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The EU's energy interdependence with Russia and transit countries: what best way to preserve energy security?

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ABSTRACT:

The recent events in Ukraine have shaken once more the EU's confidence on Russia in general as a responsible international actor and the protracted energy dispute with Ukraine from June to December 2014 may appear as a confirmation of Russia's untrustworthy role as energy supplier. In this respect, the EU's new energy policy in general and its negative position on South Stream in particular, may appear as correct. However, seen through a wider scope, moving away from Russia as supplier of natural gas may run counter to the EU's energy security. Analyzing the nature of Russia's relations with Ukraine as a transit country and determining which are the EU's real options to diversify away from Russia, this paper will consider whether the EU's current policy secures its energy security or not. For that, I will understand energy security from both its short-term and long-term dimensions, combined with the concepts of vulnerability and sensitivity interdependence. If the EU is in the short term sensitive to risks regarding energy flows through Ukraine due to turbulent Russia-Ukraine relations, it is nevertheless vulnerable to the long-term consequences of reducing its dependence on Russia as supplier of natural gas. Branching out to a wider debate, also will be considered which is the level of politization of the EU's energy security and how could be Russian, Ukrainian and European energy interests satisfactorily preserved in a positive-sum game.

KEYWORDS: European Union (EU), Russia, Ukraine, Energy, Interdependence.

1. Introduction

The Euromaidan and a new situation of energy confrontation between Russia and Ukraine

The process known as the Euromaidan (see: Sakwa 2015, Wilson 2014, Menon and Rumer 2015), which led to Ukraine's president Viktor Yanukovich ousting and to an eventual (non-declared) war with the Russian Federation, had energy in its very center. One of the incentives Putin's Russia offered Ukraine to maintain its refusal to integration towards the European Union (EU) within the Eastern Partnership Programme,² was a substantial reduction in energy prices paid by Ukraine to the Russian monopoly Gazprom; henceforth (and only lasting for the first quarter of 2014), Naftogaz (the Ukrainian energy monopoly) would pay US268.5tcm instead of the close to US410tcm it would have been paying instead. When the Yanukovich Administration was

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² In the Vilnius Summit of the Eastern Partnership planned for the 28-29 November 2013, Ukraine was supposed to sign an Association Agreement (AA), including a juicy, as well as controversial, free-trade agreement. Squeezed between the political conditionality of the AA and the pressure from Russia, Yanukovich decided on the 21 November to postpone the signature, triggering thus protests in Ukraine that nurtured the so-called Euromaidan, whose consequences reverberate so far.

overthrown as a result of the triumph of the Euromaidan the balance of power tilted in the Rada in favor of the former opposition; until April 2014, Russia had thus to live with the paradox of facing a new government in Kiev, considered intrinsically hostile, but which enjoyed discounts offered to Yanukovich.

Gazprom tried to fix this situation withdrawing the concession of this discount. However, the cumulative consequences of the deterioration in bilateral relations offered new elements, that far from simply favoring a return to the *status quo ex-ante*, pushed Russia to enforce a new one; this stemmed basically from the Russian Federation's violent annexation of the Peninsula of Crimea and the Autonomous City of Sebastopol. As a result thereof, Gazprom annulated not only the discount from 17th December 2013, but also the previous one from April 2010 (Pirani, Stern & Yafimava, 2010), linked to Russia's Black Sea Fleet lease agreement for the base of Sebastopol, then in the territory of Ukraine;³ the new price Gazprom demanded for the second quarter of 2014 was an exorbitant US\$483tcm. From April to 16th June 2014, the supply for Ukraine did not cease. However, pending an agreement, Ukraine ceased payments, so debts accrued.

In spite of the EU's energy commissioner deep engagement in trilateral talks to unblock the stalemate, Gazprom eventually stopped supplies on 16th June 2014 and those remained cut until early December 2014. The EU's engagement continued and an agreement known as "winter package" was finally approved, that secured for Ukraine the *statu quo ex-ante* for the first quarter of 2015; the agreement was extended for the second quarter too, but persistent disagreements led to Ukraine's refusal from 1st July to continue imports from Gazprom.

The EU faces crisis in the dyad Russia-Ukraine and discusses new energy strategy

The tensions seen above, which affect the dyad Russia-Ukraine are the starting point for this paper, as the dilemma they pose for the EU are central to the new energy strategy under discussion. Even if the ongoing energy disputes, which led to protracted gas cut-offs did not translate into consumers within the rest of Europe, they nevertheless justify considering the suitability of dependence on the dyad Russia-Ukraine. The idea of diversification necessarily assumes huge importance in the current context. However, as we will see, supply security and energy security in general, as the central concept within the EU energy strategy, cannot be exclusively centered in the current context of Eurasian energy relations on supply-demand relations, namely on EU-Russia relations; transit countries, in this case Ukraine must necessarily be part of the equation.

As the EU feels legitimated to fear and as it had to suffer in the past, the complex energy relation between Russia and Ukraine is prone to affect the whole chain of energy relations up to consumption at the lower-end in the EU. This is due to the dual condition of Ukraine as both

³ In April 2010, within the framework of the so-called Kharkiv Agreements, the Russian Federation renewed, this time on a permanent basis, the discount included in the 19th January 2009 Agreement, valid then for only 2009. That former discount was of 20%, whereas the new one would be for 30%. The permanence thereof was linked to the extension of the lease for Russia's Black Sea Fleet in the port of Sebastopol, Crimea; instead of expiring in 2017, the lease was extended to the period 2042-47 (see: Pirani, Stern & Yafimava, 2010). With Sebastopol's annexation into the Russian Federation, Moscow now considered that discount to be void.

consumer of Gazprom's natural gas and transit country for a big share of Gazprom's supplies further West to most of Europe's consumer countries. Whenever disputes between Ukraine and Russia lead to gas cut-offs from the side of Gazprom, Ukraine's position as transit country is key to understand how this may potentially translate into gas disruptions further down into the energy chain; either Ukraine chooses to siphon natural gas off from transit flows, or Russia decides to cut these transit flows too.⁴ If the dyad Russia-Ukraine is clearly problematic, this in itself does not clarify whether diversification, if possible should be done from *Russia* or from *Ukraine*. Whether the EU energy strategy responds satisfactorily, and whether it is politicized in distortion of strictly economic imperatives, will be dealt with in this paper.

