Poland's energy security. The task of Poland and Russia as consumer and supplier respectively will be to engage with other regional actors in order to promote positive developments in regional energy security for the benefit of all.

Key words: energy security, Russia-Poland relations, regional security, gas policy

Introduction

Russia is the largest external supplier of energy to the EU, and as such plays a significant role in European regional energy security. The role of Russia in EU energy security became more

marked following the 2004 EU expansion, which brought into the Union a number of Central European states, which are considerably more dependent on Russian energy imports than their Western European counterparts. This increased dependency has been reflected in the development of EU energy policy, while the dangers of over-dependency were illustrated by transit disputes and interruptions in the delivery of Russian oil supplies in 2007 and in Russian gas supplies in 2006, 2009, and 2010 to their European consumers.

The last decade therefore represents a shift in European perceptions. Previously Soviet (and later Russian) energy supplies had been regarded as a reliable alternative to unstable energy supplies from the Middle East, especially given the willingness of the Soviet Union to continue selling oil and gas to the West during the Organisation of Arab Petroleum Exporting Countries (OAPEC) oil embargo of 1973-74 (Goldman, 1975: 137-139; Blau and Kirchheimer, 1981). Yet by the mid-2000s dependence on Russian energy supplies had come to be seen as a threat to European energy security. This shift has been reflected in academic debates on the role of Russia in Central European energy security (Miller, 2008; Smith, 2008; Helén, 2010). This article seeks to contribute to these debates by critically examining the argument that dependency on Russian energy supplies is a threat to Central European energy security, and by considering the counter-argument that Russia, with its vast natural resources and geographical proximity, is actually a guarantor of the region's energy security. In doing so, Poland represents an interesting case study due to its significant volumes of Russian oil and gas imports, its role as a transit state for Russian oil and gas deliveries to Western Europe, its active engagement in EU energy policy, and Poland's potential not only to diversify its own energy supplies, but also its potential to assist neighbouring Central European states diversify their energy supplies.

This article begins with a consideration of current literature on the concepts of energy security and regional security complexes. The arguments for characterising Russia as a threat to Poland's energy security and, conversely, a guarantor of Poland's energy security are then examined. Finally, the concept of a regional energy security complex is applied to the Russo-Polish energy relationship, thus demonstrating the utility of going beyond the bilateral relationship and taking into account regional energy security dynamics. Such an approach challenges the prevailing dichotomy of characterising Russia as either a strategic partner or an energy superpower whose dominance threatens European energy security, and promotes a more holistic consideration of regional energy security.

Literature and theoretical framework

The concept of energy security

Despite (or perhaps because of) the broad and popular use of the term 'energy security' by a variety of political actors, academics, and political commentators, it is a multi-faceted concept that remains very much open to interpretation. Certainly, energy has been increasingly characterised as an international security issue, with an emphasis on the

depletion of global fossil fuel resources in the face of rapidly growing global energy demand and the possibility of resource wars and threats emanating from potential military or terrorist attacks on energy supplies (Kay, 2012: 294-296; Raphael and Stokes, 2010: 383; Heywood, 2011: 407-408). However, energy security has also been interpreted as a developmental issue, whereby the 'resource curse' encourages corruption and rent seeking while hindering the development of democracy (Williams, 2011; Bhattacharyya and Hodler, 2010), or the abundance of natural resources distorts the broader economy, a phenomena known as 'Dutch disease' (Kolstad and Wiig, 2009: 5318; Balazs, 2012). Furthermore, energy security has also been understood as an environmental issue, with the aim of reducing fossil fuel consumption being driven by concerns over climate change (Smith, 2010: 233; Chalvatzis and Hooper, 2009: 2704; Brown and Huntington, 2008).

Energy security in central and eastern Europe

Klare (2008: 487-488) emphasises the geopolitical aspect of energy security, which has particular relevance for 'states that are highly dependent for their energy supplies on one or two suppliers but are in a weak bargaining position with respect to them and hence vulnerable to political pressure'. Tellingly, Klare (2008: 488) uses Russia's energy relationships with the former Soviet republics of Ukraine, Belarus, Georgia, and the Baltic states as an example of a state using its energy supplies to 'punish an unfriendly government or extract political concessions... For these [import-dependent] countries, then, energy security has come to mean reducing their dependency on a single provider that can employ its dominant position in order to inflict punishment for an unwelcome decision or extract concession of some sort'. The idea of Russia wielding its 'energy weapon' is one that has generated significant debate (Smith, 2008; Goldthau, 2008), to which this article seeks to contribute.

The geopolitical approach to energy security, with particular reference to Russia, has already been considered from several different perspectives: Balmaceda (2008) considers Ukraine's energy dependence on Russia. Baev (2008) examines the role of energy as a tool of Russia's foreign policy and as a source of restoring Russia's military power. Finally, Dellecker and Gomart (2011: 1) seek to 'investigate the link between Russia's foreign and energy policies' on the basis that 'the latter is commonly characterised as the former's driving force, even its *raison d'être*, while the former is often reduced to the latter'.

