Single gas market and energy security in the Visegrad states: models, challenges, perspectives

Report

National Centre for Strategic Studies

REPORT

SINGLE GAS MARKET AND ENERGY SECURITY IN THE VISEGRAD STATES: MODELS, CHALLENGES AND PERSPECTIVES

AUTHOR:
NATALIIA SLOBODIAN, PHD

CO-AUTHORS:
NOLAN THEISEN, SAMUEL GODA, MICHAELA KARASKOVA

PROOFREADING:
ADAM KOWALCZYK, NATALIIA SLOBODIAN PHD, NOLAN THEISEN

GRAPHIC AND COVER DESIGN:
MAJA CHRAPKOWSKA

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AUTHORS

Nataliia Slobodian, PhD is an energy expert at the National Centre for Strategic Studies, where she is responsible for the energy security agenda. She graduated from Taras Shevchenko National University of Kyiv (Ukraine). In the past two years, she has headed the Department of Energy Policy at the International Centre for Policy Studies (Kyiv) where her focus was on the examination of state decisions in the energy sector (gas and oil sector, integration of national energy complex) and monitoring of the activity of energy reforms in Ukraine. Nataliia Slobodian is a member of the Public Council in the Ukrainian Ministry of Energy and Coal Industry. She has also attended the following training programs: 'Energy efficiency through restructuring Gas Transportation System and Building Capacity among Ukrainian Professionals' (Czech Republic and Slovakia), 'Public Diplomacy Cooperation 2015' (Warsaw, Poland), '[Cyber] Energy security' (Warsaw, Poland). Moreover, she was a delegate at the Doha Forum – 2015 'Enriching the Middle East's Economic Future Conference' (Doha, Qatar). Her area of expertise includes energy security, covering issues such as the energy policy of Central and Eastern European region as well as the Russian Federation, global energy conflicts, crisis management of energy policy, energy diplomacy, European and global gas market and the energy dimension of international relations and energy policy in the Persian Gulf. She has authored more than 100 energy-related publications, including "The United States of American and Russian Federation in the Persian Gulf: allies or competitors", "Russia's Energy Policy as an Instrument of Influence in Europe" and others.

Nolan Theisen is a research associate at the Regional Centre for Energy Policy Research (REKK). He holds an MA in International Economics from the School of Global Policy and Strategy (IR/PS) at the University of California, San Diego, where his focus was energy economics and regulation. He attended the Azerbaijan Diplomatic Academy's Baku Summer Energy School, as well as the Energy Charter Secretariat's 8th annual young professional training program in Krakow. After graduation, he worked at the Asia Foundation's Korea office in Seoul and began to work on energy related projects for the Korea Development Institute in the areas of fuel-switching and demand response management. In 2014, he was awarded a fellowship by the Hungary Initiatives Foundation (HIF) with REKK before joining full-time. He was also a delegate at the Atlantic Council's 2014 Energy and Economics Summit in Istanbul. His work focuses on energy security, natural gas markets and regulatory policy in the Danube region.

Samuel Goda works as the Head of International Security Program at the Slovak Foreign Policy Association, which he joined in 2013. Besides participating in a number of other projects, he manages Security Program's flagship project 'International Crisis Management'. He is also a representative to the 'OSCE Network of Think Tanks and Academic Institutions'. Moreover, he works as an Assistant Professor at the Faculty of International Relations, University of Economics in Bratislava and serves as the Managing Editor of Journal of International Relations. He conducted several professional research studies in Germany, Austria, the USA, the Czech Republic and Moldova. His main research areas include OSCE related issues, EU CFSP/CSDP, as well as transformation and resolution conflicts in Central and Eastern Europe and Latin America. Samuel Goda holds a PhD in International Relations from the Matej Bel University.

Michaela Karaskova is a trainer and research consultant at KNO Cesko in the Czech Republic. She is responsible for all sectors of the company and manages projects focused on the KNO client needs. She is a soft skills trainer specialising in training communication skills. Michaela Karaskova is a project manager of targeted surveys – client and employee satisfaction and other surveys based

on customer needs. She is a project manager of Third Country Trainings, PtP programs for USAID and Worldlearning. She has been cooperating in preparation and realisation of USAID projects for Ukraine, Albania, Armenia, Georgia, Bosnia and Herzegovina, Croatia, Bulgaria, etc. The scope of the programmes pertain numerous topics, such as energy, law, environment, etc.

Adam Kowalczyk is the Director of the Analysis Division at the National Centre for Strategic Studies. Previously, he has worked as an expert for the Diplomacy and Politics Foundation, the Amicus Europae Foundation and the Energy for Europe Foundation. His research interests are focused on foreign and security policy of the Republic of Poland, Polish-Russian-Ukrainian relations, Eastern European security, relationship between theory and practice in international relations as well as NATO's defence and deterrence policy. He is a graduate of the Political Science and Eurasian Studies (both with MA degrees) at the Institute of Political Science at the University of Warsaw. At present, he is preparing his PhD thesis on external determinants of Poland's security.

ABSTRACT

This report focuses on natural gas security of supply and market integration of the Visegrad Group (V4) in the context of European energy security architecture. The first chapter provides background information for the EU-level legislation, beginning with the Third Energy Package. The execution of recent and forthcoming European Commission directives and communications is highly dependent on the successful implementation of the 2009 Third Energy Package, which underpins the vision of the 2015 Energy Union proposal and subsequent revision of the Regulation No 994/2010 (known as SoS Regulation) and LNG and storage strategy. The second chapter discusses viability of the Energy Union and its potential impact on the V4, laying out the possible benefits and challenges. It reflects on the increasing role of the European Commission in internal developments in Central Europe (CE), specifically with respect to infrastructure development, the expansion of security of supply obligations and involvement in contracts with third party suppliers. This leads into the third chapter, which provides a more thorough account of the V4 infrastructure developments, from the completed projects to those that are planned and are being considered on the pending second list of projects of common interest (PCIs). For the Central and Southeast European (CSEE) region as a whole, and the V4 in particular, the key infrastructure projects have been identified toward the realisation of the North-South Corridor and are expected to be completed by the end of the decade, if they remain on schedule, just when Gazprom has announced it will significantly curtail its gas transit to the CSE via Ukraine by a way of re-directing gas transit via new routes, with most recently announced Nord Stream 2 project. The resulting supply diversification - from hub gas to the West and LNG from the North and the South – will result in a much improved regional integration and incentivise market development. In the end, security of supply will be enhanced and more competitive prices will benefit the consumer.

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INTRODUCTION

The creation of a single gas market is one of the key objectives of the EU energy policy intended to offer consumers a greater choice of suppliers, lower prices and improved energy security. There is no doubt that energy security and energy policy are highly important for all of the V4 countries, particularly because natural gas is the largest imported energy source in Poland, Hungary, Slovakia and the Czech Republic, and the vast majority of the resource comes from a single supplier, Russia.

Despite the variance in the Visegrad states' energy usage and the role of natural gas in their economies, there remains a number of energy security challenges shared by these countries. Over-dependence on energy supplies from one source, the lack of an integrated regional energy market, infrastructure bottlenecks, and disagreements over implementation of a unified energy policy make the V4 countries weaker and more vulnerable. Moreover, the current Russian-Ukrainian conflict has left the Ukrainian gas transit system under pressure, while, at the same time, Russia has a stated intention to reduce its Ukrainian transit for European deliveries to the lowest possible level, starting from 2019 and beyond, creating more anxiety and uncertainty over energy security in the Visegrad region.

Improving energy security amongst the V4 countries hinges on a market oriented, integrated approach based on mutual solidarity and cooperation. This requires full implementation of the Third Energy Package and the application of corresponding legislation and best practices articulated in recent communications, laid down by the European Commission. A common gas market incorporating the V4 and surrounding countries would increase liquidity, enable more competitive prices and, above all, allow for efficient, market-based solutions to energy security issues. These developments are co-dependent and mutually reinforcing.

This paper provides context and analysis of energy security related issues in the V4, focusing primarily on the Energy Union strategy and EU security of supply regulation in the Visegrad states, infrastructure bottlenecks and infrastructure projects in the region in the context of current geopolitical and regional challenges to the V4 gas supply security. The content is supported by a survey of energy experts in the Visegrad region carried out in April 2016, included in the Annex.

1. THE EU GAS SECURITY'S NEW ARCHITECTURE

European energy security has risen to the forefront of the European Commission's agenda in recent years, triggered by the 2009 winter gas supply crisis and, most recently, Gazprom's 2015 announcement of its intention to cease all gas transit through Ukraine. The deterioration in Russian-Ukrainian relations has given additional impetus to policymakers in Brussels and vulnerable Member States of the EU alike to take more aggressive action in improving Europe's energy resiliency by way of market integration.

The Commission's long-standing aim of achieving a single internal European energy market was finally given credence with the passage of legislation in July 2009 (becoming law in March 2011) in what became known as the Gas Directive or Third Energy Package (TEP). The full national transposition and implementation of the associated measures across all Member States are seen to be sufficient for the creation of a single, liberalised EU gas market. Further, the Commission has emphasised that an increasingly integrated and competitive European marketplace provides the most cost-effective solutions to security of supply challenges, especially in the more disparate and vulnerable CE markets. While this process is underway, the next step for the Commission, regarding natural gas security, is twofold; attempting to review large import contracts with third parties to ensure compliance with the EU law and enshrining solidarity and cooperation for security of supply into legislation.

Energy security, particularly with respect to natural gas, is a core issue in Brussels, due to Europe's overwhelming dependency on import. The EU is currently fulfilling 66% of gas demand with imports, a figure expected to grow in the short and medium term due to declining domestic production, despite relatively flat demand growth projections. This is a manageable situation in the more diversified and competitive liquid markets of North-Western Europe, but it remains problematic further East, where the legacy of single source dependency persists. With additional domestic production seldom an option, Member States rely on free flows of and access to multiple sources of supply (and when necessary demand side measures). This makes a liquid, transparent and interconnected market critical to risk mitigation and system resiliency.

Simultaneously, Europe's decarbonisation policies have also risen to the forefront of energy legislation. European policymakers have introduced progressive climate and energy targets for the EU, beginning in 2009 with binding legislation for the year 2020, the so-called "20-20-20 Plan", which the European Council updated in 2014 with a new 2030 framework: a minimum 40% greenhouse gases emission reduction, a minimum of 27% share of renewable energy sources (RES) in gross final energy consumption and a minimum 27% reduction in final energy consumption. The 2030 framework also proposes a new governance framework based on national plans and a set of key indicators to assess progress over time[1].

The TEP was meant to be fully installed by 2014, but it became clear that this was unrealistic with a number of limbering technical issues facing the harmonisation of entry/exit that needed to be resolved. Subsequent legislation and communications have since reoriented the single market timeline to the end of the decade; from harmonisation of network codes, tariffs and congestion management procedures, etc. to the commissioning of prioritised interconnectors.

The 2009 winter supply crisis was a rude awakening for the CE region, revealing the alarming depth of emergency response deficiencies of both technical and physical nature. It spawned some immediate infrastructure upgrades that could be accomplished cheaply and quickly, for the most part adding compressor stations to change unidirectional flows to bi-directional.

[1]Building the European Energy Union: proposals and policy recommendations to power European competitiveness. The European House, Ambrosetti, August 2015. Available online: http://www.ambrosetti.eu/wp-content/uploads/Building-the-European-Energy-Union_Full-Report_ENG.pdf (accessed on May 01, 2016).

The response from Brussels came a year later in the form of Regulation No 994/2010 concerning measures to safeguard security of gas supply (SoS Regulation), compelling standardised national risk assessments and emergency response measures while encouraging regional solidarity and cooperation. It also sets a mandate for reverse flow capabilities across all interconnector pipelines barring exemption. Such measures promoted the single market alongside the TEP, as improvement of security of supply is optimised with market-based solutions. Thus, both core pieces of legislation require the completion of a network of pipelines that had been conceptualised for years but never reached a serious stage of development, mostly because there were no willing investors. Finally, in 2013, the Commission directly took on this challenge with the trans-European energy network plan (TEN-E) under Regulation No 347/2013, which introduced, among other things, aggregated Gas Regional Initiative Plans (GRIPs), projects of common interest (PCIs) and a methodological foundation for project level cost-benefit analyses (CBAs) and cross-border cost allocation (CBCA). The roles of the European Network of Transmission Service Operators for Gas (ENTSOG) and the Agency for the Cooperation of Energy Regulators (ACER) (established under the TEP) were expanded to oversee the development of these complex provisions - ENTSOG is developing the CBA and CBCA methodology while ACER issues an opinion - thereby serving to coordinate EU-wide cost-sharing and advance infrastructure development.

Regulation No 347/2013 responded to the finance gap facing EU gas infrastructure by introducing, for the first time, a structural mandate to co-finance energy infrastructure under the Connecting Europe Facility (CEF)[2]. In 2012, the "Road Map towards the regional gas market among Visegrad 4 countries"[3] was agreed upon by the V4 prime ministers to provide guidance for further V4 gas market integration and to emphasise the importance of funding under CEF for regional gas infrastructure projects. In 2014, the European Commission selected 27 gas projects from the first PCI list to receive funding from CEF, €647 in this first distribution followed by another €650 million in 2015. Of the 34 energy projects that received support, the vast majority were for studies and preparation, with the highest construction phase co-financing for the interconnector and supporting infrastructure between Poland and Lithuania (GIPL)[4].

The most recent landmark piece of legislation seeking to build upon the architecture described above (notably the European Energy Security Strategy from May 2014) is the Energy Union Package introduced in February 2015, under the 'Framework strategy for a resilient Energy Union with a forward-looking climate change policy'. It is comprised of five mutually-reinforcing and interrelated dimensions designed to address the three pillars of energy policy - energy security, sustainability and competitiveness - and contains a list of fifteen specific action points that form a roadmap for the delivery of the Strategy. The concepts are not new, but they are rebranded with the Commission motivated to establish compulsory regional security measures and its own role in ensuring an equal playing field with respect to third party contracts. Thus far, the Commission has found most Member States to be unwilling or unable to make the necessary progress based on vulnerabilities exposed by the 2014 Stress Test and its own country-level evaluations of Regulation No 994/2010 compliance in 2015. Furthermore, feedback from the Commission's 2015 consultation period was clear that Europe's energy security architecture must recognise the current disparity in market development and diversification between Eastern and Western Europe, firmly rejecting a 'one-size fits all' approach.

[2] T. Boersma, Energy Security and Natural Gas Markets in Europe – Lessons from the EU and the United States, London – New-York: Routledge, 2015. 212 pages. Available online: http://www.routledge.com/books/details/9781138795129/ (accessed on April 24, 2016).

[3] Road Map towards the regional gas market among Visegrad 4 countries, Calendar events of Visegrad Group, 2013. Available online: http://www.visegradgroup.eu/calendar/2013/v4-road-map-eng (accessed on May 6, 2016).

[4] Indicative list of actions selected for receiving financial assistance under CEF-Energy as of 29.10.2014. Available online: http://ec.europa.eu/energy/sites/ener/files/documents/2014_cef_energy_lists.pdf (accessed on May 6, 2016).