2. Conceptualization of energy security and the EU dependence on Ukraine-Russia dyad

In his seminal article, Daniel Yergin defined energy security, as usually understood in the developed world, as: "*simply the availability of sufficient supplies at affordable prices*" (Yergin 2006). Indeed, most official definitions tend to highlight, in a more or less re-elaborated fashion, the same adjectives of available, sufficient and affordable. This is the case in the definition of the IEA: "*Uninterrupted **availability** of energy sources at an **affordable** price*"; the World Coal Association: "*To provide solid economic growth and to maintain levels of economic performance, energy must be readily **available**, **affordable** and able to provide a **reliable** source of power without vulnerability to long- or short-term disruptions*".⁵ Indeed, we may follow Escribano and García-Verdugo (2012: 27) when they single out *sufficient, continuous and affordable* as the three main characteristics of energy security.

However, we may simplify the picture and highlight instead two poles, as it is considered here that these are in fact determinant for policy-making regarding energy security: imperatives of *sufficient* and *continuous* respond to the immediate necessity of available supplies, whereas *affordable* rather responds to the evolution of prices, a phenomenon that evolves in a more ample temporary frame, as opposed to punctual undersupplies and cut-offs, that happen suddenly. The distinction made by Paul Isbell between short-term, mid-term and long-term energy insecurities serves here as the perfect equivalent: sudden phenomena of undersupply are short-term energy insecurities, whereas price dynamics are of a more long-term nature.⁶

⁴ These two phenomena are fully related one to each other: whenever Gazprom has taken the decision to stop both supplies *to* and supplies *through*, this latest measure, which we name here gas embargo, is fulfilled in order to preclude the transit country to enjoy its position and thus free-ride.

⁵ Other definitions, as relayed by Escribano and García-Verdugo in Marín-Quemada, García-Verdugo and Escribano (2012), pp. 26-27: [Energy security is] the continuous **availability** of energy in varied forms, in **sufficient** quantities and at **reasonable** prices (UNDP); The European Union's long-term strategy for energy supply security must be geared to ensuring, for the well-being of its citizens and the proper functioning of the economy, the uninterrupted physical **availability** of energy products on the market, at a price which is **affordable** for all consumers (private and industrial), while respecting environmental concerns and looking towards sustainable development (European Commission, 2000).

⁶ In Paul Isbell's (2007) characterization, price fluctuations deriving from the investment policies undertaken fall into mid-term energy insecurities, whereas long-term insecurity spans ecological issues related to global warming. Here, we leave this latter factor

The EU-Ukraine-Russia triangle and the relevance of the EU's dependence

EU dependence on the Russian Federation (Gazprom) as a producer

In the case of the EU, the tensions with one imperative of energy security singled out in this paper, short-term energy security is evident to the reader: Gazprom's natural gas consumers in Europe have experienced both problems of undersupply and worse, gas cut-offs. Supply problems were already experienced in the late 60s and early 70s in Austria, when this country first established energy relations through the import of natural gas with the USSR (Högselius, 2013);⁷ a more recent episode happened in February 2012 (Henderson & Heather, 2012).⁸ However, gas cut-offs derived from energy disputes between producers (mainly the Russian Federation, but also Central Asian producers as Turkmenistan) and transit countries (Ukraine and Belarus) have been the main cause for disruptions in the energy flows (Stern, 2006; Pirani 2007; Pirani, Stern, Yafimava, 2009), provoking supply crises in those countries more dependent and less diversified (Kovacevic, 2009; Sharples & Judge 2014).

The mood in the EU when the past decade began, after the recurrent instances of natural gas disruptions and before the big disputes of January 2006 and January 2009, was however promising for EU-Russia cooperation. Squeezed between the insufficiency of its domestic production and its environmental commitments to de-carbonize its economy, the EU saw in the natural gas-rich Russian Federation a promising partner to further deepen its energy relation. The Joint Declaration⁹ made by the EU and Russia in the October 2000 Summit represented the starting point of what appeared as a suitable avenue for cooperation, as given by their energy complementarity (Johnson, 2005). Since then, Russian natural gas exports came to increase,¹⁰ but the truth is that the EU and Russian philosophies increasingly grew apart. Disagreements regarding the Energy Charter Treaty (ECT)¹¹ (Konoplyanik, 2009a, 2009b; Belyi, 2011; Yafimava, 2011) and the increasing liberalization (Konoplyanik, 2012; Boussema & Locatelli, 2011; Yafimava, 2011) put them increasingly at odds to each other (Herranz-Surrallés & Natorski 2011, 162). The EU's expansion towards the East and the inclusion of a host of Central European countries, highly dependent on Gazprom as natural gas supplier and very critical to the Russian Federation contributed to this worsening, with talks of energy security in relation to Russia coming strongly to the fore with the January 2006 energy dispute with Ukraine (Natorski & Herranz-Surrallés, 2008).

aside, and follow Debra Johnson (Johnson, 2005), talking of long-term insecurity as for the prospect of looming high (and therefore less affordable) energy prices.

⁷ Mingazprom could not honor its external commitments and domestic demand at the same time. In general, domestic demand was sacrificed in order to guarantee supplies to Western Europe.

⁸ In this case, colder than usual temperatures unexpectedly increased consumption in the Russian Federation, so full supplies could not be guaranteed for abroad. The context of the Russian presidential elections probably explained why, as opposed to a similar situation in 2011, external consumption was sacrificed (Henderson & Heather, 2012).

⁹ http://europa.eu/rapid/press-release_IP-00-1239_en.htm?locale=en.

¹⁰ Following data by Eurostat (http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nrg_124a&lang=en), Gazprom exported 120.6bcm in 2000 and peaked in 2005 with 136.2bcm to the EU28.

¹¹ For a summary on the ECT, see Konoplyanik & Wälde 2006.

The fact is that nowadays, in spite of tense relations and the mentioned clash in energy issues and favorable changes in the global energy market (more on this below), the EU28 remains dependent on Gazprom for many of its supplies. Following Gazprom's data from 2013 (Gazprom, 2013), the company ensured 43,1% of all imports to the category of Europe.¹² Imports clearly fell in 2014, moving from 178.6bcm (Dickel et al. 2014, 3) to 159.4bcm (Gazprom 2014), even if Gazprom remains by far the top exporter of natural gas for the EU market.¹³ This dependence is unbalanced, with Western EU members consuming bigger volumes as compared to the Eastern countries (author's calculation from Dickel et al. (2014, 3),¹⁴ but the latter category being much more dependent in relative terms (see New York Times, 2014),¹⁵ as well as having natural gas represent a higher share in their energy mixes (EU Commission 2015).¹⁶

EU dependence on Ukraine as transit country: hostage to Ukraine-Russia disputes

With Ukraine transiting during the 90s and most of the former decade from 90% to near 80% of Gazprom's natural gas to Europe, the complicated relationship between Russia and Ukraine (Smolansky, 1995; Stern, 1995; Krasnov & Brada, 1997; Balmaceda, 1998a; Stern in Mabro & Wybrew-Bond, 1999; Fujimori in Kimitaka, 2005; Global Witness, 2006; IEA, 2006) assumed critical importance. The dual nature of Russia-Ukraine energy relations, as already mentioned above, where the latter was both consumer and transit country was at the core of the dependence dilemma that the EU has been facing: debt and pricing disputes between Russia and Ukraine provoked energy disputes and Gazprom's natural gas cut-offs, whereas Ukraine's position as transit country enabled Kiev to siphon gas off from transit flows, free-riding and escaping thus from gas shortages. This, apart from the many instances of the chaotic 90s, happened in January 2006, whereas the same pattern of dispute evolved in January 2009 into a major energy crisis when Gazprom cut-off all supplies (both to and through Ukraine), taking hostage all its customers in Europe.