This article builds on existing literature that considers Russia as a threat to, or guarantor of, European energy security. The dominant European interpretation is that Russia's perceived willingness to use energy as a tool of foreign policy represents a threat to EU energy security (Winchester, 2001: 1) and that European over-dependence on Russian energy supplies serves to enhance the threat posed by Russia wielding the 'energy weapon' (Smith Stegen, 2011). However, others have suggested that hydrocarbon-rich Russia remains an important alternative to potentially unstable Middle Eastern energy supplies (Monaghan, 2006), and that 'Russia is no longer a threat to European security but a partner and guarantor, especially

in respect of its energy security' (Pradt, 2012). Such academic debates have been reflected at the political level: The British House of Commons Defence Committee published a report in 2009 which considered European energy vulnerability and Russia's potential to threaten European energy security (House of Commons Defence Committee, 2009: section 6). Conversely, Russian Foreign Minister Sergey Lavrov has claimed that Russia remains a guarantor of energy security in Europe (Isakova, 2008).

This article contributes to geopolitical debates over energy security by critically examining the bilateral Polish-Russian energy relationship and the debates over Poland's energy dependency on Russia, topics that continue to provoke academic and media interest (Kopysc, 2008; Gorska, 2010; Warsaw Business Journal, 2011; The Lithuania Tribune, 2012). This article then adds to the existing literature on the Polish-Russian energy relationship by examining the issue from a regional perspective, through the application of a regional energy security complex - an approach that has proved its utility in other case studies (Palonkorpi, 2008; Mascotto, 2010; Zelensky, 2009).

The concept of a regional energy security complex

The concept of a regional energy security complex is based on the idea of a regional security complex theory (RSCT), as proposed by Buzan and Waever (2003). Primarily, Buzan and Waever (2003: 45) claim that 'Simple physical adjacency tends to generate more security interaction between neighbours than among states located in different areas… Adjacency is potent for security because many threats travel more easily over short distances than over long ones'. Given the disparities between EU Member States in their dependency on Russian energy supplies, the idea that security threats travel more easily over short distances is an apt one; statistical data suggest positive correlation between a state's geographical proximity to Russia and that state's dependence on Russian energy supplies (Eurogas, 2011: 8). Therefore, the energy security threats associated with over-dependency are more pronounced, the closer the importer state is to Russia geographically. For Poland, as with other states of Central Europe, geographical proximity does indeed go hand-in-hand with energy dependency.

A related issue raised by Buzan and Waever (2003: 47) is that of patterns of amity and enmity that are 'generated internally in the region by a mixture of history, politics, and material conditions', and that such patterns influence the identification of security threats. Given the history of strained relations between Poland and Russia, and the existence of perceptions of Russia as Poland's 'historical foe' (Cienski, 2012), it is somewhat unsurprising that dependence on Russian energy supplies should be regarded as threatening to Poland (Nyga-Łukaszewska, 2011; Kopysc, 2008). However, the notion of Russia as a threat should be examined critically, as the first half of this article seeks to do.

The relational aspect of Buzan and Waver's (2003: 43) approach also has utility for energy security, given that energy security in terms of security of supply through external imports is also inherently relational. As Raphael and Stokes (2010: 379) suggest, the development of internal energy infrastructure in the developed countries of the 'global North' (including Poland) means that, 'for these societies, the existence of stable energy supplies at a *state* level is usually sufficient to ensure enough energy for the entire population'. Thus, the security of Poland's energy imports, rather than Poland's internal energy distribution capabilities, is reaffirmed as the object of study.

The operationalisation of a regional focus by definition entails the acceptance that bilateral energy relations do not take place in a vacuum, and that other regional actors exert influence on the bilateral energy relationship between two states. The delineation of the limits of the regional energy security complex necessitates the identification of relevant regional actors and their influence on regional energy security. Specifically, this article considers the roles of Ukraine, Belarus, and Germany as transit states for gas deliveries from Russia to Poland (and therefore as actors in the regional energy security complex), and the development of the EU gas market and Poland's own diversification options for gas supplies as further factors in the regional energy security complex, of which the bilateral Russo-Polish energy relationship is one component.

The application of a regional energy security complex to Polish-Russian energy relations, and to the question of whether Russia represents a threat to, or guarantee of, Poland's energy security has utility because it addresses the two states' regional proximity as a factor in energy relations, the question of Poland's dependency on Russian energy supplies, Polish perceptions of such dependency as a threat to Poland's energy security, and the interaction between exporting, importing, and transit states in the region – all of which are elements of a regional energy security complex as highlighted by Palonkorpi (2008: 3).

Applying the concept of energy security to Poland

The concept of energy security is, in the majority of cases, examined from the consumer perspective. This is reflected in the International Energy Agency (IEA, 2012a) definition of energy security as 'the uninterrupted physical availability at a price which is affordable, while respecting environment[al] concerns'. Whilst it is acknowledged that conceptions of energy security vary depending on the role of a given actor (for example, energy exporter, transiter, or importer), Poland's position primarily as an importer and consumer of Russian energy supplies entails the application of a consumer-centric definition of energy security for the purpose of this article.