In 2016, the anticipated revision of Regulation No 994/2010 and the new LNG and storage strategy, together with the revision of Decision 994/2012 establishing an information exchange mechanism with regard to intergovernmental agreements between Member States and third countries in the field of energy (known as IGA Decision), were released. The revision of SoS Regulation and IGA Decision are both binding pieces of legislation while the strategies for LNG and storage are non-binding. Like the Energy Union proposal, the security of supply and LNG and storage strategies are premised on the actualisation of the TEP, stressing the need for integration for efficiency gains. The LNG and storage strategy is more of an assessment of current CE interconnectivity, noting the challenges facing storage operators with more flexibility options and declining winter/summer spreads and the need to improve CE access to LNG.

The revision of SoS Regulation aims to correct failures of country-level compliance with regulation risk assessments, preventive action plans, and emergency plans. Annex I[5] lays down nine regional zones that are referred to in Article 3(7) of the security of supply revision, which are expected to closely cooperate in security of supply scenarios based on a procedural joint template. For now, the V4 is divided within these groupings, with the Czech Republic, Germany, Poland and Slovakia forming the Central-East region and Austria, Croatia, Hungary, Italy and Slovenia forming the South-East region. These formations have already been disputed and will likely need to be further assessed and negotiated before final agreement.

The surveyed experts were asked to choose between twelve options that should be prioritised in Brussels to enhance energy security in CE and the V4. According to the respondents (Annex 2 – Question N4), by far, the two most important are the broad development of cross-border interconnections (43%) and support for the North-South Corridor (39%). The North-South Corridor will be further elaborated in Chapter 3, but it is characterised by a defined package of LNG terminals and interconnector projects to be holistically implemented (cutting directly across the V4), while the first choice is indicative of any broad assortment of interconnectors. The difference between these two choices is fairly nuanced, and it can be said that V4 survey participants overwhelmingly (82%) believe that the Commission can best enhance security of supply by promoting physical market integration with the build-out of interconnectors. This infers V4 support for the work of ACER and ENTSOG assisting with Ten Year National Development Plans (TYNDPs) and corresponding PCIs.

The second tier of responses includes a new security initiative (26%), a common approach to dealing with Russia (22%) and support for the integration of regional markets (22%). One can consider support for regional market integration in a broader sense to encompass both the hardware (physical interconnectors) and the software (harmonised legislation) required for market consolidation in the region. It is noteworthy that a majority of respondents favour assistance from Brussels for physical infrastructure development, while only a small minority deems further regulatory or legislative overtures to be necessary. The least popular selections include full implementation of the Third Package (13%), focus on energy market policy (13%) and changing gas supply regulations (8%) and less regulation of the energy market (4%) (Annex 2 – Question N6).

Another argument for strengthening regional cooperation is that in spite of past divisions between CE Member States over new pipeline systems connecting to and facilitating gas transit from various incarnations of Russia's South Stream and the Southern Corridor, the majority of surveyed experts (65%) believe that CESEC is a useful platform/format for aligning interests and finding solutions to these disagreements, although Poland is not a part of this initiative (Annex 2 – Question N3).

[5] ANNEXES to the proposal for a regulation of the European Parliament and of the council concerning measures to safeguard the security of gas supply and repealing Regulation (EU) No 994/2010. Available online: https://ec.europa.eu/energy/sites/ener/files/documents/1_EN_annexe_proposition_part1_v13.pdf
(accessed on May 8, 2016).

The V4 energy systems are also tied to non-Member States of the EU in South-Eastern Europe. Another longstanding initiative of the Commission is extending Europe's internal energy market to neighbouring countries in South-East Europe and beyond (particularly Ukraine) through the integration of non-EU countries, which is the main objective of the Energy Community. Contracting Parties of the Energy Community have legally adopted the European energy acquis that includes the TEP and are in the process of aligning national regulations with the EU law, slowly building up the necessary legal and physical infrastructure. A strong majority of respondents to the questionnaire (87%) believe that regional cooperation between the V4 and Contracting Parties should be equally strengthened to the level of energy security, solidarity and trust that is encouraged between Member States in the Energy Union proposal (Annex 2 – Question N1). The cross-border gas market integration of the Energy Community will contribute to a well-functioning wholesale market in the greater Central and Southeast European (CSEE) region.

The gas industry has been critical of the Commission's overall energy architecture for failing to clarify the long-term role of gas in Europe. Rather, the struggling gas industry laments mixed signals from a one-sided focus on the significant infrastructure investments required to shore up security of supply and hasten integration that does not address long-term demand. Demand has declined precipitously in recent years, in part from stagnant and falling economic output, but mostly due to displacement in electricity generation by coal and renewable sources. Climate policies have underpinned the explosive rollout of renewable energy sources across Europe, while at the same time attempts to fix the ETS have not guaranteed enough predictability for new energy investments.

Jacques de Jong and his team agree that the EU needs to articulate a better long term vision for gas. He points out that the EU has reached a consensus on an energy policy framework for the period up to 2020, but the vision and policies beyond this 2020 horizon are unclear. In his words, it "would be very useful to approach these policies and the resulting role for gas with the view in mind of giving the levels of demand security that would help suppliers to offer the required levels of supply security"[6]. The discrepancies regarding the projections of future EU demand for gas could disrupt domestic consumption, production and import requirements.

Simply put, when dealing with the new EU architecture of security of gas supplies, there remains uncertainty as to the future energy mix of the EU and its Member States, particularly with the role of gas. Since this is a medium-to-long term issue, the policies addressing it require a similar time horizon. As M. Hafner and S. Tagliapietra correctly point out, the "discussions on the EU's Road Maps 2050 are presenting useful opportunities. Such a view could also give a clear signal to the upstream sector in the value chain, both within the EU, but more importantly for the EU's external suppliers. This view could be seen as a basis for further developing, focusing and articulating the EU's external energy relations, energy diplomacy and policy in building secure and reliable relations with EU's main gas suppliers and transport and transit routes"[7]. These are the core issues most experts consider to be a sine qua non for a new long-term EU architecture securing the EU´s gas supplies.

[6] Ibid. p. 33.

[7] J. De Jong, J-M. Glachant, M. Hafner, N. Ahner, S. Tagliapietra, A new EU gas security of supply architecture? European Energy Journal Vol. 2, Issue 3, July 2012, p. 37.
Available online: http://www.clingendaelenergy.com/inc/upload/files/A_new_EU_gas_SoS_architecture_2_1.pdf (accessed on May 16, 2016).

2. THE IMPLEMENTATION OF THE ENERGY UNION AND VISEGRAD GROUP STATES

The European Commission's proposal for the Energy Union is premised on resilience through regional solidarity and Commission's involvement with third party gas contracts, attempting to break fragmented national policies and align offtake agreements. Despite the fact that the V4 has not developed a model of cooperation for the gas market, the four countries unequivocally understand the value and importance of such cooperation as highlighted in the Energy Union strategy, particularly given the crisis on the Eastern border of Ukraine.

The revitalization of the idea of the Energy Union can be credited to former Prime Minister of Poland Donald Tusk, who re-launched it in the public letter to the Financial Times in 2014 in the context of the Russian invasion of Crimea just months earlier[8]. The idea was imbedded in confronting Russia's monopolistic practices with mechanisms such as collective gas purchasing, thereby allowing smaller CE countries to leverage more favourable purchasing conditions. For Tusk, the core issue for Poland and the region at large was to elevate the energy security issue by supplementing existing EU policy.

Once it was taken up by the newly elected Commission under Jean-Claude Juncker, it was entirely repackaged in order to satisfy a more comprehensive agenda for the whole EU. The language was softened, and spoke of improving coordination of national energy policies and speaking "with one voice" in external energy policy, while omitting any mention of collective purchasing. Also noteworthy is the fact that the document only refers to Russia by name once in the entirety of the text.

The content was first expanded to incorporate climate-related policies - reducing overall energy demand, increasing energy efficiency and promoting renewable energy - alongside the security concept. Maros Sefcovic, appointed Vice-President for the Energy Union, then further nuanced the concept of the Energy Union, listing many other elements that would be included: more assertive international and third-party energy diplomacy, the completion of the internal energy market, the decarbonisation of the energy mix, the reduction of energy demand via energy efficiency and building out of the remaining priority gas and electricity interconnections. Thus, the Energy Union that emerged is centred on five "mutually reinforcing" dimensions: energy security, solidarity and trust; a fully integrated European energy market; energy efficiency contributing to moderation of demand; decarbonising the economy; research, innovation and competitiveness. Among the fifteen action points listed, points 2, 3 and 4 are of particular relevance to the V4, and emphasise diversification of supply and resiliency, transparency of inter-governmental agreements (IGAs) and infrastructural development.

North-Western European countries with robust supply diversification and gas connection infrastructure considered the Energy Union as a chance to push the decarbonisation agenda and improve energy efficiency. In contrast, CSEE and the Baltic States, that are strongly dependent on gas supplies from Russia, see the Energy Union as a chance to ensure energy security and become more integrated with Western European gas markets.

Long term contracts (with Russia) still play an important role in the V4 gas imports, far more so than in the liberalised markets of North-Western Europe. Some governments prefer that these contracts remain secretive, while others seek the involvement of the Commission to ensure fair

[8] K. Beckman, The Energy Union: it's now or never for a European energy policy. February 18, 2015. Available online: http://www.energypost.eu/energy-union-now-never-european-energy-policy/ (accessed on April 29, 2016).

pricing schemes and future bargaining positions vis-à-vis Russia. Many of Gazprom's largest Western customers and the V4 stakeholders were able to significantly renegotiate the terms of their contracts over the past few years, but these negotiations were carried out separately without formal precedent from previous cases.

To a degree, the market developments in recent years have obviated the need for a formal collective purchasing mechanism. European demand for gas has been stagnant while global supply has grown, creating a buyer's market, and long-term contracts are becoming obsolete due to market liberalisation. In other words, neither European market players nor governments are looking to lock into additional long-term purchase commitments.

While the Commission's ex-ante proposed in the revision of Decision 994/2012 provision embraces all future energy intergovernmental agreements, existing contracts for gas supply remain a significant factor in the regionalisation of security of supply measures. Consequently, within the revision of Regulation 994/2010 proposal, the Commission wants to tighten control over the contracts that represent a share of more than 40% of the gas market of the country. During the meeting of the European Council in March 2015, the proposal for transparency of gas contracts was met with strong resistance from not only Western states, but also some members of the Visegrad Group reluctant to share sensitive commercial data and compromise privileged relationships between importers and suppliers[9]. This demonstrates how difficult it was for the European Council to reach an agreement on transparency of all agreements related to purchasing of gas from third countries and how difficult it is for the EU to have a single voice on gas policy with third countries. Even some Visegrad countries that want the Energy Union to ensure energy security and gas supply diversification, because of their dependence on natural gas supplies from Russia, are not eager to share their own contractual information with the EU. On the other hand, according to the results of the survey, 83% of respondents say that the Commission's engagement with third party suppliers and transit countries on behalf of Member States is important for diversification (Annex 2 – Question N5).

Cooperation under the Commission's proposed Energy Union project provides the Visegrad countries with a number of benefits, mainly in the form of crucial EU support of the North-South Gas Corridor and other critical gas infrastructure projects in the surrounding area. The continued emphasis on physical interconnection and solidarity should benefit the V4, as integration must be improved significantly by the end of the decade.

Furthermore, the survey asked the leading energy experts of the V4 states to rank the importance of the Commission's objectives for diversification and resilience in the V4 region, and the responses were evenly balanced. The Commission's ex-ante assessment of Intergovernmental Agreements was the highest first place ranking (35%), followed by the Commission's new strategy for LNG and storage (30%). The Commission's work with Member States to develop access to alternative suppliers was ranked third by the majority (35%) while the revised security of supply regulation and working to develop access to alternative suppliers both received an equally high majority of the fourth place ranking (39%) (Annex 2 – Question N2).

As acknowledged by the Commission itself, the Energy Union is a step forward that in many aspects is underpinned by the successful implementation of the internal market; however, it will be years before something resembling a single internal market will truly emerge. For now, Europe is composed of regions and Member States that vary substantially in their level of integration, which the Commission recognises. If it is indeed a precondition for the Energy Union, this comprehensive strategy will have to remain on hold, and instead serve as a guideline for best practices.

[9] A. Gawlikowska-Fyk, W. Gruszczyński, Z. Nowak, EU Winter Gas Package: The Next Phase of the Struggle to Strengthen Energy Resilience. PISM Bulettin 3.02.2016.
Available online: https://www.pism.pl/files/?id_plik=21340 (accessed on May 14, 2016).

There are a number of gas market collaboration models in the Eurasian region, which are also implemented in the EU and may be proposed for integration in the V4 countries. The models will be discussed in this research, illustrating the main requirements for their implementation and the specific issues they may raise in the V4 region. The following models are in ascending order of market, security and policy integration necessity. Some of them may be combined or modified, to better adapt them for the main goal - energy security ensuring in the V4.

1. Independent connections to liquid hubs. This variant, out of all proposed models, is the easiest one to implement, falling short of active market integration.

Hereby TSOs/countries choose a bigger market and use its hub as their natural market. The regulatory strategy could be different in each country and will mainly focus on the viability of connections with the most liquid hubs. It would take advantage of the North-South Corridor that could guarantee energy security with the possibility to connect with the German gas market and provide access to Ukrainian UGSs. This model would be preferred in the V4 for the following reasons:

1. It requires the least physical integration and thus it is the cheapest variant.
2. The case of the Czech Republic-German market integration could become a positive example.
3. Preservation of market independence has appeal for regulators and governments. They would have more influence on the industry.
4. The issue raised by Adam Czyżewski could have a large influence. It says that the complex landscape of the European energy sector is an outcome of many years of leaving energy matters to the sole discretion of individual countries[10].

The largest disadvantage of this model is that it rejects the creation of an independent hub in Central Europe.

2. Single gas security regime. This model can be referred to as a supplemental variant of the first model. The single gas security regime (SGSR) also avoids active market integration with only a periodic energy security oriented collaboration between the V4 countries and TSOs. The only exception are cases in which there is a threat to the energy security of one of the V4 countries. It requires the creation of a part-time Coordination Committee (CC) (one person from each country and TSO), that will work at orange and red levels of SGSR.

SGSR levels of readiness:

1. Green level: implies a normal energy security situation when gas consumption is low. It is used in the period from April to October when the outdoor temperature do not require higher gas consumption and does not require any cooperation or harmonisation between TSOs, providing them full autonomy.
2. Orange level: will be switched on during the heating season from October to April. The TSOs would exchange information about gas consumption, reserves and supply dynamics within the framework of the CC. The CC works more intensively, analysing the vulnerable parts of the market and making recommendations on how to enhance them. This level implies a readiness to switch on the red level in the winter period, when the energy security threat is at the highest level.
3. Red level: activated regardless of the previous levels or seasons when there is a real threat to energy security in the V4 region, for instance, if Russia stops supplying gas. It requires full coordination of TSOs/countries via the CC with a single entry/exit tariff coming into force, combining all available capacity that is redirected to essential sectors.