The inauguration of the gas pipeline Blue Stream, which links the Russian Federation and Turkey directly through the Black Sea, along with the construction of Yamal through the Republic of Belarus (Victor & Victor 2004), allowed the percentage of natural gas shipments transited through Ukraine to supply Gazprom's clients in the rest of Europe, further West, to partially fall

¹² In this category, Gazprom includes Turkey. The volumes for 2012 were 178,6bcm, overtaking the former peak of 173,8bcm from 2007. This new peak should correspond to increased demand from the EU28 (this can be seen in France's and Germany's increased imports) (Gazprom 2013), as Turkey's imports remained unchanged. However, if we follow Eurostat data (http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nrg_124a&lang=en), the import peak of 2005 (see ft. above) has not been reached and 2013's volumes still remain below median imports in the period 2004-2008.

¹³ Eurostat (http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=nrg_124a&lang=en) shows for 2013: Russia, 125,7bcm; Norway, 95,2bcm; the Netherlands, 57,3bcm and Algeria, 41,5bcm de Algeria. In graph 1 from Belyi y Goldthau (2015, 1) we may find lesser volumes, probably because they do not include the same countries as in Gazprom (2014).

¹⁴ 106,9bcm vs. 41,5bcm once Turkey is removed from the category of Western Europe, Estonia, Latvia and Lithuania are moved to Eastern Europe and Bosnia-Herzegovina, Serbia, Macedonia and "other countries" are removed from Dickel et al. (2013).

¹⁵ Gazprom's natural gas imports represent 30%, 28% y 17% for Germany, Italy and France respectively, whereas percentages jump to 98%, 92%, 90% y 86% with Slovakia, Lithuania, Bulgaria and Hungary.

¹⁶ With data from 2013, this was the percentage of natural gas in the energy mix of the following countries: Germany, 22.5%; France, 15%; Italy, 35.9%; Latvia, 27%; Lithuania, 32.4%; Hungary, 33.9%; Slovakia, 27.9%.

(IHS CERA 2012, 27).¹⁷ As for what concerns the EU countries, Yamal was particularly important, as it allowed to redirect part of the flows previously transited through Ukraine. However, its role paled in importance compared to the changes brought about by Nord Stream. Opened from 2011 to 2012, Nord Stream links the Russian Federation to Germany directly through the Baltic Sea. This new pipeline enabled to further redirect flows from Ukraine and reduce its importance as transit country. This enabled to bring Ukraine's share to 50% and further below; data from 2014 show that 33.4bcm were transited through Nord Stream, 28.4bcm through Yamal (IEA 2014), 14.4bcm through Blue Stream and 62.2bcm through Ukraine (TASS 9-2-2015); this represents only 44%, whereas the share of the EU market for 2013, as calculated by Gazprom (Gazprom 2014), was 52%. Even if having lost the near hegemony it enjoyed in the past, Ukraine nevertheless remains the main transit route for Gazprom's exports to Europe.

The EU faces different alternatives: the dilemma of sensitivity vs. vulnerability

The dyad Russia-Ukraine in its energy dimension has been indeed problematic for the EU, given the objective data seen above and the historical track record and remains so potentially, while the EU cannot reduce the weakness of transit governance (Belyi 2011, 262). The question, which is central here, is whether existing alternatives to reduce the problematic character of the dependence on this dyad are not also problem-ridden.

As we will further develop below, energy security is different depending on the actor we focus on, be it either a consumer transit or producer country. Energy security is also different depending on what source of energy we may be talking about, but also on what sort of insecurities we are dealing with. The dilemmas of choosing between sensitivity and vulnerability, as developed by Robert O. Keohane and Joseph Nye are present here when considering troubles inherent on dependence on the problematic energy dyad Russia-Ukraine and other problematic aspects that may stem from diversification. As we will see, options to harmonize both imperatives without necessarily choosing, may become possible if discussions on energy security go beyond from the reductionist conceptualization of energy security as between consumers and producers.

Keohane and Nye termed sensitivity interdependence as the kind of interdependence where each of the members are exposed to inherent features of the existing relation; namely, sensitivity represents the costs of maintaining interdependence. In our case, as for what concerns the EU, its interdependence with the Russia-Ukraine dyad is sensitive to short-term energy security issues of supply security, as natural gas disruptions have been recurrent and as bad energy relations between Russia and Ukraine, who have always been at the origin of these disputes are now being recurrent too. The challenge for the EU is clearly to reduce its sensitivity interdependence. However, for diversification being a successful tool to reduce exposure to transit insecurity from the Russia-Ukraine dyad, the EU must not be hostage to vulnerability interdependence. If sensitivity relates to the costs in maintaining the existing pattern of

¹⁷ As seen in Figure 2-3, Ukraine's share of Russia's natural gas transited to Europe, fell from 78% in 2004 to 70% in 2008; the financial crisis then probably explains why in 2009 and 2010 the percentage fell to 64% and 67% respectively.

interdependence, vulnerability, on the contrary, relates to the costs of escaping interdependence. These costs would happen in the case of the EU's dependence on the Russia-Ukraine dyad if diversification somehow worsened long-term energy security.

3. Alternatives for diversification policy from the Russia-Ukraine dyad

The main alternative to the Russia-Ukraine dyad discussed here is the international LNG market. The reasons for this are that while diversification to Central Asia and the Middle East has not been successful so far and has poor prospects of offering much success in the future either, the promise of shale gas in the EU is also problematic.