A state is most vulnerable to interruptions in the physical availability of energy or to sudden price increases when that state is dependent on imports for a significant share of its energy supply. Such a situation is referred to as 'energy dependency', which Balmaceda defines as:

> a) more than one-third of a country's total energy supply comes from foreign sources; b) more than 50% of a country's annual consumption of a single major energy source (in most of the Central and Eastern European states, oil or gas) comes from foreign sources, or c) a country depends on a single external provider for more than 60% of its imports of a major energy source for that country or more than 45% of its consumption of that energy source. (Balmaceda, 2008: 16)

By applying this model of energy dependency to Poland, and considering Russia as the 'single external provider', it is possible to assess more objectively the role of Russia in Poland's energy security.

Dependence on Russian supplies as a threat to Poland's energy security

The argument for characterising dependency on Russian energy supplies as a threat to Poland's energy security is based on a combination of two contentions. The first is that Poland (like much of Central Europe) exists in a state of energy dependency, as defined by Balmaceda above. The second is that Russia, with its virtual monopoly on crude oil and natural gas exports to Poland (and to much of Central and Eastern Europe), is in a strong position to potentially take advantage of this dependency. The extent of Poland's energy dependency is illustrated in the tables below.

Table 1. Poland's total primary energy supply, by fuel in 2009

Poland's total primary energy supply, by fuel in 2009		
	Total primary energy supply (thousand tonnes of oil equiv.)	*Total primary energy supply (percentage of total)*
Solid fuels (coal and peat)	51131	55.6
Crude oil	21798	23.7
Natural gas	12000	13.1
Nuclear	0	00.0
Renewables	6968	07.6
Total	91897	100.0

Source: IEA, 2012b.

Table 2. Poland's electricity generation mix in 2009

Poland's electricity production mix in 2009		
	Electricity production by fuel (Gigawatt hours, GWh)	*Electricity generation mix (percentage of total)*
Solid fuels (coal and peat)	134696	88.8
Crude oil	2723	1.8
Natural gas	4787	3.1
Nuclear	0	0.0

Renewables (biofuels, waste, hydro, geothermal, solar, etc)	9278	6.1
Other	236	0.2
Total	151720	100.0

Source: IEA, 2012c.

Table 3. Poland's energy production and consumption in 2009

Poland's energy production, consumption, imports, and import dependency in 2009 (thousand tonnes of oil equivalent, or ktoe)					
	Solid Fuels	Crude Oil	Natural Gas	Renewables	Total
Gross consumption	51131	21798	12000	6968	91897
Production	56418	697	3677	6732	67524
Net imports (consumption-production)	-5287	21101	8323	233	24373
Import dependency (imports/consumption)	-10.3%	96.8%	69.4%	3.3%	26.5%

Source: IEA, 2012b.

From Table 3 it can be seen that while Poland's solid fuel (coal and peat) production was more than enough to meet its consumption needs in 2009, imports accounted for 96.8 percent of Poland's crude oil consumption and 69.4 percent of Poland's natural gas consumption. Given that Poland has zero import dependency for solid fuels and varying degrees of import dependency for oil, gas, and renewable energy (as illustrated in Table 3), Poland imported 32.5 percent of its energy consumption in 2009. According to the IEA (2011: 5, 13), in 2009 Russian supplies accounted for 94.0 percent of Poland's crude oil imports (the remainder being imported from Algeria, the UK and Norway) and 82.0 percent of Poland's natural gas imports (with a further 11.0 percent from Germany). Russia therefore provided 91.0 percent of Poland's crude oil consumption, and 56.9 percent of Poland's natural gas consumption in 2009.

Taken together, these statistics suggest that Poland almost meets Balmaceda's first definition of energy dependency, and certainly meets the second and third: a) Poland relies on imports for almost a third of its primary energy consumption; b) Poland imports more than 50 percent of its consumption of both oil and gas; and c) more than 60 percent of Poland's crude oil and natural gas imports, and more than 45 percent of its crude oil and natural gas consumption, are imported from a single external source, Russia.

While Poland is virtually self-sufficient in the generation of electricity thanks to its coal reserves and production, Poland's transport and industrial sectors still need crude oil and natural gas. Furthermore, the trend in EU energy and environmental policy is towards the replacement of coal by natural gas in power and electricity generation (European Commission, 2011: 11), as the burning of natural gas emits virtually no sulphur dioxide

(SO2), and around half as much carbon dioxide (CO2) as the burning of coal (United Nations Conference on Trade and Development, [UNCTAD], n.d). Polish energy experts predict that Poland's energy policy could follow suit, resulting in increased gas consumption (Warsaw Business Journal, 2010), and therefore in increased gas imports from Russia. Indeed Poland's gas consumption has been increasing steadily in recent years, and set a new record high for daily gas consumption in February 2012 (Strzelecki, 2012). Meanwhile Poland's oil demand has risen from 411,000 barrels per day (bpd) in 2000 to 535,000 bpd in 2009, with an average annual growth rate of 3 percent (IEA, 2011: 5). This steady increase in demand shows little sign of slowing, and Russia remains the obvious source of increased imports. This being the case, the statistics concerning Russia's role in supplying crude oil and natural gas to Poland suggest that Russia is, and will remain, the dominant partner in the Russo-Polish energy relationship.