3. Multiple coupled market zones. This model is a compromise between supporters of integration and separation, requiring only limited integration of the gas sector. TSOs/countries

[10] A. Czyżewski, European Energy Union, July 8, 2015. Available online: http://adamczyzewski.blogactiv.eu/2015/07/08/european-energy-union/ (accessed on April 16, 2016).

retain their own market zones, entry-exit tariff system, virtual trading point and balancing rules, but must significantly harmonise market rules in the short-term. Interconnections between zones must be built and it is advisable to make common rules for the improvement of cooperation effectiveness. Multiple coupled market zones include separate market operators, but require a common market bureau for coordination[11].

4. Trading regions. This model requires close to the highest integration, including a single tariff and price zone. In this model, TSOs establish a single market zone that represents a virtual trading zone without necessitating the inclusion of an entire gas transmission system. A single market operator is likely to emerge, and, probably, would be chosen by market forces, if a political decision is not taken early.

The creation of a trading region does not require a union of the zones with the same development levels. For instance, the territory of a participating country, with lower-level transmission and distribution systems may be assumed to be a part of the balancing zone. For tariff purposes, the trading regions work like the single market zone: entry and exit tariffs may be pooled and their revenue allocated to participating TSOs in accordance to their costs. But balancing may be different in each zone; TSOs can follow their own rules or use the trading zone as a big balancing zone. A great advantage of this model is that it does not require significant harmonisation.

5. Single cross border market zone. This model requires the highest level of integration and is ideal for achieving a high security level in the V4 gas market. It requires a single tariff system in which market participants pay a single entry tariff in any TSO/country while granted the right to transfer gas to any exit point in the zone. While it is simple in theory, it is not in practice. Firstly, not all tariff systems are currently based on a revenue cap approach. For instance, if the capacity booking is reduced the risk would fall on the TSO in some countries, while for a country using the revenue cap approach the annual adjustment is applied to the total revenue and unit tariffs are also corrected to allow for capacity booking variations. Regional integration would thus require the harmonisation of such approaches. It is likely that some harmonisation would be useful to avoid the emergence of disputes at a minimum, as outlined by the Centre for Eastern Studies (known as OSW Warsaw):

1. Criteria for the valuation of the asset base, depreciation, rates of return and operational costs;
2. Duration and timing of regulatory tariff periods;
3. Cost allocation methodology to entry and exit points, including storage site and LNG terminals;
4. Tariff structure (capacity, commodity and other components);
5. Criteria for tariff update, with particular reference to the regulatory account for the treatment of cost recovery or under-recovery;
6. Inflation adjustments of tariffs and capacity prices determined at auctions[12].

To avoid internal congestion, the V4 region would need to work as a single balancing zone, because capacity bottlenecks from the West, according to survey (17,5% of respondents) are one of most important current challenges to the supply security of the V4 states (Annex 1 – Question N18). It will be advantageous to create a market that is based on a balancing system, which requires strict cooperation between parties.

[11] S. Ascari, The Gas Target Model in Central Europe: a Study of the V4 Region, Florence : European University Institute, 2013 Available online: http://cadmus.eui.eu/handle/1814/28997 (accessed on May 28, 2016).
[12] Ibid.

3. THE V4 ENERGY SECURITY: INFRASTRUCTURE AND REGULATORY ASPECTS

Coordinated infrastructure development and regulatory harmonisation are the key to the successful integration of the V4 countries. Since 2009, the V4 region has made significant progress toward integration and diversification that remains far from complete. A common gas market, inclusive of the V4 and surrounding countries, would increase liquidity, enable more competitive prices and, above all, increase energy security. These developments are underpinned by the further development of pending projects of common interest (PCIs) and improved efforts to harmonise regulatory practices and cross-border tariff setting. Together, these measures will allow to increase market-based flows across borders, optimisation of storage and improvement in emergency situation preparedness.

Infrastructure scenarios. Integration in the V4 and greater CSEE region as a whole has improved significantly since the 2009 crisis, which revealed glaring gaps in the connectivity of existing natural gas infrastructure (i.e. lack of bidirectional flows) and added urgency for addressing them. The obligation of TSOs to enable permanent bi-directional capacity on all cross-border interconnections between Member States became a cornerstone of the subsequent security of supply Regulation 994, which was adopted in 2010[13]. While there remains a considerable dependency on Russian contracted gas, the implementation of West-to-East reverse flows has enabled greater volumes of spot gas to reach the V4 countries and has had an influence on take-or-pay offtake levels.

Predominately, this has occurred in the Germany>Czech Republic>Slovakia direction, where West-East directional flows have in fact surpassed East-West, mostly reflecting rerouted contracted volumes through the completed Nord Stream project and associated Opal and Gazelle pipelines that formerly transited Ukraine. At the same time, a number of alternative traders are active in booking physical reverse flow at the DE-CZ interconnectors in order to take advantage of the price spreads between Germany, and the Czech Republic and Slovakia, with further sales opportunities on to Ukraine. With considerable progress since 2009, only a few key bi-directional flows are still lacking, namely HR-HU and RO-HU. Hungary has built these interconnectors using EU financial support but neighbouring Croatia and Romania have not installed a reverse capability and are consequently underutilised. In the Commission's revision of SoS Regulation, exemptions from bi-directional flows will be more difficult to maintain.

While security of supply was the trigger for the first wave of infrastructure upgrades - those requiring relatively small investments with large security payoffs - subsequent legislation targeted the more costly and complex infrastructure construction for the integration of the internal market as set forth under the TEP. The key legislative framework under TEN-E Regulation[14] established national TYNDPs coordinated by ACER that will guide future regional infrastructure development from broad conceptualisation to individual investment. To date, the two PCIs commissioned in the V4 are the Polish LNG terminal (2015) and the SK-HU bi-directional interconnector (2015).

Table 1: The V4 commissioned projects 2009-2015

	Capacity (bcm)	Cost	CEF/EEPR funding	Commissioning
PL LNG	5	692.3	241.4	2015
CZ-PL*	0.5	28	n/a	2012
CZ-SK	5.5	7.4	n/a	2011
HU-RO	N/A	16.2	n/a	2012
SK-HU (reverse)	4.45 (1.78)	160	30	2015
SK>UA	-	20[15]	n/a	2015

*bi-directoral

[13] See Section 5 of Article 6 and Article 7 of Regulation 994/2010/EU.
[14] Regulation (EU) No 347/2013 on guidelines for trans-European energy infrastructure.
[15] Suppliers interested in reverse flow to Ukraine, July 7, 2014. Available online: http://spectator.sme.sk/c/20051312/suppliers-interested-in-reverse-flow-to-ukraine.html (accessed on May 16, 2016).

The majority of surveyed experts (61%) still view Russia as the most promising supplier to the V4 in the medium to long-term, with LNG a distant second (26%) (Annex 2 – Question N14). This reflects the enduring reality of geographic proximity, the existing infrastructure, and the typical cost advantage of piped gas over LNG. Russia will remain the primary supplier to the region due to these factors, but it will have to adjust its marketing practices not only to the new European-wide regulations but the growing competition that is enabled by improved physical interconnectivity. The global LNG market is increasingly more liquid and flexible as evidenced by increasing year-on-year short-term trades (up to 29% in 2015). Over the next few years, the US is not only softening the LNG market with significant liquefaction capacity (along with Australia), but it is pioneering flexible LNG offtake agreements with a price formula that capitalises on low Henry Hub prices. Global supply and demand factors are fluid, and with an influx of cheap and flexible US LNG and declining Asian demand the short-term outlook for LNG is positive for buyers in Europe that have more than enough regasification capacity to absorb LNG at the right price. The problem with LNG is that its price is to a degree dependent on global demand, with available spot volumes following arbitrage opportunities. LNG has a great potential to contribute to source diversification over the next five years, and beyond 2020 it will be in a position to displace more of the declining EU indigenous production. Thus, the Commission has made the integration of LNG into the European supply mix a clear priority in its Energy Union proposal and subsequent LNG and storage strategy.

This is also at the heart of the North-South Corridor, enabling the linkage between Baltic (Polish) and Adriatic (Croatian) LNG to and across the V4 in each direction. The North-South Corridor was formally adopted as a priority package of corresponding infrastructure under Commission President Jose Manuel Barroso, set to be completed by 2020. Later it was adopted as the flagship project of the Visegrad Group, with prime ministers agreeing to set technical preparations for fast tracking and cooperating to raise funds.

It is clear that the vast majority of stakeholders from the regional survey find a fully functional North-South Corridor to be a critical goal for the V4. When asked to rank which two supply sources are most important to the V4 diversification (which is indicative of infrastructure priorities within the North-South Corridor), the responses are not surprisingly mixed; access to Polish LNG (31%), Southern Corridor (24%), increased access to Western hubs (21%), access to Croatian LNG (14%), and other (10%) (Annex 2 – Question N16)[16]. Of course, the varying preferences reflect a natural degree of bias amongst the V4 countries as to which source might be more locally beneficial, even though in the end they are all viable and will all contribute. As would be expected, the majority of Czech respondents cite increased access to Western hubs, the majority of Polish and Slovak respondents' access to Polish LNG, and the majority of Hungarians access to Croatian LNG.

One major infrastructure development that all V4 countries are in agreement over is opposition to Nord Stream 2 (NS2). In a sign of solidarity, leaders from all V4 countries were among the nine EU Member States that signed a letter in March 2016 to Jean Claude Juncker, President of the European Commission, expressing serious concerns over the project. They cited, among other things, the associated risks for energy security in the CSEE region. In fact, this position is corroborated by REKK's own analysis using its European Gas Market Model (EGMM). It finds that a modelled 2020 scenario with NS2 enlarges the existing price spread between North-Western Europe and CSEE by taking up reverse flow capacities with contracted gas that otherwise would be available for flows of spot gas from West-East. At the same time, limiting available reverse flow capacity categorically downgrades security of supply for the region as well. Furthermore, to relieve some of these effects a much higher level of total investment in infrastructure would be required that otherwise, without the construction of NS2, would not be economically viable.

[16] Other includes Eastring Project, the V4 interconnection system, and PCI implementation North-South corridor.

The chart below details all relevant PCI and PECI (Project of Energy Community Interest) projects that are currently listed as eligible for CEF funding of particular significance to the V4.

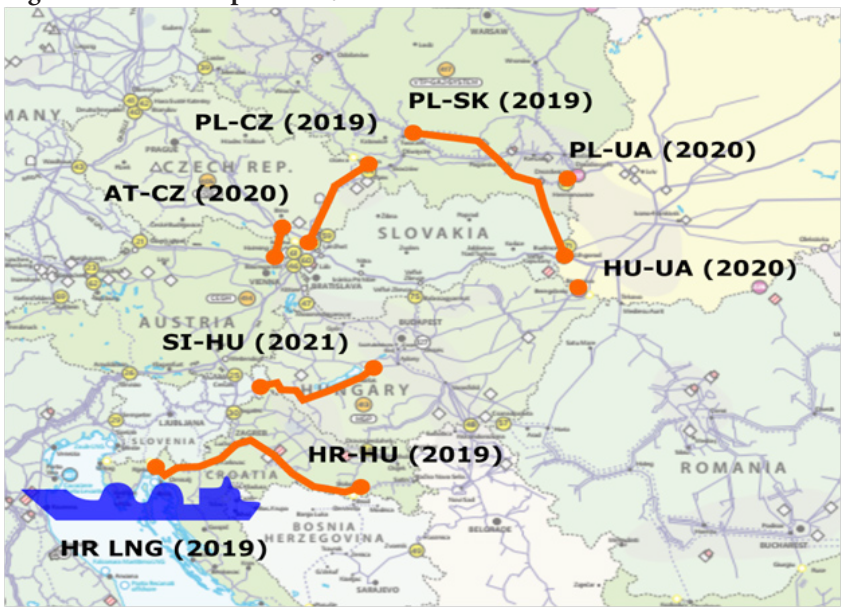
Table 2: Listed the V4 PCI/PECI awaiting FID

Grouping	PCI	Capacity (GWh/day)	Length (km)	Diameter	Cost*	Expected Commissioning
North-South Corridor	PL-CZ**	153.2 (219.1)	112.4	1000	545.9[17]	2019
	PL-SK**		164	1000	524	2019
	AT-CZ (reverse)	254	61	800	50*	2020
	SI>HU	38.1	113	800	140*	2021
Reverse upgrade	PL>UA	215	183,5	700-1000	220*	2020
	HU>UA	178	52	800	20*	2020
LNG	HR LNG	108	-	-	300	2019
	HR>HU	76	308	1000	370	2019

*estimated cost using ACER benchmarking **bi-directoral

For the North-South Corridor, two critical pieces of infrastructure under development are the interconnections between Poland and the Czech Republic and Poland and Slovakia. The former is further ahead in the design phase and having already received Commission approval for European financing of construction, while the latter has received EU co-financing for preparatory studies and engineering works. To the South, the Croatian LNG and corresponding evacuation infrastructure has strong US and EU support, but the evacuation cost allocation and corresponding tariff structure need to be resolved before it advances further. REKK modelling demonstrates that the regional impact of Croatian LNG is significant but heavily dependent on tariff level.

Figure 1: The V4 Map of PCIs/PECIs



[17] J. Chadam, R. Wittmann, Regional challenges towards 2020 – gas, November, 2013. Available online: http://www.eu2013.lt/uploads/documents/1104_prezentacijos/Rafa%C5%82%20Wittmann_Regional%20challenges%20towards%202020%20%E2%80%93%20Gas.pdf (accessed on April 29, 2016).

Looking ahead, a number of experts (74%) also believe that Ukraine's storage potential can be the harbinger for an East European regional gas hub (Annex 2– Question N15). There are a number of regulatory issues that must first be resolved in order for Ukraine's physical assets to be optimised as a part of a wider interconnected marketplace. This involves upgrading reverse flow to Ukraine via Poland, Hungary and Slovakia, along with Ukraine's successful adoption of the EU energy acquis.

Regulatory climate. The vast majority of surveyed experts (95%) believe that full implementation of the Third Energy Package legislative provisions as currently envisioned is sufficient to underpin the achievement of the single market (Annex 2 – Question N7), thus implying that continued progress is contingent on enhanced cooperation between ACER, national regulators, TSOs and other stakeholders to speed up the implementation of existing legislation that is far behind the schedule initially conceived by the Commission (completed in 2014).