The Southern Corridor

If as a result mainly of the January 2006 energy dispute, the EU gave a decisive impulse to the "Southern Corridor", with the Nabucco pipeline (Baev & Øverland, 2010; Dusseault, 2010; Fernández, 2011; Finon, 2011), proposed in 2002 and initially projected for 2011 (then later to 2013 and 2014), as its flagship project, the latter has not seen the light yet. If the goal was to open Central Asian resources to Europe, free of Gazprom's monopsony, the truth is that the Russian Federation's strategic advantage (Fernández, 2011: 76; Finon, 2011: 52-53) and the entrance of China in the scene (Zhukov, 2009: 295-298; Mitrova, Stern, Pirani, 2009: 403-409; Dusseault, 2010: 288), deprived the EU of any real options. The other leg of the "Southern Corridor", the Middle East has remained even further from offering real options, with Irak mired in war and with Iran under sanctions for its secret nuclear program. Even now that a deal was approved to solve the nuclear conundrum, prospects of domestic consumption as well as export projects to South Asia, leave Iran's promise as elusive.

the promise of shale gas

As for shale gas exploitation in Europe, the general trend in studies and assessments on the issue is that the EU faces both economic limitations, as well as sizable opposition from the side of its civil society. These factors are thought to undermine shale gas development and to preclude replicating the US shale gas revolution. Chyong and Reiner (2015) provide a literature review which highlights how most of the few assessments made to date assume high costs (relative to the US) of prospective shale gas exploitation in Europe. The authors find flaw with these studies and consider that costs might be lesser than assumes to date. However, what seems clear is that so far, ecological concerns represent a significant brake for exploitation in most of the most promising countries as for the reserves they might possess; this is the case with France, the Netherlands and Germany. Countries more concerned on dependence on Russian gas, like Poland and the Baltic countries and therefore more prone to develop their shale gas resources, are small and scarcely liberalized markets. The most promising market seems to be the UK (Chyong & Reiner, 2015: 78-79).

The LNG market revolution

As opposed to these, the LNG market has been developing in the past years and has already become a fundamental source for natural gas supply in the EU market. The boom in LNG supply since roughly 2010 is an unintended consequence of such an unexpected event as the US shale revolution was. The unexpectedness of the latter was such that the US was, on the contrary expected to become a large natural gas exporter. This had an obvious consequence on the LNG market at the global level. New producers such as Qatar, Nigeria or Oman were developing their natural gas expecting increased consumption in the US. When the shale revolution became a reality, producers were confronted with the fact that they should redirect their new production to new markets.¹⁸ Thus, the Europe natural gas market became the recipient of a LNG glut (Boussena & Locatelli, 2011: 34-35; Konoplyanik, 2012: 43; Kropatcheva, 2014).¹⁹

Europe was ready to welcome this LNG glut and subsequently enjoy low prices as ensured by a spot-market which had become a consumers market because of the creation of natural gas hubs that enabled the appearance of a spot market in the EU (Stern and Rogers, 2011). Regulatory changes brought upon by the EU legislation to liberalize the consumer market, then enabled that lower supplies translated to European consumers (Talus, 2012). Most relevant for the EU was Norway's decision (as well as the Dutch Gas Terra, see: Rogers, 2015: 4), the second largest natural gas supplier (after the Russian Federation), to index its supplies to the spot-market (Kropatcheva, 2014: 4), thus assuming lower prices in order to secure its market share.

Faced with this new context, Gazprom suffered from the pressure of many of its clients to adapt by reducing prices and even modify indexation to oil to introduce at least partial spot-market indexation. The (be it direct or indirect) role of the Arbitration Court in Stockholm, who ruled already against Gazprom's take-or-pay clauses and would probably have ruled in favor of those companies who started procedures to force Gazprom to revise its indexation mechanism, had thus also an important influence on reinforcing the benefits for consuming countries of this new context.

The LNG market, supply security and pricing advantage: optimum alternative for the EU?

The obvious conclusion that could be extracted from the analysis above is that the LNG market in the latest year's context offers better long-term energy security for the EU countries, as the entrance in scene of cheaper LNG imports has led to lower prices. The fact is that this comes on top of an intrinsic feature of the LNG market, which is the better supply security it offers. The inherent problem with gas pipelines is the high dependency from the side of consumers to fixed

¹⁸ As Konoplyanik (2012: 44) rightly points out, having financed their projects on debt-financed investments, these countries were in under pressure to obtain financial returns. They had no other option than selling cheaply to secure a market share, to mainly Europe's spot-market benefit.

¹⁹ For an explanation of each of the determinants that contributed to the creation of different regional "price corridors" in the US (shale gas revolution), Europe (LNG gas glut) and East Asia (Fukushima disaster and increased LNG demand), see Rogers (2015: 3-8).

infrastructures. One country strictly dependent on a gas pipeline, devoid of further alternatives, could not respond satisfactorily to flow disruptions. The hazard of gas pipeline dependence obviously varies depending on the country, as a positive management, be it from the side of consumers or producers, may mitigate these risks. This would be the case when sufficient storage facilities have been built, when transport facilities are the object of optimal maintenance and when relations are devoid of any politicization. As we know, the Russia-Ukraine dyad is not optimal in this respect.

Independent of the inherent up and downsides of each transport method, diversification obviously mitigates risks. Thus, in the case of the EU, increasing LNG supplies would go in the right direction. In addition to this, it is necessary to explain why LNG is intrinsically optimal in terms of supply security, as opposed to pipeline transportation. On the first place, as with the case of natural gas pipelines, accidents and terrorist attacks, leading to natural gas supply issues, may occur. However, the transportation itself of LNG, being dependent of LNG carriers, is flexible; problems in one carrier would not affect the operability of the whole carrier fleet. On the second place, and this may be the most important feature, an LNG import facility opens the market to several deferent suppliers, as opposed to a single one with pipeline transportation, so it is easier to avoid harmful capture. Thus, if for whatever reasons, including those pointed above or for disputes (be it for pricing or for political reasons) that sever the contact with a single supplier, the market will probably remain open. As opposed to pipelines, in LNG markets supply insecurity would translate into higher prices, instead than into lesser supply (See, Escribano & García-Verdugo, 2012: 28).

As seen above, in addition to a more supply secure way to ship natural gas, the LNG market has been favorable for consumers in the EU, as it offered better prices. If this remains so, it would be necessarily rational to reduce imports from Gazprom. In the next section, we analyse whether prices offered in the future by the LNG market will remain being favorable for EU consumers.

4. LNG supplies: what guarantee for long term energy security?

When it comes to calculate which is the most likely scenario for the coming years, the East Asian market, as well as the volume of US LNG exports destined for Europe seem to represent the most determinant elements.

Australian and US exports, Asian demand and implication for the EU market

LNG prices in the East Asian market have been traditionally higher than elsewhere in the world for particular reasons related to its geographical relation to oil producers. Natural gas has remained traditionally pegged to the "Japan Crude Cocktail" (JCC) index, the median price of crude oil imports to Japan. This index being higher than in the rest of the world, due to the longer travel

needed from the Middle East, long-term contracts of LNG have also maintained higher prices than in Europe and the US. This tendency did not change with the LNG glut provoked by the US shale gas revolution, as the accident of Fukushima led to increased demand to offset the nuclear shutdown in Japan. The higher natural gas prices remain in Asia, the more it will remain a magnet for future production.