All the more so, if the sets of figures discussed above are combined: It has already been noted that in 2009 crude oil accounted for 23.7 percent of Poland's energy mix, of which 96.8 percent was imported, and that 94.0 percent of these imports came from Russia. In total, this means that Poland relied on specifically Russian imports for 21.6 percent of its primary energy mix (due to crude oil)[1]. If the same formula is used for Poland's natural gas imports from Russia, it can be calculated that Poland relies on Russian imports for 7.4 percent of its primary energy mix (due to natural gas). By combining the figures for crude oil and natural gas, it can be seen that, in 2009, Poland relied on specifically Russian energy imports for 29.0 percent of its primary energy mix.

Russia's position as the dominant partner in the Russo-Polish energy relationship is enhanced by Poland's relatively small share in Russia's oil and gas exports when compared with Russia's significant share in Poland's oil and gas imports. As noted above, in 2009, Russia provided 94.0 percent of Poland's crude oil imports (19.8 million tonnes of oil equivalent [mtoe]) and 82.0 percent of Poland's natural gas imports (6.8 mtoe). In the same year, Russia exported 250.1 mtoe of crude oil and 131.2 mtoe of natural gas (IEA, 2012d). Therefore, exports to Poland accounted for 7.9 percent of Russia's oil exports and 5.2 percent of Russia's natural gas exports in 2009, or 6.9 percent of Russia's 381.3 mtoe of hydrocarbon exports in 2009.

However, Poland is not simply an energy importer. Poland also represents a transit state for Russian oil and gas deliveries to states further west, such as Germany. The northern section of the two-pronged *Druzhba* oil pipeline from Russia via Belarus to Western Europe passes through Poland. Once supplies to Belarus and Poland are discounted, Poland transited approximately 350,000 bpd (17.4m tonnes per year) of crude oil to Germany through the

[1] The formula for this calculation is: (imports from Russia as percentage of total oil imports) multiplied by (imports as percentage of oil consumption) multiplied by (oil as percentage of primary energy mix). Simply (0.94)*(0.968)*(0.2372) = 0.2158

Druzhba pipeline in 2009 (Reuters, 2009), which equates to 7.0 percent of Russia's total crude oil exports in 2009 (Central Bank of Russia, 2012a). Poland also hosts the Yamal-Europe natural gas pipeline from Russia to Germany via Belarus and Poland, which has a capacity of 32.9 billion cubic metres (bcm) per year (Gazprom, 2012a), and accounted for 19.5 percent of Russia's 168.4 bcm of gas exports in 2009 (Central Bank of Russia, 2012b). Poland's consumption and transit combined therefore accounted for 14.9 percent of Russia's oil exports and 21.1 percent of Russia's gas exports in 2009[2]; thus demonstrating the importance of Poland for Russia as a transit state, as well as a consumer of Russian energy supplies.

Whilst it is clear that Poland is dependent on Russian energy supplies, and that Russia is the dominant partner in the Russo-Polish energy relationship, the question of whether or not this situation inherently makes Poland's dependency on Russian energy supplies a threat to Poland's energy security, on the basis that Russia may someday seek to exploit this dependency, remains highly debateable. Just because an opportunity for exploitation exists does not necessarily lead to such exploitation actually occurring.

Poland's status as an EU Member States is also a factor in the Polish-Russian energy relationship. It can be argued that Russia's energy relations with EU Member States are of a qualitatively different nature to Russia's energy relations with its non-EU former Soviet neighbours, such as Ukraine and Belarus. The ability of EU Member States to 'Europeanise' their disputes with Russia (i.e. to transform a bilateral dispute with Russia into an issue between the EU and Russia) makes it unlikely that Russia would ever try to wield the 'energy weapon' against an EU Member State. For example, Poland was able to delay negotiations over a new EU-Russia Partnership and Cooperation Agreement by several months following a Polish-Russian dispute over Poland's meat exports to Russia (Grinkevich, 2007). Furthermore, where difficulties in Russia's energy relations with Ukraine and Belarus have occurred, it has often been linked to a lack of clarity concerning the 'rules of the game' (Zagashvilli, 2010) regarding contracts and responsibilities; corruption and a lack of transparency in bilateral energy trading (Balmaceda, 2008); and Russia's inability to gain full economic value (i.e. a 'European market price') from its energy exports to those two countries. Where Russia has failed to gain economic value it has sought political value; in return for lower gas and oil prices Russia has been able to complete the purchase of Beltransgaz in Belarus (Natural Gas Europe, 2011b), and extend the lease of the Sevastopol naval base in Crimea for Russia's Black Sea naval fleet (BBC, 2010). By contrast, the rules of the game in the Russo-Polish energy relationship are clear; both sides accept their responsibilities (i.e. delivery and payment on time and in full) and Poland is able to pay the 'European' price for its Russian oil and gas imports, thereby reducing the propensity for disputes.