The Commission followed its 2015 Energy Union strategy with legislative and strategic proposals concerning SoS Regulation and LNG and storage respectively. The storage and LNG communications did not contain specific legislative measures, but provided an assessment of current conditions that require more complete market integration. The revision of Regulation No 994/2010 that emerged in 2016 was shaped by the results of the findings from the October 2014 stress test, the October 2015 report on the implementation of Regulation No 994/2010, country-level opinions of national compliance with the Regulation published in 2015, and feedback from a five month period of public consultations in 2015. Based on its published findings from these investigations, it came as no surprise that the revised regulation seeks to legislate the solidarity principle enshrined in Article 194 of the TFEU in the form of a coordinated and collective approach to security of supply. A regional approach to risk assessment (RA), preventive action plans (PAPs) and emergency plans (EPs) allow for more efficient market based solutions than would disparate national plans that do not consider cross-border effects. Also, the solidarity mechanism obliging to provide gas to a Member State stricken with serious gas supply disruption by the bordering Member States to cover the needs of the most vulnerable consumers such as households has been proposed.

In relation to the revision of Regulation No 994/2010, the survey indicates that the majority of the V4 stakeholders agree that the Commission should have increased oversight at the regional level to help ensure security of supply matters. As suggested in the revision proposal, they believe that the Commission should have increased its own authority to coordinate regional emergencies (74%) and an ex-ante information exchange mechanism with respect to third party contracts (74%). Furthermore, a slight majority (61%) of respondents believe that current fora (ENTSOG, Gas Storage Europe, Gas Infrastructure Europe) and the EU framework (Regulation No 994/2010, REMIT) are adequate at the V4 regional level to ensure security of supply, while a still considerable segment (39%) believes that more enforceable obligations are necessary (Annex 2 – Question N11, 10, 9). The Commission's summary of public consultations also noted that only CSEE representatives support concrete obligations for regional cooperation to ensure that Member States follow through on their emergency plans.

Currently the V4 countries differ with regard to national security of supply measures and market integration. The Czech Republic and now Poland are considerably more diversified than Slovakia and Hungary owing to the access to Western hub-based gas and an LNG terminal respectively. Meanwhile Hungary and Slovakia remain highly dependent on a single supplier (Russia) for gas in their energy mix, as terms of their long-term contracts have not been negotiated to the same degree and they await key pieces of infrastructure to enable source diversification. Table 3 compares each country's current indicators for security of supply and market integration.

Table 3: The V4 SoS Status

	N-1 Standard	Storage obligation	Strategic Storage (out of market)	Evaluation of Reg. 994 compliance
Czech Republic	260%	Yes	No	1
Hungary	103%	Yes	Yes	4
Poland	103%[18]	Yes	No	2
Slovakia	305%	Yes	No	3

So far, there has been little progress within the V4 to harmonise security of supply related legislation according to aspirations of the European Commission. Each V4 country failed to meet the full criteria of Regulation No 994/2010 by the issued opinion of the Commission, and consequently each was advised to make amendments to national PAPs and EPs. Beyond the need for more technical compliance, the Commission recommended that each consider the potential effects of measures adopted by neighbouring countries and cooperate in the development of preparatory and mitigating measures in the case of a crisis. With this in mind, survey participants were asked to rank the most probable areas for V4 solidarity and cooperation. The overwhelming number one ranking was a regional N-1 standard (57%) followed by a definition of protected customers and coordinated curtailment (26%). The definition of protected customers placed evenly across first, second and third rankings (26%). Market-based mitigation was the highest third place ranking (43%) and also received attention in the second (22%) and fourth (26%). Coordinated curtailment was the leading fourth place ranking (30%), just above market-based mitigation and cross-border access to storage (26%). The highest fifth ranking was access to cross-border storage (39%). Experts mostly agreed that the regional N-1 standard is the most likely area for cooperation in the V4, while the least likely is cross-border access to storage, with definition of protected customers, market-based mitigation and coordinated curtailment somewhere in the middle (Annex 2 – Question N8).

The EU-wide optimisation of storage is also prominent on the Commission's Energy Union agenda, further pronounced in its LNG and storage strategy proposal. It highlights the challenges facing storage operators in a liberalised gas market, including declining summer-winter spreads, increased competition from flexibility markets, and barriers to cross-border availability between Member States of the EU that hamper potential utilisation. With growing flexibility markets providing more balancing alternatives for traders, some argue that the full value of storage is not accurately reflected in these flexibility markets – in particular its security of supply and insurance value. Furthermore, the Commission also notes that approaches to regulating storage vary widely between countries and regions, which denies possible efficiency gains from cross-border storage. Thus, not only is existing physical storage at risk of closures and mothballing, but investment in future storage is also jeopardised. A slim majority of participants in the V4 survey (65%) believe that the value of storage is adequately reflected under current conditions, implying that no further regulatory intervention on behalf of storage markets is required (Annex 2 – Question N12). This could reflect already robust national storage obligations in place in the V4 countries, related to security of supply, that force non-market based utilisation, a symptom of underdeveloped V4 markets that are not yet fully reliable. Ultimately, the Commission is attempting to encourage Member States of the EU to adopt market-based measures and cooperate on a regional level to achieve greater efficiencies. In this sense, there is much opportunity for the V4 to find common ground and mutually acceptable solutions with respect to security of supply and storage.

[18] Poland's N-1 is from Risk Assessment performed in 2014.

4. THE V4 ENERGY COOPERATION WITH SPECIAL VIEW ON NATURAL GAS: CHALLENGES AND OPPORTUNITIES

The issue of security of natural gas supply is undoubtedly on top of the list of the energy agenda for the governments of Poland, Hungary, Slovakia and the Czech Republic. Regardless of the differences in the V4 states' energy portfolio, there remains a number of common challenges and risks that threaten the energy security of the Visegrad region. The V4 countries have relatively high dependence on long term contracted Russian gas supplies, and, as with the rest of the greater region, markets are not well diversified or competitive and remain largely isolated. There is still a need for physical infrastructure upgrades between and around the V4 countries to complete the North-South Corridor, but progress is being made under the guidance of ACER and the institutional and legal framework described in Chapter 1. Nevertheless, the V4 needs to improve cooperation in the gas sector to optimise the use of the expected interconnectors for market integration and regional energy security. As demonstrated by the open letter to the Commissioner regarding the negative impacts of the Nord Stream 2, it is also helpful when the V4 (and others in the region) can speak with one voice.

LNG diversification. The European Commission embraces LNG not only for diversification, but also as a source that will compete with Russian pipeline gas in North-Western Europe for electricity generation as coal use begins to decline. The IEA Medium-Term Gas market Report 2016 states that retiring coal and nuclear capacity will relieve some pressure on gas-fired generators[19].

Central Europe is the region of emphasis highlighted in the Commission's LNG and storage strategy because access to LNG is currently so limited. The LNG terminal in Świnoujście (Poland) was opened on October 12, 2015. The cost of building the terminal was approximately €720 million, of which the EU's European Regional Development Fund contributed €223,74 million[20] from the 'Infrastructure and Environment' Operational Programme, and the terminal can store up to 5 bcm of natural gas, one-third of Poland's annual demand. With the possibility for expansion to 7.5 bcm, this would imply the need to export given current contractual obligations of PGNiG. However, its regional use is limited by the lack of interconnectors with its neighbours for the time being. Under current market conditions, this type of the V4 cooperation cannot be expected, which is why thus far the V4 countries have taken a national approach, seeking EU funding for projects that will have a direct effect rather than interconnectors.

By 2020, it is expected that Polish LNG (and Lithuanian LNG via GIPL) will be paired with Croatian Krk FLNG to form the bookends of the North-South Corridor linking the Baltic and Adriatic seas via the Visegrad states. The V4 countries need to capitalise on this as a means of diversification and an opportunity for ensuring their own energy security. As a new supply, LNG creates alternatives to traditional pipeline gas from Russia. Eventually, when combined with improved reverse flow access to Western markets, it will perhaps lay the groundwork for the development of a regional gas hub. The cumulated capacity of the V4 would account for some 15-17 bcm, or almost one half of the V4's yearly gas consumption. Furthermore, the development of regional LNG interconnectors will empower the V4 states in future contractual renegotiations with Gazprom and, at least, increase the competitiveness of Eastern European gas markets. Again, market liberalisation will naturally provide leverage for the V4, as it has in Lithuania, which would alleviate the need for a Commission's involvement in gas supply negotiations.

[19] IEA Medium-Term Gas Market. Report, 2016.

[20] New liquefied natural gas terminal improves energy supply and security in Poland,September 24, 2014 Available online: http://ec.europa.eu/regional_policy/en/projects/poland/new-liquefied-natural-gas-terminal-improves-energy-supply-and-security-in-poland (accessed on May 1, 2016).

In the meantime, increasing hub liquidity is changing the nature of European gas consumption, a shift from long-term take-or-pay (TOP) offtake to short term spot purchases that now accounts for well over half of European consumption. For now, Central European markets can use a hybrid contract system that exposes long-term contracts to the Title Transfer Facility (TTF) prices, making them more reflective of the market. Finally, increased competition in the regional gas market should lower prices to end consumers in the Visegrad region. A large majority of participants in the V4 survey believe that the goal of V4 gas cooperation and possible market integration is in increasing security of supply (20%), increasing supply options and diversification (20%), as well as expanded market with greater business opportunities (20%) (Annex 2 – Question N17).

Small supplies of American LNG to Europe in 2016 will not be able to radically change the structure of the EU internal gas market, but it could pressure Russia's pricing strategy. Europe will be the market of last resort for LNG given the global surplus expected in the medium-term. In addition, EU gas demand is not expected to rise significantly by 2035. For now, nuclear energy's share in Czech, Hungarian and Slovak electricity mix is above 30%, and all Visegrad countries plan to increase nuclear energy capacity[21]. The American company Cheniere Energy, a first mover in US LNG exports, has recently announced its intention to invest in the regasification terminal in Croatia. If this plan is carried out, LNG will reach Central European markets, including Hungary and Slovakia.

There is no doubt that LNG from the US will put downward prices on the European market, but it will have a limited impact on the amount of Russian gas supplied in the EU. Europe will always receive a significant amount of natural gas from Russia given geographic proximity, existing long-term contracts with Gazprom, most of which are valid until 2025 – 2035, and Gazprom's relatively cheap production cost.

New gas flow patterns. The aim of the Visegrad Group energy policy is to diversify supply sources, suppliers and transit routes, primarily advocating the construction of new gas infrastructure. At the same time, in June 2013, the Trans Adriatic Pipeline (TAP) was chosen over Nabucco to bring Caspian gas to the European border. A large part of Europe's failure over Nabucco can be attributed to Russia's divisive South Stream pipeline proposal, which remained on the table from 2007 until 2014, and the potential transit revenues and presumed supply security that lured many CSEE governments to support it. Once Vladimir Putin announced its termination in 2014, countries in the region were forced to shift focus to cooperation on smaller interconnector projects.

And yet the Southern Gas Corridor (SGC)[22] will begin to open the Southern route for Caspian gas and potentially other sources down the road in 2019. Initially only 10 bcm will enter Italy, but this can be doubled to 20 bcm in later stages if there are interested investors and willing contributors of gas (such as Iran, Iraq, Turkmenistan or even Israel). If demand for gas in Central Europe rises, it will be able to flow through Bulgaria and Romania to Hungary via interconnectors. But this is more of a medium-term, ten-year outlook. It will have a greater immediate effect for diversification in South-Eastern Europe before it reaches the V4 borders (Hungary). It is worth reiterating that experts and representatives of gas companies in the framework of our survey highlighted the construction of SGC as a key priority (second place – 24%) for the coming years (Annex 2 - Question N16).

Nord Stream 2 poses a challenge to the Energy Union and the concept of a single voice in energy policy, creating obvious fissures between those Member States with companies involved in development of the project that will also benefit from a direct route of supply from

[21] V4 Prime Ministers support energy diversification, October 14, 2013 Availableonline: http://vienna.io.gov.hu/v4-prime-ministers-support-energy-diversification (accessedon May 14, 2016).

[22] Second Strategic Energy Review – An EU Energy Security and Solidarity Action Plan, 2008 Available online:http://news.bbc.co.uk/2/shared/bsp/hi/pdfs/14_11_08euenergy.pdf (accessed on May 16, 2016).

Russia, and those in CSEE that will not. The target markets of the project are Germany, France, Austria, and Italy. According to REKK modelling[23], Nord Stream 2 will increase the existing price discrepancy between North-Western Europe and the V4. It will also limit their access to marketed Western spot gas and thereby further diminish already vulnerable security of supply resilience. The reason that Nord Stream 2 is zero sum is because it is not a new supply source providing liquidity to markets. Instead, its volumes are dedicated to displacing an existing route of contracted gas that currently transits Ukraine, meaning they will block what would otherwise be available reverse capacity through Germany, Austria and the Czech Republic for spot purchases and security of supply purposes, particularly affecting traders in Hungary and Slovakia that are further downstream. Thus, Nord Stream 2 interferes with the design and purpose of post-2009 infrastructure investment, reducing system resiliency and limiting market development. This was echoed by Donald Tusk[24], President of the European Council, who asserted that it 'would increase Europe's dependence on one supplier and concentrate 80% of Russian gas imports on one route[25].

Nord Stream 2 (17,5%) together with limited diversification options (24%) and capacity bottlenecks from the West (17,5%) were mentioned as the most important current challenges to supply security of the V4 states according to the survey (Annex 2 - Question N18).

Another prospective alternative source of gas supply to the Visegrad Group states is natural gas from Norwegian continental shelf via the proposed Baltic Pipe between Denmark and Poland, with an envisioned capacity of up to10 bcm/year. However, it is noteworthy that feasibility study is under preparation and will be finalized by the end of 2016. The EU-Norway gas route would be independent from non-EU transit countries with a very low risk of interruption beyond technical issues. Currently, the V4 states have low level of Norwegian gas in their gas supply portfolio. The Czech Republic purchases the most, with a third of imports coming from Norway. The country is, nonetheless, dependent on the physical flows of gas from Russia.

While the European Union wants Norway to remain an integral gas supplier to Europe, the trend of low demand and falling prices makes investment in new projects for state-owned Statoil more risky. In 2015, upstream investments in the Norwegian petroleum industry dropped after many years of strong growth. This is due to a number of factors, being that many major development projects have been completed or are nearing completion, while some new projects have been postponed, as many companies try to cut their investments. Moreover, the European energy and climate policy favors the development of renewable energy over natural gas leaving the Norwegian company without a guarantee of stable European demand in the medium and long run. If these circumstances could be overcome, direct access of a new source of gas would be a game-changer on the V4 markets providing physical diversification for the CEE region.

Falling oil prices. After some years of relative stability, oil prices fell dramatically in the beginning of 2014 and have not recovered to previous levels. The decline in oil prices has a direct, albeit delayed (6 to 9 months) impact on the pricing of oil indexed natural gas. Despite oil-indexed prices suddenly becoming more competitive with spot prices in 2016, new contracts are increasingly indexed to spot prices set at the hubs instead of oil. As long as V4 access to Western gas hubs is limited by insufficient infrastructure capacity, regulatory barriers and contractual congestion, there is not enough liquidity in the region for a hub to develop in the short term,

[23] Nord Stream 2: downgrading Europe's security of supply where it matters. March 8, 2016. Available online: http://rekk.hu/search/nord%20stream%202 (accessed on May 16, 2016).