For the next years, it is expected that US and Australian production will explode, turning these two countries into big LNG exporters. The US exports, which might reach as much as 115bcm per year by 2020 (Rogers & Stern, 2014: 23), represent a big hope for Asian markets due to the extraordinary low production prices of US shale gas, represented by the Henry Hub (HH) index. Thus, US LNG could free Asian markets from the JCC index. In fact, by June 2015, HH prices were as low as US\$2.78Mbbtu (EIA, 2015). However, the existence of the JCC index represents a big temptation for US producers, who would benefit much more from maintaining it as the reference for contracts, rather than favoring contracts pegged to the HH spot market index. In addition, it must be highlighted that HH prices are not expected to remain that low. The general expectation is that instead of remaining around production costs of US\$3Mbbtu, they jump to a fork of between US\$5 to US\$7Mbbtu (this would yield median break-even prices of US\$12.5Mbbtu) (Rogers and Stern, 2014: 26), while it could not be ruled out that they eventually overcome the latter (Rogers and Stern, 2014: 35). So far, it seems that most of the contracts signed were indexed to crude oil prices, so the Asian market should not benefit from the advantages of HH index.

The other big future LNG exporter in the Asian market will be Australia, jumping from a yearly export capacity of 27bcm in 2010 to as much as 118bcm in 2018 (Ledesma, Palmer y Henderson, 2014: 1, 17). This would turn Australia into the top LNG exporter. As in the case with US exports, most of the contracts signed for Australian exports are pegged to the JCC index. This makes even more sense than with US exports, as in the case of Australia this increase in production should come from green-field exploitations, for which long-term oil indexed contracts are the best guarantee for investment return. It is true that, probably fearing competition from the US, a partial HH index peg has been included, which should moderate prices. However, it does not represent the most determining element.

This panorama has implications for the LNG market in the EU. At first sight, the explosion of LNG capacity expected for the coming years, with the US and Australia at the forefront, and which should bring world production from 301bcm in 2013 to as much as 423.7 in 2020, represents in percentage something similar to what happened from 2008 to 2013, when it jumped from 207.1bcm to 301bcm (IGU, 2015: 22). However, this increase in production is expected to match future demand in Asia. As we know, the dip in prices for the EU market that happened before and from which the EU has benefited, was caused by the unexpected US shale gas revolution. Nothing so radical is expected that could depress Asian import demand. Asian LNG demand is expected to jump from 250bcm as foreseen for 2015 to 400bcm by 2025 (Rogers & Stern, 2014: 9). This might explain already why the immense majority of contracts signed so far are long-term contracts. A positive element for the EU is that the majority of US LNG contracts are not

signed with importer countries, as Japan, South Korea, Taiwan and China, but with so-called aggregators, who will either transform them into new long-term contracts, complement existing contracts or sell it in the spot market (Rogers and Stern, 2014: 27, 45). If consumption in the Asian market slacks, as it is quite possible, this would leave additional capacity free for consumption in Europe.

US LNG exports to Europe

Besides volumes of LNG for the Asian market that might eventually end up in Europe if conditions are fit for it (see above), the fact is that direct sales from the US are already planned. One of the most enthusiastic countries as for what concerns LNG sales is the highly Gazprom-dependent Lithuania. This country already signed a contract to import Norwegian LNG, pegged to the NBP spot market index, with prices ranging from US\$260 to US\$290/tcm (Euractiv 2014), representing supplies lower than those offered by Gazprom (Bloomberg 2014). It is therefore understandable that Lithuania signed a non-binding agreement to start imports by 2016 (Reuters 2015). However, we need to consider what will be prices of US LNG in the future compared to Gazprom's. Some analyses consider that these would be cheaper and would force Gazprom to renegotiate prices downward by 11-20% (Bordoff & Houser, 2014: 28).

However, these assume low production costs for US shale gas. The IEA assessment back in 2012 yielded break-even prices for Europe of less than US\$9/mmbtu, so if prices eventually were around US\$10/mmbtu, this would represent a net-back benefit of nearly US\$0,9/mmbtu (IEA, 2012: 130). The breakeven price assumed by Rogers and Stern (2014: 26) was of around US\$9/mmbtu. It must be highlighted that the IEA assumed a HH index of US\$4,5/mmbtu, whereas Henderson based his calculation on a slightly higher US\$5/mmbtu (as well as lesser costs in gasification, transport and re-gasification). With such HH index, US LNG would be competitive compared to the median price announced last year by Gazprom for exports outside the CIS market, of US\$11,4/mmbtu (EEGAS, 2014). Higher HH indexes would dent such competitiveness. Rogers and Stern (2014) also calculated which would be the break-even price for US LNG exports in case of a HH index of US\$7/mmbtu: US\$12/mmbtu. In this case, they would lose competitiveness against Gazprom.

If oil prices remain depressed as they are at the current moment, oil-indexed Gazprom supplies would be unbeatable under HH indexes from US\$5/mmbtu to US\$7/mmbtu: from April to June 2015, German border prices were as low as US\$7,35/mmbtu (Indexmundi, 2015).²⁰ Only at current HH index of US\$2,78 (IEA, 2015, as of June), which would yield prices at around US\$7/mmbtu (Henderson, 2013: 48), but which is deemed to be unsustainable in the long-term (Forbes, 2015), could US LNG compete with current Gazprom's prices.

²⁰ We may highlight the fact that Lithuania itself has fallen into the trap of investing into LNG import infrastructures now that Gazprom's gas has become competitive. The fall of oil prices, which have brought down Gazprom's natural gas prices combined with the Russian state monopoly's decision to review prices downward (a cut by 20%) for Lithuania have led to considering to re-export imported LNG gas from the Norwegian Statoil during summer (at a time of low demand) (Moscow Times, 2015).

Perspectives for the EU as for the LNG market

Europe faces both the Asian demand and its price attractiveness, whereas US LNG exports, be it due to excess capacity if Asian demand does not hold as expected or because direct contracts are signed, may soon lose competitiveness against Gazprom's supplies in Europe. As such conclusion is based on scenarios, it must remain as preliminary. It should nevertheless be considered as the most plausible for the time being and the base for any sound energy policy. If Asia remains linked to oil in the future, then Europe will have to pay the price if it wants to become more competitive. In fact, this might have happened in the past year.