[2] Assuming Poland's offtake from the Yamal-Europe pipeline in 2009 was 5.5bcm (i.e. the maximum permitted) (Gaz System, 2008: 7) and that the rest of Poland's 8.2bcm (IEA, 2011, pII 31) of Russian gas imports were imported via Germany, Ukraine and Belarus

Given Poland's position as an EU Member State with a reduced propensity for bilateral energy disputes with Russia compared to its Ukrainian and Belarusian neighbours, Russia could actually be characterised as a guarantor of Poland's energy security in light of the often turbulent nature of global energy markets, concerns over the political stability of some of the regions responsible for global oil supplies, and the recurring debates over the finite nature of fossil fuels such as oil and gas.

Russia as a guarantor of Poland's energy security

The rationale for characterising Russia as a provider of energy security to Poland is based on four factors: reserves, production, geographical location, and infrastructure. In short, Russia has the capability to produce significant amounts of oil and gas, the ability to transport these energy supplies to Poland via already-existing infrastructure, and the reserves to ensure that this production will continue for at least several decades.

Russia's oil and gas reserves and production

According to the British Petroleum (BP) Statistical Review of World Energy (2011: 6, 10, 20, 22, 28), Russia holds the world's seventh-largest oil reserves, enough to maintain current production levels for twenty years without the development of new reserves. In 2010, Russia was the world's largest oil producer. Russia also holds the world's largest gas reserves, enough to maintain current production levels for seventy-six years without the development of new reserves. In 2010, Russia was the world's second-largest gas producer and the world's largest gas exporter. For Poland, this means that Russia will be able to supply Poland's crude oil and natural gas needs for at least the medium term future and probably longer.

Geographical proximity and infrastructure

Russia's substantial oil and gas reserves by themselves do not guarantee Poland's energy security. The IEA definition of energy security refers to the physical supply of energy, which requires infrastructure in the form of pipelines and/or tankers and ports capable of receiving tanker supplies. Fortunately for Poland, such infrastructure for the import of Russian oil and gas already exists. To a significant extent, it is the legacy of the Council for Mutual Economic Assistance (COMECON) and Soviet oil and gas deliveries to neighbouring socialist states. This legacy is reflected in the names of the pipelines by which Poland receives Russian oil and gas: The *Druzhba* (friendship) oil pipeline mentioned earlier, and the *Soyuz* (Union), and *Bratstvo* (Brotherhood) gas pipelines. The latter two supply gas to Ukraine, which in turn supplies gas to Poland. The Yamal-Europe gas pipeline referred to earlier is a post-socialist construction, reaching its design capacity in 2006 (Gazprom, 2012a).

The major benefits of receiving oil and gas through pipelines rather than by tanker are that such imports are quicker, cheaper and more convenient, in that oil and gas arriving by pipeline (by definition) goes straight into Poland's domestic pipeline network. As a safety net, Poland also has an oil terminal on the Baltic Sea at Gdansk capable of receiving Russian oil imports by tanker, should deliveries via *Druzhba* be interrupted. It could therefore be contended that the combination of geographical proximity to one of the largest oil and gas producers in the world, which possesses reserves sufficient for several decades of uninterrupted production, and the existence of infrastructure to facilitate the import of such oil and gas supplies amounts to a significant degree of security of energy supply. Due to Russia's central role in this security of energy supply, it would be possible to conclude that Russia provides Poland with energy security.

However, whilst it may be comforting for Poland to know that it has a neighbour capable of meeting its energy needs for at least the next several decades, a narrow focus on the bilateral Russo-Polish energy relationship fails to take into account the other regional actors and regional developments which impact upon Poland's energy security and the role of Russia therein. The interaction between a multitude of regional actors in the sphere of energy security, with each affecting the energy security of the others, represents a regional energy security complex as outlined at the beginning of this article.

A Central European regional energy security complex

Applying the concept of a regional energy security complex

The concept of a regional energy security complex may be applied to European energy security in relation to natural gas supplies, on the grounds that the EU gas market at the present time remains largely regional. Whilst the global liquefied natural gas (LNG) market is growing and the share of LNG in EU gas imports is also growing, pipeline deliveries from three longstanding suppliers (Russia, Norway, Algeria) still accounted for 79.0 percent of EU gas imports in 2009 (Eurostat, 2011). Central European gas supplies are of an even more regional nature because (unlike Western Europe) there are no LNG regasification terminals in Central Europe: LNG supplies from non-traditional suppliers are only available in small volumes via states further west. Instead, Russia is the dominant gas supplier via Belarus and Ukraine. In 2009, the Central European (Poland, Hungary, Czech Republic, Slovakia) average gas import dependency was 93.8 percent, the average share of Russia in gas imports was 83.2 percent, and the average share of Russia in gas consumption was 73.9 percent (IEA, 2011b: II 8-9, II 31-33).