[24] Similar position has been expressed by Commissioner M. A. Canete and Members of the European Parliament, including Jerzy Buzek and Manfred Weber.

[25] F. Wong, Nord Stream II: Another Threat to the EU's Fragile Unity. April 14, 2016 Available online:https://ramenir.com/2016/04/14/nord-stream-ii-another-threat-to-the-eus-fragile-unity/
(accessed on May 22, 2016).

and the hybrid model split between spot indexation and the TTF will continue to characterise contracted deliveries.

In the long-term, it would be beneficial for Eastern European countries to move toward a regional gas hub. This would depend on the introduction of multiple sources and routes of supply for better competition. Poland will need to continue to make significant investments in domestic transmission to connect its LNG (and Lithuania's) to the Czech Republic and Slovakia. Croatia's LNG terminal would also contribute, mostly to Hungary and South-Eastern Europe. At the same time, reverse flow between Ukraine and its three V4 country borders are intended to be upgraded, allowing the region to access large volumes of gas storage. Survey participants seem optimistic about the chances of Western Ukraine reverse flow and storage contributing to an East European regional hub in the future, with 74% of respondents believing that the Visegrad authorities should consider Ukraine a potential partner in the regional hub project (Annex 2 - Question N15).

The renegotiation of long-term contracts with Gazprom. Russian long-term contracts can be characterised by oil-indexed prices with take-or-pay obligations. The predominance of long-term contracts, limited alternative supplies from non-Russian sources, and Gazprom's past negotiation tactics have contributed to the low level of competition of national gas markets the V4 and other CSEE countries, as shown by the on-going antitrust proceedings by the European Commission.

In recent years, European companies have renegotiated the conditions of long-term contracts with greater frequency, for instance, Italian Edison and Sinergie Italiane, German WIEH, Wingas and E.ON Ruhrgas, France's GdF Suez, Danish GasTerra and, Austria's Econgas. This includes energy companies of the Visegrad region, with Poland's PGNiG and Slovak company SPP, Hungarian MFGK and the Czech division of RWE Supply & Trading following the lead and precedent of the larger Western European companies.

Table 4: Long-term contracts for gas delivery to Visegrad states

Country	Companies	Duration of contract	Approximate annual deliveries (bcm)
Poland	PGNiG and Gazprom	2011–2022	10
Poland	PGNiG and Qatargas	2014–2035	1,5
Poland	PGNiG and VNG	2006-2016	0,4
Czech Republic	RWE Supply & Trading and Gazprom	1999–2035	9
Czech Republic	Vemex and Gazprom	2008–2017	0.5
Slovakia	SPP and Gazprom	2009–2028	6.5

The majority of Czech, Slovak and Polish contracts with Gazprom end in the 2022-2035 period (Hungary's expired in 2015, but an extension was negotiated to make up for unused TOP volumes in recent years). Because the renegotiations of commercial contracts are highly secretive, the price cuts and changes to the pricing formulas and TOP obligations can only be estimated. But it is widely accepted that the changes won by Western European gas companies to better reflect current market conditions (e.g. flexibility and downward revision of TOP and higher spot exposure) has strengthened the position of the V4 long term gas contract holders with regard to their main supplier, Gazprom[26].

This has helped to facilitate the transition to short-term hub trading and hybrid contracts with TTF indexation, now covering a majority of EU gas demand. Even though the share of market-based volumes is much higher in North-Western Europe, Central European liquidity is still progressing, albeit at a slower pace.

[26] T. Dąborowski, Breaking the boundaries The transformation of Central European gas markets, Warsaw, 2014. – p.37.

Regardless of the contractual composition and available alternative sources, the majority of survey respondents (61%) acknowledge that Russia remains the most promising supplier to the V4 countries in the medium to long-term (Annex 2 - Question N14). It follows that, despite the complexity in relations and negotiations with Gazprom, the Visegrad authorities should create value through coordinated energy diplomacy and negotiations with Russia.

Generally speaking, it would be beneficial for the V4 if the Commission was available to ensure that EU law is upheld in provisional and existing agreements, taking up the IGA Decision revision released with the SoS Regulation revision. In the framework of the Energy Union proposal, this binding decision would allow the Commission to institutionalise a degree of ex-ante compliance for new and renegotiated energy intergovernmental agreements and immediate ex-post compliance for contracts with third country suppliers.

This initiative will contribute to strengthening European solidarity and trust to the benefit of weaker, single-source dependent Member States in subsequent contracts and renegotiation rounds. It can also mitigate undue pressure from Gazprom's old system of discounts and individual agreements, although Gazprom has already conceded many of these practices as a result of EU market liberalisation and enforcement of new EU energy laws.

Russian-Ukrainian conflict. The Russian-Ukrainian conflict has caused many changes in European energy policy and the system of energy security. Russia's annexation of Crimea, occupation of Donetsk and Lugansk in 2014, and ensuing nationalisation of elements of Ukraine's energy industry raised fears of further transit disruptions in the rest of Ukraine and Central Europe. Russia covers more than 30% of the EU's gas consumption, but the V4 countries import dependency rates are much higher, ranging from 55 to 90%.

The gas stress-test in 2014 revealed considerable vulnerabilities for Central European Member States to a supply shock based on two scenarios: first, a complete cut in Russian gas imports to the EU, and second, an interruption of Russian gas imports through Ukraine. The results showed that the V4 countries remained weakly integrated and mostly limited to national response efforts, a fresh reminder to regional decision makers that efforts over the past five years to adopt liberalisation measures of the EU Gas Directive[27] were not sufficient to ensure security of supply.

Thus, the common objective for the Czech Republic, Slovakia, Hungary and Poland is to integrate as a bloc within the North-South Corridor to connect with alternative, non-Russian sources. The efforts underway in Europe to diversify and reduce Russian gas in the energy mix has prompted strategic responses from Gazprom, including gas discounts for some countries, a temporary decrease in the volume of gas export to Poland in 2014, and ultimately severely reducing gas flows through Ukraine from 2019 when the transit contract expires and Nord Stream 2 is commissioned.

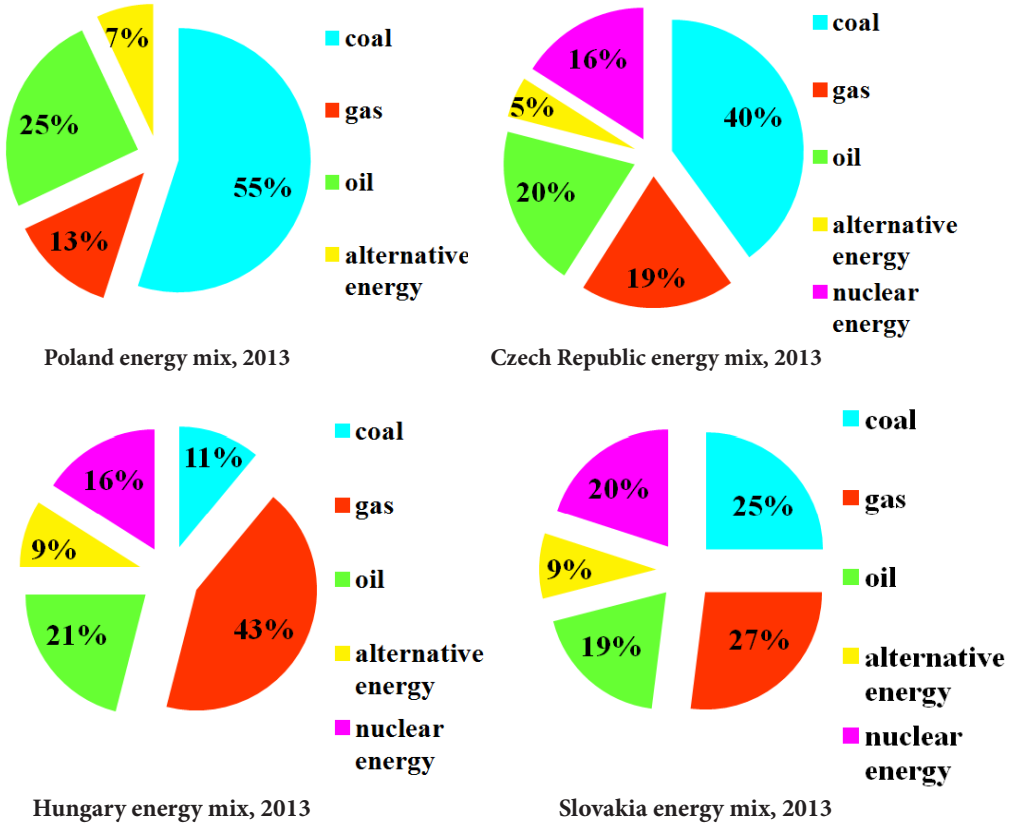
Asked whether Russia will cut all of its Ukraine transit in 2019 (Annex 2 - Question N13) 57% of survey respondents believe that it is possible and 17% think that it is very likely, while only 26% respondents expressing doubts that Russia will follow through. Thus, it can be said that the majority of gas market participants in the V4 states take the risks of a complete halt in Ukraine transit very seriously. Due to geographical proximity, the integrity, stability and energy security of Ukraine is of undeniable importance to the energy security in the V4 states.

The decision-making of the V4 states energy policy. The energy mix amongst the V4 countries varies significantly. While coal is very important for Poland and the Czech Republic, it is less consequential for Hungary and Slovakia. Meanwhile nuclear energy is extremely important

[27]Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas.
Available online: http://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32009L0073
(accessed on May 7, 2016).

for Hungary, the Czech Republic and Slovakia, and non-existent in Poland, although Poland is planning to build a nuclear plant in the near future[28]. Across all V4 energy portfolios renewable energy occupies a relatively low share of the energy mix. Natural gas is used in all energy mixes, but it occupies a far larger share in Hungary and Slovakia than Poland and the Czech Republic. Nonetheless, all the V4 countries are working to reduce vulnerabilities associated with a high dependence on natural gas imports from Russia from what was traditionally a single entry point.

Figure 2: The Visegrad states energy mixes[29]



Intergovernmental cooperation in the framework of the Expert Working Group on Energy (the V4 high-level group on energy issues) started in 2000 with plans to reconvene in 2002 and 2004. Slovakian expert Andrej Nosko found stated that the level of representation of the V4 countries has varied significantly in these meetings. While the Czech Republic was represented at the ambassadorial level by Václav Bartuška, Ambassador-at-Large for Energy, Hungary at the state secretary level by Péter Gordos, State Secretary for Energy, and Poland by Maciej Woźniak, chief adviser on energy security to the Prime Minister, Slovakia, while formally represented by State Secretary of the Ministry of Economy Peter Žiga, was represented at a much lower level by the Director of Department of International Relations of the Energy Section, who was not in the position to engage in binding political discussions on behalf of the government[30].

The level of representation in the energy sphere of the Visegrad countries differs significantly. Poland recently created a Ministry of Energy, but in the other Visegrad countries energy policy is under the responsibility of different ministries, including the Ministry of Foreign Affairs,

[28] Nuclear Power in Poland, February 2016. Available online: http://www.world-nuclear.org/information-library/country-profiles/countries-o-s/poland.aspx(accessed on April 16, 2016).
[29] European economy. Member state's energy dependence: an indicator based assessment. Brussels, 2013. Available online: http://ec.europa.eu/economy_finance/publications/occasional_paper/2013/pdf/ocp145_en.pdf (accessed on April 1, 2016).
[30] A. Nosko, Regional energy security: Visegrad finally at work? Bratislava, 2010. Available online: http://cenaa.org/analysis/regional-energy-security-visegrad-finally-at-work/(accessed on April 3, 2016).

the Ministry of Trade and Economy, the Ministry of Environment and Climate and others. Therefore, it is important to increase the synergy in gas cooperation among the Visegrad Group at the appropriate ministerial levels to strengthen the one-voice energy policy.

While the Visegrad Group is not a formal organisation, the decision making rests at the national level based on consent and agreement to cooperate at the V4 level. Therefore, no special decision making procedure in the case of a natural gas supply crisis exists at the V4 level. Rather, energy security cooperation relies on consultative meetings and conferences. Submitted papers also indicate the positions and intentions for cooperation at the national level. In the end, there is little formal, binding decision making.

With regard to prevention and response, chemical, biological, radiological and nuclear safety was at the top of the V4 agenda. The issue of prevention is also considered in the field of energy security. In October 2010, a meeting of the working groups on energy security in the oil and gas industry was held in Bratislava. Here, they agreed to 'create joint prevention plans and risk analysis. Such necessity results from the regulation in order to ensure the gas safety in emergency situations'[31].

The main consultations and cooperation activities are coordinated at the operational level of individual ministries, their managerial staff or experts, and/or industry representatives of natural gas suppliers. Special attention was given to regional cooperation to ensure the supply of natural gas to specific ministries, which, as a rule, meet once a year, and to experts who usually meet more often. In the framework of these meetings, it is very important to focus not only on the exchange of experiences and best practices, but also in dealing with the current EU agenda dossiers and unexpected situations. The synergies over particular issues in energy policy should be the foundation of future close Visegrad cooperation.

During the Polish presidency in 2013, the objective in the field of security and defence was to exchange 'lessons learned and best practices in operations, based on experience from participation in international crisis management activities'[32]. However, past experience suggests that the V4 will remain primarily an advisory body promoting assistance and coordination and maintaining contacts, appointments and lobbying.

Going forward, the V4 should be the main platform for dialogue over Central European security together with Germany and Austria, emphasising energy security. The next step would be to jointly develop mitigation and prevention mechanisms that enable the V4 countries to improve resiliency to energy security challenges in the Central European and Eastern European neighbourhood, under the guidelines of Regulation 994/2010 and its pending revision.

Since 2009, the V4 energy security has improved, especially in gas. A number of important infrastructure projects have helped to improve V4 integration and access to the liquid Western gas market. However, further diversification is needed to offset the dominance of Russian supplies under long-term contracts and elevate liquidity and system resiliency. Challenges to regional energy security should provide an opportunity for closer cooperation in the V4 countries and help to shape a more dynamic regional energy market.

[31] Annual Implementation Report of the Program of the Presidency of the Slovak Republic in the Visegrad Group (1 July 2010 – 30 June 2011). Available online: http://www.visegradgroup.eu/presidency-programs/v4-annual-report-2010 (accessed on April 17, 2016).

[32] Visegrad Group (2012): Program of the Polish Presidency. Available online: http://www.visegradgroup.eu/documents/presidency-programs/2012-2013-polish (accessed on April 8, 2016).

SUMMARY AND POLICY RECOMMENDATIONS

1. The Visegrad states - due to their proximity, tight economic and cultural relations, as well as a sense of solidarity - closely identify with Ukraine. Therefore, political and economic stability, in addition to energy security of Ukraine, is critical for the security of the V4 countries. The hybrid warfare conducted in Ukraine by Russia has triggered many challenges in energy policy across the Visegrad region. As Moscow attempts to divide the Member States of the European Union, and the V4 countries specifically, the Visegrad authorities and experts should respond with a strategic vision for regional energy security, rather than concentrate on short-term national interests. The V4 needs to create mechanisms and so-called "action plans" that would enable a joint and speedy response to energy security challenges in the region. This would require a hotspot for communication to coordinate efforts in the interest of solving energy security issues. None of the V4 countries has the capacity to solve conflicts in the European neighbourhood on its own, but, as an alliance, the V4 could play an important role in solving regional crises, including the energy aspect of the conflict in Ukraine.