The existing premium in the spot market between the Asia and Europe (NBP index), moving around a medium of US\$5mmbtu (Rogers and Stern, 2014) had led to an increasing redirection of flows towards the former (IGU, 2014: 8). However, the tendency inverted in 2014, with the NBP index presenting a slight premium of US\$1,2mmbtu (Oil Price, 2014). This, which was related to a unexpected fall of demand in Asia, responded nevertheless to a parallel increase of demand in the EU, which some saw as the result of an attempt to reduce dependence on Gazprom (Oil Price, 2014).²¹

Taking thus this scenario for granted, the increase of LNG imports would most certainly imply higher prices. In this respect, the EU energy policy would be faced with a dilemma: either prioritize short term energy security, namely supply security and increase the vulnerability factor by way of worsening its long term energy security (substitute part of Gazprom natural gas by more LNG imports) or to prioritize better prices and secure its long term energy security and maintain the sensibility factor inherent to dependence to the Russia-Ukraine dyad (assuming the inconvenience of provoked by energy disputes). This opens the door to consider other tools to minimize the problems linked to sensitivity interdependence with Gazprom, while not falling into the trap of vulnerability interdependence, determined by the benefits of having Gazprom as one of the main suppliers. Here we will analyze a way to achieve this, and which does not imply lessening dependence on Gazprom: to diversify away not from the producer (Russia), but from the transit country (Ukraine).

5. Bypassing Ukraine: the real optimum both for short-term and long-term security?

As could be seen above, the discussion regarding alternatives to Gazprom treats the Russia-Ukraine dyad exclusively as a function of the Russian Federation as a producer. However, it is not any of its single components per se who are to be blamed for supply insecurity, but their combination and that irrespective of who is most responsible for recurring disputes. As for what

²¹ It must borne in mind that the fall in import volumes of Russian natural gas are probably mostly related to low demand caused by a mild winter (Natural Gas Europe, 2015), so the element of politization should be nuanced as an explanation for lower Russian imports.

concerns the EU, reducing the presence of Ukraine as transit country should suffice to improve its supply security, as the relation producer-consumer (Russia-EU) is per se non-contentious.

Moscow has therefore knowingly promoted (explicitly linked to Ukraine) by-pass pipelines like Nord Stream or South Stream. Nord Stream became operative between 2010-12, with two spurs with a total yearly capacity of 55bcm (Nord Stream). However, it remains underused; as seen above, 33.4bcm only were transited in 2014 (IEA, 2014). The reason lays in the delays for approving an exemption for OPAL, which connects to Nord Stream. The Third Energy Package, approved in 2009 and in force since 2011, includes Regulation 715/2009, according to which no more than 50% natural gas pipelines' capacity may be booked (Belyi & Goldthau, 2015: 5-6), unless exempted, as happened with Nord Stream and TAP. This dispute provoked a collateral damage: South Stream.

If Nord Stream links Russia to Germany through the Baltic Sea, South Stream foresaw to establish a direct connection with Bulgaria through the Black Sea, the same way Blue Stream does with Turkey. However, facing the blockage with OPAL,²² Gazprom, which had not even requested exemption to the European Commission, decided on 1st December 2014 to cancel the project. This happened after lengthy years of negotiations both with companies and with concerned European countries and when construction of onshore facilities had in fact started. However, Gazprom did not fully abandon a project that could reduce Ukraine's transit and sought to recoup sunken costs: it thus announced Turkish Stream (Stern, Pirani & Yafimava, 2015).

South Stream was to have a capacity of 63bcm. As its "predecessor", Turkish Stream is projected to be constituted by spurs of 15,5bcm each. This would provide flexibility in its construction depending on the existing demand. A capacity of 31bcm could redirect Gazprom's flows to South-Eastern Europe (10bcm) and Turkey (14bcm) away from Ukraine, while with an eventual expansion to 63bcm Italy's supplies could also be redirected through the new route (Stern, Pirani & Yafimava, 2015: 8-10). The last months have seen progress in talks between Russia and Turkey, who approved explorations in order to build the onshore section of the new pipeline in June 2015 (Natural Gas Europe, 2015), with the construction of a first spur (Natural Gas Europe, 2015), foreseen to cover Turkish demand (Novinite, 2015).²³

Assessing the costs of both Nord Stream and South Stream against Ukraine

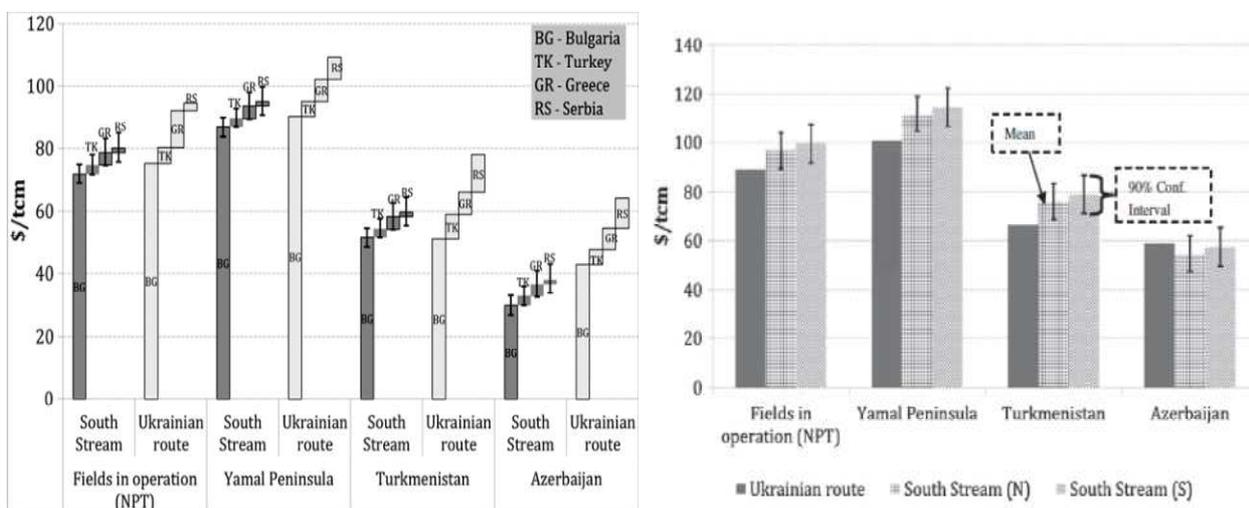
LNG supplies cannot be automatically assumed to be more favorable than Gazprom's supplies to Europe, while they do contribute to improve the EU's supply security. By-pass projects of Ukraine as transit country also provide an escape from the dilemmas of the Russia-Ukraine dyad, freeing consumers from the effects of energy disputes. However, it must be determined whether the

²² Gazprom decided in fact to abandon the process (Natural Gas Europe, 2014).

²³ According to news that Gazprom reduces its investments on the infrastructure necessary to carry natural gas to South/Turkish Stream, it is suspected that Turkish Stream could not go beyond 32bcm in the future (RBTH, 2015).

added costs of these projects might not put this alternative at a similar level as that offered by international LNG markets.