Despite the fact that the majority of Poland's (and indeed Central Europe's) oil supplies originate in Russia, oil supplies have been securitised (i.e. successfully intersubjectively defined as a security issue by relevant and influential actors) to a lesser degree than gas supplies. Oil is perceived to be more of a global market, and the potential for non-Russian imports to Poland is much greater for oil, thanks to Poland's Baltic coast oil terminals and a

comparatively fluid global market. With this 'safety net' in place, there has been much less emphasis on the need for Poland to diversify its oil supplies, and much less emphasis on the development of a European 'oil market' in comparison to gas. Rather, the European Commission has encouraged EU Member States to maintain strategic oil stocks, which can be drawn upon in the event of a short-term supply interruption (European Council 2006; European Council 2009). Such strategic stocks are a more realistic option for oil storage than for gas storage, because oil storage is comparatively cheaper and less technologically challenging. By contrast, the securitisation of gas has led to a focus on maintaining gas supplies through diversification of suppliers and supply routes, rather than maintaining strategic stocks (although the maintenance of strategic gas stocks is also an element of EU energy policy). Therefore, this final section shall focus exclusively on the natural gas aspect of Poland and Central Europe's regional energy security complex.

Actors in the regional energy security complex

The idea of a regional energy security complex encourages the consideration of the relevant influential actors in a region, rather than simply the two actors engaged in a bilateral security relationship. With respect to Poland, the most important actors (besides Russia and Poland itself) in the regional energy security complex are Poland's neighbouring states which transit gas to Poland: Belarus, Ukraine, and Germany. In 2009, Poland imported 9.9 bcm of gas (IEA, 2011: II 31), but according to the Polish gas transmission system operator, Gaz System, Poland has the capacity to import up to 17.9 bcm per year through four international border entry points plus two inlets from the Yamal-Europe pipeline (see Table 4).

Table 4. Entry points for Poland's gas imports in 2008

Entry points for Poland's gas imports in 2008		
Entry point	***Country***	***Annual capacity (bcm)***
Lasów	Germany	1.1
Drozdowicze	Ukraine	5.6
Wysokoje	Belarus	5.5
Tietierowka	Belarus	0.2
Włocławek	Belarus (Yamal-Europe)	3.1
Lwówek	Belarus (Yamal-Europe)	2.4

Source: Gaz System, 2008: 7; Gazoprojekt, 2010: 57

Whilst it is known that imports from Germany in 2009 were 1.1bcm (IEA, 2011b: II.30) and that imports from Russia were 8.2bcm (IEA, 2011b: II 31), the relative shares of Belarus and Ukraine as transit states in Russian gas imports can only be estimated. Therefore, inferences regarding the respective roles of Belarus and Ukraine are drawn on the basis of their relative capacities to transit Russian gas to Poland.

Belarus accounts for 62.6 percent of Poland's gas import capacity. Whilst relations between Russia and Belarus in the energy sphere have not always been smooth (Yafimava & Stern,

2007; Yafimava, 2010), Poland's gas imports via Belarus are likely to be at least a little more secure following Gazprom's purchase of the final fifty percent stake in Beltransgaz. Gazprom had purchased the first fifty percent in the wake of the 2007 Russo-Belarusian energy dispute. Beltransgaz not only owns and operates the Belarusian gas transmission network, but also operates the Gazprom-owned Belarusian section of the Yamal-Europe pipeline (Beltransgaz, 2012; Natural Gas Europe, 2011b). The acquisition of Beltransgaz was a logical one for Gazprom, given that the Russian company considers that 'Belarus is a strategically important link ensuring Gazprom's export deliveries to Europe' (Gazprom, 2012b).

Ukraine accounts for 31.3 percent of Poland's gas import capacity. Despite accounting for a lower percentage of Poland's gas imports than Belarus the reliability of deliveries via Ukraine are, if anything, more of a concern for Poland as the Russo-Ukrainian gas disputes of 2006 and 2009 have demonstrated (Stern, 2006; Stern, Yafimava & Pirani, 2009). This concern is amplified by the failure of Ukraine and Russia to find a long-term solution to the question of Russian gas transit via Ukraine (Selivanova, 2011).

Germany currently accounts for 6.1 percent of Poland's gas import capacity, but accounted for around 11 percent of Poland's gas imports in 2009 (IEA, 2011a: 13; Stratfor, 2012). The launch of the first line (27.5 bcm) of the Nord Stream gas pipeline and the scheduled completion of the second (27.5 bcm) line by the end of 2012, combined with the proposed development of West-East interconnections between Germany and Poland, will make it possible for Germany to act as a transit state for Russian and non-Russian gas supplies to Poland in the event of an interruption in supplies via Belarus or Ukraine. To this end, in January 2012 Gaz System announced an increase in import capacity at Lasów from 1.1 bcm to 1.5 bcm per year and the establishment of 'virtual reverse flow' through the Yamal-Europe pipeline, which will allow Poland to import 3.3 bcm more gas each year from Europe (Gaz System, 2012a). The launch of Nord Stream, and the concomitant potential reduction in Ukraine's and/or Belarus' share in the transit of Russian gas to Europe could reduce the propensity for those states to use gas transit as a bargaining chip in their bilateral gas negotiations with Russia, thus improving the security of Russian gas supplies to Poland. However, the Polish interpretation of Nord Stream making it easier for Russia to cut off Ukraine or Belarus (and therefore Poland) without disrupting supplies to its important Western European consumers (Natural Gas Europe, 2011a) means that the role of Nord Stream in Poland's (and indeed in Central Europe's) energy security remains very much a contested one.