2. Given the geopolitical and regional challenges to energy security and stability of the Visegrad states, it is crucial to create added value through coordinated energy policy and diplomacy. Such regional energy issues, especially price negotiations vis-à-vis Russia, removal of destination restrictions and softening and/or removal of take-or-pay contractual conditions, and diversification of sources, suppliers and routes of supplies, should be the focus of a one-voice energy policy for the V4 countries.

3. Building and improving the capacity of regional infrastructure in order to enhance Visegrad regional market should be the long-term priority. Specifically, the North-South gas interconnectors (both for supply security, as well as price as its access to spot markets and new competing sources of supplies) are necessary to achieve a functioning regional market. It is quite obvious that the energy security priority for the Visegrad countries is a deep need to diversify both sources, supply routes and gas suppliers. There is no doubt that the instruments of achieving this goal are the same for all Visegrad states: the development of cross-border interconnectors, the use of the capacity of the Polish and Lithuanian LNG terminals, the improvement of UGS facilities, the liberalisation of gas market, and the development of spot markers and contracts with alternative gas suppliers. It is for this reason that the Southern Gas Corridor remains among the priorities of all the countries in the Visegrad region, and is the crucial element for regional energy security, as it allows for diversification of sources, suppliers and routes. Bearing in mind that Central Europe is of key strategic importance to safeguard supplies of natural gas, due to its location at the East-to-West and North-to-South transportation nexus, in the next decade, the region could not only achieve significant independence from single source suppliers, but also become a crucial player in the European energy market, even with opportunities to export energy.

4. The energy policy of liberalisation and integration should be aimed at establishing a regulatory framework suitable for the development of a competitive and liquid market that would be attractive to more suppliers. The Visegrad states should identify market integration within the V4 and with non-V4 neighbouring countries, paying attention to their infrastructure facilities in the context of regional energy security (for instance, the volume UGS of Ukraine on the West border is about 25 bcm, it allows to cover the biggest part of annual volume gas demand in the Visegrad states). Deeper integration within the V4 and with Western hub markets, first of all

German and Austrian, should positively impact the development of liquidity inside the V4 region, offering competitive pricing to markets with gas-on-gas market price indexation. A platform for communication between top-managers of energy companies and government authorities should be created to allow the achieving of synergy in the building of one-voice energy policy. In other words, the objective of the V4 cooperation should be strongly coherent with business interest and companies' strategies.

5. Integration and security of supply are closely related, and the V4 will be increasingly physically linked with one another in the upcoming years. With this integration, the V4 should articulate short, medium and long-term goals for security of supply. Under the revision of Regulation No 994/2010, the V4 countries are not categorised in the same regional profile (although this is far from finalised), but nevertheless, the proximity and linkages between the V4 should encourage cooperation. First, this includes a dialogue for better understanding of definitions and applications of national risk assessment, preventive action plans, and emergency plans. At minimum, shared information and a common understanding can allow for more practical and unified risk assessments. This should include emergency mitigation measures as well, and form a foundation that could lead toward joint market-based mitigation measures. It is important to begin with emergency mitigation measures in recognition of the low level of market development that currently characterises the V4, and begin to develop improved coordinated market measures for the medium to long-term in anticipation of the North-South Corridor.

ANNEX 1 – QUESTIONNAIRE
V 4 NATURAL GAS SECURITY OF SUPPLY

The number of questions: *18*
Response time: *approximately 10 minutes*
Types of questions: *closed and open*
Expected number of participants: *20+*

Name _____
Company _____
Mail Address _____
Nationality_____
Company based in_____
Company active in_____

1. One component of the Energy Union strategy is the need for energy security, solidarity and trust among Member States. Is it important for regional cooperation between the V-4 and Contracting Parties of the Energy Community (non-Member States) (to) be equally strengthened?
Yes
No

2. One of the Energy Union's fifteen action points is to increase diversification and resilience of the EU's gas supply. Please rank the following Commission objectives for their importance to diversification and resilience in the V-4 (1 most important, 4 least important) :
1. Commission's revised security of supply Regulation
2. Commission's new strategy for LNG and storage
3. Commission ex-ante assessment of Intergovernmental Agreements
4. Commission working with Member States to develop access to alternative suppliers

3. There have been evident divisions between EU Member States of Central and South-Eastern Europe (CSEE) over new pipeline systems connecting to and facilitating gas transit from various incarnations of Russia's South Stream and the Southern Corridor. Is the Central and South-Eastern Europe Gas Connectivity High Level Group (CESEC) a useful platform/format for aligning interests and finding solutions to these disagreements?
Yes
If no, why?
Other platform

4. The disparity in the level of market development and diversification of natural gas markets between Western and Eastern Europe is recognised in the text of the Energy Union framework. What needs to be done in Brussels, in your assessment, to enhance energy security in Eastern Europe including the V-4?

5. Is the Commission's engagement with third party suppliers and transit countries on behalf of Member States important for diversification?
Yes
No

6. How important is a fully functional North-South Corridor - i.e. full access to Polish/Croatian/Greek LNG and Southern Corridor - to the V-4 region? What other elements of the Corridor are important?

Critical goal
Dependent on access to Western hubs
Not worth total investment

7. Is continued progress toward full implementation of the Third Energy Package sufficient for a well-functioning EU internal market, or is a new legislative framework necessary?
Existing framework
New (revised) framework

_____

8. In which area is solidarity/cooperation most probable in the V-4 under Regulation (EC) No 994/2010? Rank the following from most likely to least.
1. Regional N-1 standard
2. Definition of protected customers
3. Market-based mitigation
4. Coordinated curtailment
5. Cross-border access to storage

9. Are existing fora (ENTSOG, Gas Storage Europe, Gas Infrastructure Europe, transparency platforms) and EU framework (SoS and REMIT) on a regional level adequate to ensure security of supply?
Adequate
More enforceable obligations necessary
If not, does the new draft security of supply regulation introducing obligatory regional cooperation address the problem?
Yes
No

10. Should the Commission have increased powers to coordinate regional emergencies and ensure borders are not closed or interconnection capacities not reduced?
Yes
No

11. Are you in favour of the Commission establishing an ex-ante information exchange mechanism with regard to intergovernmental agreements between Member States and third parties?
Yes
No (please explain)

12. Is the value of storage (system flexibility, balancing, security of supply) adequately reflected under current SoS regulation?
Yes
No (please explain)

13. What is the likelihood, in your assessment, that Russia will cut all of its Ukraine transit in 2019?
Very likely
Possible
Will not

14. In the medium to long-term, which is the most promising supplier to the V-4 (choose one)?
Russia
Norway
Southern Corridor
LNG (Qatar, USA, Australia)
Other

15. Can Western Ukraine reverse flow and storage contribute to an Eastern European regional hub in the future?
Yes
No

16. Which is most important to V-4 supply-side diversification? Please select two.
Access to Polish LNG
Access to Croatian LNG
Increased access to Western hubs
Southern Corridor
Other

17. From the point of view of your company/institution, what should be the goal of V4 gas cooperation and possible market integration? (you can choose multiple answers)
Lower gas prices
Increased security of supply
Single stable regulatory regime
Increased supply options, diversification
Market development in each V4 country
Expanded market with greater business opportunities
Other (specify)

18. Most important current challenges to supply security of V4 states. Please select two.
Lack of interconnections between V4 countries
Capacity bottlenecks from the West
Nord Stream 2
Long-term contracts with Gazprom
Limited diversification options
Other

Thank you for your participation in the survey.
Thank you for taking the time to answer our questions.
Your opinion is very important to us.

ANNEX 2 – SUMMARY OF THE SURVEY

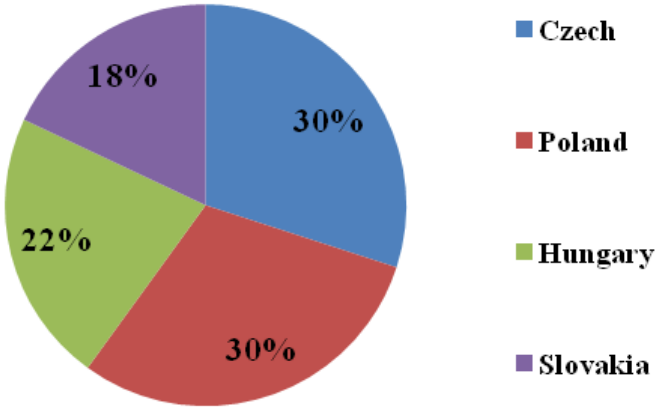
The survey has been taken from the 1st of April to 16th of May 2016.

The high-level experts of gas market and the top-managers of gas companies of the Visegrad region were the participants of survey.

All survey participants were invited via email to answer the questions.

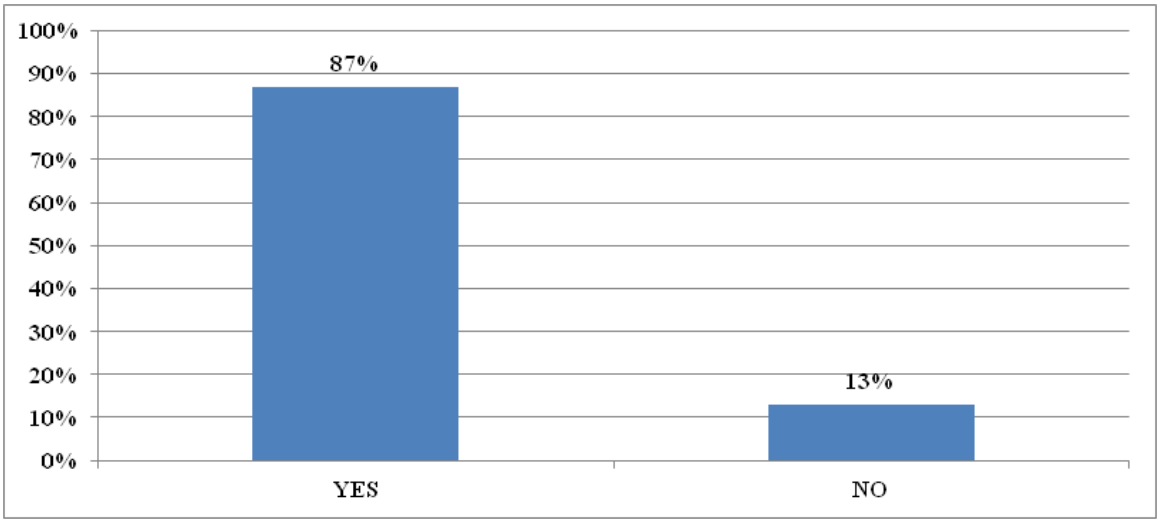
71 questionnaires (to 40 experts and 31 companies) were sent. 23 replies were received (from 13 experts and 10 top-managers).

Participants of the survey



1. One component of the Energy Union strategy is the need for energy security, solidarity and trust among Member States. Is it important for regional cooperation between the V-4 and Contracting Parties of the Energy Community (non-Member States) (to) be equally strengthened?

Yes No



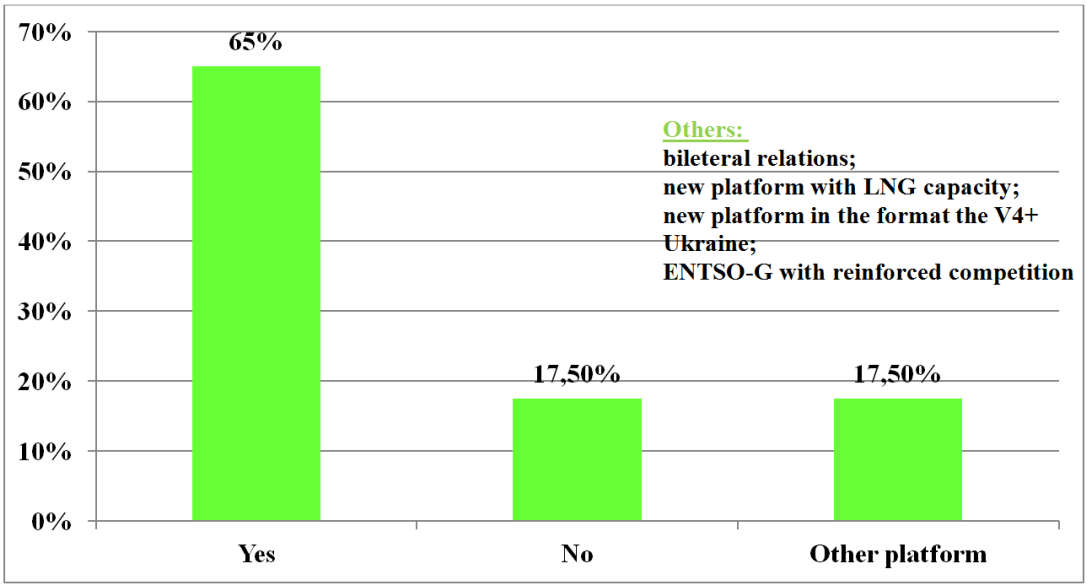
2. One of the Energy Union's fifteen action points is to increase diversification and resilience of the EU's gas supply. Please rank the following Commission objectives for their importance to diversification and resilience in the V-4 (1 most important, 4 least important) :

1. Commission's revised security of supply Regulation
2. Commission's new strategy for LNG and storage
3. Commission ex-ante assessment of Intergovernmental Agreements
4. Commission working with Member States to develop access to alternative suppliers

Rank / Factor	1	2	3	4
1. Commission's revised security of supply Regulation	26%	22%	13%	39%
2. Commission's new strategy for LNG and storage	30%	35%	30%	5%
3. Commission *ex-ante* assessment of Intergovernmental Agreements	35%	26%	22%	17%
4. Commission working with Member States to develop access to alternative suppliers	9%	17%	35%	39%

3. There have been evident divisions between EU Member States of Central and South-Eastern Europe (CSEE)over new pipeline systems connecting to and facilitating gas transit from various incarnations of Russia's South Stream and the Southern Corridor. Is the Central and South-Eastern Europe Gas Connectivity High Level Group (CESEC) a useful platform/format for aligning interests and finding solutions to these disagreements?