Some studies have been made to determine what would have been the cost of transporting natural gas through South Stream and the costs of transport through Nord Stream. Regarding South Stream, the most accurate studies to date are those by Chyong (2011) and Chyong & Hobbs (2014). The authors calculate that in fact, transport through South Stream would be cheaper than current transport through Ukraine for several countries in the Southern-East corner of Europe (including Turkey). Taking the cost of natural gas from the current fields in operation in the Russian Federation (Nadim-Pur-Taz, NPT), Bulgaria, Turkey, Greece and the Republic of Serbia, as can be seen in the figure (left) below would enjoy a certain benefit for transport through a new route crossing the Black Sea, instead of Ukraine; that advantage would hold for natural gas transported from the Yamal Peninsula, would be higher in the case of shipments from Turkmenistan and very significant if natural gas came from Azerbaijan instead.

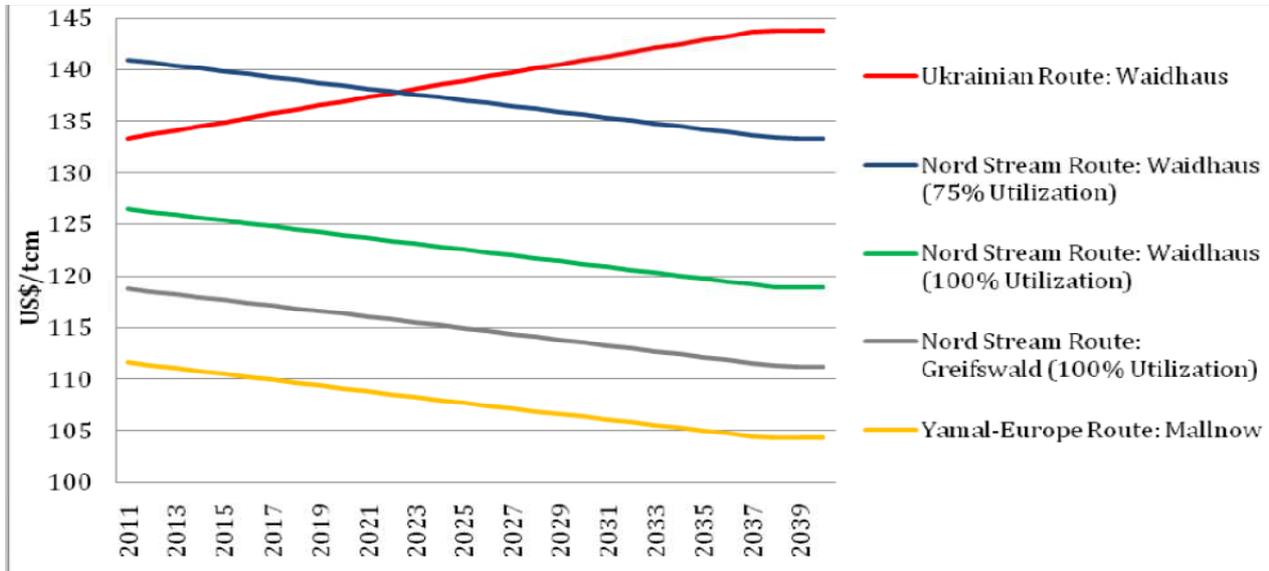


Source: Transportations costs to Southern Europe and transportation costs to Italy, in Chyong and Hobbs (2014).

On the contrary, the picture changes when we analyze costs for Italy, a potential client too for the project of South Stream, as in this case, the Ukrainian route remains clearly more cost-effective (see picture above, on the right).

Chyong, Noël and Reiner (2010) also calculated which were the costs of transportation of Gazprom's natural gas through Nord Stream, again compared to the Ukrainian route. The reference country here is Germany in several delivery points. At the present moment, and taking 2011 as the year of reference, Nord Stream appears to be US\$10tcm more expensive than the Ukrainian route if utilization is at 75%. However, as soon as the percentage of utilization jumps to 100%, Nord Steam becomes more competitive by a margin of between US\$5tcm to US\$10tcm; this margin increases if the delivery point is Greifswald (US\$119tcm vs. US\$133tcm). What is worth highlighting here, is that the cost advantage becomes more favorable the more time passes. The reason for this is that the more the NBP resources become exhausted, the more Gazprom will

have to rely on new resources from the Yamal Peninsula; being the latter located more beneficially in relation to Nord Stream, this should improve this pipeline's suitability (Chyong, Noël, Reiner, 2010).



Source: Transportation costs from Gazprom's production fields to Germany (Chyong, Noël, Reiner, 2010).

The conclusion that could be extracted from this analysis is that instead of the LNG market, bypass options like the one offered by South Stream or Nord Stream would provide the best option as for both short and long-term energy security and optimally navigate between the elements that characterize the EU-(Russia-Ukraine) energy interdependence in its dimensions of sensitivity and vulnerability. The next chapter analyses which has been the EU strategy regarding energy security since the crisis in Ukraine and the resurgence in the debate of the troubles of depending of Gazprom as chief natural gas supplier.

5. EU's Energy Strategy in the wake of the crisis in Ukraine: the right lessons learnt? Assessment and conclusions

In its communication COM(2014) 330 final from the 28 May 2014 (European Commission, 2014), the European Commission published a "European Energy Security Strategy", henceforth the "Strategy", while more than half a year later (25 February 2015), it published "The Energy Union Package" (European Commission, COM(2015) 80 final, 2015), henceforth the "Package". These two documents constitute the main legal basis for a turn in energy security that not accidentally coincides with the beginning of the crisis in Ukraine. The first document is explicit at this respect, as the mention to energy disputes between Russia and Ukraine in January 2006 and 2009 appears

early in the document and Russia is highlighted as an element of energy dependence in natural gas (European Commission, COM(2014) 330 final, 2014: 2). It should not appear as odd that first calls to create an Energy Union should have come from Donald Tusk, then Polish Prime Minister and current President of the European Union; Tusk called in particular to improve interconnections and to reinforce mechanisms to withstand energy interruptions that might derive from eventual disputes (Euractiv, 2014).