The development of the EU gas market

Whilst the security of gas deliveries via Belarus and Ukraine arguably depends more heavily on Russia's relations with these two states than on Russia's relationship with Poland, the proposal to increase gas supplies via Germany is an illustration of the development of the EU internal gas market and the increase in intra-EU gas trading. The development of the EU

internal gas market is important from the 'regional energy security complex' perspective because it represents a developing regional dynamic regarding gas supplies and gas trading. This regional dynamic affects Poland's energy security to as great an extent as other actors (such as Belarus, Ukraine and Germany) in the regional energy security complex, on the grounds that the development of the EU internal gas market increases Poland's ability to diversify its gas supplies, and therefore improve its energy security.

The development of an EU internal gas market can be traced back to the European Parliament and Council Directive 98/30/EC of 22 June 1998 concerning common rules for the internal market in natural gas (European Parliament and Council, 1998) which established 'common rules for the transmission, distribution, supply, and storage of natural gas'. This legislation was developed and updated in 2003 and 2009 (European Parliament and Council, 2003; European Parliament and Council, 2009), and has been complimented by the development of Trans-European Energy Networks (European Union, 2007a; European Commission DG Energy, 2010). The 2009 legislation is often referred to as the Third Energy Package (European Commission, 2012). In particular it provides for the liberalisation of the EU internal energy market, and the legal separation of vertically integrated energy companies into production, transmission, and distribution (sales to final consumers) sectors, on the grounds that increased competition at all levels will reduce the propensity towards monopoly pricing, and will therefore lead to reduced prices for consumers.

In addition to the unbundling proposed by the Third Energy Package, another vital component of the development of an EU internal gas market is an increase in spot trading. Spot-trading refers to the buying and selling of fixed volumes of gas at prices determined by market mechanisms of supply and demand, as opposed to the traditional form of gas trading on the basis of long-term contracts (lasting up to 25 years), with fixed upper and lower import volumes and prices index-linked to world oil prices. Such trading between EU Member States (such as that between Germany and Poland) has only been possible since the abolition of 'destination clauses' in gas import contracts (Melling, 2010: 46), which had previously prevented countries from re-exporting imported gas.

Crucially for Central European regional energy security, these developments are laying the foundations for an increase in EU internal cross-border gas trading between EU Member States, thus changing the dynamic of Central European energy security from that of a cluster of small energy 'islands' of individual states dependent on a dominant monopoly supplier (Russia) to that of a single, larger, more integrated market consisting of multiple states. This shift reduces the vulnerability of each importer state, and therefore represents an improvement in the security of gas supplies for the consumer states of the region. The short-term significance of these developments for Poland lies in Poland's ability to buy gas from neighbouring EU Member States should the need arise. In the long term a more developed EU internal gas market could enable Poland to re-export a percentage of its LNG imports, or

even export its own gas production, depending on the development of Poland's LNG import capacity and shale gas production.

Poland is not only a passive recipient of these developments, but an active participant in this regional energy security dynamic. Indeed, Poland has arguably been the most pro-active of the Central European 'new' EU Member States in the development of EU energy policy. As Roth (2011: 610-620) discusses in detail, the Polish Government has pressed for EU 'energy solidarity' since the 2006 Russia-Ukraine gas dispute. Whilst the Polish Government failed with its European Energy Security Treaty (known as 'Energy NATO') initiative in 2006, it did succeed in inserting references to a 'spirit of solidarity' into the Lisbon Treaty (article 100; article 176) and undoubtedly influenced the 2008 Energy Security and Solidarity Action Plan (European Union, 2007b; European Commission, 2008). Thus, Poland has consistently attempted, with varying degrees of success, to Europeanise its energy security priorities (i.e. to upload its national energy security priorities to the European level) (Maltby, 2010: 15).

Diversification of gas supplies: the potential for LNG imports and shale gas production in Poland

Finally, the greatest potential increase in Poland's security of gas supply lies in the potential for two as-yet-unrealised developments: The development of LNG imports and a substantial increase in Poland's own gas production due to the advent of shale gas production. These two projects have the potential to significantly reduce Poland's dependency on Russian gas supplies via Ukraine and Belarus. Furthermore, they have the potential to dramatically change Poland's role in the Central European energy security complex, from that of an importer and transiter of Russian gas to that of a new regional gas supplier, and (crucially) a source of alternative, non-Russian, regional gas supplies.

Polskie LNG (a 100 percent owned subsidiary of the 100 percent state-owned Polish Transmission System Operator [TSO] Gaz System) (Gaz System, 2011) is currently constructing Central Europe's first LNG terminal at Swinoujscie on Poland's Baltic coast. The European Investment Bank (EIB) granted Poland a €135m loan to assist in the construction of the terminal, which is expected to become operational in June 2014 with an initial capacity of 5 bcm per year, which equates to a third of Poland's current natural gas consumption (EIB, 2011). Gaz System has also announced its intention to build more than 1000 km of new gas pipelines by 2014, which will 'constitute an important element of the North-South Gas Corridor connecting the LNG terminal in Swinoujscie with the planned Adria LNG terminal [in Croatia] through the transmission infrastructure of Central European countries' (Gaz System, 2012b).