Yes If no, why? Other platform

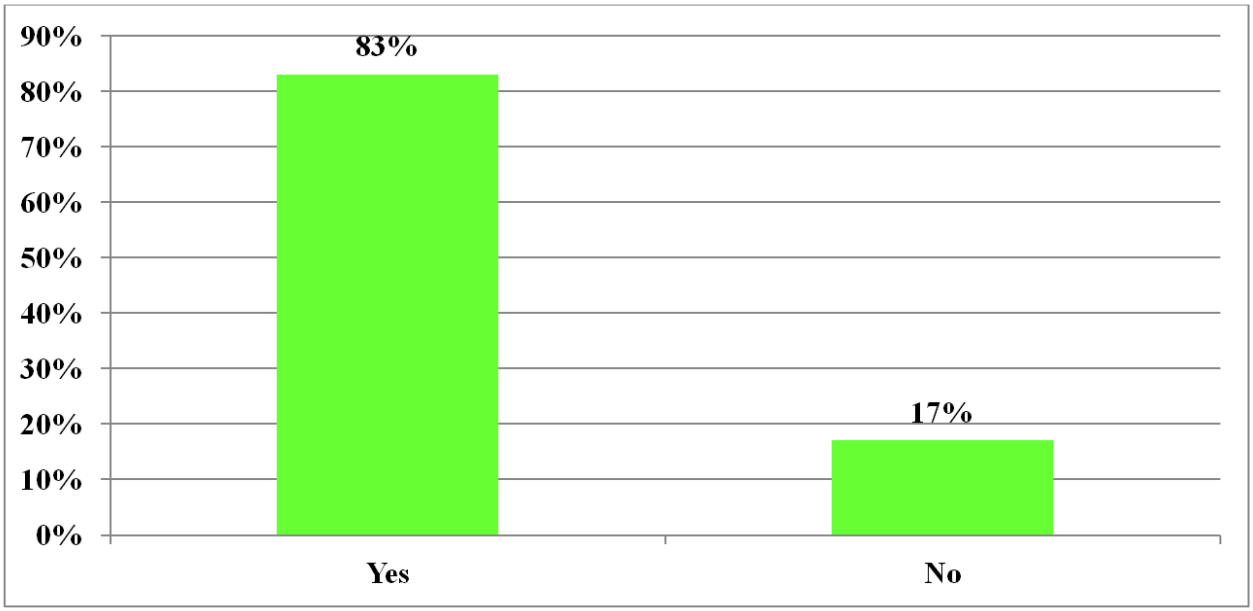


4. The disparity in the level of market development and diversification of natural gas markets between Western and Eastern Europe is recognised in the text of the Energy Union framework. What needs to be done in Brussels, in your assessment, to enhance energy security in Eastern Europe including the V-4?

New security initiative	26%
Common approach in dealing with Russia	22%
Support of develop North-Southern Corridor	39%
Develop cross-border interconnections	43%
Full implementation of the Third Energy Package	13%
Support the integration of regional markets	22%
Focus on energy market policy and high standards	13%
Less regulate energy market	4%
Gas supply regulations should be changed	8%
Cooperate and negotiate closely with gas suppliers in the Caspian region	4%
Build new regasification units in South-Eastern Europe	4%
Facilitate a development a storage	4%

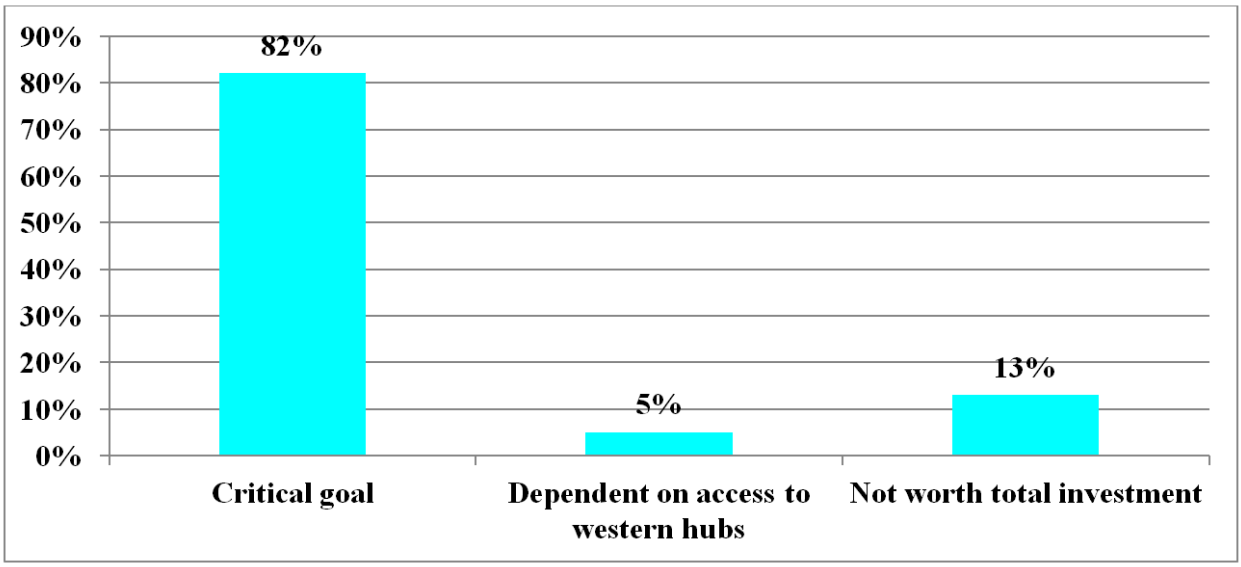
5. Is the Commission's engagement with third party suppliers and transit countries on behalf of Member States important for diversification?

Yes No



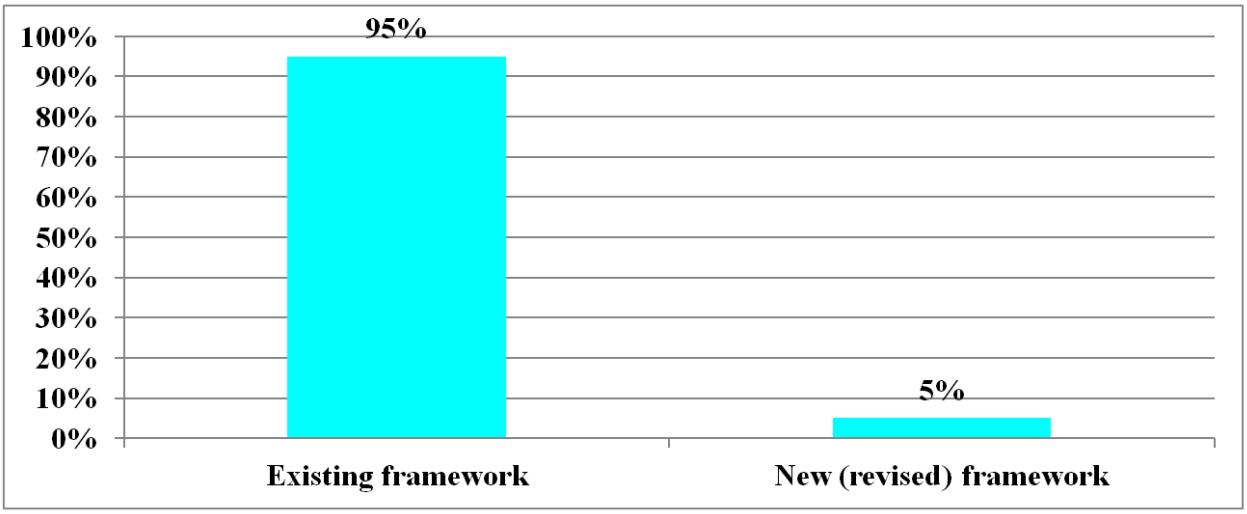
6. How important is a fully functional North-South Corridor - i.e. full access to Polish/ Croatian/Greek LNG and Southern Corridor - to the V-4 region? What other elements of the Corridor are important?

Critical goal **Dependent on access to Western hubs**
Not worth total investment



7. Is continued progress toward full implementation of the Third Energy Package sufficient for a well-functioning EU internal market, or is a new legislative framework necessary?

Existing framework **New (revised) framework**



8. In which area is solidarity/cooperation most probable in the V-4 under Regulation (EC) No 994/2010? Rank the following from most likely to least.

1. Regional N-1 standard
2. Definition of protected customers
3. Market-based mitigation
4. Coordinated curtailment
5. Cross-border access to storage

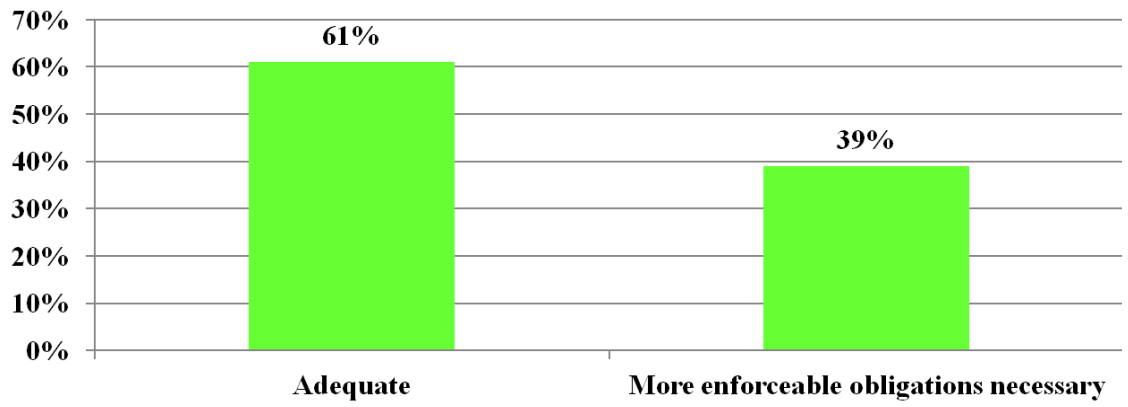
Rank / Factor	1	2	3	4	5
1. Regional N-1 standard	57%	17,50%	5%	5%	17,50%
2. Definition of protected customers	26%	26%	26%	13%	13%
3. Market-based mitigation	0%	22%	43%	26%	8,50%
4. Coordinated curtailment	8,50%	26%	13%	30%	22%
5. Cross-border access to storage	8,50%	8,50%	13%	26%	39%

9. Are existing fora (ENTSOG, Gas Storage Europe, Gas Infrastructure Europe, transparency platforms) and EU framework (SoS and REMIT) on a regional level adequate to ensure security of supply?

Adequate More enforceable obligations necessary

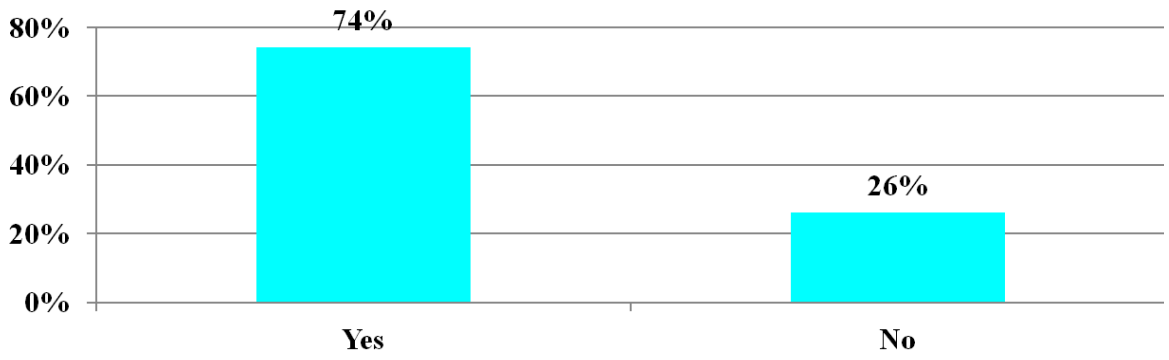
If not, does the new draft security of supply regulation introducing obligatory regional cooperation address the problem?

Yes No



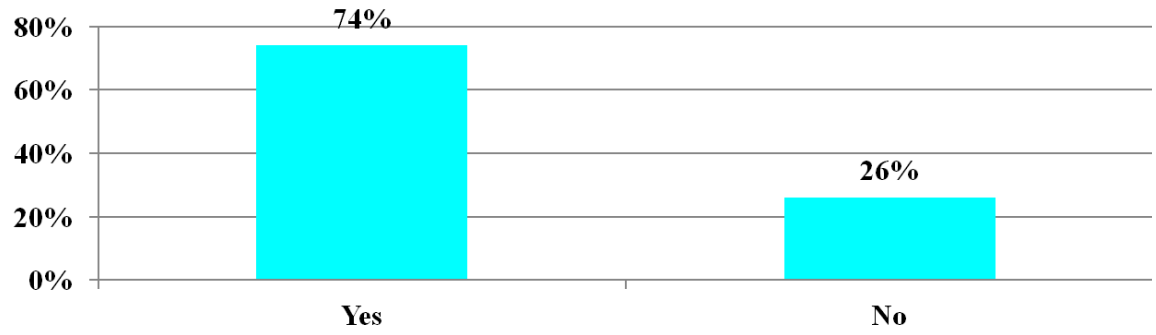
10. Should the Commission have increased powers to coordinate regional emergencies and ensure borders are not closed or interconnection capacities not reduced?

Yes **No**



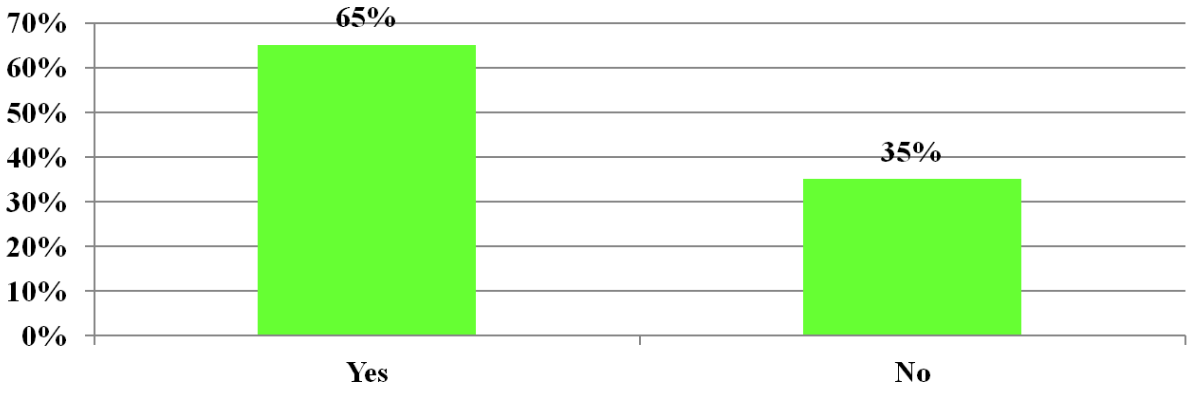
11. Are you in favour of the Commission establishing an ex-ante information exchange mechanism with regard to intergovernmental agreements between Member States and third parties?