In this respect, the Strategy optimistically mentions, that:

"LNG will remain and grow as a major potential source of diversification in the years to come. New LNG supplies from Northern America, Australia, Qatar and new discoveries in East-Africa are likely to increase the size and liquidity of the global LNG markets (...)These evolutions should be facilitated by adequately reflecting priorities in EU external policies" (European Commission, COM(2014) 330 final, 2014: 15)

It is certain that the Union Package strikes a more sober note when it mentions that:

"LNG prices have over recent years been higher compared to pipeline gas due in particular to high liquefaction, regasification and transportation costs and demand in Asia" (European Commission, COM(2015) 80 final, 2015: 5)

and remits to a future LNG Strategy. However, a disquieting sign is that the assessment of needed infrastructures to increase LNG imports is the only element highlighted from this future strategy, while:

"The Commission will also work to remove obstacles to LNG imports from the US and other LNG producers" (European Commission", COM(2015) 80 final, 2015: 5)

This in fact seems to go in the line of what the Energy Commissioner himself, Miguel Arias Cañete, stated on the 17 February 2015:

*"we should build **the necessary infrastructure** to bring this gas to where it is most needed in the EU. **This is why I will be proposing a new EU LNG strategy**, and working to accelerate other infrastructure projects"* (European Commission, SPEECH/15/4439, 2015)

while in the same speech, the commissioner goes farther to state:

*"Member States will remain dependent on a single supplier that views the sale of gas not simply as a commercial matter, but as **a political weapon**"* (European Commission, SPEECH/15/4439, 2015)

The new EU Energy Strategy between politization and strictly economical interests

It is not possible at the present stage to indict the current energy turn undertaken by the European Union before its LNG strategy is unveiled. However, doubts as for its mentions to Russia and the declarations by the Commissioner as shown above, deserve due attention, especially the latter, as they are a good example of excessive politization that might derive into unwelcome economic decisions and that is already common in certain academic or policy-making literature (Baran, 2007b; Bryza, 2014; Johnson, 2015; Newnham, 2011, 2013a; Smith 2011). The way

geopolitical arguments point the finger at Russia are usually misplaced has recently been highlighted from the Oxford Center for Energy Studies (Dickel et al., 2014).

The fact is that the potential suitability of bypassing Ukraine to solve the dilemmas of interdependence seems not to be under consideration, and that in spite of the reality that the dilemma is linked not so much to Gazprom itself and that studies point at the cost-benefits of Nord Stream and South Stream (see above). More worrying is the possibility that the European Union eventually opts for increasing LNG imports in the face of higher costs. If the EU does not change its strategy towards the benefits of diversification away from Ukraine and the downside of diversification away from Gazprom, it would not be up to the imperative of energy security of "*affordable and competitively priced energy*" as the Package itself does mention (European Commission", COM(2015) 80 final, 2015: 4).

The problem for the EU in the current formulation of its new Energy Strategy is that even in favorable scenarios where LNG becomes more competitive than Gazprom's natural gas (be it because the HH index remains at current levels beyond expected or that oil prices substantially increase, or a combination of both), Gazprom will probably remain a necessary supplier, and that in volumes sufficient as to justify diversification away from Ukraine. It is for example worth highlighting the conclusion arrived at by Bordoff and Houser (2014), who state that low prices of US LNG would simply depress the market and turn investments in other regions unprofitable, reducing thus potential supplies for the EU (Bordoff & Houser, 2014: 29). In addition, it must not be lost from sight that internal gas resources in Europe are set to fall in the coming years (Dickel et al., 2014). In another recent study by Rogers (2015), several scenarios are calculated depending on existing demand in Eastern Asia and on Gazprom's adaptation to LNG competitors who can offer better prices:

The EU may not be displaced into believing that new LNG coming online in the coming years will eventually find its way into European spot markets. A general trend that seems to be observed is that of slackening Asian demand. In fact, the European market was considered to be a secondary market in case of insufficient demand in Asia (Rogers, 2015: 5), serving thus as a guarantee for new investments in the US, Australia, Canada and East Africa, whose main market is to be East Asia. Rogers (2015) presents several scenarios, depending on future (mainly Chinese) Asian and European gas demand, where Gazprom should decide whether to compete with lower LNG prices and thus lower prices to secure its market share. Only in case of low Chinese LNG demand, low European demand and Gazprom not competing with lower LNG spot prices, would Russian pipeline exports dip to around 75bcm by late 20s decade (Rogers, 2015: 43); otherwise, Gazprom's pipeline exports to Europe should hardly go down of 150bcm per year (Rogers, 2015: 39-40, 45), or at least 100bcm (Rogers, 2015: 44), or even explode to nearly 250bcm by 2030 (Rogers, 2015: 42). The IEA calculates that Russian gas requirements should remain locked at a range of 150-160bcm for the medium term (IEA, 2015: 6).

The lesson the EU should extract is that even in favorable conditions from the LNG market, Gazprom's share will (most probably) remain high, so the dilemma of depending on the Russia-Ukraine dyad will remain, and along with that, the EU's sensitivity interdependence. With that, the importance of developing by-pass alternatives to avoid Ukraine should not lose none of its strategic relevance. The EU must thus avoid becoming entrapped in geopolitical priorities which prioritize its support to Ukraine in the face of Russia's aggression,²⁴ but which would harm its energy security.²⁵ This would happen if the EU increases dependence on LNG in spite of becoming disadvantageous in terms of prices. This is something, which as seen above, might eventually happen. In such case, the EU's long-term energy security would suffer. This would also happen, this time as for its short-term energy security, if by-pass options are not considered in the face of non-waning energy dependence on the Russian Federation and which by the way, also seem to improve the EU's long-term energy security in the face of their higher cost-competitiveness compared to the Ukrainian route.

It is the EU's responsibility to study the benefits of increasing capacity of Nord Stream and to consider which options remain available in the Black Sea, after Gazprom decided to scrap South Stream. The development of Turkish Stream leaves the door open to this option. However, if dependence on Ukraine is contentious, depending on Turkey might not be any better, given the fact that energy relations between Ankara and Moscow are far from smooth; until recently the former demanded (and was accorded) a price rebate in its natural gas contract, as it considered these were abusive (Today's Zaman, 2015). The EU might explore the option of an eventual second spur of Turkish Stream to follow the former South Stream's planned route, thus avoiding a new transit country. However, this will only happen when the EU takes seriously these options. So far, this is not the case and it is the author's conclusion that this failure does not respond to a sound as well as comprehensive view of all dimensions of energy security. The EU's future task will be to correct this.

²⁴ It should not be lost to the reader, that the lesser transit flow through Ukraine, the less negotiating power it has with the Russian Federation whenever it comes to gas pricing. In the current EU strategy, this would equal to expose Ukraine to further dependence on the Russian Federation, and thus contradictory.

²⁵ The arguably best example of politization and of subordination of energy security imperatives to geopolitical imperatives determined by the EU's interest of establishing the AA with Ukraine, may be found in the following op-ed by Miguel Arias Cañete in the Spanish diary *El País*: "*The EU should establish new relations with supplier and transit countries, like Turkey and Algeria, and reinforce old ones with good friends, like Norway, Ukraine as well as the member countries from the Energy Community*"; this statement simply ignores the share of Ukraine's responsibility in the (at least potential) instability of supply from Gazprom's natural gas along with the fact that it is the dyad in itself which is contentious, independent of each other's share of responsibility; it also ignores the outspent potential of Algeria and Norway to increase exports in the EU market (El País, 2015).

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