Over the past decade the production of shale gas, which requires a combination of horizontal drilling and the hydraulic fracturing of shale rock (known as 'fracking') has enabled

American gas production companies to gain access to previously inaccessible gas reserves. The United States produced 4.87 trillion cubic feet (137.9 bcm) of gas in 2010, up from virtually nothing in 2000, meaning that shale gas accounted for approximately 23 percent of US gas production in 2010 (U.S. Energy Information Administration [EIA], 2011: 4; Reuters, 2012). Similar shale gas deposits have been discovered in Poland, triggering much speculation about Poland's energy future. Poland's reserves are thought to be several trillion cubic metres, thus raising the possibility of Poland freeing itself from gas imports and even becoming a gas-exporter. However, production is likely to be limited to 0.2-0.3 bcm in 2014/15 and 1-3 bcm by 2018-20 (Natural Gas Europe, 2012). Such timescales explain the willingness of Polish energy companies to sign contracts with Gazprom to import around 10 bcm a year until 2022, and the willingness of the Polish Government to approve those contracts (ICIS Heren, 2010).

Given the likely increases in Poland's gas demand over the coming decade, it seems that the potential 5 bcm of LNG imports from 2014 onwards will either be consumed in addition to the Russian gas imported under long-term contracts, or re-exported to neighbouring states, depending on Poland's conventional gas production. The key questions for the post-2020 period are whether Poland's shale gas production will replace, or merely compliment, continued imports of Russian gas, and whether Poland will become a regional gas exporter. This question will have a significant impact not only the future role of Russia in Poland's energy security, but also on the future role of Russia in Central European energy security more broadly.

Conclusion

Poland's dependency on Russian energy supplies *per se* is not a threat to Poland's energy security. Likewise, Russia's vast natural resources and geographical proximity to Poland in and of themselves are no guarantees of Poland's energy security. Such contentions fail to take into account the other actors involved in the Central European regional energy security complex. Polish conceptions of dependency on Russian energy supplies as a threat to Poland's energy security are influenced as much by the potential for disputes between Russia and Belarus or Ukraine to result in transit interruptions as they are by the bilateral Russo-Polish energy relationship, and the level of trust in that relationship. Furthermore, the potential for Belarus or Ukraine to unilaterally interrupt Poland's import of Russian energy supplies via the Druzhba and Yamal-Europe pipelines is just as great as that of Russia itself. In such a situation, Russia could even circumvent Belarus with gas supplies via Nord Stream and Germany, and oil supplies via tanker to the Polish oil terminal at Gdansk. Therefore, the role of Russia in Poland's energy security, and indeed in Central European energy security, depends as much on neighbouring regional actors as it does on Russia itself.

The focus on natural gas in the latter part of the article is justified on the grounds that Poland's oil imports and consumption are set to remain relatively stable as a share of

Poland's overall energy consumption, whilst environmental considerations and the influence of EU environmental policy suggest that Poland's gas consumption is likely to increase at the expense of domestically-produced coal, especially in the sphere of electricity production, which will result in increased gas imports unless shale gas production can be commercialised in significant volumes.

Current developments suggest that Poland's energy security regarding natural gas is increasing, thanks to a combination of the development of the EU gas market, the launch of Nord Stream, Gazprom's purchase of Beltransgaz, the ongoing construction of the LNG terminal at Swinoujscie, and could increase further if the large-scale development of shale gas in Poland proves viable. As these developments suggest, Poland's future energy security will depend on improving the security of supplies from Russia combined with an increase in non-Russian gas supplies (such as LNG and shale gas) in order to reduce dependence on a single source.

The example of Poland is likely to prove relevant to the natural gas energy security of Central Europe more broadly, which is also set to improve thanks to a combination of an increase in the security of Russian supplies and diversification of energy sources. Looking forward, the completion of Poland's LNG terminal and regional interconnectors, and the potential for the development of shale gas production in Poland, could make Poland a regional energy leader in the role of gas (re-)exporter, and thus dramatically influence the role of Russia in Central European energy security and the dynamic of Central Europe's regional energy security complex.

To conclude, it is the regional energy security complex, rather than the bilateral Polish-Russian energy relationship, which determines Russia's position as a threat to, or guarantor of, Poland's energy security. This more holistic approach challenges the prevailing tendency to characterise Russia as either strategic energy partner or a regional energy superpower whose dominance represents a threat to regional energy security, and suggests that positive developments in the region's energy security complex (such as increasing regional energy trading and supply source diversification, as well as improvements in transit security) have the potential to reduce the dangers of dependence on Russian energy suppliers and enable Russia to fulfil the role of guarantor of Poland's energy needs, whilst negative developments (such as a breakdown in relations with transit states such as Ukraine) have the potential to increase the risks of dependence on Russian energy supplies for Poland, thus rendering Russia a threat to Poland's energy security. The task for Poland and Russia, as consumer and supplier respectively, is to engage with other regional actors and promote positive developments in regional energy security that will be beneficial for all.

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