Yes **No (please explain)**



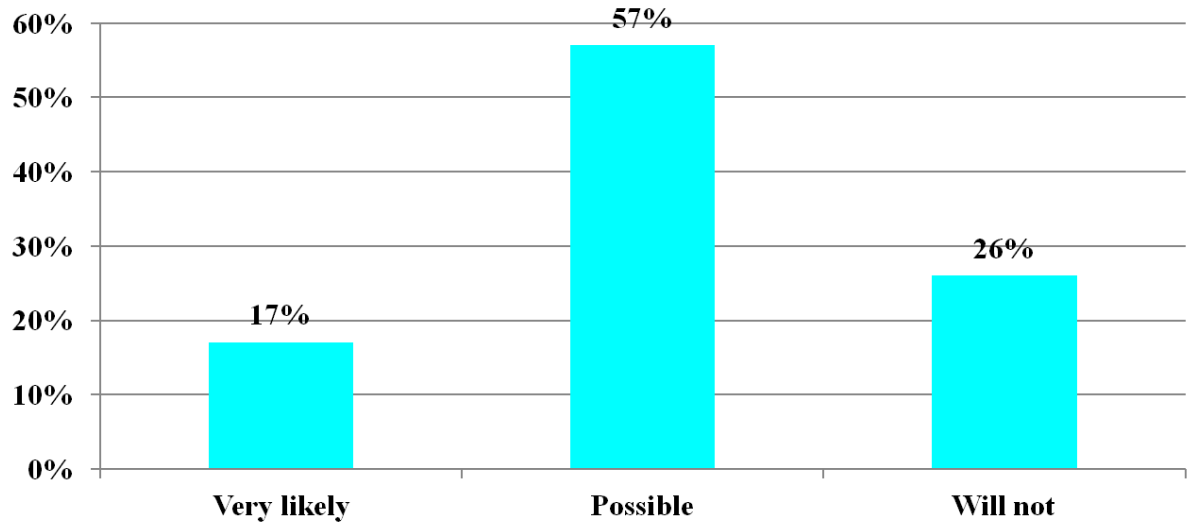
12. Is the value of storage (system flexibility, balancing, security of supply) adequately reflected under current SoS regulation?

Yes **No (please explain)**



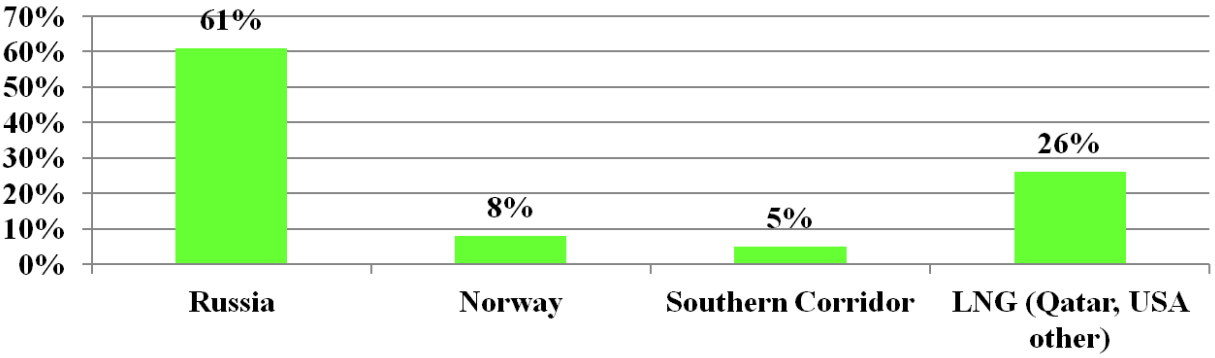
13. What is the likelihood, in your assessment, that Russia will cut all of its Ukraine transit in 2019?

Very likely **Possible** **Will not**



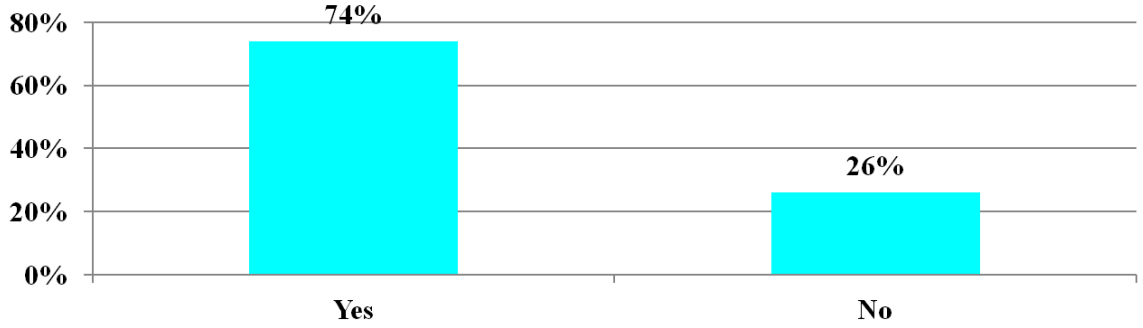
14. In the medium to long-term, which is the most promising supplier to the V-4 (choose one)?

Russia **Norway** **Southern Corridor**
LNG (Qatar, USA, Australia) **Other**



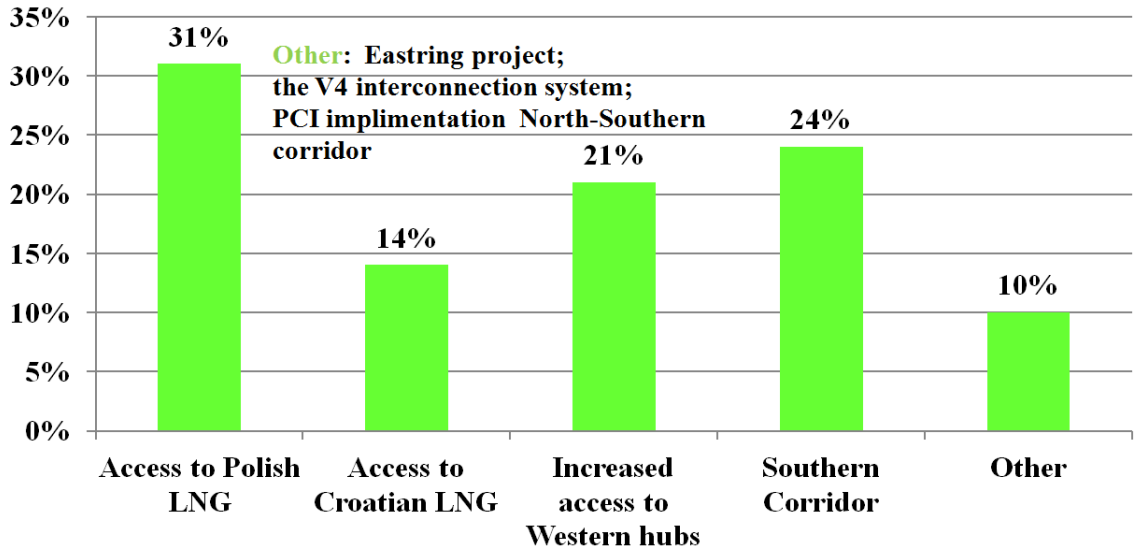
15. Can Western Ukraine reverse flow and storage contribute to an Eastern European regional hub in the future?

Yes **No**



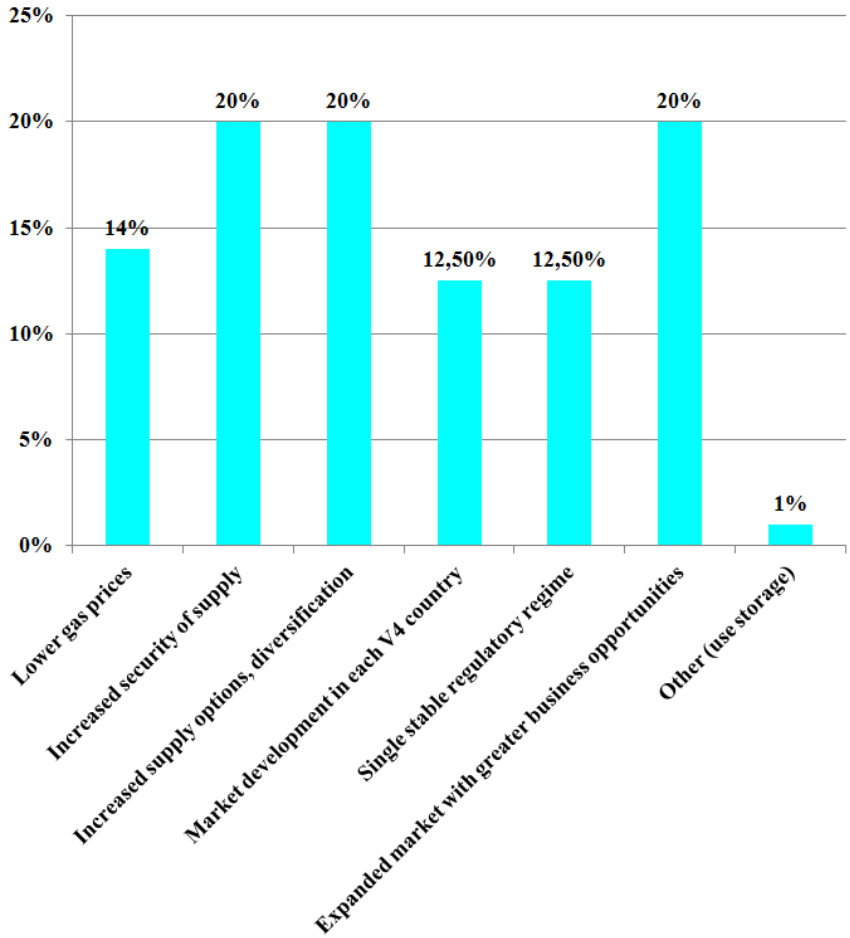
16. Which is most important to V-4 supply-side diversification? Please select two.

Access to Polish LNG **Access to Croatian LNG**
Increased access to Western hubs **Southern Corridor** **Other**

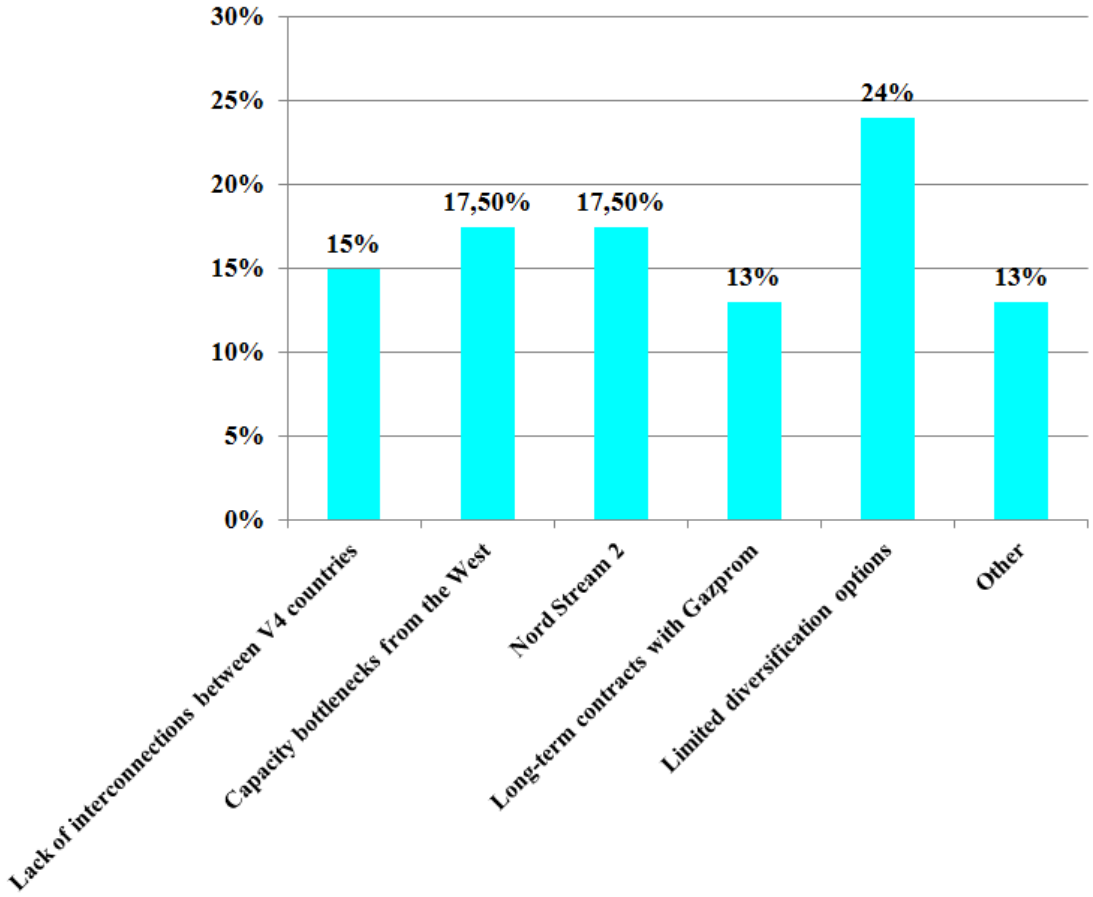


17. From the point of view of your company/institution, what should be the goal of V4 gas cooperation and possible market integration? (you can choose multiple answers)

Lower gas prices **Increased security of supply** **Single stable regulatory regime**
Increased supply options, diversification **Market development in each V4 country**
Expanded market with greater business opportunities **Other (specify)**



18. Most important current challenges to supply security of V4 states. Please select two.
Lack of interconnections between V4 countries Capacity bottlenecks from the West Nord Stream 2 Long-term contracts with Gazprom Limited diversification options Other



Other: Eastring project; regulatory environment; lack of liquide hubs; missing North-South connections; lack dimensioned transit connections.

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The aim of **the Regional Centre for Energy Policy Research (REKK)** is to provide professional analysis and advice on networked energy markets that are both commercially and environmentally sustainable.

REKK has performed comprehensive research, consulting and teaching activities on the fields of electricity, gas and carbon-dioxide markets since 2004. REKK's analyses range from the impact assessments of regulatory measures to the preparation of individual companies' investment decisions. The core staff of REKK includes former regulators, university teachers from the field of Economics of Regulation, Statistics, Environmental Economics and Business Sciences. Besides the full-time research and consultant fellows REKK has a solid basis of senior international external experts who work with REKK on a project basis. Having a number of international projects on REKK's record it is a well-known organisation in the Danube region.

REKK has developed wholesale regional market models for the whole European Electricity Market (EEMM) and a wholesale regional gas market model for the Danube Region (DRGMM). These models were proven by several research and consultancy assignments to be a useful tool to address broad regional questions, ranging from gas and electricity consumption and price forecasts to security of supply and renewable energy related issues.

The **Slovak Foreign Policy Association (SFPA)** is a foreign policy think-tank based in Bratislava, Slovakia. Since 1993 the mission of SFPA has been to conduct high-quality, independent research and, on the basis of that research, to provide innovative practical recommendations for policy and decision-makers.

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NATIONAL CENTRE FOR STRATEGIC STUDIES (NCSS)

MARSZAŁKOWSKA 58/3 STREET
00-545 WARSAW

PHONE: +48 (22) 251-11-77
FAX: +48 (22) 127-20-12
E-MAIL: OFFICE@NCSS.ORG.PL